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Information Resources on the

Care and Welfare of Cats

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ANIMAL WELFARE INFORMATION CENTER

Information Resources on the Care and Welfare of Cats

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Introduction

A bibliography and web site resources related to the housing, husbandry, health and welfare of cats.

This bibliography about the use of cats in research is organized in sections based on topics of interest for scientists and others who are using or plan to use cats in research. Many of the records would also be useful to cat owners, veterinarians and veterinary technicians. The eight sections or categories of the bibliography are: alternatives, diabetes, environmental enrichment, housing, nutrition, pharmacology, research models and surgical techniques. Ninety-four percent of the citations in this work can be identified with an international standard serial number (ISSN), international standard book number (ISBN), dissertation or National Agricultural library call numbers. A high percentage of records without a number can be searched on the Internet by a uniform resource locator (URL).

Multiple sources were searched for citations published between the years 1974 to 2007. The sources of information include peer-reviewed journals, conference proceedings, theses, annual reports, dissertations, books, monographs, letters, web pages, reviews, and patents.

Diabetes and its assorted physiological disorders are so prevalent in older, obese cats that a category was designated for that illness. In many of the records this disease in cats is studied as a model for maturity onset or type II diabetes in humans. In the United States, approximately eighteen million people are affected with this form of diabetes. Many other diseases and physiological systems of the cat are also studied as models for humans. Feline immunodeficiency virus is used to study human immunodeficiency virus and feline leukemia is used as a model to study leukemia in humans. The nutrition section has a number if citations focused on amino acid requirements or deficiencies in cats. A large percentage of the studies cited are related to neurological, hearing and vision disorders, and research.

As warm-blooded vertebrates, cats used in research are one of the many species protected by the Federal Animal Welfare Act. USDA inspectors review laboratory facilities and research protocols in studies where cats are used for compliance with animal welfare regulations.

This bibliographic information is an update to an earlier Animal Welfare Information Center, Quick Bibliography, The Cat, QB 94-25, ISSN: 1052-5378.

Information on how to request materials that are included in the collection of the USDA's National Agricultural Library (NAL) may be found online at: http://www.nal.usda.gov/services/request.shtml.

Readers are cautioned as to the dynamic nature of the internet and the fact that Web addresses and content are subject to change. All sites are current as of April 2007.

Alternatives

Aguirre, A., A. Escobar, V. Ferreira, M.C. Molina, A. Ferreira, and J.C. Aguillon (2003). **An anti-human recombinant tumor necrosis factor alpha (TNF alpha) monoclonal antibody recognizes an epitope in feline TNF alpha.** *Veterinary Research* 34(2): 177-184. ISSN: 0928-4249.

NAL Call Number: SF602 .A5

Abstract: It is likely that the murine response to human recombinant TNF alpha (hrTNF alpha) may generate antibodies (Ab) to epitopes present in TNF alpha from other species. Here, we demonstrate that F5 anti-hrTNF alpha monoclonal antibody (mAb) recognizes feline TNF alpha while E8 anti-hrTNF alpha mAb failed to do so. In order to demonstrate that E8 and F5 mAb recognize different epitopes in the hrTNF alpha molecule, a constant concentration of E8 and variable concentrations of F5 were incubated with solid phase bound hrTNF alpha. Binding of E8 and F5 to hrTNF alpha was determined with anti-mu and gamma chain specific Ab. F5 bound equally to hrTNF alpha in the presence or absence of E8 and the same amount of E8 bound to hrTNF alpha, in spite of the presence of F5. When using the E8 and F5 mAb for capturing the TNF alpha from the equine, canine, feline and bovine species, in supernatants of an ex vivo lipopolysaccharide (LPS)-stimulated whole blood cell culture, we only detected the feline TNF alpha by F5 mAb ($p = 0.001$). By a cytotoxic assay on L929 fibroblasts, we indeed demonstrated the feline TNF alpha production after the LPS stimulus. In an inhibition assay, the human and feline cytokines competed for F5, although the inhibition of native human TNF alpha binding to F5 was significant but only about 20% ($p = 0.001$). In conclusion, most likely the F5 anti-hrTNF alpha mAb recognizes an epitope in feline TNF alpha. Its immunomodulatory potential in the feline model remains to be studied.

Descriptors: monoclonal antibodies, cross reactions, epitopes, tumor necrosis factor alpha, cats, cattle, cell line, dogs, horses, mice, radioimmunoassay, recombinant proteins, species-specificity, tumor necrosis factor alpha analysis.

Albarellos, G.A., R.R. Bonafine, V.E. Kreil, L.A. Ambros, L. Montoya, and R.E. Hallu (2003). **A non-surgical jugular catheterization technique for multiple blood sampling in cats.** *Laboratory Animal* 37(3): 188-192. ISSN: 0093-7355.

NAL Call Number: QL55.A1L33

Abstract: In order to perform pharmacokinetic studies involving multiple blood sampling, repeated at variable intervals of time, a simple and reliable non-surgical jugular catheterization technique was developed. Six cats were catheterized 48 times using an indwelling through-the-needle type catheter (22G and 20.3 cm) placed into the jugular vein through an over-the-needle type (20G and 32 mm). Catheters remained in place for 1-13 days (median 3 days) without loss of patency until removal. Each jugular was catheterized a range of 2-6 times, with a total indwelling time of 4-33 days. No clinical signs of phlebitis, thrombosis or sepsis were observed either during or after the studies. This technique allows an easy, non-painful, non-stressful blood withdrawal during extended sampling periods, with minimal damage of the veins.

Descriptors: blood specimen collection, catheterization, cats, jugular veins, specimen collection, catheterization.

Alef, M. and G. Oechtering (1995). **Nichtinvasive Patientenueberwachung in der Tiermedizin: Pulsoxymetrie und Kapnographie. Teil 2: Kapnographie [Non-invasive monitoring in veterinary medicine: Pulse oximetry and capnography. Part 2: Capnography]**. *Tieraerztliche Praxis* 23(1): 1-6. ISSN: 0303-6286.
NAL Call Number: SF603 .V4
Descriptors: horses, dogs, cats, surgical operations, anesthesia, monitoring, breathing, functional disorders, measurement, carbon dioxide, anoxia, disorders, equidae, functional disorders, gas exchange, oxides, perissodactyla, physiological functions, respiratory disorders.
Language of Text: German; Summaries in German and English.

Alix, C., F. Koehren, J.P. Martin, A. Kirn, and J. Braunwald (1998). **A thermoresistant strain of feline immunodeficiency virus (FIV) with an altered cytopathic effect and a restricted cell tropism.** *Archives of Virology* 143(11): 2093-2107. ISSN: 0304-8608.
NAL Call Number: 448.3 Ar23
Descriptors: env gene, envelope glycoproteins, nucleotide sequences, amino acids, genbank, y10614 .

American College of Veterinary Radiaology (2001). **Annual Meeting of the American College of Veterinary Radiology**. *Veterinary Radiology and Ultrasound* 42(6): 576-593. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: MRI, osteoarthritis, diagnosis, tumor treatment, neoplasms, CAT.

Amzica, F., M. Massimini, and A. Manfridi (2002). **Spatial buffering during slow and paroxysmal sleep oscillations in cortical networks of glial cells in vivo.** *The Journal of Neuroscience* 22(3): 1042-1053. ISSN: 0270-6474.
Abstract: The ability of neuroglia to buffer local increases of extracellular K(+) has been known from in vitro studies. This property may confer on these cells an active role in the modulation and spreading of cortical oscillatory activities. We addressed the question of the spatial buffering in vivo by performing single and double intraglial recordings, together with measures of the extracellular K(+) and Ca(2+) concentrations ([K(+)](out) and [Ca(2+)](out)) in the cerebral cortex of cats under ketamine and xylazine anesthesia during patterns of slow sleep oscillations and spike-wave seizures. In addition, we estimated the fluctuations of intraglial K(+) concentrations ([K(+)](in)). Measurements obtained during the slow oscillation indicated that glial cells phasically take up part of the extracellular K(+) extruded by neurons during the depolarizing phase of the slow oscillation. During this condition, the redistribution of K(+) appeared to be local. Large steady increases of [K(+)](out) and phasic potassium accumulations were measured during spike-wave seizures. In this condition, [K(+)](in) rose before [K(+)](out) if the glial cells were located at some distance from the epileptic focus, suggesting faster K(+) diffusion through the interglial syncytium. The simultaneously recorded [Ca(2+)](out) dropped steadily during the seizures to levels incompatible with efficient synaptic transmission, but also displayed periodic oscillations, in phase with the intraseizure spike-

wave complexes. In view of this fact, and considering the capability of K(+) to modulate neuronal excitability both at the presynaptic and postsynaptic levels, we suggest that the K(+) long-range spatial buffering operated by glia is a parallel synchronizing and/or spreading mechanism during paroxysmal oscillations.
Descriptors: biological clocks, cerebral cortex, egtazic acid, nerve net, neuroglia, sleep, action potentials, action potentials, anesthesia, calcium, cats, cerebral cortex, chelating agents, egtazic acid, electroencephalography, membrane potentials, neuroglia, neurons, neurons, potassium, seizures, signal processing, computer assisted.

Andersen, P.R., T.P. O'connor, and Q.J. Tonelli (1997). **Polypeptides of feline t-cell lymphotrophic lentivirus**. *Official Gazette of the United States Patent and Trademark Office Patents* 1201(2): 1335. ISSN: 0098-1133.
NAL Call Number: T223. A21
Descriptors: biochemistry and molecular biophysics, general life studies, microbiology, biotechnology, lentivius, polypeptides, feline, patents .

Andolina, I.M., H.E. Jones, and a.M. Sillito (1998). **Pop-out processing at the sub-cortical level of the feline visual pathway**. *Society for Neuroscience Abstracts* 24(1-2): 139. ISSN: 0190-5295.
NAL Call Number: QP351. S6
Descriptors: nervous system, neural coordination, vision pathway, feline.

Antzelevitch, C. and A.C. Zygmunt (2001). **Experimental models to assess the role of heterogeneous repolarization in arrhythmogenesis**. In: *Myocardial Repolarization: From Gene to Bedside*, Futura Publishing Company Inc. Armonk, New York, USA, p. 89-116. ISBN: 0879934778.
Descriptors: cardiovascular medicine, membranes, cell biology, molecular, Brugada syndrome, heart disease model, electorcardiography, physiological method, arrhythmogenesis, myocardial repolarization.

Armbrust L .J., Hoskinson J. J., and Michiels L.M. and Milliken G. A. (2003). **Gastric emptying in cats using foods varying in fiber content and kibble shapes.** *Veterinary Radiology and Ultrasound* (3): 339-343. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Abstract: The purpose of this study is to evaluate the influence of kibble shape and fiber content of commercial dry foods on gastric emptying in healthy cats. Eight healthy cats were used to evaluate four different diets which varied in shape of kibble (round versus triangle) or fiber content (low versus high). Diets were labeled with 99mTc-mebrofenin and gastric emptying was evaluated with nuclear scintigraphy. There was a significant difference between the kibble shapes at both T50 and T20. The triangle shaped kibble required significantly longer time than the round kibble to reach T50 (P +AD0- 0.02) and T20 (P +AD0- 0.001). Diet fiber content did not have a significant influence on T50, and T20. The influence of caloric and water intake was assessed with division of cats into high, medium, and low intake groups. The caloric intake had its main effect at T50 with the lowest quartile of caloric intake requiring significantly less time to reach T50 than the middle group and upper quartile (P +AD0- 0.05). Water intake did not have a significant effect on gastric emptying in this study. There was no relationship or correlation between

the surface area of the food (cm2/kg) and T90, T50, and T20.
Descriptors: animal feed, cats, dietary fiber analysis, gastric emptying, reference values, stomach radionuclide imaging, technetium tc 99m disofenin diagnostic use.

Balasubramanian, S. and D. Kuppuswamy (2003). **Rgd-containing peptides activate s6k1 through beta3 integrin in adult cardiac muscle cells.** *Journal of Biological Chemistry* 278(43): 42214-42224. ISSN: 0021-9258.
NAL Call Number: 381
Descriptors: cardiovascular system, feline cardiomyocytes, integrins, cell growth, endocytic vesicles, cardiac hypertropHy, enzyme, p706S6 kinase, beta 3 integrin, beta 1 integrin, rapamycin.

Ballevre, O.P., J. Ambrose, C. Piguet, H. Schierbeek, and F. Chauffard (1996). **Energy expenditure of adult cats estimated using the doubly-labelled-water method, indirect calorimetry and activity monitoring**. *Proceedings of the Nutrition Society* 55(1): 129A. ISSN: 0029-6651.
NAL Call Number: 389.9 N953
Descriptors: metabolism, techniques, non invasive method, energy expenditure measurements, cats, doubly labelled water, indirect calorimetry, activity monitoring, meeting abstract.

Bandyopadhyay, S., C. Rajkhowa, and U.K. Hazarika (1996). **A computer programme for identification of parasite eggs and larvae**. *Journal of Veterinary Parasitology* 10(2): 197-199. ISSN: 0304-4017.
NAL Call Number: SF810.V4
Descriptors: helminths, helminth ova, oocysts, nematode larvae, poultry, domestic animals, livestock, morphology, keys, parasites, identification, computer software, protozoa, sheep, goats, cattle, dogs, pigs, man.

Banerji, N., X. Li, J.S. Klausner, V. Kapur, and S. Kanjilal (2002). **Evaluation of in vitro chemosensitivity of vaccine-associated feline sarcoma cell lines to vincristine and paclitaxel.** *American Journal of Veterinary Research* 63(5): 728-732. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: vincristine, antineoplastic agents, sarcoma, cell lines, in vitro culture, viability, susceptibility.

Barger, A.M. (2003). **The complete blood cell count: A powerful diagnostic tool**. *Veterinary Clinics of North America, Small Animal Practice* 33(6): 1207-1222. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: blood disorders, diagnosis, diagnostic techniques, erythrocytes, hematology, leukocytes, platelets, cats.

Barnes, K.V., G. Cheng, M.M. Dawson, and D.R. Menick (1997). **Cloning of cardiac, kidney, and brain promoters of the feline ncx1 gene**. *Journal of Biological Chemistry* 272(17): 11510-11517 . ISSN: 0021-9258.
Descriptors: cardiovascular system, feline ncx1 gene, molecular, biochemistry and molecular biophysics, urinary system, homeostasis, alpha adrenergic stimulation, calcium

efflux, calcium homeostasis, cardiac hypertropHy, circulatory system, cloning, excretory system, exons, heart, heart disease, kidney, brain, mRNA, ncx1 gene promoters, nervous system, sodium calcium exchanger, tissue specific promoters.

Bartlett, M.S., M.P. Goheen, C.H. Lee, M.M. Shaw, M.M. Durkin, and J.W. Smith (1994). **Close association of *Pneumocystis carinii* from infected rat lung with culture cells as shown by light and electron microscopy.** *Parasitology Research* 80(3): 208-15. ISSN: 0932-0113.
NAL Call Number: QL757 P377
Abstract: Studies of the association of rat-origin *Pneumocystis carinii* with culture cells were performed both to learn more about the role of cells in *P. carinii* culture and to evaluate additional cell lines in an effort to improve culture methods. Proliferation of trophozoites of *P. carinii* from rat lung in cultures with six lung cell lines was demonstrated by light microscopic evaluations of both Giemsa-stained and immune-specific-stained culture samples. Scanning electron microscopy and transmission electron microscopy were used to study the organism's interaction with culture cells and demonstrated a close association of *P. carinii* with cells in cell lines that supported growth. Proliferation with the MVILU line was suboptimal and there was less organism interaction with these cells than with other cell lines that allowed proliferation. Two cell lines evaluated, Chinese Hamster ovary CHOKI and CHOLEKI, did not allow proliferation and had no association of *P. carinii* with cells. Scanning and transmission electron micrographs demonstrated the close association of organisms with rat fetal lung (RFL), human embryonic lung (HEL), human diploid lung (HFL), and feline embryonic lung (AKD) culture cells. It appears that the association of rat-origin P. carinii with cells is essential for parasite proliferation in short-term culture.
Descriptors: lung microbiology, pneumocystis growth and development, pneumonia, pneumocystis microbiology, cell line, cells, cultured, cricetulus, hamsters, lung ultrastructure, electron microscopy, electron microscopy, scanning transmission, pneumocystis ultrastructure, rats, feline cells.

Baumann, J.G., W.H. Guenzburg, and B. Salmons (1998). **Crfk feline kidney cells produce an rd114-like endogenous virus that can package murine leukemia virus-based vectors**. *Journal of Virology* 72(9): 7685-7687. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: feline kidney cell line CrFK, molecular, cell culture, molecular biophysics, viral factors, viral infectivity, viral vector packaging, RD114 like endogenous virus production, murine leukemia.

Beaumont, S.L., D.J. Maggs, and H.E. Clarke (2003). **Effects of bovine lactoferrin on in vitro replication of feline herpesvirus**. *Veterinary Ophthalmology* 6(3): 245-250. ISSN: 1463-5216.
NAL Call Number: SF891 .V47
Descriptors: in vitro culture, lactoferrin, viral replication, cats, feline herpesvirus.

Besso, J. (1996). **Imagerie medicale. Le contraste abdominal [Diagnostic imaging. The abdominal contrast]**. *Le Point Veterinaire* 28(177): 83-87. ISSN: 0303-4997.
NAL Call Number: SF602.P6

Descriptors: cats, abdomen, radiography, analytical, body parts, body regions.
Language of Text: French.

Binns, S.H., D.D. Sisson, D.A. Buoscio, and D.J. Schaeffer (1995). **Doppler ultrasonographic, oscillometric sphygmomanometric, and photoplethysmographic techniques for noninvasive blood pressure measurement in anesthetized cats.** *Journal of Veterinary Internal Medicine* 9(6): 405-14. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Abstract: Blood pressure (BP) measurements obtained using 3 indirect BP measuring instruments, a Doppler ultrasonic flowmeter, an oscillometric device, and a photoplethysmograph, were compared with direct arterial pressure measurements in 11 anesthetized cats. The standard deviation of the differences (SDD) between direct and indirect pressure measurements were not significantly different from each other ($P < .01$), and ranged from 10.82 to 24.32 mm Hg. The high SDD values indicate that indirect BP estimates obtained with all these devices must be interpreted cautiously in individual patients. The mean errors (calculated as the sum of the differences between direct and indirect pressure measurements divided by the number of observations) of the 3 indirect devices were significantly different for systolic (SAP), diastolic (DAP), and mean (MAP) arterial pressures ($P < .05$). The Doppler and photoplethysmographic devices had the highest overall accuracy, as indicated by mean error values of less than 10 mm Hg. Correlation coefficients varied from .88 to .96 for the Doppler flowmeter, and from .85 to .94 for the photoplethysmograph; for both devices, the regression line slopes were close to unity. The Doppler flowmeter detected a pulse under all experimental conditions. The photoplethysmograph was also efficient in obtaining BP measurements, obtaining over 90% of SAP, DAP, and MAP readings attempted. The oscillometric device was the least accurate, with mean error values varying from 10 to 22 mm Hg. Correlation coefficients were high (.90 to .94) for this device, but the slopes of the regression lines were 0.7 to 0.8, indicating a trend for increased error at higher BP. The oscillometric device tended to underestimate BP by increasing amounts as the BP increased. The oscillometric device was the least efficient device for obtaining BP measurements ($P < .01$).
Descriptors: anesthesia, pressure, cats, analysis of variance, bias epidemiology, oscillometry, photoplethysmography, regression analysis, ultrasonography, doppler.

Blackwood, L., P.J. O'shaughnessy, S.W.J. Reid, and D.J. Argyle (2001). ***E. Coli* nitroreductase/cb1954: in vitro studies into a potential system for feline cancer gene therapy**. *Veterinary Journal* 161(3): 269-279. ISSN: 1090-0233.
NAL Call Number: SF601.V484
Descriptors: cancer, feline thyroid disease, feline neoplasia, treatment, gene therapy, therapeutic method, transfection, molecular genetic method, nitroreductase, in vitro, feline cells, prodrug, CB1954, feline thyroglobulin, *E Coli* nitroreductase.

Blackwood, L., D.E. Onions, and D.J. Argyle (2001). **Characterization of the feline thyroglobulin promoter**. *Domestic Animal Endocrinology* 20(3): 185-201. ISSN: 0739-7240.
NAL Call Number: QL868 .D6
Descriptors: polymerase chain reaction, DNA amplification, feline thyroglobulin

promoter, sequencing techniques, analytical method, feline thyroid disease, somatic gene therapy.

Bond, R., L. Wren, and D.H. Lloyd (2000). **Adherence of *Malassezia pachydermatis* and *Malassezia sympodialis* to canine, feline and human corneocytes in vitro.** *Veterinary Record* 147(16): 454-455. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: feline, corneocytes, *M. pachyderatis*, in vitro, *M. sympodialis*.

Borras, T., C.R. Brandt, R. Nickells, and R. Ritch (2002). **Gene therapy for glaucoma: treating a multifaceted, chronic disease**. *Investigative Ophthalmology and Visual Science* 43(8): 2513-2518. ISSN: 0146-0404.
Descriptors: glaucoma, eye disease, gene therapy, recombinant gene expression, tissue culture, gene expression, intraocular pressure.

Brackett, B.G. (2001). **Advances in animal in vitro fertilization**. In: *Contemporary Endocrinology: Assisted Fertilization and Nuclear Transfer in Mammals*, IX edition, Humana Press Inc. Totowa, New Jersey, USA, p. 21-52. ISBN: 0896036634.
NAL Call Number: QP273.A87
Descriptors: methods, techniques, reproduction, medical sciences, in vitro fertilization, artificial reproduction, animal breeding, endangered species preservation.

Brown, I.E., D.H. Kim, and G.E. Loeb (1998). **The effect of sarcomere length on triad location in intact feline caudofemoralis muscle fibres**. *Journal of Muscle Research and Cell Motility* 19(5): 473-477. ISSN: 0142-4319.
NAL Call Number: QP321.J59
Descriptors: muscular system, skeletal muscle sarcomere, A I junction, feline muscle, caudofemoralis, Z band.

Calia, C.M., S.E. Kirschner, K.E. Baer, and J.D. Stefanacci (1994). **The use of computed tomography scan for the evaluation of orbital disease in cats and dogs.** *Veterinary and Comparative Ophthalmology* 4(1): 24-30. ISSN: 1076-4607.
NAL Call Number: SF891 .P78
Descriptors: cats, dogs, eye diseases, etiology, radiography, neoplasms, infectious diseases, inflammation, analytical, animal morphology.

Chaudhary, K.W., X. Chen, E.I. Rossman, D. Harris, B. Mathew, V. Piacentino, J. Gaughan, and S.R. Houser (2002). **The positive inotropic effects of et-1 on feline ventricular myocytes are mediated through na+/h+, na+/ca2+ exchange, and l-type ca2+ current**. *Biophysical Journal* 82(1 Part 2): 654a. ISSN: 0006-3495.
NAL Call Number: 442.8 B5238
Descriptors: cardiovascular system, transport, circulation, cell biology, feline ventricular myocytes, positive inotropic effect, sodium, calcium exchange.

Cheng, E.J., I.E. Brown, and G.E. Loeb (2000). **Virtual muscle: a computational approach to understanding the effects of muscle properties on motor control.** *Journal of Neuroscience Methods* 101(2): 117-30. ISSN: 0165-0270.

NAL Call Number: RC346
Abstract: This paper describes a computational approach to modeling the complex mechanical properties of muscles and tendons under physiological conditions of recruitment and kinematics. It is embodied as a software package for use with Matlab and Simulink that allows the creation of realistic musculotendon elements for use in motor control simulations. The software employs graphic user interfaces (GUI) and dynamic data exchange (DDE) to facilitate building custom muscle model blocks and linking them to kinetic analyses of complete musculoskeletal systems. It is scalable in complexity and accuracy. The model is based on recently published data on muscle and tendon properties measured in feline slow- and fast-twitch muscle, and incorporates a novel approach to simulating recruitment and frequency modulation of different fiber-types in mixed muscles. This software is distributed freely over the Internet at http://ami.usc.edu/mddf/virtualmuscle.
Descriptors: computational biology, models, neurological, motor activity, muscle, skeletal, software standards, user computer interface, biomechanics, cell size, central nervous system, electromyogrphy, muscle fibers classification, muscle fibers, muscle fibers, muscle, skeletal, muscle, skeletal innervation, tendons, tendons.

Chetboul, V., N. Athanassiadis, C. Carlos, A.P. Nicolle, R. Tissier, J.L. Pouchelon, D. Concordet, and H.P. Lefebvre (2004). **Quantification, repeatability, and reproducibility of feline radial and longitudinal left ventricular velocities by tissue Doppler imaging**. *American Journal of Veterinary Research* 65(5): 566-572. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: analytical, flow, cardiomyopathy, diagnostic techniques, diagnostic value, heart diseases, imagery, muscle contraction, myocardium, quantitative analysis, techniques, velocity, ventricles, cats.

Choi, i.S., S.M. Hash, B.J. Winslow, and E.W. Collisson (2000). **Sequence analyses of feline b7 costimulatory molecules**. *Veterinary Immunology and Immunopathology* 73(3-4): 219-231. ISSN: 0165-2427.
NAL Call Number: SF757.2. V38
Descriptors: immune system, chemical coordination, homeostasis, feline mononuclear cells, reverse transcriptase polymerase chain reaction amplification, RT PCR amplification, sequence analysis, analytical method, amino acid sequence.

Clark, A., W. Herzog, and T. Leonard (2000). **Contact area and pressure distribution in the feline patellofemoral joint under physiological loading conditions**. *Archives of Physiology and Biochemistry* 108(1-2): 173. ISSN: 1381-3455.
NAL Call Number: QP1.A7
Descriptors: computational biology, skeletal system, model, movement, support, biomechanics, feline patellofemoral joint .
Notes: Meeting Information: XIth Congress of the Canadian Society for Biomechanics, Montreal, Quebec, Canada; August 23-26, 2000.

Clark, A.L., W. Herzog, and T.R. Leonard (2002). **Contact area and pressure distribution in the feline patellofemoral joint under physiologically meaningful loading conditions**. *Journal of Biomechanics* 35(1): 53-60. ISSN: 0021-9290.

NAL Call Number: TA166. J6
Descriptors: models, simulations, computational biology, skeletal system, micro indentation transducer, physiological method, biomechanics, feline patellofemoral joint.

Clark, W.a., M.L. Decker, M. Behnke Barclay, D.M. Janes, and R.S. Decker (1998). **Cell contact as an independent factor modulating cardiac myocyte hypertrophy and survival in long-term primary culture**. *Journal of Molecular and Cellular Cardiology* 30(1): 139-155. ISSN: 0022-2828.
Descriptors: cell culture, beta adrenergic agonists, cardiac myocyte, hypertrophy, heart disease, electron microscopy, long term primary myocyte culture, cell contact, contractile force, myocyte survival, morphology.

Couillard, S., W. Herzog, and V. Pery (2000). **In situ cartilage deformation resulting from physiological loading of the feline patello-femoral joint**. *Archives of Physiology and Biochemistry* 108(1-2): 179. ISSN: 1381-3455.
NAL Call Number: QP1.A7
Descriptors: skeletal system, feline patello femeral joint, biomechanics, in situ cartilage deformation.

Cox, C.L., B.A. Summers, D.F. Kelly, and M.T. Cheeseman (1997). **Heterotopic neural tissue in the pharynx of a 7-week-old kitten.** *Journal of Comparative Pathology* 117(1): 95-98. ISSN: 0021-9975.
NAL Call Number: 41.8 J82
Descriptors: kittens, pharynx, nerve tissue, abnormalities, case reports.

Cruz, A.C., C.A. Sutton, and R.J. Avery (1999). **The role of apoptosis in cytopathic killing of tissue culture cells by feline immunodeficiency virus**. *Abstracts of the General Meeting of the American Society for Microbiology* 99: 628. ISSN: 1060-2011.
NAL Call Number: QR1.A5
Descriptors: infection, AIDS, acquired immunodeficiency syndrome, immune system disease, viral disease, apoptosis, tissue culture, cells, feline immunodeficiency virus .

Darkes, M.J.M., S.M.A. Davies, and J.P. Bradshaw (1999). **Membrane-thinning by the feline leukemia virus fusion peptide**. *Biophysical Journal* 76(1 PART 2): A439. ISSN: 0006-3495.
NAL Call Number: 442.8 B5238
Descriptors: cell biology, feline leukemia virus, fusion peptide, membrane thinning .

Day, M.J. and R.K. Sellon (1999). ***Immunity & Disease: The T.G. Hungerford Refresher Course for Veterinarians***, Post Graduate Foundation in Veterinary Science: Sydney, New South Wales, Australia, 350 p.
Descriptors: veterinary, immunologic diseases in animals.

de Bittencourt, R.H., J.C. da Costa, S.K. da Salim, E.M. da Costa, and G.R. Galvao (1999). **Uso dos raios-x e da ultra-sonografia na avaliacao do trato urinario e prostata de caes e gatos. [Use of X-rays and ultrasound imaging to evaluate the uribary tract and prostate glande of cats and dogs]** . *Revista De Ciencias Agrarias*(31): 101-114. ISSN:

1517-591X.
NAL Call Number: S192 .P3E8
Descriptors: dogs, cats, radiography, x rays, ultrasonics, urinary tract, analytical, body parts, radiation, sound, urogenital system.
Language of Text: Portuguese with summaries in English and Portuguese.

De Vos, J.P., A.G. Burm, and B.P. Focker (2004). **Results from the treatment of advanced stage squamous cell carcinoma of the nasal planum in cats, using a combination of intralesional carboplatin and superficial radiotherapy: A pilot study**. *Veterinary and Comparative Oncology* 2(2): 75-81. ISSN: 1476-5810.
NAL Call Number: SF910.T8 V484
Descriptors: carcinoma, combination therapy, disease control, neoplasms, nose, radiotherapy, therapy, cats.

Decker, M.L., D.M. Janes, M.M. Barclay, L. Harger, and R.S. Decker (1997). **Regulation of adult cardiocyte growth: effects of active and passive mechanical loading**. *American Journal of Physiology* 272(6 PART 2): H2902-H2918. ISSN: 0002-9513.
NAL Call Number: 447.8 Am3
Descriptors: cell culture, cell biology, costameres, adult, cardiocyte, cardiovascular system, circulatory system, development, hemodynamic load.

Decker, R.S., D.M. Janes, and M.L. Decker (1997). **Protein degradation modulates load-dependent growth of cultured adult cardiac myocytes**. *Journal of Molecular and Cellular Cardiology* 29(6): A160. ISSN: 0022-2828.
Descriptors: cardiovascular system, cell biology, feline cardiac myocytes, circulatory system, contractile, creatine kinase, cell culture, degradation, load dependent growth, myosin heavy chain, protein .

Dennis, R. (2000). **Use of magnetic resonance imaging for the investigation of orbital disease in small animals.** *Journal of Small Animal Practice* 41(4): 145-155. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: dogs, cats, diagnostic techniques, imagery, eye diseases, diagnostic value, ultrasonography, radiography, neoplasms, inflammation, foreign bodies.

Dennis, R. (1998). **Magnetic resonance imaging and its applications in small animals.** *In Practice* 20(3): 117-124.
Descriptors: dogs, cats, nervous system diseases, nmr spectroscopy, analytical, organic diseases, spectrometry, magnetic resonance imaging, brain diseases, nuclear magnetic resonance.

Dial, E.J. and L.M. Lichtenberger (2002). **Effect of lactoferrin on Helicobacter felis induced gastritis.** *Biochemistry and Cell Biology; Biochimie Et Biologie Cellulaire* 80(1): 113-7. ISSN: 1208-6002.
NAL Call Number: QP501.B642
Abstract: Lactoferrin possesses antibiotic, antiinflammatory, and immune-modulating properties that may be active against the gastritis-, ulcer- and cancer-inducing bacterium

Helicobacter pylori. In vitro testing of bovine and human lactoferrin by several laboratories has shown significant bacteriostatic and bactericidal activity. Subsequent in vivo testing of bovine lactoferrin in animal models of H. pylori infection has shown beneficial effects of this agent. Our laboratory has utilized a mouse model that is infected with the feline strain of this bacterium, H. felis. The resulting gastritis that develops in this model and the effects of bovine lactoferrin and recombinant human lactoferrin (from *Aspergillus niger* var. awamori, Agennix Inc., Houston, Tex.) treatment were assessed by various measures. Infected animals treated with orally administered lactoferrin showed reversals in all parameters. In addition, when recombinant human lactoferrin was used in combination with low doses of amoxicillin or tetracycline, there was an enhancement in gastritis-reducing activity. Possible mechanisms for these effects of lactoferrin are discussed. Lactoferrin has significant, orally active in vivo actions and should be further investigated for clinical situations involving Helicobacter infections where it may have utility when administered alone and also when given in combination with established antibiotic agents.
Descriptors: gastritis, helicobacter, helicobacter infections, lactoferrin, lactoferrin, anti bacterial agents, anti bacterial agents, cell division, clinical trials, animal disease models, helicobacter pathogenicity.

Dias Pereira, P., J. Carvalheira, and F. Gartner (2004). **Cell proliferation in feline normal, hyperplastic and neoplastic mammary tissue - an immunohistochemical study.** *Veterinary Journal* 168(2): 180-185. ISSN: 1090-0233.
NAL Call Number: SF601.V484
Descriptors: feline, cell growth, hyperplastic, neoplastic, mammary.

Dillmann, R.U. (2003). **Diagnosis of arrhythmias in cats - a study to improve arrhythmia diagnosis in cats with computer-assisted ECG registration and analysis methods (PC-EKG) [Arrhythmieerkennung bei der Katze - eine Studie zur verbesserten Diagnose von Herzrhythmusstorungen unter Anwendung von computergestutzten]**. *Aufzeichnungs Und Analysemethoden* 108
Descriptors: arrhythmia, cardiac rhythm, diagnosis, diagnostic techniques, electrocardiograms, heart, cats.
Language of Text: German; Summary in English.

Doppenberg, E.M.R., A. Zauner, J.C. Watson, and R. Bullock (1998). **Determination of the ischemic threshold for brain oxygen tension**. *Acta Neurochirurgica* 71(Suppl.): 166-169. ISSN: 0065-1419.
Abstract: Special Supplement on intracranial pressure and neuromonitoring in brain injury
Descriptors: cardiovascular system, nervous system, neural coordination, Craniocerebral Trauma, middle cerebral artery occlusion, Arterial Occlusive Diseases, nervous system disease, vascular disease, cerebral flow, cats.
Notes: Meeting Information: Proceedings of the Tenth International ICP Symposium, Williamsburg, Virginia, USA; May 25-29, 1997.

Dunham, S.P. and J. Bruce (2004). **Isolation, expression and bioactivity of feline granulocyte-macrophage colony-stimulating factor**. *Gene* 332(May 12): 97-106. ISSN:

0378-1119.
NAL Call Number: QH442 .A1G4
Descriptors: dendritic cells, cell biology, feline immunopathology, vaccine adjuvant, immune system, feline granulocyte macropHage colony stimulating factor, reverse transcriptase polymerase chain reaction, feline bone marrow cell culture.

Duong, T.Q., S.C. Ngan, K. Ugurbil, and S.G. Kim (2002). **Functional magnetic resonance imaging of the retina.** *Investigative Ophthalmology and Visual Science* 43(4): 1176-1181. ISSN: 0146-0404.
Abstract: PURPOSE: This study explored the feasibility of mapping the retina's responses to visual stimuli noninvasively, by using functional magnetic resonance imaging (fMRI). METHODS: fMRI was performed on a 9.4-Tesla scanner to map activity-evoked signal changes of the retina-choroid complex associated with visual stimulation in anesthetized cats (n = 6). Three to 12 1-mm slices were acquired in a single shot using inversion-recovery, echo-planar imaging with a nominal in-plane resolution of 468 x 468 microm(2). Visual stimuli were presented to the full visual field and to the upper and lower visual fields. The stimuli were drifting or stationary gratings, which were compared with the dark condition. Activation maps were computed using cross-correlation analysis and overlaid on anatomic images. Multislice activation maps were reconstructed and flattened onto a two-dimensional surface. RESULTS: fMRI activation maps showed robust increased activity in the retina-choroid complex after visual stimulation. The average stimulus-evoked fMRI signal increase associated with drifting-grating stimulus was 1.7% +/- 0.5% (P < 10(-4), n = 6) compared with dark. Multislice functional images of the retina flattened onto a two-dimensional surface showed relatively uniform activation. No statistically significant activation was observed in and around the optic nerve head. Hemifield stimulation studies demonstrated that stimuli presented to the upper half of the visual field activated the lower part of the retina, and stimuli presented to the lower half of the visual field activated the upper part of the retina, as expected. Signal changes evoked by the stationary gratings compared with the dark basal condition were positive but were approximately half that evoked by the drifting gratings (1.0% +/- 0.1% versus 2.1% +/- 0.3%, P < 10(-4)). CONCLUSIONS: To the best of our knowledge, this is the first fMRI study of the retina, demonstrating its feasibility in imaging retinal function dynamically in a noninvasive manner and at relatively high spatial resolution.
Descriptors: magnetic resonance imaging, retina, cats, choroid, photic stimulation, visual fields.

Durymanov, A.G. and A.M. Shestopalov (1999). **A new continuous feline kidney cell culture (fk-91) promising for reproduction of the carnivore parvoviruses**. *Biotekhnologiya*(6): 42-44. ISSN: 0234-2758.
Descriptors: continuous feline kidney cell line 91, cell culture, laboratory equipment, continuous microbial reproduction, parvovirus.
Language of Text: Russian.

Durymanov, A.G. and A.M. Shestopalov (1999). **A promising continuous feline kidney cell culture (FK-91) for reproduction of parvoviruses**. *Biotekhnologiya* 15(6): 42-44. ISSN: 0234-2758.

Descriptors: cell lines, in vitro, viral diseases, dog diseases, Parvoviridae, mink, cats.
Language of Text: Russian; Summary in English.

Ebermaier, C. (1999). ***Vergleichende Untersuchung zur konventionellen und digitalen Radiogrphie bei Hund and Katze [Comparative examination of conventional and digital radiography in dogs and cats]***. Dissertation, Tierarztliche Hochschule Hannover: Hannover, Germany. 147 p.
NAL Call Number: DISS F1999060
Descriptors: conventional radiography, digital radiography, cats.
Language of Text: German with a summary in English.

Eilts, B.E., D.L. Paccamonti and C. Pinto (2003). **Artificial insemination in the dog**. In: M.V. Root Kustritz *Small Animal Theriogenology*, Butterworth Heinemann: St. Louis, USA, p. 61-95. ISBN: 0750674083.
Descriptors: artificial insemination, conception rate, frozen semen, handling, insemination, semen, cats.

Eken, E.G.M. (2002). **The influence of stomach volume on the liver topography in cats.** *Anatomia, Histologia, Embryologia* 31(2): 99-104. ISSN: 0340-2096.
NAL Call Number: SF761.A1G4
Abstract: The aim of this study has been to describe the effect of varying degrees of fullness of the stomach on liver topography in cats by means of the sectional anatomy of the abdominal cavity. Twenty-four adult healthy cats of both sexes and of different ages were used. The cats were divided into two groups. The first group had empty stomachs and the second group had filled stomachs. Eight cats were dissected. The remaining cats were frozen at - 20 degrees C, eight of these were then sectioned paramedially and the other eight were sectioned transversely. In the dissection and sections, it was observed that the liver shifted considerably to the right and craniodorsally in cats with full stomachs. In this article, the topographical anatomy of the liver according to varying stomach volumes is described in a manner that is useful to veterinary surgeons and clinicians. The sectional findings obtained from the paramedial and transverse sections provide information for computed tomography and magnetic resonance imaging.
Descriptors: cats, liver, stomach, abdomen, cats, dissection, dissection, liver, stomach.

Engelmann, R., J.M. Crook, and S. Lowel (2002). **Optical imaging of orientation and ocular dominance maps in area 17 of cats with convergent strabismus.** *Visual Neuroscience* 19(1): 39-49. ISSN: 0952-5238.
Abstract: Strabismus (or squint) is both a well-established model for developmental plasticity of the brain and a frequent clinical symptom. While the layout and topographic relationship of functional domains in area 17 of divergently squinting cats has been analyzed extensively in recent years (e.g. Lowel et al., 1998), functional maps in convergently squinting animals have so far not been visualized with comparable detail. We have therefore investigated the functional organization of area 17 in adult cats with a surgically induced convergent squint angle. In these animals, visual acuity was determined by both behavioral tests and recordings of visual evoked potentials, and animals with comparable acuities in both eyes were selected for further experiments. The functional layout of area 17 was visualized using optical imaging of intrinsic signals. Monocular iso-

orientation domains had a patchy appearance and their layout was different for left and right eye stimulation, so that segregated ocular dominance domains could be visualized. Iso-orientation domains exhibited a pinwheel-like organization, as previously described for normal and divergently squinting cats. Mean pinwheel density was the same in the experimental and control animals (3.4 pinwheel centers per mm2 cortical surface), but significantly ($P < 0.00001$) higher than that reported previously for normal and divergently squinting cats (2.7/mm2). A comparison of orientation with ocular dominance maps revealed that iso-orientation domains were continuous across the borders of ocular dominance domains and tended to intersect these borders at steep angles. However, in contrast to previous reports in normally raised cats, orientation pinwheel centers showed no consistent topographical relationship to the peaks of ocular dominance domains. Taken together, these observations indicate an overall similarity between the functional layout of orientation and ocular dominance maps in area 17 of convergently and divergently squinting cats. The higher pinwheel densities compared with previous reports suggest that animals from different gene pools might generally differ in this parameter and therefore also in the space constants of their cortical orientation maps.
Descriptors: ocular dominance, esotropia, visual evoked potentials, orientation, visual cortex, cats, visual acuity.

Feng XiaoChuan and M. Milhausen (1999). **Location of Toxoplasma gondii in feline intestinal tissue using PCR**. *Journal of Parasitology* 85(6): 1041-1046. ISSN: 0022-3395.
NAL Call Number: 448. J824
Descriptors: collection, processing, intestines, detection, DNA, polymerase chain reaction, tubulin, techniques, parasites, *Toxoplasma gondii*, cats, protozoa.

Fernandes, P.J., J.F. Modiano, J. Wojcieszyn, J.S. Thomas, P.A. Benson, R.I. Smith, A.C. Avery, R.C. Burnett, L.I. Boone, M.C. Johnson, and K.R. Pierce (2002). **Use of the Cell-Dyn 3500 to predict leukemic cell lineage in peripheral blood of dogs and cats**. *Veterinary Clinical Pathology* 31(4): 167-182. ISSN: 0275-6382.
NAL Call Number: SF601 .A54
Descriptors: analytical, diagnosis, diagnostic techniques, flow cytometry, leukemia, leukocytes, cats, dogs.

Friedman, C.D., P.D. Costantino, S. Takagi, and L.C. Chow (1998). **Bonesource hydroxyapatite cement: a novel biomaterial for craniofacial skeletal tissue engineering and reconstruction**. *Journal of Biomedical Materials Research* 43(4): 428-432. ISSN: 0021-9304.
Descriptors: biomaterials, cranial defect repair, cats, therapeutic method, bonesource hydroxyapatite cement, biocompatibility, self-setting calcium phosphate cement .

Friedrich, H. (2002). ***Entwicklung eines computerbasierten Informationssystems zum Thema Ektoparasiten bei Hund und Katze [Development of a computer-based information system on the subject Ectoparasites of Dogs and Cats]***. Dissertation, Freie Universitat Berlin,Berlin, Germany: 88 p.
Descriptors: diagnosis, ectoparasites, epidemiology, information systems, internet, life

cycle, morphology, symptoms, cats.
Language of Text: German, LS=English.

Fritz, D., C.L. Hopfner, and J.C. Guilhot Chretien (2004). **Systemic mast cell diseases in cats, retrospective study of seven cases, benefits of bone marrow biopsy, comparative aspects**. *Revue De Medecine Veterinaire* 155(7): 362-370. ISSN: 0035-1555.
NAL Call Number: 41.8 R32
Descriptors: biopsy, disorders, bone marrow, clinical aspects, diagnosis, dysplasia, fibrosis, hematology, histopathology, leukaemia, mast cells, renal failure, splenomegaly, cats.
Language of Text: English with summary in French.

Fuentealba, P., I. Timofeev, and M. Steriade (2004). **Prolonged hyperpolarizing potentials precede spindle oscillations in the thalamic reticular nucleus.** *Proceedings of the National Academy of Sciences of the United States of America* 101(26): 9816-21. ISSN: 0027-8424.
NAL Call Number: 500 N21P
Abstract: The thalamic reticular (RE) nucleus is a key structure in the generation of spindles, a hallmark bioelectrical oscillation during early stages of sleep. Intracellular recordings of RE neurons in vivo revealed the presence of prolonged hyperpolarizing potentials preceding spindles in a subgroup (30%) of neurons. These hyperpolarizations (6-10 mV) lasted for 200-300 ms and were present just before the onset of spontaneously occurring spindle waves. Corticothalamic volleys also were effective in generating such hyperpolarizations followed by spindles in RE neurons. A drop of up to 40% in the apparent input resistance (R(in)) was associated with these hyperpolarizing potentials, suggesting an active process rather than disfacilitation. Accordingly, the reversal potential was approximately -100 mV for both spontaneous and cortically elicited hyperpolarizations, consistent with the activation of slow K(+) conductances. QX-314 in the recording pipettes decreased both the amplitude and incidence of prolonged hyperpolarizations, suggesting the participation of G protein-dependent K(+) currents in the generation of hyperpolarizations. Simultaneous extracellular and intracellular recordings in the RE nucleus demonstrated that some RE neurons discharged during the hyperpolarizations and, thus, may be implicated in their generation. The prolonged hyperpolarizations preceding spindles may play a role in the transition from tonic to bursting firing of RE neurons within a range of membrane potential (-60 to -65 mV) at which they set favorable conditions for the generation of low-threshold spike bursts that initiate spindle sequences. These data are further arguments for the generation of spindles within the thalamic RE nucleus.
Descriptors: action potentials, neurons, thalamic nuclei, thalamic nuclei, aging, anesthesia, cats, electric conductivity, excitatory postsynaptic potentials, ion transport, potassium, sleep, sodium.

Gaughan, J.P. and S.R. Houser (2004). **Negative inotropic effects of pkc activation in human and feline cardiac myocytes.** *Biophysical Journal* 86(1): 65a-66a. ISSN: 0006-3495.
NAL Call Number: 442.8 B5238
Descriptors: congestive heart failure, CHF, cardiovascular system, heart disease, contractility, muscular system.

Notes: Meeting Information: 48th Annual Meeting of the Biophysical Society, Baltimore, MD, USA; February 14-18, 2004.

Gavaghan, B.J., M.D. Kittleson, K.J. Fisher, P.H. Kass, and M.A. Gavaghan (1999). **Quantitative of left ventricular diastolic wall motion by Doppler tissue imaging in healthy cats and cats with cardiomyopathy.** *American Journal of Veterinary Research* 60(12): 1478-1486. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, cardiomyopathy, ultrasonography, ventricles, physiological functions, heart rate.

Gavaghan, B.J., M.D. Kittleson, K.J. Fisher, P.H. Kass, and M.A. Gavaghan (1999). **Quantification of left ventricular diastolic wall motion by Doppler tissue imaging in healthy cats and cats with cardiomyopathy**. *American Journal of Veterinary Research* 60(12): 1478-1486. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cardiomyopathy, haemodynamics, diagnostic techniques, heart diseases, cats.

Gavrilin, M.A. and M. Podell (2001). **Methamphetamine enhances FIV-MD replication in feline astrocytes**. *Society for Neuroscience Abstracts* 27(1): 613. ISSN: 0190-5295.
NAL Call Number: QP351. S6
Descriptors: infection, toxicology, meeting abstract.

Gehrke, C., J. Steinmann, and P. Goroncy Bermes (2004). **Inactivation of feline calicivirus, a surrogate of norovirus (formerly norwalk-like viruses), by different types of alcohol in vitro and in vivo.** *Journal of Hospital Infection* 56(1): 49-55. ISSN: 0195-6701.
Descriptors: infection, sanitation, quantitative suspension assay, bioassay techniques, laboratory techniques, hand disinfection.

Geiselhart, V., P. Bastone, T. Kempf, M. Schnoelzer, and M. Loechelt (2004). **Furin-mediated cleavage of the feline foamy virus Env leader protein**. *Journal of Virology* 78(24): 13573-13581. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: feline foamy virus, Env leader protein, retrovirus infection, viral diseases, Retroviridae, FFV.

Gengozian, N., R.E. Hall, and C.E. Whitehurst (2002). **Erythrocyte-rosetting properties of feline blood lymphocytes and their relationship to monoclonal antibodies to t lymphocytes**. *Journal of the Federation of American Societies for Experimental Biology* 16(4): A720. ISSN: 0892-6638.
NAL Call Number: QH301. F3
Descriptors: feline T lymphocytes, erythrocyte rosetting properties, guinea pigs, T supressor cells, CD4 antibody, CD8 antibody, immune system, cell culture, homeostasis.
Notes: Meeting Information: Annual Meeting of the Professional Research Scientists on Experimental Biology, New Orleans, Louisiana, USA; April 20-24, 2002.

Gidlewski, J. and J.P. Petrie (2003). **Pericardiocentesis and principles of echocardiographic imaging in the patient with cardiac neoplasia.** *Clinical Techniques in Small Animal Practice* 18(2): 131-134. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: dogs, cats, neoplasms, heart, ultrasonography, diagnostic techniques, pericardium, echocardiograpHy, pericardiocentesis .

Ginovart, N., A.A. Wilson, S. Houle, and S. Kapur (2004). **Amphetamine pretreatment induces a change in both D2-Receptor density and apparent affinity: a +AFs-11C+AF0-raclopride positron emission tomography study in cats.** *Biological Psychiatry* 55(12): 1188-1194. ISSN: 0006-3223.
Descriptors: amphetamine, dopamine antagonists, dopamine uptake inhibitors, raclopride, dopamine d2 receptors, competitive binding, pressure, cats, intravenous injections, neostriatum, radiopharmaceuticals, emission computed tomography.

Good, M.S., V. Krebsbach, N. Loewen, E.M. Poeschla, and D.H. Johnson (2001). **Transduction of retinal ganglion cells in culture using feline immunodeficiency virus**. *Investigative Ophthalmology and Visual Science* 42(4): S411. ISSN: 0146-0404.
Descriptors: apoptosis, feline immunodeficiency virus, cell culture, retinal ganglion cell, transduction.

Govindasamy, L., K. Hueffer, C.R. Parrish, and M. Agbandje Mckenna (2003). **Structures of host range-controlling regions of the capsids of canine and feline parvoviruses and mutants.** *Journal of Virology* 77(22): 12211-12221. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: infection, molecular, crystallography, laboratory techniques, feline panleukopenia virus, capsid structure, virus cell interaction, asparagine, arginine.

Graham, L.H. and J.L. Brown (1997). **Nicht-invasive Bestimmung der Gonaden- und Adrenocortisonfunktion mittels faekaler Steroidanalyse bei Katzen [Non-invasive assessment of gonadal and adrenocortical function in felid species via faecal steroid analysis].** *Zeitschrift Fuer Saeugetierkunde* 62(Suppl. 2): 78-82. ISSN: 0044-3468.
NAL Call Number: QL700. Z4
Descriptors: cats, lions, leopards, tigers, cheetahs, estrogens, progesterone, testosterone, glucocorticoids, feces, monitoring, measurement, adrenal cortex hormones, androgens, corpus luteum hormones, corticoids, excreta, hormones, isoprenoids, progestational hormones, sex hormones, steroids .
Language of Text: German; Summary in English.
Notes: Meeting Information: National Zoological Park, Front Royal, Virginia (USA). Smithsonian Institution. Conservation and Research Center. 1st International Symposium on Physiology and Ethology of Wild Zoo Animals. September 18-21, 1996.

Guaguere, E., T. Olivry, A. Delverdier Poujade, P. Denerolle, J.P. Pages, and J.P. Magnol (1999). **Demodex cati infestation in association with feline cutaneous squamous cell carcinoma in situ: a report of five cases.** *Veterinary Dermatology* 10(1): 61-67. ISSN: 0959-4493.
NAL Call Number: SF901 .V47

Descriptors: carcinoma, demodex, lesions, skin diseases, ova, larvae, adults, developmental stages, histopathology, diagnosis, lentivirus, immunosuppression, papovaviridae, disorders, pathogenesis, acarina, animal developmental stages, arachnida, cells, demodicidae, developmental stages, gametes, immunotherapy, neoplasms, organic diseases, prostigmata, retroviridae, therapy, viruses, *demodex cati*, feline immunodeficiency virus, papillomavirus, dysplasia, opportunistic infections, mixed infections.

Gueguen, S., V. Martin, L. Maynard, and B. Lebreux (2002). **In vitro antiviral effect of a recombinant feline omega interferon on a feline leukaemia retrovirus (felv).** *Journal of Interferon and Cytokine Research* 22(Supplement 1): S-163. ISSN: 1079-9907.
Descriptors: cell biology, feline leukemia retrovirus, recombinant feline omega interferon, neoplastic disease, viral disease.

Gunaseelan, L., N.D.J. Chandran, K. Kumanan, J. Ramkrishna, and R. Manickam (1997). **Propagation and isolation of canine parvovirus in crandell feline kidney cell line**. *Indian Journal of Animal Sciences* 67(8): 679-682. ISSN: 0367-8318.
NAL Call Number: 41.8 IN22
Descriptors: cell biology, immune system, infection, radiation biology, urinary system, crandell feline kidney cells, digestive systemfeces, indirect fluorescent antibody technique, infection, isolation method, pathogen, propagation, urinary system.

Hatama, S., K. Otake, M. Ohta, M. Kobayashi, K. Imakawa, A. Ikemoto, H. Okuyama, M. Mochizuki, T. Miyazawa, and Y. Tohya (2001). **Reactivation of feline foamy virus from a chronically infected feline renal cell line by trichostatin A.** *Virology* 283(2): 315-323. ISSN: 0042-6822.
NAL Call Number: 448.8 V81
Descriptors: chronic infections, feline renal cell line, trichostatin A, feline foamy virus, FFV.

Heckman, C., M.D. Johnson, A. Hyngstrom, E.J. Perreault, and V. Ravichandran (2003). **Three - dimensional sensory convergence onto spinal interneurons from functionally complex muscles.** In: *Society for Neuroscience Abstract Viewer and Itinerary Planner: 33rd Annual Meeting of the Society of Neuroscience, November 8, 2003-November 12, 2003, New Orleans, LA, USA*, Vol. 2003, p. Abstract No. 186.18.
Online: http://sfn.scholarone.com
NAL Call Number: QP351. S6
Descriptors: muscular system, feline lumbar spinal interneurons, nervous system, computer model, mathematical and computer techniques, principle component analysis, robotic arm, sensory convergence, hind limb muscles.

Henderson, L.A., P.M. Macey, C.A. Richard, M.L. Runquist, and R.M. Harper (2004). **Functional magnetic resonance imaging during hypotension in the developing animal.** *Journal of Applied Physiology* 97(6): 2248-2257. ISSN: 8750-7587.
NAL Call Number: 447.8 J825
Descriptors: kittens, magnetic resonance imaging, isoflurane, hypotension, blood pressure, cats.

Hisasue, M., S. Neo, R. Tuchiya, and T. Yamada (2004). **Successful therapy with a vitamin k2 analog (menatetrenone) in feline myelodysplastic syndromes.** *Journal of Veterinary Internal Medicine* 18(3): 440. ISSN: 0891-6640.
NAL Call Number: SF601. J65
Descriptors: pharmacology, medicine, myelodysplastic syndrome, and lymphatic disease, neoplastic disease, therapy, vitamin K2 analog, menatetronone .

Hoffmann, A., S. Vieths, and D. Haustein (1997). **Biologic allergen assay for in vivo test allergens with an in vitro model of the murine type I reaction**. *Journal of Allergy and Clinical Immunology* 99(2): 227-232. ISSN: 0091-6749.
NAL Call Number: 448.8 J8236
Descriptors: in vitro, allergens, bioassays, IgE, techniques, analytical, cats.

Hogan, D.F. and M.P. Ward (2004). **Effect of clopidogrel on tissue-plasminogen activator-induced in vitro thrombolysis of feline whole blood thrombi**. *American Journal of Veterinary Research* 65(6): 715-719. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: blood, plasminogen activator, thrombolysis, thrombosis, cats.

Hohdatsu, T., J. Tokunaga, and H. Koyama (1994). **The role of IgG subclass of mouse monoclonal antibodies in antibody-dependent enhancement of feline infectious peritonitis virus infection of feline macrophages.** *Archives of Virology* 139(3/4): 273-285. ISSN: 0304-8608.
NAL Call Number: 448.3 Ar23
Abstract: Antibody-dependent enhancement (ADE) of feline infectious peritonitis virus (FIPV) infection was studied in feline alveolar macrophages and human monocyte cell line U937 using mouse neutralizing monoclonal antibodies (MAbs) directed to the spike protein of FIPV. Even among the MAbs that have been shown to recognize the same antigenic site, IgG 2a MAbs enhanced FIPV infection strongly, whereas IgG 1 MAbs did not. These IgG 2a MAbs enhanced the infection even when macrophages pretreated with the MAb were washed and then inoculated with the virus. Immunofluorescence flow cytometric analysis of the macrophages treated with each of the MAbs showed that the IgG 2a MAbs but not the IgG 1 MAbs bound to feline alveolar macrophages. Treatment of the IgG 2a MAb with protein A decreased the binding to the macrophages and, in parallel, diminished the ADE activity. Although no infection was observed by inoculation of FIPV to human monocyte cell line U937 cells, FIPV complexed with either the IgG 2a MAb or the IgG 1 MAb caused infection in U937 cells which are shown to express Fc gamma receptor (Fc gamma R) I and II that can bind mouse IgG 2a and IgG 1, respectively. These results suggest that the enhancing activity of MAb is closely correlated with IgG subclass and that the correlation is involved in binding of MAb to Fc gamma R on feline macrophage.
Descriptors: feline peritonitis virus, monoclonal antibodies, acute course, macrophages, binding, igg, virus neutralization, flow cytometry.

Hosie, M.J., N. Broere, J. Hesselgesser, J.D. Turner, J.A. Hoxie, J.C. Neil, and B.J. Willett (1998). **Modulation of feline immunodeficiency virus infection by stromal cell-derived factor.** *Journal of Virology* 72(3): 2097-2104. ISSN: 0022-538X.

NAL Call Number: QR360. J6
Descriptors: feline immunodeficiency, cats.

Ichimura, N., M. Shimojima, Y. Nishimura, Y. Tohya, and H. Akashi (2004). **Molecular cloning and sequencing of feline cd7**. *Journal of Veterinary Medical Science* 66(10): 1255-1258. ISSN: 0916-7250.
NAL Call Number: SF604. J342
Descriptors: immune system, human CD7 molecule, T cell, molecular, feline CD7, molecular biophysics, gene sequencing, immunofluorescence assay, histidine, immunologic techniques, molecular cloning, genetic techniques .

Ikeda, Y., K. Tomonaga, M. Kawaguchi, M. Kohmoto, Y. Inoshima, Y. Tohya, T. Miyazawa, C. Kai, and T. Mikami (1996). **Feline immunodeficiency virus can infect a human cell line (MOLT-4) but establishes a state of latency in the cells.** *Journal of General Virology* 77(pt.8): 1623-1630. ISSN: 0022-1317.
NAL Call Number: QR360. A1J6
Abstract: Infectivity of feline immunodeficiency virus (FIV) in feline and human lymphoblastoid cell lines was examined using homogeneous populations of FIV derived from infectious molecular clones of strains TM2 and Petaluma, and two recombinant chimeric clones carrying gag, pol, vif and ORF-A from the heterologous virus. FIV from the clones with the env region of the Pataluma strain was shown to infect and establish provirus in a human lymphoid coil line (MOLT-4), although the FIV-infected cells did not produce any infectious viruses. By treatment of the infected MOLT-4 cells with a phorbol ester, infectious virus was rescued. To examine which stage of the life-cycle of FIV is blocked in these coils, we analysed transcription of FIV-14 in the cells by RT-PCR. FIV-specific RNA expression could not be detected. These results strongly suggest that latency of the virus in MOLT-4 cells is due to a failure in transcription.
Descriptors: feline immunodeficiency virus, infection, man, lymphocytes, cell lines, latent infections, infectivity, proviruses, transcription, replication, life cycle, lymphoblastoid cell lines.

Ikeda, Y., J. Shinozuka, T. Miyazawa, K. Kurosawa, Y. Izumiya, Y. Nishimura, K. Nakamura, J. Cai, K. Fujita, K. Doi, and T. Mikami (1998). **Apoptosis in feline panleukopenia virus-infected lymphocytes**. *Journal of Virology* 72(8): 6932-6936. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: cell biology, infection, feline panleukopenia virus, apoptosis, pathophysiology, interleukin 2 receptor alpha .

Imamura, T., H. Maeda, T. Fujiyasu, Y. Imagawa, and S. Tokiyoshi (2003). **Feline cytokine protein**. *Official Gazette of the United States Patent and Trademark Office Patents* 1267(2) ISSN: 0098-1133.
Online: http://www.uspto.gov/web/menu/patdata.html
NAL Call Number: T223. A21
Descriptors: immune system, feline cytokine protein, feline infectious diseases, infectious disease, viral disease, feline cytotoxic T lymphocytes, heteologus dimer, FLAF p35, FLAF p40, cytotoxic activity, expression vector.

Itoh, Y., D. Uematsu, N. Araki, K. Muramatsu, S. Watanabe, and Y. Fukuuchi (1998). **Fluorometric measurement of intracellular pH in vivo in feline cerebral cortex during ischemia and reperfusion**. *Keio Journal of Medicine* 47(1): 37-41. ISSN: 0022-9717.
Descriptors: feline cerebral cortex, cerebral ischemia, nervous system disease, vascular disease, intracellular acidosis, neuronal damage, intracellular pH, hypoxemia, in vivo, 2,7 biscarboxyethyl carboxyfliorescein, pH probe, transit time, hemodilution curve.

Jankowska, E., D.J. Maxwell, S. Dolk, and A. Dahlstrom (1997). **A confocal and electron microscopic study of contacts between 5-HT fibres and feline dorsal horn interneurons in pathways from muscle afferents**. *Journal of Comparative Neurology* 387(3): 430-438. ISSN: 0021-9967.
Descriptors: analytical method, confocal microscopy, feline dorsal horn interneurons, electron microscopy, 5HT fibres, nervous system, serotonin, serotonin fibers, synaptic cell contacts, immunocytochemistry, muscle afferents, horseradish peroxidase, soma, dendrites.

Johnson, C.M., D.W. Selleseth, M.N. Ellis, T.A. Childers, M.B. Tompkins, and W.A.F. Tompkins (1994). **Feline lymphoid tissues engrafted into scid mice maintain morphologic structure and produce feline immunoglobulin.** *Laboratory Animal Science* 44(4): 313-318. ISSN: 0023-6764.
NAL Call Number: 410.9 P94
Abstract: To adapt the feline immune system to a small laboratory animal host, severe combined immunodeficient (scid) mice were engrafted with neonatal feline lymphoid tissues, including lymph node, thymus, spleen, and bone marrow. Lymph node and thymus tissue were implanted subcutaneously within the mammary fat pad, and a single-cell suspension of spleen, thymus, and bone marrow was inoculated intraperitoneally (IP). Seven groups of mice (three mice per group) were engrafted on day 0, and members of one group were euthanatized weekly from 2 to 8 weeks after engraftment. For each mouse, graft morphology was evaluated by light microscopy, feline DNA was detected in peripheral blood by polymerase chain reaction (PCR) amplification of feline-specific DNA sequences, and serum feline IgG concentration was measured by ELISA. Ten of 13 feline grafts evaluated histologically between 3 and 8 weeks after engraftment contained large focal aggregates of lymphocytes bordered by plasma cells. Of 14 thymus grafts evaluated histologically during the same period, 5 were characterized by dense accumulations of small lymphocytes surrounding thymic epithelial cells. Two of these thymus grafts were indistinguishable from age-matched feline thymus. At 2 weeks after engraftment, feline lymph node and thymus contained extensive central necrosis bordered by a narrow zone of lymphocytes and small-caliber blood vessels. Feline DNA, as detected by PCR amplification of the feline c-fes proto-oncogene from peripheral blood lysates, was detected in the peripheral blood of 9 of 18 mice. All mice evaluated at 3, 7, and 8 weeks after engraftment had detectable levels of feline DNA. Feline IgG was detected in all engrafted mice, with concentration.
Descriptors: mice, immunological deficiency, kittens, lymph nodes, thymus gland, spleen, bone marrow cells, xenografts, morphology, DNA, IgG, histology, lymphocytes, proto oncogenes, animal models, severe combined immunodeficiency, c fes proto oncogene.

Johnsson, H., P. Heldin, G. Sedin, and L.C. Laurent (1997). **Hyaluronan production in vitro by fetal lung fibroblasts and epithelial cells exposed to surfactants of n-acetylcysteine**. *Upsala Journal of Medical Sciences* 102(3): 199-209. ISSN: 0300-9734.
Descriptors: feline lung epithelial cells, infant respiratory distress syndrome, hyaluronan, N acetylcysteine, cell culture.

Jordan, K., S.J. O' Brien, K.H. Johnson, and T.D. O' Brien (1995). **Assignment of islet amyloid polypeptide (IAPP) gene to feline chromosome B4 using the polymerase chain reaction technique on feline-rodent hybrid cell lines**. *Veterinary Pathology* 32(2): 195-197. ISSN: 0300-9858.
NAL Call Number: 41.8 P27
Descriptors: diabetes, diabetes mellitus, genes, polymerase chain reaction, cell lines, chromosomes, polypeptides, DNA, DNA hybridization, gene mapping, biotechnology, cats.

Joshi, M.S., E.D. Crouser, M.W. Julian, B.L. Schanbacher, and J.A. Bauer (2000). **Digital imaging analysis for the study of endotoxin-induced mitochondrial ultrastructure injury**. *Analytical Cellular Pathology* 21(1): 41-48. ISSN: 0921-8912.
Descriptors: cell biology, infection, endotoxin induced mitochondrial ultrastructure injury, toxicity, sepsis, bacterial disease, digital imaging analysis, analytical method.

Kano, R., A. Kubota, Y. Nakamura, S. Watanabe, and A. Hasegawa (2001). **Feline ubiquitin fusion protein genes**. *Veterinary Research Communications* 25(8): 615-622. ISSN: 0165-7380.
NAL Call Number: SF601. V38
Descriptors: DNA amplification, in situ recombinant gene expression detection, feline ubiquitin fusion proteins, molecular genetic method, reverse transcriptase polymerase chain reaction, molecular genetic method, polymerase chain reaction, heat shock, immunoblot assay, homology .

Karle, P., M. Renner, B. Salmons, and W.H. Gunzburg (2001). **Necrotic, rather than apoptotic, cell death caused by cytochrome p450-activated ifosfamide**. *Cancer Gene Therapy* 8(3): 220-230 . ISSN: 0929-1903.
Descriptors: tumor biology, cytochrome p450 2b1, antitumorigenic prodrug, ifosfamide, cyp2b1 detection assay, gene therapy, genetic method, recombinant gene expression applications, therapeutic method, cell death, necrotic mechanism.

Kashiwase, H., T. Katsube, T. Kimura, T. Nishigaki, and M. Yamashita (2000). **8-difluoromethoxy-4-quinolone derivatives as anti-feline immunodeficiency virus (FIV) agents: important structural features for inhibitory activity of FIV replication**. *Journal of Veterinary Medical Science* 62(5): 499-504. ISSN: 0916-7250.
NAL Call Number: SF604. J342
Descriptors: infection, cell culture, Feline Acquired Immunodeficiency Syndrome, immune system disease, viral disease, virus replication.

Katayama, R., M.K. Huelsmeyer, D.M. Vail, I.D. Kurzman, and E.G. Macewen (2002). **Selective inhibition of platelet-derived growth factor receptor activity in feline vaccine-**

associated sarcoma. *93rd Annual Meeting of the American Association for Cancer Research, Proceedings of the American Association for Cancer Research: the official organ of the American Association for Cancer Research, April 06-10, 2002, San Francisco, California, USA*, Vol. 43: p. 600-601.
NAL Call Number: RC261.A4
Descriptors: pharmacology, tumor biology, feline, vaccine associated sarcoma, neoplastic disease, platlet growth factor.

Kawabata, S., H. Komori, K. Mochida, O. Harunobu, and K. Shinomiya (2002). **Visualization of conductive spinal cord activity using a biomagnetometer.** *Spine* 27(5): 475-9. ISSN: 0362-2436.
Abstract: STUDY DESIGN: The authors measured conductive cervical spinal cord evoked magnetic fields (SCEFs) after thoracic spinal cord stimulation in cats and visualized spinal cord activities. OBJECTIVE: To evaluate the usefulness of magnetic field measurement. SUMMARY OF BACKGROUND DATA: Magnetic field measurement has several theoretical advantages compared with electric potential measurement. Although biomagnetometers for the brain and heart are already on the market and are widely used, methods for magnetic field measurement of the spinal cord have not been established. METHOD: Cervical laminectomy was performed on adult cats under anesthesia and the dural tube was exposed. Electrical stimuli were applied to the lower thoracic spinal cord by a catheter epidural electrode. SCEFs were recorded using a biomagnetometer specially designed for recording spinal cord action potentials. SCEFs were measured at 35 different points over the cervical spine and isomagnetic field maps of SCEFs were constructed. Thereafter, the spinal cord was transected completely at C5 and SCEFs were measured again. RESULTS: The detected SCEFs showed a clear biphasic configuration. The first deflection of the magnetic fields from the left side was directed outward, but the right-side deflection was directed inward. The second deflection showed reversed polarity. The isomagnetic field maps of SCEFs clearly demonstrated the quadrupolar pattern and propagated at a conduction velocity of 80-120 m/s. After spinal cord transection, the propagation of SCEFs stopped at the transection site, and the SCEFs could not be obtained above the site. CONCLUSIONS: The authors concluded that magnetic field measurement is useful for evaluation of spinal cord function. Moreover, it was apparent that SCEFs could indicate conduction block in the spinal cord.
Descriptors: magnetics instrumentation, neural conduction, spinal cord, action potentials, axotomy, cats, electric stimulation, evoked potentials, laminectomy, neck, predictive value of tests, reproducibility of results, sensitivity and specificity.

Kennedy, M.A., V.S. Mellon, G. Caldwell, and L.N.D. Potgieter (1995). **Virucidal efficacy of the newer quaternary ammonium compounds.** *American Animal Hospital Association* 31(3): 254-258. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: quateRNAry ammonium compounds, antiviral agents, feline calicivirus, herpetoviridae, parvoviridae, cell culture, disinfectants, ammonium compounds, antimicrobials, caliciviridae, culture techniques, in vitro culture, viruses, feline herpesvirus, canine parvovirus, labeling.

Kim, H.J., C.H. Lee, S.H. Lee, B.M. Cho, H.K. Kim, B.R. Park, S.Y. Ye, G.R. Jeon, and K.H. Chang (2001). **Early development of vasogenic edema in experimental cerebral fat embolism in cats: correlation with MRI and electron microscopic findings.** *Investigative Radiology* 36(8): 460-469. ISSN: 0020-9996.

Abstract: RATIONALE AND OBJECTIVES: To evaluate the magnetic resonance imaging and electron microscopic findings of the hyperacute stage of cerebral fat embolism in cats and the time needed for the development of vasogenic edema. METHODS: Magnetic resonance imaging was performed at 30 minutes (group 1, n = 9) and at 30 minutes and 1, 2, 4, and 6 hours after embolization with triolein (group 2, n = 10). As a control for group 2, the same acquisition was obtained after embolization with polyvinyl alcohol particles (group 3, n = 5). Magnetic resonance images were analyzed qualitatively and quantitatively. Electron microscopic examination was done in all cats. RESULTS: In group 1, the lesions were iso- or slightly hyperintense on T2-weighted (T2W) and diffusion-weighted (DWIs) images, hypointense on the apparent diffusion coefficient (ADC) map image, and markedly enhanced on the gadolinium-enhanced T1-weighted images (Gd-T1WIs). In group 2 at 30 minutes, the lesions were similar to those in group 1. Thereafter, the lesions became more hyperintense on T2WIs and DWIs and more hypointense on the ADC map image. The lesions were enhanced on Gd-T1WIs at all acquisition times. In group 3, the lesions showed mild hyperintensity on T2WIs at 6 hours but hypointensity on the ADC map image from 30 minutes, with a tendency toward a greater decrease over time. The lesions were not enhanced on Gd-T1WIs at any time point. Electron microscopic findings revealed discontinuity of the capillary endothelial wall, perivascular and interstitial edema, and swelling of glial and neuronal cells in groups 1 and 2. Cellular swelling and interstitial edema were more prominent in group 2. In group 3, interstitial edema was seen; however, discontinuity of the endothelial wall was absent. CONCLUSIONS: The lesions were hyperintense on T2WIs and DWIs, hypointense on the ADC map image, and enhanced on Gd-T1WIs. On electron microscopy, the lesions showed cytotoxic and vasogenic edema with disruption of the blood-brain barrier. Vasogenic edema seems to develop within 30 minutes in cerebral fat embolism in cats.

Descriptors: brain edema, brain edema, embolism, fat, embolism, fat, intracranial embolism, intracranial embolism, magnetic resonance imaging, electron microscopy, cats, contrast media, animal disease models, gadolinium diagnostic use.

Kim, S.G. and K. Ugurbil (2003). **High-resolution functional magnetic resonance imaging of the animal brain.** *Methods* 30(1): 28-41. ISSN: 1046-2023.

Abstract: To fully understand brain function, one must look beyond the level of a single neuron. By elucidating the spatial properties of the columnar and laminar functional architectures, information regarding the neural processing in the brain can be gained. To map these fine functional structures noninvasively and repeatedly, functional magnetic resonance imaging (fMRI) can be employed. In this article the basic principles of fMRI are introduced, including specific hardware requirements and the equipment necessary for animal magnetic resonance research. Since fMRI measures a change in secondary hemodynamic responses induced by neural activity, it is critical to understand the principles and potential pitfalls of fMRI techniques. Thus, the underlying physics of conventional blood oxygenation, cerebral blood flow, and cerebral blood volume-based

fMRI techniques are extensively discussed. Tissue-specific signal change is close to the site of neural activity, while signals from large vessels can be distant from the actual active site. Thus, methods to minimize large vessel contributions and to maximize tissue signals are described. The fundamental limitation of fMRI spatial resolution is the intrinsic hemodynamic response. Based on our high-resolution fMRI studies, the hemodynamic response is regulated at submillimeter functional domains and thus spatial resolution can be achieved to an order of 100 microm. Since hemodynamic responses are sluggish, it is difficult to obtain very high temporal resolution. By using an approach with multiple experiments with different stimulus conditions, temporal resolution can be improved on the order of 100 ms. With current fMRI technologies, submillimeter columnar- and laminar-specific specific functional images can be obtained from animal brains.
Descriptors: brain, magnetic resonance imaging instrumentation, magnetic resonance imaging, brain supply, cats, cerebrovascular circulation.

Kirbach, B., K. Schober, G. Oechtering, and H. Aupperle (2000). **Diagnostik von Herzmuskelschaden bei Katzen mit stumpfen Thoraxtraumen uber biochemische Parameter im Blut [Diagnosis of myocardial cell injuries in cats with blunt thoracic trauma using circulating biochemical markers]**. *Tierarztliche Praxis* 28(1): 25-33. ISSN: 1434-1220.
NAL Call Number: SF603 .V43
Descriptors: biochemical markers, ECG abnormalities, thoracic trauma, creatine kinase, isoenzymes, diagnosis, electorcardiography, myocardium, heart diseases, cats.
Language of Text: German with a summary in English.

Klaser, D.A., N.J. Reine, and A.E. Hohenhaus (2005). **Red blood cell transfusions in cats: 126 cases (1999)**. *Journal of the American Veterinary Medical Association* 226(6): 920-923. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: adverse effects, anemia, transfusion, case reports, diagnosis, erythrocytes, cats.

Klein, M.K. (2003). **Multimodality therapy for head and neck cancer.** *Veterinary Clinics of North America, Small Animal Practice* 33(3): 615-628. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Abstract: The refinement of radiation therapy techniques should result in a decrease in morbidity in canine and feline nasal carcinoma patients and should further allow for the addition of adjuvant therapies. Patients with large oral tumors that are incompletely excised should have radiation therapy added to their treatment regimen. Tumors with significant metastatic potential, such as melanoma, should be considered for addition of chemotherapy. Carboplatin has activity in melanomas and is being added at several institutions, but trial results are not yet available. Chemoradiation has become the treatment of choice for human head and neck squamous cell carcinomas but remains largely unexplored in veterinary medicine. Hopefully, development of chemoradiation will benefit feline squamous cell carcinoma patients, because current treatment regimens are largely ineffective. Immunotherapy agents and targeted biologic therapeutics seem to

hold promise for the future.
Descriptors: dog diseases, head and neck neoplasms, combined modality therapy, dogs.

Klopp, L.S., J.T. Hathcock, and D.C. Sorjonen (2000). **Magnetic resonance imaging features of brain stem abscessation in two cats.** *Veterinary Radiology and Ultrasound* 41(4): 300-307. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: cats, brain stem, abscesses, nuclear magnetic resonance, imagery, disease course, differential diagnosis.

Koch, R., H. Schroder, and H. Waibl (2002). **Zur Topographie und bildlichen Darstellung (Rontgen und CT) der Nasennebenhohlen der Katze [Topography and imaging methods (X-rays and computer tomography) on the paranasal sinuses of cats]**. *Kleintierpraxis* 47(4): 213-219. ISSN: 0023-2076.
NAL Call Number: 41.8 K67
Descriptors: analytical, animal anatomy, computed tomography, paranasal sinuses, sex differences, topograpHy, cats.
Language of Text: German; Summary in English.

Koffas, H., J. Dukes McEwan, B.M. Corcoran, C.M. Moran, A. French, V. Sboros, T. Anderson, P. Smith, K. Simpson, and W.N. McDicken (2003). **Peak mean myocardial velocities and velocity gradients measured by color M-mode tissue Doppler imaging in healthy cats**. *Journal of Veterinary Internal Medicine* 17(4): 510-524. ISSN: 0891-6640.
NAL Call Number: SF601. J65
Descriptors: age differences, heart, heart rate, heart sounds, myocardium, pulsation, ultrasonography, cats.

Koga, L., Y. Kobayashi, M. Yazawa, S. Maeda, K. Masuda, K. Ohno, and H. Tsujimoto (2002). **Nucleotide sequence and expression of the feline vascular endothelial growth factor**. *Journal of Veterinary Medical Science* 64(5): 453-456. ISSN: 0916-7250.
NAL Call Number: SF604. J342
Descriptors: endocrine system, feline lymphoid tumor cell line, feline vascular endothelial growth factor, human VEGF165 molecular, reverse transcriptase polymerase chain reaction, RT PCR, glycosylation, mRNA.

Kopelovich, L. (Inventor) **De novo induction of cells exhibiting characteristics of macrophages utilizing feline sarcoma virus**. 1997). *Official Gazette of the United States Patent and Trademark Office Patents*, 1202 (5): 3842. ISSN: 0098-1133
NAL Call Number: T223. A21
Descriptors: blood and lymphatics, feline sarcoma virus, infection, skeletal system, analytical techniques, biotechnology, cell culture, de novo conversion, expression, human fibroblasts.

Kording, K.P., C. Kayser, B.Y. Betsch, and Konig P. (2001). **Non-contact eye-tracking on cats.** *Journal of Neuroscience Methods* 110(1-2): 103-111. ISSN: 0165-0270.
NAL Call Number: RC346
Abstract: The objective of visual systems neuroscience has shifted over the past few

years from determining the receptive fields of cells towards the understanding of higher level cognition in awake animals viewing natural stimuli. In experiments with awake animals it is important to control the relevant aspects of behavior. Most important for vision science is the control of the direction of gaze. Here we present Dual Purkinje eye-tracking on cats, which--as a non-contact method--brings a number of advantages. Along with the presented methods for calibration and for synchronization to off-the-shelf video presentation hardware, this method allows high precision experiments to be performed on cats freely viewing videos of natural scenes.
Descriptors: automatic data processing, cats, eye movements, computer assisted image processing, neurophysiology, electrodes, implanted, neurophysiology instrumentation, photic stimulation, video recording.

Kostopoulos, G.K. (2000). **Spike-and-wave discharges of absence seizures as a transformation of sleep spindles: the continuing development of a hypothesis**. *Clinical Neurophysiology* 111(Suppl. 2): S27-S38. ISSN: 1388-2457.
Descriptors: nervous system, feline penicillin epilepsy, nervous system disease, seizures, digital EEG, electroencephalography, sleep spindles, spike and wave discharges, thalamocortical volleys, animal models, cortical neurons, computer models.

Kramer, M., M. Gerwing, U. Michele, E. Schimke, and S. Kindler (2001). **Ultrasonographic examination of injuries to the achilles tendon in dogs and cats.** *The Journal of Small Animal Practice* 42(11): 531-535. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Abstract: The value of ultrasonography in the diagnosis of lesions of the Achilles tendon was Investigated in 42 dogs and seven cats. A standardised four-part ultrasonographic examination was established. Linear transducers with a frequency of more than 7.5 MHz were used. Ultrasonography allowed identification and differentiation of total ruptures and the differentiation of partial ruptures into deep or superficial ruptures, or those comprising muscular tears. The healing process could be monitored and imaged using this technique. Suture material was readily visible in surgically treated cases. Displacement of the superficial digital flexor tendon could be identified. In such cases, the tendon tissue was seen either medially or laterally to the calcaneus. The healing process of the Achilles tendon could also be documented using ultrasonography. However, it was not possible to determine the age of the injury and the exact end of the healing process. Ultrasonography therefore proved to be an excellent diagnostic method for imaging lesions of the Achilles tendon and associated injuries in dogs and cats. After physical examination, the technique should be the next logical step in the evaluation of a suspected injury to the Achilles tendon.
Descriptors: achilles tendon injuries, cats, dogs, diagnosis, differential, physical examination, sensitivity and specificity, ultrasonography, wounds and injuries .

Kreutz, L.C., B.S. Seal, and W.L. Mengeling (1994). **Early interaction of feline calicivirus with cells in culture.** *Archives of Virology* 136(1/2): 19-34. ISSN: 0304-8608 .
NAL Call Number: 448.3 Ar23
Abstract: The kinetics and biochemical properties of feline calicivirus (FCV) attachment to Crandell-Reese feline kidney cells were determined. Maximum binding was observed at pH 6.5. Cells in suspension at 4 degrees C bound virus more efficiently than cells in

monolayers at 4 degrees C or 37 degrees C. High initial binding rate was observed in monolayers or cells in suspension and proceeded to a maximum at 90 min, although half maximal binding was observed as early as 15 min. Binding was specific and competitively blocked by serotypically homologous or heterologous FCV as well as by San Miguel sea lion virus. Treatment of cells with proteases increased FCV binding, whereas phospholipase had no effect on virus attachment. Conversely, cells treated with neuraminidase followed by O-glycanase treatment showed a decreased binding ability. Cells of feline origin bound FCV very efficiently, and non-permissive cells showed a poor binding ability. Following transfection of viral RNA, infectious virus could be recovered from all non-permissive cells, except from Madin-Darby canine kidney cells. These results suggest that FCV binds to a receptor in which carbohydrates may be an important component and that FCV replication in nonpermissive cells is primarily restricted by the absence of appropriate receptors on the cell surface.
Descriptors: feline calicivirus, kidneys, cell cultures, receptors, proteinases, binding site, phospholipase a.

Kyles, A.E., E.M. Hardie, M. Mehl, and C.R. Gregory (2002). **Evaluation of ameroid ring constrictors for the management of single extrahepatic portosystemic shunts in cats: 23 cases (1996-2001).** *Journal of the American Veterinary Medical Association* 220(9): 1341-1347. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Abstract: OBJECTIVE: To document the signalment; history; clinical signs; clinicopathologic, diagnostic imaging, and surgical findings; perioperative complications; and long-term clinical results of ameroid ring constrictor (ARC) placement on single extrahepatic portosystemic shunts (PSS) in cats. DESIGN: Retrospective study. ANIMALS: 23 cats treated with an ARC on a single extrahepatic PSS. PROCEDURE: An ARC was placed surgically around the PSS. Portal pressure was measured prior to ARC placement, with complete temporary PSS occlusion, and after ARC placement. Cats were scheduled for recheck transcolonic portal scintigraphy 8 to 10 weeks after surgery. Follow-up information was obtained by telephone interview with the owners. RESULTS: An ARC was successfully placed in 22 of 23 cats. Intraoperative complications, consisting of PSS hemorrhage, occurred in 2 cats. Mean (+/- SD) portal pressure (n = 15) was 6.7+/-2.9 mm Hg before PSS manipulation, 18.6+/-7.7 mm Hg with complete temporary PSS occlusion, and 6.9+/-2.7 mm Hg after ARC placement. Postoperative complications developed in 77% (17 of 22) of cats after ARC placement, and included central blindness, hyperthermia, frantic behavior, and generalized motor seizures. Perioperative mortality rate was 4.3% (1 of 23). Persistent shunting was identified in 8 of 14 cats. Overall, 75% (15 of 20) of cats had an excellent long-term outcome. CONCLUSIONS AND CLINICAL RELEVANCE: Placement of an ARC on single extrahepatic PSS in cats resulted in low surgical complication and perioperative mortality rates, but most cats did have substantial postoperative complications. Persistent shunting was common, although many cats with persistent shunting were clinically normal.
Descriptors: ameroid ring, extrahepatic shunt, cats, scintigraphy, surgery.

Lauten, S.D., N.R. Cox, G.H. Baker, D.J. Painter, N.E. Morrison, and H.J. Baker (2000). **Body composition of growing and adult cats as measured by use of dual energy x-ray**

absorptiometry. *Comparative Medicine* 50(2): 175-183. ISSN: 0023-6764.
NAL Call Number: SF77 .C65
Abstract: Background and Purpose: Total body scans were performed on 89 domestic cats of various ages, using dual energy x-ray absorptiometry (DEXA) to determine body composition, including fat, lean, and bone mineral content. Bone mineral density results from scans also are presented. Methods: This cross sectional study included data for cats from a closed colony and from privately owned cats. Data were grouped by age and were analyzed by sex and reproductive status to provide information as to the rate of growth of the individual components of body composition. Results: The results indicate that the rate of accretion of bone mineral, fat, and lean tissue differs throughout maturation and by sex. Regressions are provided to highlight age- and sex-related differences. Conclusions: The results of this study emphasize the benefits of examining the growth of each component of body composition when studying the effects of nutrition, disease processes, or therapeutic interventions.
Descriptors: cats, laboratory animals, age differences, body weight, radiography, bone density, bone mineralization, body composition, sex differences.

Lee, R. (1995). ***British Small Animal Veterinary Association Manual of Small Animal Diagnostic Imaging***, 2nd edition, British Small Animal Veterinary Association: Cheltenham, 200 p. ISBN: 0905214269 .
NAL Call Number: SF757.8.M3
Descriptors: dogs, cats, disease diagnosis, diagnostic imaging.
Notes: Previous edition published as: Manual of radiography and radiology in small animal practice, 1989.

Lee, R. (1995). ***Manual of Small Animal Diagnostic Imaging***, 2nd edition, British Small Animal Veterinary Association.: Shurdington, Cheltenham, UK, 200 p. ISBN: 0905214269.
NAL Call Number: SF757.8.M3
Descriptors: dogs, diagnosis, ultrasonics, nimal diseases, cats, radiography, analytical, small animal practice.

Lee, R. (Editor) (1995). ***BSAVA Manual of Small Animal Diagnostic Imaging: Manual of Radiography and Radiology in Small Animal Practice***, 2nd edition, British Small Animal Veterinary Association (BSAVA): Cheltenham, uk, 200 p. ISBN: 0905214269 .
NAL Call Number: SF757.8.M3
Descriptors: dogs, cats, disease diagnosis, medicine, diagnostic imaging.

Lemire, T.D. (2000). **Microwave irradiated canine and feline tissues: part 1. Morphologic evaluation**. *Journal of Histotechnology* 23(2): 113-120 . ISSN: 0147-8885.
Descriptors: cell biology, endoscopic, wedge biopsy procedures, invasive, surgical techniques, eosin staining, preparatory techniques, staining method, formalin fixation, hematoxylin staining, microwave irradiation, irradiation method, necropsy, surgical method, paraffin embedding, histological appearance, temperature, PBS, Klotz solution.

Lemire, T.D. and J.C. Duffy (2000). **Microwave irradiated canine and feline tissues: part 2. Immunohistochemical and histochemical staining**. *Journal of Histotechnology* 23(2):

123-131. ISSN: 0147-8885.
Descriptors: histochemical staining, detection, feline tissues, labeling techniques, staining method, immunohistochemical staining, detection, labeling techniques, microwave irradiation, preparatory laboratory techniques, necropsy, invasive, surgical techniques, surgical method, staining intensity.

Lilliehook, I. and B. Larsson (1998). **Utvardering av Cell-Dyn 3500. Hematologiinstrument anpassat till prover fran djur [Evaluation of Cell-Dyn 3500, a haematological instrument adapted for testing animal samples]**. *Svensk Veterinartidning* 50(14): 643-648. ISSN: 0346-2250.
NAL Call Number: 41.9 SV23
Descriptors: hematology, instruments, cells, cell counting, platelets, medicine, haemoglobin, leukocytes, erythrocytes, horses, cattle, sheep, cats.
Language of Text: Swedish with a summary in English.

Luvoni, G.C., P. Testa, and P.A. Biondi (2001). **Intracellular glutathione content in feline oocytes matured in vitro in presence of l-cysteine**. *Theriogenology* 55(1): 483. ISSN: 0093-691X.
NAL Call Number: QP251.A1T5
Descriptors: cell biology, oocytes, cats, L-cysteine, reproductive system, meeting abstract.

Maggs, D.J., B.K. Collins, J.G. Thorne, and M.P. Nasisse (2000). **Effects of L-lysine and L-arganine on in vitro replication of feline herpesvirus type-1.** *American Journal of Veterinary Research* 61(12): 1474-1478. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: feline herpesvirus, viral replication, lysine, arginine, culture media, in vitro, growth rate.

Mai, W. (1998). **Imagerie medicale: Particularites de la radiographie du squelette appendiculaire chez le jeune. 2. Affections traumatiques, metaboliques, inflammatoires, idiopathiques [Diagnostic imaging: Particularities in radiography of young animals appendicular skeleton. 2. Traumatic, metabolic, inflammatory, idiopathic affections.]**. *Le Point Veterinaire* 29(191): 83-87. ISSN: 0303-4997.
Descriptors: dogs, cats, young animals, bones, limbs, radiography, metabolic disorders, inflammation, bone diseases, analytical, body parts, body regions.
Language of Text: French.

Mai, W. and D. Begon (1998). **Imagerie medicale. Echographie de la rate. 2. Etude speciale. [Diagnostic imaging. Spleen ultrasonography. 2. Special study.]**. *Le Point Veterinaire* 29(188): 73-76. ISSN: 0303-4997.
Descriptors: dogs, cats, spleen, echography, lesions, diagnosis, body parts, cardiovascular system .
Language of Text: French.

Manrique, M.L., S.A. Gonzalez, and J.L. Affranchino (2004). **Functional relationship between the matrix proteins of feline and simian immunodeficiency viruses**. *Virology* 329(1):

157-167. ISSN: 0042-6822.
NAL Call Number: 448.8 V81
Descriptors: feline immunodeficiency virus, simian immunodeficiency virus, matrix proteins, chimerism analysis, provirus, functional homology, remotely related lentiviruses, genetic techniques, laboratory techniques, virion production, wild type kinetics.

Martin, D.R., N.R. Cox, G.P. Niemeyer, N.E. Morrison, and H.J. Baker (2002). **Bone marrow stromal cells as therapeutic vehicles for feline GM1 gangliosidosis**. *Developmental Brain Research* 134(1-2): A45. ISSN: 0165-3806.
Descriptors: cell biology, development, nervous system, neural coordination, feline GM1 gangliosidosis, genetic disease, metabolic disease, transplantation, therapeutic method.

Martin de las Mulas, J., C. Reymundo, A. Espinosa de los Monteros, Y. Millan, and J. Ordas (2004). **Calponin expression and myoepithelial cell differentiation in canine, feline and human mammary simple carcinomas**. *Veterinary and Comparative Oncology* 2(1): 24-35. ISSN: 1476-5810.
NAL Call Number: SF910.T8 V484
Descriptors: carcinoma, human diseases, mammary gland neoplasms, neoplasms, prognosis, proteins, cats.

Matheson, J.S., R.T. O'Brien, and F. Delaney (2003). **Tissue harmonic ultrasound for imaging normal abdominal organs in dogs and cats.** *Veterinary Radiology and Ultrasound* 44(2): 205-208. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Abstract: Normal cats (n = 38) and dogs (n = 40) were imaged with fundamental ultrasound and tissue harmonic ultrasound. Images of the liver, gall bladder, spleen, left kidney, urinary bladder, and jejunum were collected in all animals. Images of the left adrenal gland were collected in all dogs. All normal cats and dogs had improved imaging with tissue harmonic ultrasound. The number of organs with improved conspicuity ranged from one to all organs imaged. The most common organ to have improved conspicuity was the jejunum (100% of dogs and 89% of cats). Significant improvement by tissue harmonic ultrasound was seen in images of gall bladder (p = .05) and left adrenal gland (p = .02) in dogs, and spleen, urinary bladder, and intestinal images (p = .01) in cats. Significant improvement was seen in tissue harmonic ultrasound images of the gall bladder in dogs weighing greater than 16 kilograms (p = .03) and in the images of the urinary bladder of dogs weighing less than 16 kilograms (p = .02). These data suggest that image quality improvement of normal organs using tissue harmonic ultrasound is consistent but not predictable. The exception was the jejunum, where improvement was seen in all dogs. Sonographers should be cognizant of the potential benefits of tissue harmonic ultrasound.
Descriptors: abdomen ultrasonography, cats, dogs.

Matsuda, M., N. Matsuda, A. Watanabe, R. Fujisawa, K. Yamamoto, and M. Masuda (2003). **Cell cycle arrest induction by an adenoviral vector expressing hiv-1 vpr in bovine and feline cells.** *Biochemical and Biophysical Research Communications* 311(3): 748-753. ISSN: 0006-291X.

NAL Call Number: 442.8
Descriptors: cell biology, feline cells, western blot, genetic techniques, flow cytometry, histology and techniques, cell cycle arrest, induction, Western blot .

Maxwell, I.H., J. Chapman, F. Maxwell, and J. Corsini (1999). **Introduction of integrin binding motifs into recombinant feline parvovirus for re-targeting to human melanoma cells**. *Journal of Investigative Dermatology* 112(4): 591. ISSN: 0022-202X.
Descriptors: molecular, tumor biology, melanoma, neoplastic disease, gene therapy, in vitro cell study, feline parvovirus, dermatology.

Maxwell, I.H., J.T. Chapman, L.C. Scherrer, a.L. Spitzer, S. Leptihn, F. Maxwell, and J.a. Corsini (2001). **Expansion of tropism of a feline parvovirus to target a human tumor cell line by display of an alphav integrin binding peptide on the capsid**. *Gene Therapy* 8(4): 324-331. ISSN: 0969-7128.
Descriptors: molecular, tumor biology, feline panleukopenia virus, feline cells, oncolytic properties, luciferase, rhabdomyosarcoma, muscle disease, neoplastic disease.

McCann, K.B., A. Lee, J. Wan, H. Roginski, and M.J. Coventry (2003). **The effect of bovine lactoferrin and lactoferricin B on the ability of feline calicivirus (a norovirus surrogate) and poliovirus to infect cell cultures**. *Journal of Applied Microbiology* 95(5): 1026-1033. ISSN: 1364-5072.
NAL Call Number: QR1.J687
Descriptors: cell cultures, culture media, disease models, human diseases, lactoferrin, milk proteins, pathogenesis, peptides, feline calicivirus, polioviruses.

McEntee, M.C. (2004). **A survey of veterinary radiation facilities in the United States during 2001**. *Veterinary Radiology and Ultrasound* 45(5): 476-479. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: mast cells, neoplasms, radiotherapy, equipment, practice.

McSharry, J.J. (1994). **Uses of flow cytometry in virology.** *Clinical Microbiology Reviews* 7(4): 576-604. ISSN: 1098-6618.
Abstract: This article reviews some of the published applications of flow cytometry for in vitro and in vivo detection and enumeration of virus-infected cells. Sample preparation, fixation, and permeabilization techniques for a number of virus-cell systems are evaluated. The use of flow cytometry for multiparameter analysis of virus-cell interactions for simian virus 40, herpes simplex viruses, human cytomegalovirus, and human immunodeficiency virus and its use for determining the effect of antiviral compounds on these virus-infected cells are reviewed. This is followed by a brief description of the use of flow cytometry for the analysis of several virus-infected cell systems, including blue tongue virus, hepatitis C virus, avian reticuloendotheliosis virus, African swine fever virus, woodchuck hepatitis virus, bovine viral diarrhea virus, feline leukemia virus, Epstein-Barr virus, Autographa californica nuclear polyhedrosis virus, and Friend murine leukemia virus. Finally, the use of flow cytometry for the rapid diagnosis of human cytomegalovirus and human immunodeficiency virus in peripheral blood cells of acutely infected patients and the use of this technology to monitor patients on antiviral therapy are reviewed. Future prospects for the rapid diagnosis of in vivo viral and

bacterial infections by flow cytometry are discussed.
Descriptors: flow cytometry, viral, viruses, antibodies, viral analysis, antibodies, viral, viral antigens, forecasting, specimen handling, staining and labeling, methods, viruses.

Mehock, J.R., C.E. Greene, F.C. Gherardini, T.W. Hahn, and D.C. Krause (1998). ***Bartonella henselae* invasion of feline erythrocytes in vitro.** *Infection and Immunology* 66(7): 3462-3466. ISSN: 0019-9567.
NAL Call Number: QR1.I57
Descriptors: cat, infection, erythrocytes, *B. henselae*, in vitro, cell culture.

Mellema, L.M., V.F. Samii, K.M. Vernau, and R.A. LeCouteur (2002). **Meningeal enhancement on magnetic resonance imaging in 15 dogs and 3 cats.** *Veterinary Radiology and Ultrasound* 43(1): 10-15. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: dogs, cats, meninges, nuclear magnetic resonance, imagery, contrast media, diagnostic value, diagnosis, pia mater, dura mater.

Miles, K. (1997). **Imaging abdominal masses.** *Veterinary Clinics of North America: Small Animal Practice* 27(6): 1403-1431. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, geriatrics.

Miles, K. (1995). **Imaging pregnant dogs and cats.** *Compendium on Continuing Education for the Practicing Veterinarian* 17(10): 1217-1220, 1224-1227. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, dogs, pregnancy, radiography, diagnosis, litter size, embryonic development, ionizing radiation, analytical, animal performance, biological development, physiological functions, radiation, reproduction, reproductive performance, sexual reproduction, ultrasonography, fetal development, fetal growth.

Minihan, A.C., J. Berg, and K.L. Evans (2004). **Chronic diaphragmatic hernia in 34 dogs and 16 cats.** *Journal of the American Animal Hospital Association* 40(1): 51-63. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Abstract: Medical records of 34 dogs and 16 cats undergoing surgical repair of diaphragmatic hernia of >2 weeks' duration were reviewed, and long-term follow-up information was obtained. The most common clinical signs were dyspnea and vomiting; however, many of the animals were presented for nonspecific signs such as anorexia, lethargy, and weight loss. Thoracic radiographs revealed evidence of diaphragmatic hernia in only 66% of the animals, and additional imaging tests were often needed to confirm the diagnosis. Thirty-six hernias were repaired through a midline laparotomy; 14 required a median sternotomy combined with a laparotomy. In 14 animals, division of mature adhesions of the lungs or diaphragm to the herniated organs was necessary to permit reduction of the hernia. Fourteen animals required resection of portions of the lungs, liver, or intestine. All hernias were sutured primarily without the use of tissue flaps or mesh implants. Twenty-one of the animals developed transient complications in the postoperative period; the most common of these was pneumothorax. The mortality rate was 14%. Thirty-four (79%) of the animals that were discharged from the hospital had

complete resolution of clinical signs, and none developed evidence of recurrent diaphragmatic hernia during the follow-up period. Nine were lost to follow-up.
Descriptors: Cats, hernia, diaphragm, radiographs, surgery, laparotomy, pneumothorax.

Mischke, R., A. Deniz, and J. Weiss (1995). **Untersuchung zur automatischen Zellzahlung aus Katzenblut. [Automatic cell counting in blood samples from cats]**. *Deutsche Tierarztliche Wochenschrift* 102(11): 435-440. ISSN: 0341-6593.
NAL Call Number: 41.8 D482
Descriptors: cell counting, evaluation, automation, hematology, diagnostic techniques, cats.
Language of Text: German; Summary in English.

Mishina, M., T. Watanabe, K. Fujii, H. Maeda, Y. Wakao, and M. Takahashi (1998). **Non-invasive blood pressure measurements in cats: Clinical significance of hypertension associated with chronic renal failure.** *Journal of Veterinary Medical Science* 60(7): 805-808. ISSN: 0916-7250.
NAL Call Number: SF604 .J342
Descriptors: cats, pressure, hypertension, heart rate, kidney diseases, mineralocorticoids, adrenal cortex hormones, circulation, cardiovascular diseases, corticoids, hormones, organic diseases, physiological functions, urinary tract diseases, vascular diseases.
Language of Text: Japanese; Summary in English.

Mitchener, K.L. (2004). **Mast cell tumours: Unraveling the mysteries of this common disease**. In: *Ontario Veterinary Medical Association Conference Proceedings, February 5, 2004-February 7, 2004, Ottawa, Canada,* Ontario Veterinary Medical Association: Milton, Canada, p. 101-104.
Descriptors: blood, bone marrow, cimetidine, clinical aspects, diagnosis, diagnostic techniques, hematology, histopathology, lymph nodes, mast cells, neoplasms, prednisolone, prednisone, prognosis, radiotherapy, splenectomy, sucralfate, surgery, synthetic glucocorticoids, urine analysis, vinblastine, cats.

Miyamoto, K. (1998). **Computer analysis of inulin plasma clearance curve in conscious cats**. *Journal of the Japan Veterinary Medical Association* 51(9): 511-515. ISSN: 0446-6454.
NAL Call Number: 41.9 J275
Descriptors: filtration, glomerular filtration rate, renal function tests, normal values, cats.
Language of Text: Japanese with a summary in English.

Molotchnikoff, S., J. Aitoubah, F. Bretzner, S. Shumikhina, Y.F. Tan, and J.P. Guillemot (2001). **Comparative computations of spike synchronization in visual cortex of cats.** *Brain Research/ Brain Research Protocols* 6(3): 148-158. ISSN: 1385-299X.
Abstract: In recent years it has been proposed that synchronous activity between neurons is a putative mechanism to bind together various trigger features of an image. Thus the measure of synchronization becomes an important issue since it may be an electrophysiological sign of visual perception. This paper describes and compares six techniques of computing synchronization strength, that is, the central peak of a cross-correlogram. Data were obtained in anesthetized cats prepared for electrophysiological

recordings in a conventional fashion. Results indicate that: (1) eye fits are misleading. Visual inspection of cross-correlograms, may be interesting if one needs to estimate approximately synchronization strength and the presence of oscillations in the cross-correlograms, however it may be misleading if one wants to compare different cross-correlograms; (2) regression analysis to compare one method against the others yields a relatively poor correlation suggesting that methods are not directly comparable; (3) the sensitivity of each computational method is unequal. The results may indicate that some functional connections are either under- or over-evaluated depending upon the strategy employed to measure synchronization.
Descriptors: cortical synchronization, visual cortex, artifacts, cats, regression analysis.

Morcillo, E.J. and J. Cortijo (1999). **Species differences in the responses of pulmonary vascular preparations to 5-hydroxytryptamine**. *Therapie* 54(1): 93-97. ISSN: 0040-5957.
Descriptors: pulmonary hypertension, 5 Hydroxytryptamine, vasoconstriction, isolated feline pulmonary arteries, in vitro .

Morita, T., A. Shimada, T. Ishibashi, K. Kimura, M. Haritani, and T. Umemura (2002). **Congenital spongiform change in the brain stem nuclei of a domestic kitten.** *Journal of Comparative Pathology* 126(2/3): 212-215. ISSN: 0021-9975.
NAL Call Number: 41.8 J82
Descriptors: kittens, medulla oblongata, spongiform encephalopathy, nuclei, symptoms, histopathology, vacuoles, neutrophils, cytoplasm, neurons, tissue ultrastructure.

Mortola, E., Y. Endo, M. Risso, and E. Gimeno (2000). **Estudio comparativo de los efectos antivirales de agentes antioxidantes: n-acetilcisteina y acido ascorbico e inmunosupresores: ciclosporina a y tacrolimus en celulas cronicamente infectadas con el virus de la inmunodeficiencia felina [Comparative study of the antiviral effects of antioxidants, n-acetylcysteine and ascorbic acid and two immunosuppressive agents, cyclosporin a and tracrolimus in a feline cell line chronically infected with feline immunodeficiency virus]**. *Veterinaria Mexico* 31(4): 271-277. ISSN: 0301-5092.
NAL Call Number: SF604 .V485
Descriptors: cell biology, feline fibroblastic cells, infection, feline immunodeficiency virus, antioxidants, apoptosis, immunosuppressive drugs, in vitro .
Language of Text: Spanish.

Muleya, J.S., M. Nakaichi, Y. Taura, R. Yamaguchi, and S. Nakama (1999). **In-vitro anti-proliferative effects of some anti-tumour drugs on feline mammary tumour cell lines**. *Research in Veterinary Science* 66(3): 169-174. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Descriptors: tumor biology, mammary adenocarcinoma cells, recombinant feline interferon gamma, doxorubicin, mitoxantrone, vincristine, cisplatin, in vitro, neoplasms.

Muller, J.G., Y. Isomatsu, S.V. Koushik, M. O'quinn, L. Xu, C.S. Kappler, E. Hapke, M.R. Zile, S.J. Conway, and D.R. Menick (2002). **Cardiac-specific expression and hypertrophic upregulation of the feline na+-ca2+ exchanger gene h1-promoter in a transgenic**

mouse model. *Circulation Research* 90(2): 158-164. ISSN: 0009-7330.
NAL Call Number: RC681 .A1A57137
Descriptors: feline cation exchanger gene, heart, kidney, brain, molecular, luciferase reporter gene, upregulation, feline NCX1 gene.

Munana, K.R., N.J. Olby, N.J.H. Sharp, and T.M. Skeen (2001). **Intervertebral disk disease in 10 cats.** *Journal of the American Animal Hospital Association* 37(4): 384-389. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: cats, intervertebral discs, spinal diseases, hernia, age, clinical aspects, diagnosis, radiography, computed tomography, surgical operations, prognosis, myelography, surgical decompression.

Munday, H.S., D. Booles, P. Anderson, D.W. Poore, and K.E. Earle (1994). **The repeatability of body composition measurements in dogs and cats using dual energy X-ray absorptiometry.** *Journal of Nutrition* 124(12S): 2619S-2621S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: dogs, cats, x radiation, body composition, body weight, bone density, body fat, body lean mass, bones, mineral content, prediction, accuracy.

Mundina Weilenmann, C., L. Vittone, G. Rinaldi, M. Said, G.C. De Cingolani, and A. Mattiazzi (2000). **Endoplasmic reticulum contribution to the relaxant effect of cgmp- and camp-elevating agents in feline aorta**. *American Journal of Physiology* 278(6 Part 2): H1856-H1865. ISSN: 0002-9513.
NAL Call Number: 447.8 Am3
Descriptors: cell biology, cardiovascular system, sodium nitroprusside, endoplasmic reticulum, phosphoalamban, forskolin, feline aorta, tetraethylammonium, Serl6, protein kinase G.

Murakami, T., H. Fujita, T. Fujihara, M. Nakamura, and K. Nakata (2002). **Novel noninvasive sensitive determination of tear volume changes in normal cats.** *Ophthalmic Research* 34(6): 371-374. ISSN: 0030-3747.
Descriptors: ophthalmological diagnostic techniques, polyphosphates, tears secretion, uracil nucleotides, cats, conjunctiva, conjunctiva secretion, fluorescein diagnostic use, fluorophotometry, tibial menisci, ophthalmic solutions, sensitivity and specificity, time factors.

Nath, M.D. and D.L. Peterson (2001). **In vitro assembly of feline immunodeficiency virus capsid protein: biological role of conserved cysteines.** *Archives of Biochemistry and Biophysics* 392(2): 287-294. ISSN: 0003-9861.
NAL Call Number: 381 Ar2
Descriptors: In vitro, cysteine, capsid, FIV.

Ni, Y., S. Dymarkowski, F. Chen, J. Bogaert, and G. Marchal (2002). **Occlusive myocardial infarction enhanced or not enhanced with necrosis-avid contrast agents at MR imaging.** *Radiology* 225(2): 603-605; Author Reply 605-606. ISSN: 0033-8419.
Descriptors: contrast media, magnetic resonance imaging, mesoporphyrins diagnostic

use, metalloporphyrins diagnostic use, myocardial infarction diagnosis, myocardium, cats, dose response relationship, drug, image enhancement, necrosis.

Nishimura, T. (1997). **The intrinsic oscillator regulates neuronal excitability in feline colonic parasympathetic ganglia**. *Journal of the Autonomic Nervous System* 65(2-3): 126. ISSN: 0165-1838.
Descriptors: cell biology, nervous system, animal model, feline colonic parasympathetic ganglia, depolarizing membrane oscillation, digestive system, dmo, enkephalin receptors, muscarinic receptors, nervous system, neuronal excitability, norepinephrine receptors, somatostatin receptors.

Nishimura, T. and T. Tokimasa (1997). **Comparative study of parasympathetic neurons in the rabbit and feline pelvic ganglia**. *Society for Neuroscience Abstracts* 23(1-2): 2284. ISSN: 0190-5295.
NAL Call Number: QP351. S6
Descriptors: cell biology, nervous system, urinary system, chemical coordination, epsps, excitatory postsynaptic potentials, excretory system, nervous system, parasympathetic neurons, feline pelvic ganglia, urinary bladder.

Nishimura, Y., T. Miyazawa, Y. Ikeda, Y. Izumiya, K. Nakamura, J.S. Cai, E. Sato, M. Kohmoto, and T. Mikami (1998). **Molecular cloning and sequencing of feline stromal cell-derived factor-1alpha and beta**. *European Journal of Immunogenetics* 25(4): 303-305. ISSN: 0960-7420.
NAL Call Number: QR184 .J62
Descriptors: immune system, molecular, biochemistry and molecular biophysics, feline stromal cell, cloning, cDNA, feline immunodeficiency virus.

Norman, E.J., R.C.J. Barron, A.S. Nash, and R.B. Clampitt (2001). **Evaluation of a citrate-based anticoagulant with platelet inhibitory activity for feline blood cell counts**. *Veterinary Clinical Pathology* 30(3): 124-132. ISSN: 0275-6382.
NAL Call Number: SF601 .A54
Descriptors: anticoagulants, cells, citrates, EDTA, hematology, leukocyte count, leukocytes, platelets, cats.

Nuanualsuwan, S., T. Mariam, S. Himathongkham, and D.O. Cliver (2002). **Ultraviolet inactivation of feline calicivirus, human enteric viruses and coliphages.** *Photochemistry and Photobiology* 76(4): 406-410. ISSN: 0031-8655.
NAL Call Number: 382 P56
Abstract: Norwalk and Norwalk-like viruses (NLV) are major causes of food- and water-related disease in the United States. There is no host cell line in which the NLV can be tested for infectivity. Feline calicivirus (FCV) and NLV both belong to the family Caliciviridae. FCV can be assayed for infectivity in the Crandell Reese feline kidney cell line, so FCV serves as a surrogate for NLV. This study is the first report of UV inactivation of FCV and also of using the plaque technique, in contrast to the 50% tissue culture infectious dose end point technique, to determine the FCV infectivity titer. The infectivity titers (log10 plaque-forming units/mL) of UV-inactivated FCV, hepatitis A virus (HAV), poliovirus type 1 (PV1) and two small, round coliphages were plotted as a

function of UV dose and analyzed by regression analysis and analysis of variance. These fitted straight-line curves represent exponential inactivation, so UV inactivation can be said to show "one-hit kinetics." The decimal inactivation doses of UV for FCV, HAV, PV1, MS2 and phiX174 were 47.85, 36.50, 24.10, 23.04 and 15.48 mW s/cm2, respectively. FCV appears to be the most UV resistant among the tested viruses.
Descriptors: feline calicivirus, coliphages, ultraviolet rays, calicivirus, calicivirus, cell line, coliphages growth and development, coliphages pathogenicity, *Macaca mulatta*, Norwalk virus growth and development, plaque assay, virulence.

Ny, L., K. Waldeck, E. Carlemalm, and K.E. Andersson (1997). **Alpha-latrotoxin-induced transmitter release in feline oesophageal smooth muscle: focus on nitric oxide and vasoactive intestinal peptide**. *British Journal of Pharmacology* 120(1): 31-38. ISSN: 0007-1188.
Descriptors: cell biology, digestive system, endocrine system, morphology, muscular system, nervous system, toxicology, acetylcholine, alpha latrotoxin, cyclic amp, cyclic gmp, cyclic nucleotide, digestive system, lower esophageal spHincter, muscle tone, muscular system, n g nitro l arginine, nitric oxide, resting membrane potential, ultrastructure, vasoactive intestinal peptide.

Oakley, R., A. Shores, R. Walshaw, D. Rosenstein, and R. Perry (1995). **Computed tomography as an aid to diagnosing vertebral osteomyelitis.** *Progress in Veterinary Neurology* 6(3): 95-99. ISSN: 1061-575X.
NAL Call Number: SF895 .P76
Descriptors: cats, dogs, osteomyelitis, radiography, spine, diagnosis, case studies, foreign bodies, biopsy, antibiotics, analytical, biological analysis, body parts, bone diseases, bones, musculoskeletal diseases, pollutants .

Odening, K., K. Frolich, B. Kirsch, and I. Bockhardt (1997). **Sarcocystis: development of sporocysts in cell culture**. *Journal of Protozoology Research* 7(1): 9-16. ISSN: 0917-4427.
NAL Call Number: QL366 .J68
Descriptors: parasitology, cell culture, sporocysts, *Sarcocystis hofmanni*, *Cervus albirostris*, *S. gracilis*, *S. sibirica*, feline kidney cell lines, in vitro gamogony, sporogony, *S. cuniculorum*, Sarcocystis .

Ogilvie, G.K. (1995). **Hematopoietic growth factors: Frontiers for cure.** *Veterinary Clinics of North America, Small Animal Practice* 25(6): 1441-1456. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: immunological factors, cytokinins, growth, hormones, haematopoiesis, erythropoietin, interleukins, biological development, composition, proteins, glycoproteins, hormones, immunological factors, physiological functions, plant growth substances, proteins, stem cell factor, cytokines, hematopoiesis, colony stimulating factor.
Notes: In the series: Canine and feline transfusion medicine, edited by A.T. Kristensen and B.F. Feldman.

Okabayashi, K., R. Kano, K. Sirouzu, T. Yanai, M. Mizuno, H. Yamamura, S. Saegusa, and A. Hasegawa (2003). **Detection of cap59 gene in 2 feline cases of systemic cryptococcosis.** *Journal of Veterinary Medical Science* 65(8): 953-955. ISSN: 0916-7250.

NAL Call Number: SF604 .J342
Descriptors: infection, molecular, systemic cryptococcosis, fungal disease, infectious disease, gene detection, genetic techniques, laboratory techniques, polymerase chain reaction, pcr, genetic techniques, feline, *Cryptococcus neoformans*, teleomorph, Filobasidiella.

Okuno, S., H. Nakase, and T. Sakaki (2001). **Comparative study of 2,3,5-triphenyltetrazolium chloride (TTC) and hematoxylin-eosin staining for quantification of early brain ischemic injury in cats.** *Neurological Research* 23(6): 657-661. ISSN: 0161-6412.
Abstract: There are no staining methods that can reliably and unequivocally detect final infarcts in the acute stage of experimental ischemia. In most instances, 2,3,5-triphenyltetrazolium chloride (TTC) and hematoxylin and eosin (HE) stainings are accepted for this purpose, but neither is perfect. We performed a comparative study of the TTC immersion method and HE staining for quantification of early brain ischemic injury in cats, focussing on the reproducibility associated with planimetry. Focal brain ischemia was produced by middle cerebral artery (MCA) occlusion via the transorbital approach in 14 cats. After 6 h of occlusion, two slices of 3 mm thickness, passing through the optic chiasma and mammillary body, were selected for pathological examination. TTC immersion and HE staining were both used for planimetric study of the surface of the same slice. The area of the injury was traced manually with the aid of computerized digital planimetry and expressed as a percentage of the area of the contralateral hemisphere. The area of hemispheric injury and the area of gray matter injury were separately calculated in the TTC specimens, and each was compared with the area of gray matter injury in the HE-stained specimens. Measurements were repeated twice on each slice to estimate errors associated with manual tracing of the boundary of the area of injury. The mean percentage values of the area of injury in the TTC-immersed gray matter specimens were lower than those detected by HE staining, although there was a very significant correlation between the two. The differences between each two measurements of TTC-determined gray matter injury were significantly less than those between each two measurements of HE-determined gray matter injury. The differences between each two measurements of TTC-determined hemispheric injury were slightly less than those between each two measurements of TTC-determined gray matter injury, although there was no significant difference between them. For quantifying ischemic injury after 6 h of MCA occlusion in cats, the TTC immersion method is more reproducible and simpler in manner than HE staining, but the results of both are significantly correlated.
Descriptors: brain infarction, brain ischemia, dyes diagnostic use, eosine yellowish diagnostic use, hematoxylin diagnostic use, staining and labeling, tetrazolium salts diagnostic use, cats, neurons, telencepHalon.

Osborne, C.A., J.P. Lulich, and L.K. Unger (1997). **Non-surgical retrieval of uroliths for mineral analysis**. 19(1): s37-s39. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: diagnostic techniques, diagnosis, urinary tract diseases, urolithiasis, cats.

Pacchiana, P.D., R.S. Gilley, L.J. Wallace, D.W. Hayden, D.A. Feeney, C.R. Jessen, and B. Aird (2004). **Absolute and relative cell counts for synovial fluid from clinically normal shoulder and stifle joints in cats**. *Journal of the American Veterinary Medical Association*

225(12): 1866-1870. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: arthrocentesis, body weight, diagnosis, histology, joints animal, leukocyte count, morphology, neutrophils, osteoarthritis, shoulders, stifle, synovial fluid, cats.

Partington, B.P. and D.S. Biller (1995). **Hepatic imaging with radiology and ultrasound.** *Veterinary Clinics of North America, Small Animal Practice* 25(2): 305-335. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, liver, radiography, ultrasonics, optical properties, liver diseases, gall bladder, vascular diseases, analytical, body parts, cardiovascular diseases, chemicophysical properties, digestive system, liver, organic diseases, radiations, sound, cholecystography, position, contrast media, opacity, gall bladder diseases.
Notes: In the series analytic: Liver disease, edited by Donna S. Dimski.

Phadke, A.P., I.S. Choi, Z.X. Li, E. Weaver, and E.W. Collisson (2004). **The role of inducer cells in mediating in vitro suppression of feline immunodeficiency virus replication**. *Virology* 320(1): 63-74. ISSN: 0042-6822.
NAL Call Number: 448.8 V81
Descriptors: lymphocytes, fibroblasts, viral replication, cats, feline immunodeficiency virus.

Piacentino, V.I., J.P. Gaughan, and S.R. Houser (1999). **Calcium current, not depolarization, induces contraction in feline ventricular myocytes**. *Biophysical Journal* 76(1 PART 2): A457. ISSN: 0006-3495.
NAL Call Number: 442.8 B5238
Descriptors: molecular biophysics, cardiovascular system, feline vetricular myocytes, transport and circulation, cell biology, calcium current, contraction.

Piacentino, V.I., D. Harris, and S.R. Houser (2002). **Defective diastolic ca handling can be induced in normal feline ventricular myocytes by inhibition of the sr caatpase**. *Biophysical Journal* 82(1 Part 2): 598a. ISSN: 0006-3495.
NAL Call Number: 442.8 B5238
Descriptors: cardiovascular system, transport and circulation, biochemistry and molecular biophysics, cell biology, heart failure, heart disease, action potential, sodium, calcium exchange, feline ventricular myocytes.

Piirsalu, K., R. McLean, R. Zuber, K. Bannister, S. Penglist, J. Bellen, and R. Bais (1994). **Role of I-123 serum amyloid protein in the detection of familial amyloidosis in Oriental cats.** *Journal of Small Animal Practice* 35(11): 581-586. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: cats, amyloidosis, breeds, amyloid, liver, diagnostic value, scintigraphy.

Qureshi, M.A. and R.A. Ali (1996). **Spirulina platensis exposure enhances macrophage phagocytic function in cats**. *Immunopharmacology and Immunotoxicology* 18(3): 457-463. ISSN: 0892-3973.
NAL Call Number: RM370 .I55
Descriptors: macropHage, cats, cell biology, immune system, infection, bronchoalveolar

lavage, cytotoxicity, immune response, Spirulina platensis, disease resistance, Escherichia coli, cell culture .

Ray, N.B., C. Power, W.P. Lynch, L.C. Ewalt, and D.L. Lodmell (1997). **Rabies viruses infect primary cultures of murine, feline, and human microglia and astrocytes.** *Archives of Virology* 142(5): 1011-1019. ISSN: 0304-8608.
NAL Call Number: 448.3 Ar23
Abstract: Recent studies have reported the detection of rabies viral antigens and virions in astrocytes and microglia of rabies-infected animals. As a first step toward understanding whether these glial cells may be involved in rabies virus replication, persistence, and/or pathogenesis, we explored their potential to be infected in vitro. Primary cultures of murine, feline, and human microglia and astrocytes were infected with several different rabies viruses: two unpassaged street virus isolates, a cell culture-adapted strain, and a mouse brain-passaged strain. Infection, as determined by immunofluorescence, was detected in 15 of the 16 (94%) virus-glial cell combinations. Replication of infectious virus, determined by infectivity assay, was detected in 7 of the 8 (88%) virus-cell combinations. These results show that astrocytes and microglia can be infected by rabies viruses, suggesting that they may have a potential role in disease, perhaps contributing to viral spread, persistence and/or neuronal dysfunction.
Descriptors: rabies virus, brain, cell cultures, infections, in vitro.

Reichke, J.K., S.P. DiBartola, and R. Leveille (2002). **Renal ultrasonographic and computed tomographic appearance, volume, and function of cats with autosomal dominant polycystic kidney disease.** *Veterinary Radiology and Ultrasound* 43(4): 368-373. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: cats, kidney diseases, genetic disorders, renal failure, cysts, volume determination, ultrasonography, computed tomography, glomerular filtration rate, kidneys, scintigraphy, neuroleptics.

Reinhart, G.A. (1996). **Review of omega-3 fatty acids and dietary influences on tissue concentrations.** In: *Recent Advances in Canine and Feline Nutritional Research: Proceedings of the 1996 Iams International Nutrition Symposium,* Orange Frazer Press: Wilmington, Ohio, p. 235-242. ISBN: 1882203097.
NAL Call Number: SF427.4.I26
Descriptors: dogs, essential fatty acids, eicosanoids, inflammation, arachidonic acid, eicosapentaenoic acid, dietary fat, linoleic acid, skin diseases, therapeutic diets, pruritus.
Notes: Paper presented at the "Iams International Nutrition Symposium" held April 17-20, 1996, in Boca Raton, Florida.

Risselada, M., M. Kramer, H. de Rooster, O. Taeymans, P. Verleyen, and H. Van Bree (2005). **Ultrasonographic and radiographic assessment of uncomplicated secondary fracture healing of long bones in dogs and cats.** *Veterinary Surgery* 34(2): 99-107. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Abstract: Objectives-To evaluate the use of ultrasonography (US) to detect bone healing in uncomplicated diaphyseal fractures of dogs and cats, and to compare these

observations with detection of healing by radiography (RG). Study Design-Clinical study. Animals-Dogs (33) and cats (11). Methods-RG and brightness mode US were used to follow uncomplicated secondary fracture healing. Fractures were examined at admission and then every 2-4 weeks until healed or implant removal. Temporal differences in definitive detection of healed fracture by imaging technique were examined by species, patient age, bone, and fracture type. Results-US images obtained during uncomplicated secondary fracture healing were consistent with images of fracture healing described in humans. Mean time to US diagnosis of a healed fracture (mean 46 days) was significantly shorter than by RG (mean 66 days). Mean time until diagnosis of a healed fracture (US and RG) did not differ significantly between open and closed treatment. Patients </=7 months (n=9) healed significantly faster (P<.05) than animals aged 7-36 months (n=24) and animals >36 months (n=11), but there was no significant difference between the latter 2 groups. Diagnosis of a healed simple fracture by US was significantly quicker than for a comminuted fracture (P<.05), but no difference was noted when using RG. Conclusions-US can be used to evaluate secondary fracture healing in biologically treated fractures in dogs and cats. US permits detection of a healed fracture earlier than RG. Clinical Relevance-Earlier diagnosis of a healed fracture by US can prevent unnecessarily long limb immobilization and allow earlier dynamization.
Descriptors: cats, ultrasound, bone healing, fractures, X-ray, long limb.

Roberts, L.O., N. Al Molawi, M.J. Carter and G.E.N. Kass (2004). **Apoptosis in cultured cells infected with feline calicivirus**. In: *Apoptosis: From Signaling Pathways to Therapeutic Tools*, Vol. 1010, New York Academy of Sciences: New York, New York, USA, p. 587-590. ISBN: 1573314757.
Descriptors: cell biology, infection, apoptosis, cell damage mechanism, chromatin condensation.

Saint Andre Marchal, I., C. Dezutter Dambuyant, B.J. Willett, J.C. Woo, P.F. Moore, J.P. Magnol, D. Schmitt, and T. Marchal (1997). **Immunophenotypic characterization of feline Langerhans cells.** *Veterinary Immunology and Immunopathology* 58(1): 1-16. ISSN: 0165-2427.
NAL Call Number: SF757.2. V38
Abstract: To carry out the characterization of feline Langerhans cells (LC), first described in 1994, we used a panel of monoclonal antibodies (MAb) known to react with human, canine and feline leukocyte membrane antigens (Ag). The immunolabeling was performed, at light microscope level, on frozen sections of feline skin and labial mucosa using an avidin-biotin-peroxidase technique, and at electron microscope level on epidermal cell suspensions using an immunogold technique. Out of the 52 MAb tested, six labeled basal or suprabasal DC cells in the frozen sections, either in epidermis or lip epithelium: MHM23 (anti-human CD18), CVS20 and vpg3 (respectively anti-canine and feline-major histocompatibility complex class II molecules), vpg5 (anti-feline leukocytes), vpg39 (anti-feline CD4) and Fel5F4 (anti-feline CD1a). These six MAb were used on suspensions, and labeled cells which showed no desmosomes or melanosomes, but contained 'zipper-like' structures similar to Birbeck granules (BG) in their cytoplasm, revealing they were LC. Consequently, feline LC are CD18-positive (CD18+), major histocompatibility complex class II-positive (Class II+), CD1a-positive (CD1a+), vpg5-

positive (vg5+) and CD4-positive (CD4+). This immunophenotypic and ultrastructural characterization demonstrates that feline LC share many characteristics with their human counterparts, a fact that will allow us to study the role of feline LC in certain feline diseases such as Feline Immunodeficiency Virus (FIV) infection, since it has been shown that human LC cells are HIV-permissive, and to establish an animal model for human AIDS.
Descriptors: cats, langerhans cells ultrastructure, antibodies, monoclonal, CD1 antigens, CD1 antigens8, antigens, cd4, cell separation, cytoplasmic granules ultrastructure, dogs, epidermis, frozen sections, histocompatibility antigens class ii, lip, microscopy, immunoelectron, phenotype.

Salvadori, C., M. Modenato, D.S. Corlazzoli, M. Arispici, and C. Cantile (2005). **Clinicopathological features of globoid cell leucodystrophy in cats**. *Journal of Comparative Pathology* 132(4): 350-356. ISSN: 0021-9975.
Online: http://www.sciencedirect.com/science/journal/00219975
NAL Call Number: 41.8 J82
Descriptors: animal, case reports, clinical aspects, histopathology, lesions, metabolic disorders, nervous system diseases, peripheral nerves, cats.

Sarli, G., C. Benazzi, R. Preziosi, L. Della Salda, G. Bettini, and P.S. Marcato (1999). **Evaluating mitotic activity in canine and feline solid tumors: standardizing the parameter**. *Biotechnic and Histochemistry* 74(2): 64-76. ISSN: 1052-0295.
NAL Call Number: QH613 .B56
Descriptors: tumor biology, feline solid tumors, neoplastic disease, histochemistry, immunohistochemical, immunocytochemical techniques, analytical method, image analysis, analysis, characterization techniques, image analyzer, cytometrica, laboratory equipment; immunohistochemistry, silver NOR, staining, visualization, toluidine, cell proliferation, mitoses, area, mitosis, mitotic count, mitotic index.

Sasaki, N., H. Shibata, T. Honjoh, K. Kimura, M. Saito, and I. Ohishi (2001). **cDNA cloning of feline leptin and its mRNA expression in adipose tissue**. *Journal of Veterinary Medical Science* 63(10): 1115-1120. ISSN: 0916-7250.
NAL Call Number: SF604 .J342
Descriptors: adipose tissue, amino acid sequences, DNA cloning, DNA sequencing, gene expression, leptin, messenger RNA, nucleotide sequences, polymerase chain reaction, reverse transcription, tissue distribution, cats.

Sato, A.F. and M. Solano (2004). **Ultrasonography findings in abdominal mast cell disease: a retrospective study of 19 patients**. *Veterinary Radiology and Ultrasound* 45(1): 51-57. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: abdomen, diagnosis, digestive tract, histopathology, kidneys, liver, lymph nodes, mast cells, neoplasms, spleen, ultrasonography, cats, dogs.

Schatz, S.P.R. (2001). **Measurement of faecal cortisol metabolites in cats and dogs: a non-invasive method for evaluating adrenocortical function.** *Veterinary Research Communications* 25(4): 271-287. ISSN: 0165-7380.

NAL Call Number: SF601. V38
Abstract: The aim of this comparative study was to gain more information about the metabolism and excretion of glucocorticoids in cats and dogs in order to establish non-invasive methods for evaluating stressful conditions. Therefore, in a first experiment, [14C]cortisol was administered intravenously to 8 animals (two of each sex and species). Over a period of 6 days, faeces and urine were collected immediately after spontaneous defecation and urination. Marked species differences were found, as cats mainly excreted cortisol in the faeces (82% +/- 4% of the total recovered radioactivity), whereas in dogs only a small portion was found there (23% +/- 4%). The highest urinary radioactivity was observed after 9 +/- 3 h in cats and 3 +/- 1 h in dogs. Peak concentrations in the faeces occurred after 22 +/- 6 h in cats and after 24 +/- 4 h in dogs. Most of the radioactivity was not extractable with diethyl ether, indicating that the metabolites excreted in urine and faeces were mainly of the conjugated or polar unconjugated types. This was confirmed by RP-HPLC, which also revealed marked differences between cats and dogs concerning the metabolites formed. In addition, the immunoreactivity of the metabolites was tested in cortisol, corticosterone and 11-oxoaetiocholanolone EIAs. The latter, measuring 11,17-dioxoandrostanes (11,17-DOA) detected the highest quantities of immunoreactive metabolites in cats, but not in dogs. In a second experiment, the adrenal cortex of both species was stimulated by ACTH and, three weeks later, suppressed by dexamethasone. In this study, only faeces were collected over a period of 7 days. In both species, inter-animal variability in the basal and maximal/minimal faecal cortisol metabolite concentrations and the time course was observed. The 11-oxoaetiocholanolone EIA in cats and the cortisol EIA in dogs proved best suited for monitoring changes in adrenocortical activity. ACTH injections resulted in an increase above baseline values of 355%, (median) in 11,17-DOA concentrations in cats and of 702% in the concentrations of cortisol equivalents in dogs by about 25 h and 22 h (median) after injection, respectively. Minimal concentrations after dexamethasone administration were about 17% in cats and 31% in dogs (in relation to baseline values) and were reached in 66 h and 72 h, respectively. It was concluded that measuring cortisol metabolites in faeces should be a useful non-invasive tool for monitoring stress in carnivores.
Descriptors: adrenal cortex, cats, dogs, feces, hydrocortisone, adrenal cortex, cats, chromatography, high pressure liquid, corticotropin, dexamethasone, dogs, glucocorticoids, hydrocortisone analysis, hydrocortisone urine, immunoenzyme techniques, nonparametric statistics.

Schijns, V.E. and W.G. Bradley (1997). **Cytokines in Veterinary Medicine**. *Feline Cytokines*, Vol. 251-256, CAB International: Wallingford, England, UKISBN: 0851992099.
NAL Call Number: SF757.25.C997
Descriptors: immune system, molecular, biochemistry and molecular biophysics, feline cytokines.

Schiller, A. (1998). ***Topographische und angewandte Anatomie des Auges und Ohres der Katze unter besonderer Berucksichtigung moderner bilgebender Verfahren (CT und MRT) [Topographical and applied anatomy of the eyes and ears of cats, examined by computer tomography and magnetic resonance imaging]***.

Dissertation, Fachbereich Veterinärmedizin, Freie Universität: Berlin. 141 p.
Online: http://www.diss.fu-berlin.de/1998/82/indexe.html
Descriptors: anatomy, eyes, computed tomography, magnetic resonance imaging, cats.
Language of Text: German; Summary in English.

Schober, K.E., V.L. Fuentes, and J.D. Bonagura (2003). **Comparison between invasive hemodynamic measurements and noninvasive assessment of left ventricular diastolic function by use of Doppler echocardiography in healthy anesthetized cats**. *American Journal of Veterinary Research* 64(1): 93-103. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: beta blockers, flow, cardiac output, cardiovascular agents, echocardiograpHy, haemodynamics, heart, heart rate, methodology, ventricles, cats.

Schoster, J.V., L. Wickman, and C. Stuhr (1995). **The use of ultrasonic pachymetry and computer enhancement to illustrate the collective corneal thickness profile of 25 cats.** *Veterinary Comparative Ophtalmology* 5(2): 68-73. ISSN: 1076-4607.
NAL Call Number: SF891 .P78
Descriptors: cats, cornea, ultrasonography, thickness, computer techniques.

Scrivani, P.V., R.M. Bednarski, C.W. Myer, and N.L. Dykes (1996). **Restraint methods for radiography in dogs and cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 18(8): 899-915. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, restraint of animals, radiography, neuroleptics, anesthesia, contrast media.

Seitz, S.E., J.M. Losonsky, and S.M. Marretta (1996). **Computed tomographic appearance of inflammatory polyps in three cats.** *Veterinary Radiology and Ultrasound* 37(2): 99-104. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: cats, ears, inflammation, nose, case studies, radiography, analytical, body parts, disorders, respiratory system, sense organs, computed tomography.

Shikamoto, Y., S. Shibusawa, I. Okuyama, and T. Morita (1997). **Characterization of membrane-associated prothrombin activator in normal and injured murine tissues.** *Federation of European Biochemistry Societies Letters* 412(3): 526-30. ISSN: 0014-5793.
Abstract: Thrombin is a multifunctional enzyme involved in coagulation, cell modulation and inflammation. We recently reported a novel membrane-associated prothrombin activator, abbreviated as MAPA, found in cultured fibroblasts and glial cell lines. In this study, we examined the physiological role of this enzyme. MAPA-like activity was detected in the liver, kidney, lung and heart but not in the spleen or brain in normal mice. To examine whether MAPA participates in biological reactions, hepatic and renal injury were induced by administration of CCl4 and HgCl2, respectively. MAPA-like activity was specifically increased in the injured tissues: the activity was elevated by about 100-fold in 48 h in the liver and increased by about 5-fold in 12 h in the kidney. Their enzymatic properties were the same as those of MAPA in 8C feline kidney fibroblast cells. Phospholipids are required for activation of prothrombin by MAPA obtained from

both 8C cells and tissues. These results suggest that MAPA activates prothrombin on the cell surface in injured tissue and participates in inflammation and regeneration associated with tissue injury.
Descriptors: kidney, liver, membrane proteins, prothrombin, coagulation, carbon tetrachloride, cell line, injections, intraperitoneal, injections, subcutaneous, kidney, kidney, liver, liver, membrane proteins, mercuric chloride, mice, phospholipids, prothrombin.

Shimada, Y., M. Kiyosawa, T. Nariai, K. Oda, H. Toyama, K. Ono, M. Senda, and K. Ishiwata (2003). **Quantitative in vivo measurement of central benzodiazepine receptors in the brain of cats by use of positron-emission tomography and [11C]flumazenil.** *American Journal of Veterinary Research* 64(8): 999-1002. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To map central benzodiazepine receptors (BZRs) in the brain of cats by use of positron-emission tomography (PET) and [11C]flumazenil. ANIMALS: 6 male cats that weighed between 2.0 and 3.6 kg. PROCEDURE: Brain images obtained by PET evaluation of [11C]flumazenil were superimposed on T2-weighted magnetic-resonance imaging (MRI) scans of the same cats. Detailed anatomic regions, such as the cerebral cortex, striatum, thalamus, midbrain, and cerebellum, on the PET images were evident by PET-MRI registration. Regional binding of [11C]flumazenil to BZRs was quantitatively measured by use of a model with 2 tissue compartments and 4 variables. RESULTS: The highest value for distribution volume was observed in the cerebral cortex, and the lowest value was found in the midbrain of cats. CONCLUSIONS AND CLINICAL RELEVANCE: Binding of [11C]flumazenil to BZRs in the brain of cats can be quantitatively measured by use of PET with the aid of PET-MRI registration. It is difficult to diagnose changes in these neuroreceptors within the field of current veterinary science. In the future, PET should prove useful for investigating and diagnosing brain disorders in animals in clinical settings.
Descriptors: brain, cats, flumazenil, gaba modulators, gaba a receptors, emission computed of tomography, brain, carbon radioisotopes, flumazenil, gaba modulators.

Shimojima, M., Y. Nishimura, T. Miyazawa, K. Kato, K. Nakamura, Y. Izumiya, H. Akashi, and Y. Tohya (2002). **A feline CD2 homologue interacts with human red blood cells**. *Immunology* 105(3): 360-366. ISSN: 0019-2805.
NAL Call Number: 448.3 IM6
Descriptors: feline, immune system, T lymphocytes, human CD2, monocytes, cultured lymphoid cells, human red cells, rosette formation.

Shimura, S. (2001). **Extracellular ATP regulation of airway secretion**. *Drug Development Research* 52(1-2): 170-177. ISSN: 0272-4391.
Descriptors: feline trachea, respiratory system, northern blot, analytical method, immunohistochemistry, patch clamp technique, submucosal glands, airway secretion, ATP, epithelium.

Sin, J.I. and S. Specter (1996). **The role of interferon-gamma in antiretroviral activity of methionine enkephalin and AZT in a murine cell culture.** *The Journal of Pharmacology and Experimental Therapeutics* 279(3): 1268-73. ISSN: 0022-3565.

NAL Call Number: 396.8 J82
Abstract: The ability of spleen cells treated with methionine enkephalin (Met-ENK) in the presence of 3'-azido-3'-deoxythymidine (AZT) to produce cytokines and inhibit Friend leukemia virus (FLV) replication in Mus dunni cell cultures was investigated. In the presence of murine spleen cells, combination treatments using AZT plus Met-ENK or concanavalin A reduced FLV replication by 63% and 84%, respectively, as compared with 47% for AZT alone. When interleukin (IL)-2, IL-4 and interferon (IFN gamma) levels were measured in FLV-infected cell cultures, both AZT and Met-ENK treatments induced a higher production of IFN gamma and a slight increase in IL-2 and IL-4, as compared with either treatment alone. Subsequent treatment of FLV-infected cells with concanavalin A-stimulated cell supernatants, containing approximately 10 U/ml each of IFN gamma and IL-2, resulted in inhibition of viral replication. Thus, in the absence of spleen cells, IFN gamma was added to cell cultures to determine whether this cytokine contributed to combination antiviral effects. Results show that addition of IFN gamma alone results in a slight suppression of FLV expression, whereas treatment with both AZT and IFN gamma inhibits FLV replication significantly. Subsequently, addition of anti-IFN gamma antibody to cell cultures treated with Met-ENK blocked antiviral effects due to this neuropeptide. Thus anti-FLV effects of spleen cells treated with Met-ENK in combination with AZT are mediated to a large degree by IFN gamma.
Descriptors: antiviral agents, enkephalin, methionine, zidovudine, cells, cultured, concanavalin a, drug synergism, interferon type II biosynthesis, interleukin 2 biosynthesis, interleukin 4 biosynthesis, leukemia virus, feline, leukemia virus, feline, mice, mice, inbred balb C, spleen, spleen, virus replication.

Smith, S.A., D.S. Biller, S.L. Kraft, J.M. Goggin, and J.J. Hoskinson (1998). **Diagnostic imaging of biliary obstruction.** *Compendium on Continuing Education for the Practicing Veterinarian* 20(11): 1225-1234. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, jaundice, digestive system diseases, radiography, gall bladder, ultrasonics, echography, scintigraphy, bile ducts, bile, analytical, body fluids, body parts, digestive system, liver, liver diseases, organic diseases, radiation, sound, tracer techniques, cholangiograpHy, cholestasis, cholelithiasis, ultrasonography .

Snyder, L.A., E.R. Bertone, R.M. Jakowski, M.S. Dooner, J. Jennings Ritchie, and A.S. Moore (2004). **p53 expression and environmental tobacco smoke exposure in feline oral squamous cell carcinoma**. *Veterinary Pathology* 41(3): 209-214. ISSN: 0300-9858.
NAL Call Number: 41.8 P27
Descriptors: carcinogenesis, gene expression, genes, mouth, neoplasms, predisposition, questionnaires, risk factors, tobacco smoking, cats.

Sosnovtsev, S.V., E.A. Prikhod'ko, G. Belliot, J.I. Cohen, and K.Y. Green (2003). **Feline calicivirus replication induces apoptosis in cultured cells.** *Virus Research* 94(1): 1-10. ISSN: 0168-1702.
NAL Call Number: QR375. V6
Descriptors: infection, feline calicivirus infection, viral disease, feline kidney cells, apoptosis, chromatin condensation, viral replication, de novo synthesis.

Specke, V., S.J. Tacke, K. Boller, J. Schwendemann, and J. Denner (2001). **Porcine endogenous retroviruses: in vitro host range and attempts to establish small animal models**. *Journal of General Virology* 82(4): 837-844. ISSN: 0022-1317.
NAL Call Number: QR360. A1J6
Descriptors: infection, reverse transcriptase polymerase chain reaction, polymerase chain reaction, in vitro infection studies, analytical method.

Steriade, M., F. Amzica, and D. Contreras (1994). **Cortical and thalamic cellular correlates of electroencephalographic burst-suppression.** *Electroencephalography and Clinical Neurophysiology* 90(1): 1-16. ISSN: 0013-4694.
Abstract: This experimental study on anesthetized cats used intracellular recordings of cortical, thalamocortical and reticular thalamic neurons (n = 54), as well as multi-site extracellular recordings (n = 36), to investigate the cellular correlates of EEG burst-suppression patterns, defined as alternating wave bursts and periods of electrical silence. Burst-suppression was elicited by the administration of the same or other anesthetic agents upon the background of an already synchronized EEG activity. About 95% of cortical cells entered burst-suppression, in close time-relation with EEG activity, displaying sequences of phasic depolarizing events associated with bursts of EEG waves and an electrical silence of the neuronal membrane during flat EEG epochs. The membrane potential (Vm) hyperpolarized by approximately 10 mV prior to any EEG change and the slow rhythms reflecting deep stages of anesthesia progressively disorganized with transition to burst-suppression. During flat EEG epochs, the apparent input resistance (tested through short hyperpolarizing current pulses) decreased (range 12-60%) and neuronal responsiveness to orthodromic volleys (tested by thalamic and cortical evoked excitatory postsynaptic potentials) was dramatically reduced. It is proposed that the decreased input resistance is mainly due to an increase in K+ conductances. At variance with cortical neurons, only 60-70% of thalamic cells ceased firing before overt EEG burst-suppression and were completely silent during flat periods of EEG activity. The remaining 30-40% of thalamic cells discharged rhythmic (1-4 Hz) spike bursts during periods of EEG silence. This rhythm, within the frequency range of delta waves, is generated in thalamic cells by the interplay between two of their intrinsic currents at critical levels of Vm hyperpolarization. However, with the deepening of burst-suppression, when silent EEG periods became longer than 30 sec, thalamic cells also ceased firing. The assumption that full-blown burst-suppression is achieved through virtually complete disconnection in brain circuits implicated in the genesis of the EEG is corroborated by the revival of normal cellular and EEG activities after volleys setting into action thalamic and cortical networks.
Descriptors: cerebral cortex, electroencephalography, thalamus, cats, membrane potentials, synapses.

Steyn, P.F., D. Twedt, and W. Toombs (1996). **The scintigraphic evaluation of solid phase gastric emptying in normal cats.** *Veterinary Radiology and Ultrasound* 36(4): 327-331. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: cats, digestion, analytical, computer applications, digestive system, technetium, radioisotopes, stomach, body parts, digestive system, elements, isotopes,

metallic elements, physiological functions, transition elements, scintigraphy, computer techniques, transit time, stomach emptying.

Sweeney, D.J., K.L. Riggs, R.L. Johnson, D.E. Kiehl, J.O. Clark, and S.A. Wrighton (2004). **In vitro metabolism of macrolide antibiotics using feline, canine, and phenobarbital-induced canine microsomes**. *Drug Metabolism Reviews* 36(Suppl. 1): 206. ISSN: 0360-2532.
NAL Call Number: RM301.D73
Descriptors: metabolism, macrolide antibiotics, feline microsomes, n demethylation, food producing animal.

Takagi, S. (2000). **A basic study on the possible application of differentiation therapy for feline mammary carcinoma**. *The Japanese Journal of Veterinary Research* 48(1): 77. ISSN: 0047-1917.
NAL Call Number: 41.8 V6446
Descriptors: pharmacology, reproduction, tumor biology, feline mammary carcinoma, neoplastic disease, reproductive system disease, female, treatment, differentiation therapy, application, therapeutic method.

Tanaka, A., Y. Takagi, K. Nakagawa, Y. Fujimoto, T. Hori, and T. Tsutsui (2000). **Artificial intravaginal insemination using fresh semen in cats**. *Journal of Veterinary Medical Science* 62(11): 1163-1167. ISSN: 0916-7250.
NAL Call Number: SF604 .J342
Descriptors: artificial insemination, conception rate, HCG, ovulation, semen, spermatozoa, cats.

Tateyama, S., B.P. Priosoeryanto, R. Yamaguchi, K. Uchida, K. Ogiwara, and A.T. Suchiya (1995). **In vitro growth inhibition activities of recombinant feline interferon on all lines derived from canine tumours.** *Research in Veterinary Science* 59(3): 275-277. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Abstract: To evaluate the anti-tumour effect of recombinant feline interferon (rFeIFN) against canine neoplastic cells, the antiproliferation and anti-colony-forming activities of rFeIFN were investigated in vitro, using four cell lines derived from canine tumours; oral acanthomatous epulis (MCA-B1), mammary benign mixed tumour (MCM-B2), squamous cell carcinoma (CSCC), and malignant melanoma (CMC-1). The rFeIFN had a dose-dependent inhibitory effect on the cell growth and colony formation of all the cell lines, although the degree of inhibition was lower than that in the feline cell lines used as a positive control, and the sensitivity of the cells to rFeIFN differed.
Descriptors: interferon, cell lines, neoplasms, dogs, in vitro, inhibition, antineoplastic agents.

Tidwell, A.S., M. Solano, and S.H. Schelling (1994). **Pediatric neuroimaging.** *Seminars in Veterinary Medicine and Surgery Small Animal* 9(2): 68-85. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: puppies, kittens, radiography, diagnosis, nervous system, nervous system diseases, young animals, animal diseases, analytical, animal morphology, cats, dogs,

organic diseases, young animals, magnetic resonance, ultrasonography, computed tomography, literature reviews.

Torre Amione, G., S. Kapadia, J. Lee, R.D. Bies, R. Lebovitz, and D.L. Mann (1995). **Expression and functional significance of tumor necrosis factor receptors in human myocardium.** *Circulation* 92(6): 1487-93. ISSN: 0009-7322.
NAL Call Number: RC681 .A1C8
Abstract: BACKGROUND: Tumor necrosis factor-alpha (TNF-alpha), a proinflammatory cytokine with potent negative inotropic properties, is elaborated in septic shock, acute myocarditis, reperfusion injury, and congestive heart failure. TNF-alpha acts by binding to two specific receptors: TNFR1 and TNFR2. However, neither the presence nor the significance of TNF receptors has been studied in the adult mammalian heart. METHODS AND RESULTS: In the present study, we showed that the adult heart expresses mRNA and receptor proteins for TNFR1 and TNFR2. Moreover, immunohistochemical staining studies localized TNFR1 and TNFR2 to the cardiac myocyte, providing a potential signaling pathway for the deleterious effects of TNF-alpha. The functional significance of the expression of TNFR1 and TNFR2 was explored with the use of a simple cell motion assay in which we assessed the effect(s) of TNF-alpha mutants known to bind selectively to human TNFR1 and TNFR2. We showed that the negative inotropic effect of wild-type TNF-alpha in isolated feline cardiac myocytes was mimicked by the TNF mutant that binds to TNFR1, whereas the TNF mutant that binds to TNFR2 had no significant effect on cell motion. CONCLUSIONS: Results of the present study show that the adult human heart expresses both mRNA and receptor proteins for TNFR1 and TNFR2; moreover, the negative inotropic effects of TNF-alpha in adult cardiac myocytes appear to be initiated by activation of TNFR1.
Descriptors: myocardium, receptors, tumor necrosis factor analysis, adolescent, adult, enzyme linked immunosorbent assay, middle aged, RNA, messenger analysis, receptors, tumor necrosis factor, receptors, tumor necrosis factor, tumor necrosis factor alpha.

Triolo, A.J. and K.G. Miles (1995). **Renal imaging techniques in dogs and cats.** *Veterinary Medicine* 90(10): 959-960, 962-966. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, radiography, kidneys, diagnosis, analytical, kidney diseases, analytical, body parts, organic diseases, urinary tract, urinary tract diseases, urogenital system, ultrasonography, scintigraphy .

Trouliaris, S., A. Hadwier Fangmeier, M. Heimann, and T. Tamura (1995). **Influence of tyrosine residues Y705 and Y807 on the transforming potency of the v-fms oncogene product of feline sarcoma virus.** *Archives of Virology* 140(1): 179-186. ISSN: 0304-8608.
NAL Call Number: 448.3 Ar23
Abstract: Cell transformation is characterized by overt changes in growth control and cell morphology. To study the role of tyrosine residues Y705 and Y807 of v-Fms of the McDonough strain of feline sarcoma virus in cell transformation we replaced them individually with phenylalanine residues. Cells expressing the mutant genes showed mitogenic properties similar to wild-type v-Fms transformed cells. However, the morphology of cells expressing the Y807F mutant remained the same as nontransformed

cells. Four phosphoproteins of 190, 120, 55 and 50 kDa were detected in cells expressing the wild-type but were absent in cells expressing the mutant Y807F-v-fms gene.
Descriptors: feline oncovirus, binding site, binding proteins, kinases, tyrosine, phenylalanine, induced mutations, phosphorylation, transformation.

Tsutsui, T., M. Wada, M. Anzai, and T. Hori (2003). **Artificial insemination with frozen epididymal sperm in cats**. *Journal of Veterinary Medical Science* 65(3): 397-399. ISSN: 0916-7250.
NAL Call Number: SF604 .J342
Descriptors: artificial insemination, conception rate, male fertility, semen, spermatozoa, cats.

Tudor, N., C. Vlagioiu, A. Lungu, P. Tudor, and A. Comarzan (2004). **The imaging diagnosis of the genetics osteopathies in cats.** In: *Clinica veterinaria 2004: Proceedings of the Sixth International Symposium in Animal Clinical Pathology and Therapy, June 14, 2004-June 18, 2004, Budva (Serbia and Montenegro),* Faculty of Veterinary Medicine.: Belgrade (Serbia and Montenegro). 292 p. ISBN: 8681043196.
Abstract: In this article this presented two cases of genetic anomalies of the limbs and spine in cats. After radiological examinations we established the diagnosis of the block vertebra in one case, bilateral agenesis of radius and ulna and hypoagenesis of the femur, tibia and calcaneus of the second case. The cases described in this study represent the first contribute in this field from the Clinic of Radiology at the Faculty of Veterinary Medicine in Bucharest (Romania).
Descriptors: radiology, cats, vertebrae, radius, femur, tibia, genetic anomalies.
Language of Text: Romanian with a summary in English.

Tuxworth, W.J.Jr., H. Wada, Y. Ishibashi, and P.J. Mcdermott (1999). **Role of load in regulating eif-4f complex formation in adult feline cardiocytes**. *American Journal of Physiology* 277(4 PART 2): H1273-H1282. ISSN: 0002-9513.
NAL Call Number: 447.8 Am3
Descriptors: molecular biophysics, cell biology, cardiovascular system, feline cardiocytes, in vitro, 2,3 butanedione, rapamycin, insulin, pHorbol ester, electrical stimulation.

Uchiyama, T., H. Johansson, and U. Windhorst (2003). **Static and dynamic input-output relations of the feline medial gastrocnemius motoneuron-muscle system subjected to recurrent inhibition: a model study.** *Biological Cybernetics* 89(4): 264-273. ISSN: 0340-1200.
Descriptors: models and simulations, computational biology, muscular system, nervous system, computer simulation, mathematical and computer techniques, spinal recurrent inhibition, feline gastrocnemius muscle.

Van Vuuren, M., E. Stylianides (Nee De Klerk), S.A. Kania, E.E. Zuckerman, and W.D.J. Hardy (2003). **Evaluation of an indirect enzyme-linked immunosorbent assay for the detection of feline lentivirus-reactive antibodies in wild felids, employing a puma lentivirus-derived synthetic peptide antigen.** *Onderstepoort Journal of Veterinary Research* 70(1): 1-6. ISSN: 0030-2465.

NAL Call Number: 41.8 ON1
Descriptors: infection, medicine, feline immunodeficiency virus infection, immune system disease, viral disease, diagnosis, lentivirus infection, western blot, genetic techniques, indirect elisa, immunologic techniques.

Vanzetta, I. and A. Grinvald (2001). **Evidence and lack of evidence for the initial dip in the anesthetized rat: implications for human functional brain imaging.** *NeuroImage* 13(6 Pt 1): 959-967. ISSN: 1053-8119.
Descriptors: arousal, brain supply, energy, magnetic resonance imaging, magnetic resonance spectroscopy, oxygen consumption, cats, haplorhini, rats, regional flow, species specificity.

Vignoli, M., S. Ohlerth, F. Rossi, L. Pozzi, R. Terragni, D. Corlazzoli, and B. Kaser Hotz (2004). **Computed tomography-guided fine-needle aspiration and tissue-core biopsy of bone lesions in small animals**. *Veterinary Radiology and Ultrasound* 45(2): 125-130. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: aspiration, biopsy, bone diseases, computed tomography, diagnosis, diagnostic techniques, infectious diseases, lesions, neoplasms, cats, dogs.

Vink, C., K.H.v.d. Linden, and R.H.A. Plasterk (1994). **Activites of the feline immunodeficiency virus integrase protein produced in *Escherichia coli*.** *Journal of Virology* 68(3): 1468-14747. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Abstract: Retroviral DNA integration requires the activity of at least one viral protein, the integrase (IN) protein. We cloned and expressed the integrase gene of feline immunodeficiency virus (FIV) in *Escherichia coli* as a fusion to the male gene and purified the IN fusion protein by affinity chromatography. The protein is active in site-specific cleavage of the viral DNA ends, DNA strand transfer, and disintegration. FIV IN has a relaxed viral DNA substrate requirement: it cleaves and integrates FIV DNA termini, human immunodeficiency virus DNA ends, and Moloney murine leukemia virus DNA ends with high efficiencies. In the cleavage reaction, IN exposes a specific phosphodiester bond near the viral DNA end to nucleophilic attack. In vitro, either H2O, glycerol, or the 3' OH group of the viral DNA terminus can serve as nucleophile in this reaction. We found that FIV IN preferentially uses the 3' OH ends of the viral DNA as nucleophile, whereas HIV IN protein preferentially uses H2O and glycerol as nucleophiles.
Descriptors: feline immunodeficiency virus, *Escherichia coli*, DNA binding proteins, viral proteins, DNA modification, structural genes, gene transfer, recombinant DNA, site specific DNA cleavage, DNA strand transfer.

Waly, N., T.J. Gruffydd-Jones, C.R. Stokes, and M.J. Day (2001). **The distribution of leucocyte subsets in the small intestine of healthy cats.** *Journal of Comparative Pathology* 124(2-3): 172-182. ISSN: 0021-9975.
NAL Call Number: 41.8 J82
Abstract: The aim of this study was to investigate the distribution of leucocyte subsets in the small intestine of healthy adult cats (n=16). Immunohistochemical methods were

used to identify leucocyte subsets within the mucosa of the duodenum, jejunum and ileum. Computer-aided morphometry was used to enumerate cells within the epithelial compartment, villous lamina propria and lamina propria adjacent to upper and lower crypt. Throughout the small intestine, IgA+ and IgM+ plasma cells were more prominent in the lamina propria adjacent to the lower crypt than in the villus, whereas IgG+ plasma cells were present in equal numbers in the crypt and villous regions. Overall, IgA+ plasma cells predominated and IgM+ plasma cells were higher in number than IgG+ plasma cells at each of the three anatomical locations. By contrast, T cells (CD3+) and T-cell subsets (CD4+ and CD8+) were present in greater numbers in the villous lamina propria than in the lamina adjacent to the crypts. Intraepithelial lymphocytes (IELs) were also characterized phenotypically, the majority being CD8+ T lymphocytes. Lamina propria macrophages and dendritic cells were characterized by expression of L1 and major histocompatibility complex (MHC) class II, and MHC class II expression by enterocytes overlying Peyer's patches, although rare, was also shown. The qualitative and quantitative data from this study provide a basis for comparison with cats with inflammatory enteropathies.
Descriptors: cats, intestine, small, t lymphocyte subsets, antigens, CD3 analysis, CD4 positive t lymphocytes, CD4 positive t lymphocytes, CD4 positive t lymphocytes, CD8 positive t lymphocytes, CD8 positive t lymphocytes, CD8 positive t lymphocytes, fluorescent antibody technique, indirect, histocompatibility antigens class ii analysis, computer assisted image processing, immunoglobulin a analysis, immunoglobulin m analysis, immunopHenotyping, intestinal mucosa, intestinal mucosa, intestine, small, leukocyte l1 antigen complex, membrane glycoproteins analysis, neural cell adhesion molecules analysis, plasma cells, plasma cells, plasma cells, t lymphocyte subsets, t lymphocyte subsets.

Waly, N.E., C.R. Stokes, T.J. Gruffydd Jones, and M.J. Day (2004). **Immune cell populations in the duodenal mucosa of cats with inflammatory bowel disease**. *Journal of Veterinary Internal Medicine* 18(6): 816-825. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: disease markers, duodenum, IgA, IgG, immunoglobulins, immunohistochemistry, intestinal diseases, intestinal mucosa, leukocytes, major histocompatibility complex, T lymphocytes, villi, cats.

Wang, F., Y. Seta, G. Baumgarten, and D.L. Mann (1998). **Expression of leukemia inhibitory factor in the adult mammalian heart: dynamic regulation and functional significance**. *Circulation* 98(17 SUPPL.): I247-I248. ISSN: 0009-7322.
NAL Call Number: RC681 .A1C8
Descriptors: cardiovascular system, transport and circulation, feline heart, leukemia inhibitory factor, hemodynamic overloading.

Webb, C., S. Dow, M. Lappin, A. Guth, and D. Twedt (2004). **Determination of glutathione and lipid peroxidation in feline peripheral blood cells using flow cytometry.** *Journal of Veterinary Internal Medicine* 18(3): 430. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: blood and lymphatics, feline cells, glutathione, medicine, flow cytometry, histology, lipid peroxidation.

Weiss, D.J. (2001). **Determination of differential cell counts in feline bone marrow by use of flow cytometry**. *American Journal of Veterinary Research* 62(4): 474-478. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: bone marrow cells, cell counting, erythrocytes, flow cytometry, hematology, lymphocytes, cats.

Weisser Thomas, J., V.I. Piacentino, J.P. Gaughan, K. Margulies, and S.R. Houser (2003). **Calcium entry via na/ca exchange during the action potential directly contributes to contraction of failing human ventricular myocytes.** *Cardiovascular Research* 57(4): 974-985. ISSN: 0008-6363.
Descriptors: molecular biophysics, cardiovascular system, transport and circulation, feline heart, cell biology, heart failure, sarcoplasmic reticulum, heart disease, Na Ca exchanger, feline myocytes, cyclopiazonic acid, nifedipine.

Wesseling, B. and L. Kopelovich (1997). **Differentiation of human fibroblasts to tissue macrophages by the snyder-theilen feline sarcoma virus (st:fesv): growth modulation of human tumor cell lines in agar**. *AntiCancer Research: the Official Organ of the American Association for Cancer Research* 17(4A): 2599-2602. ISSN: 0250-7005.
Descriptors: cell biology, clinical endocrinology, oncology, ccl 121 cell line, differentiation, du 145 cell line, fibroblasts, growth modulation, human breast adenocarcinoma cells, human colon adenocarcinoma cells, human fibrosarcoma cells, human fibrous histiocytoma cells, human leiomyosarcoma cells, human malignant melanoma cells, human prostate adenocarcinoma cells, immune system, mcf 7 cell line, mur cell line, pflug cell line, feline sarcoma virus, tib 223 cell line, tissue macrophages, tumor biology, tumor cells.

Widmer, W.R. and L. Guptill (1995). **Imaging techniques for facilitating diagnosis of hyperadrenocorticism in dogs and cats.** *Journal of the American Veterinary Medical Association* 206(12): 1857-1864. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: dogs, cats, endocrine diseases, diagnosis, radiography, adrenal glands, nmr spectroscopy, analytical, animal glands, body parts, endocrine glands, organic diseases, spectrometry, endocrine tests, cushing' s syndrome, diagnostic techniques, ultrasonography, computed tomography, nuclear magnetic resonance.

Williams, J., R. Leveille, and C.W. Myer (1998). **Imaging modalities used to confirm diaphragmatic hernia in small animals.** *Compendium of Continuing Education for the Practicing Veterinarian* 20(11): 1199-1210. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, hernia, symptoms, radiography, contrast media, ultrasonography.

Wisniewski, S. (1999). **Kisallatok koponyamegbetegedeseinek vizsgalata komputertomografiaval [Computed tomography in the examination of cranial disorders in small animals]**. *Magyar Allatorvosok Lapja* 121(3): p.153-160. ISSN: 0025-004X.

Abstract: This study deals with the evaluation of the use of computer tomography (CT) for the diagnosis of cranial disorders in 128 patients.Compared to conventional diagnostic techniques, with CT one is able to gather more information, especielly about diseases of the facial cranium and central nervous system.Indications for the use of CT typically include symptoms like nasal discharge, exophthalmos, mastication disturbance, abnormal neurologic status, epileptiform seizures and conditions and diseases such as head trauma and otitis media.
Descriptors: dogs, cats, skull, radiography, diagnosis, encephalitis, nervous system diseases, analytical, body parts, bones.
Language of Text: Hungarian; Summary in English.

Wong, C.J., R.L. Peiffer, S. Oglesbee, and C. Osborne (1996). **Feline ocular epithelial response to growth factors in vitro**. *American Journal of Veterinary Research* 57(12): 1748-1752. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: in vitro, cell culture, epithelium, epidermal growth factor, transforming growth factor, insulin, eye lens, retina, sarcoma, growth factors, eyes, cats.

Xu, L., J.G. Muller, P.R. Withers, C. Kappler, W. Jiang, and D.R. Menick (2002). **Role of map kinases in the NA+/CA2+ exchanger gene expression in feline adult cardiocytes.** In: *Cellular and molecular physiology of sodium-calcium exchange: Proceedings of the IVth International Conference on Cellular and Molecular Physiology of Sodium-Calcium Exchange, October 10, 2001-October 14, 2001, Banff, Alberta, Canada*, New York Academy of Sciences: New York, New York, p. 285-287. ISBN: 1573313866 .
Descriptors: cardiovascular, circulation, membranes, cell biology, molecular, molecular biophysics, cardiac hypertropHy, heart disease, signal transduction.

Yamamoto, J.K. (Inventor) **Feline derived t-cell lines for producing fiv**. 1998). *Official Gazette of the United States Patent and Trademark Office Patents*, 1217 (2): 1576. ISSN: 0098-1133
NAL Call Number: T223. A21
Descriptors: cell biology, infection, atcc accession no: crl 11968, biotechnology, feline derived t cell line, fet 1c, feline immunodeficiency virus.

Yazawa, M., M. Okuda, R. Uyama, T. Nakagawa, N. Kanaya, R. Nishimura, N. Sasaki, K. Masuda, K. Ohno, and H. Tsujimoto (2003). **Molecular cloning of the feline telomerase reverse transcriptase (TERT) gene and its expression in cell lines and normal tissues**. *Journal of Veterinary Medical Science* 65(5): 573-577. ISSN: 0916-7250.
NAL Call Number: SF604 .J342
Descriptors: adrenal glands, amino acid sequences, animal tissues, bladder, bone marrow, brain, cell lines, complementary DNA, DNA cloning, gene expression, genes, liver, lungs, lymph nodes, messenger RNA, neoplasms, nucleotide sequences, pancreas, reverse transcriptase, spleen, stomach, testes, thymus gland.

Zeidner, N.S., D.L. Belasco, M.J. Dreitz, G.R. Frank, and W.R. Usinger (1995). **Gliding bacterial adjuvant stimulates feline cytokines in vitro and antigen-specific IgG in vivo**. *Vaccine* 13(14): 1294-1299. ISSN: 0264-410X.
NAL Call Number: QR189.V32

Descriptors: immunoglobulins, IgG, vaccines, adjuvants, cytokines, immunization, recombinant vaccines, parasites, helminths, *Dirofilaria immitis*, cats.

Zekas, L.J., J.T. Crawford, and R.T. O' Brien (2005). **Computed tomography-guided fine-needle aspirate and tissue-core biopsy of intrathoracic lesions in thirty dogs and cats**. *Veterinary Radiology and Ultrasound* 46(3): 200-204. ISSN: 1058-8183.
Online: http://www.blackwell-synergy.com/servlet/useragent?func=showIssues&code=vru
NAL Call Number: SF757.8 .A4
Descriptors: biopsy, computed tomography, diagnosis, diagnostic techniques, fine needle aspiration, lesions, neoplasms, pneumothorax, respiratory diseases, thorax, cats, dogs, *Felis concolor*.

Zhan, X. and T. Shou (2002). Anatomical evidence of subcortical contributions to the orientation selectivity and columns of the cat's primary visual cortex. *Neuroscience Letters* 324(3): 247-251. ISSN: 0304-3940.
NAL Call Number: QP351.N3
Abstract: Physiological studies have demonstrated a subcortical origin for orientation selectivity and the orientation columns of the primary visual cortex. However, there are no anatomical data showing how subcortical cells contribute to this important property. Optical imaging, combined with 1,1'-dioctadecyl-3,3,3,3'-tetramethylin-docarbocyanine perchlolate (DiI) and biocytin retrograde tracing, reveals that relay cells projecting to a single orientation column representing the horizontal meridian were clustered within 300 microm in the dorsal lateral geniculate nucleus (LGN). Interestingly, some labeled cells were located on a line parallel to an iso-elevation line in the LGN. Thus, according to the quantitative projection of the visual field to the LGN (J. Comp. Neurol. 143 (1971) 101), their receptive fields must distribute horizontally in alignment in the visual field providing the first anatomical evidence for Hubel and Wiesel's model of simple cell receptive fields (J. Physiol. 160 (1962) 106).
Descriptors: geniculate bodies, lysine, neurons, orientation, pattern recognition, visual, visual cortex, visual fields, visual pathways, action potentials, brain mapping, carbocyanines diagnostic use, cats, fluorescent dyes diagnostic use, geniculate bodies, lysine diagnostic use, neurons, photic stimulation, visual cortex, visual pathways

Anesthesia & Analgesia

World Congress of Veterinary Anesthesia (2004). *September 17, 2003-September 20, 2003, Knoxville, Tennessee, USA*, Blackwell Publications: Oxford, UK, Vol. 31, p. 282-291.
NAL Call Number: SF914 .V47
Descriptors: pain, surgery, butophanol, isoflurane, felidae, felis.

Anonymous (1997). **Autumn conference of the Association of Veterinary Anaesthetists, Bristol, UK, 25-27 September 1996**. *Journal of Veterinary Anaesthesia* 24(1): 39-43. ISSN: 0950-7817.
Descriptors: anesthesia, anesthetics, veterinarians, pain, castration, neuroleptics, analgesics, cats, meeting abstracts.

Abou-Madi, N. (2006). ***Recent Advances in Veterinary Anesthesia and Analgesia: Companion Animals***, International Veterinary Information Service: Ithica, NY,
Online:
http://www.ivis.org/advances/Anesthesia_Gleed/aboumadi/chapter.asp?LA=1
Descriptors: anesthesia, analgesics, fish, electronic book, cats, dogs, birds, small, reptiles, amphibians.

Adetunji, A., C.O. Adewoye, and R.A. Ajadi (2002). **Comparison of epidural anaesthesia with lignocaine or xylazine in cats.** *Veterinary Journal* 163(3): 335-336. ISSN: 1090-0233.
NAL Call Number: SF601.V484
Descriptors: cats, anesthesia, lignocaine, xylazine, epdural.

Akkerdaas, L.C., P. Mioch, R. Sap, and L.J. Hellebrekers (2001). **Cardiopulmonary effects of three different anaesthesia protocols in cats.** *Veterinary Quarterly* 23(4): 182-186. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Abstract: To develop an alternative anaesthetic regimen for cats with cardiomyopathy, the cardiopulmonary effects of three different premedication-induction protocols, followed by one hour maintenance with isoflurane in oxygen: air were evaluated in six cats. Group I: acepromazine (10 microg/kg) + buprenorphine (10 microg/kg) IM, etomidate (1-2 mg/kg) IV induction. Group II: midazolam (1 mg/kg) + ketamine (10 mg/kg) IM induction. Group III: medetomidine (1.5 mg/m2 body surface) IM, propofol (1-2 mg/kg) IV induction. Heart rate, arterial blood pressure, arterial blood gases, respiration rate, and temperature were recorded for the duration of the experiment. In group I the sedative effect after premedication was limited. In the other groups the level of sedation was sufficient. In all groups premedication resulted in a reduced blood pressure which decreased further immediately following induction. The reduction in mean arterial pressure (MAP) reached statistical significance in group I (142+/-22 to 81+/-14 mmHg) and group II (153+/-28 to 98+/-20 mmHg) but not in group III (165+/-24 to 134+/-29 mmHg). Despite the decrease in blood pressure, MAP was judged to have remained within an acceptable range in all groups. During maintenance of anaesthesia, heart rate decreased significantly in group III (from 165+/-24 to 125+/-10 b.p.m. at t=80 min). During anaesthesia the PCO2 and PO2 values increased significantly

in all groups. On the basis of the results, the combination acepromazine-buprenorphine is preferred because heart rate, MAP, and respiration are acceptable, it has a limited sedative effect but recovery is smooth.
Descriptors: analgesics, analgesics, anesthesia, cardiomyopathies, acepromazine, body temperature, buprenophrine, cats, dopamine antagonists, etomidate, hemodynamic processes, ketamine, medetomidine, midazolam, midazolam, propofol.

Al Gizawiy, M.M.P. and E. Rude (2004). **Comparison of preoperative carprofen and postoperative butorphanol as postsurgical analgesics in cats undergoing ovariohysterectomy.** *Veterinary Anaesthesia and Analgesia* 31(3): 164-174. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Abstract: OBJECTIVE: To compare carprofen to butorphanol, with regard to postsurgical analgesic effects, duration of analgesia, and adverse side effects. STUDY DESIGN: Blinded, randomized clinical study. ANIMALS: Seventy-one cats, 0.5-5 years of age, weighing 3.24 +/- 0.61 kg, undergoing ovariohysterectomy (OHE). METHODS: Cats were premedicated with subcutaneous atropine (0.04 mg kg(-1)), acepromazine (0.02 mg kg(-1)), and ketamine (5 mg kg(-1)). Anesthesia was induced with ketamine (5 mg kg(-1)) and diazepam (0.25 mg kg(-1)) given intravenously, and maintained with isoflurane. There were three treatment groups: group C (4 mg kg(-1) carprofen SC at induction), group B (0.4 mg kg(-1) butorphanol SC at end of surgery), and group S (0.08 mL kg(-1) of sterile saline SC at induction and end of surgery). Behavioral data were collected using a composite pain scale (CPS), prior to surgery (baseline) and 1, 2, 3, 4, 8, 12, 16, 20, and 24 hours post-surgery. Interaction scores were analyzed separately. Cats with CPS scores >12 received rescue analgesia (meperidine, 4 mg kg(-1), intramuscular). RESULTS: Sixty cats completed the study. The CPS scores did not differ significantly between groups C and B at any time period. CPS scores for groups B and C were significantly increased for 12 hours post-surgery, and in group S for 20 hours. Both group C and B CPS scores were significantly lower than group S in this 20-hour postoperative period, except at 4 hours (B and C) and at 3 and 8 hours (B alone). Interaction scores for group C returned to preoperative baseline 4 hours after surgery, while both groups B and S remained increased for at least 24 hours post-surgery. Nine cats required meperidine. CONCLUSION: In this study, carprofen provided better postsurgical analgesia than butorphanol. Clinical relevance Neither drug completely abolished pain, however preoperative carprofen provided better pain control compared with postoperative butorphanol in the 24-hour period following OHE surgery in cats.
Descriptors: analgesics, non steroidalanti inflammatory agents, butorphanol, carbazoles, cats, postoperative pain, cats surgery, double blind method, drug administration schedule, hysterectomy, injections, pain measurement, postoperative pain, preoperative care, treatment outcome.

Alef, M. and G. Oechtering (1995). **Anaesthesie bei Thoraxoperationen. [Anesthesia in thoracic surgery]**. *Praktische Tierarzt* 76(9): 796-798. ISSN: 0032-681X.
NAL Call Number: 41.8 P882
Descriptors: cats, dogs, anesthesia, surgical operations, thorax, lungs, breathing, anesthetics, drugs, gas exchange, neurotropic drugs, physiological functions, respiratory

system.
Language of Text: German; Summaries in German and English.

Alef, M. and G. Oechtering (1996). **Anasthesie und Analgesie bei Traumapatienten [Anaesthesia and analgesia in trauma patients]**. *Praktische Tierarzt* 77(Sondernummer): 89-92. ISSN: 0032-681X.
NAL Call Number: 41.8 P882
Descriptors: shock, therapy, anesthesia, analgesics, trauma, dogs, cats.
Language of Text: German.

Alef, M. and G. Oechtering (1995). **Ein "Handy", die Alternative zu herkommlichen Uberwachungsgeraten? [A "Handy", the alternative to conventional anaesthesia monitoring equipment]**. *Kleintierpraxis* 40(11): 827-841. ISSN: 0023-2076.
NAL Call Number: 41.8 K67
Descriptors: monitoring, equipment, anesthesia, oxygen, carbon dioxide, small animal practice, instruments, cats.
Language of Text: German; Summaries in English and French.

Alef, M. and G. Oechtering (1995). **Anasthesie bei Thoraxoperationen [Anaesthesia in thoracic surgery]**. *Praktische Tierarzt* 76(9): 796-798. ISSN: 0032-681X.
NAL Call Number: 41.8 P882
Descriptors: anesthesia, surgery, surgical operations, artificial respiration, postoperative care, thorax, dogs, cats.
Language of Text: German with a summary in English.

Andress, J.L., T.K. Day, and D.G. Day (1995). **The effects of consecutive day propofol anesthesia on feline red blood cells.** *Veterinary Surgery* 24(3): 277-282. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: cats, erythrocytes, anesthetics, anesthesia, pulse rate, breathing, pressure, side effects, injection, application, cells, circulation, cells, drugs, gas exchange, neurotropic drugs, physiological functions, 2,6 diisopropylphenol, heinz bodies, heart rate, recovery .

Angyan, L. and Z. Angyan (2001). **Respiratory responses to electrical stimulation of the basal ganglia in cats.** *Neurobiology* 9(2): 73-79. ISSN: 0022-3034.
NAL Call Number: QP351 J55
Abstract: The aim of the present study was to investigate the involvement of basal ganglia in altering respiration. The experiments were carried out on cats using the electrical stimulation techniques. The electrical stimulation of the basal ganglia caused locus-dependent changes both in the tidal volume and the rate of respiration. The most frequent effect of stimulation was hyperpnea and decrease in the tidal volume in awake, freely moving cats. An increase in the tidal volume appeared only as rebound-like aftereffect. The stimulation that caused hyperpnea in awake cats elicited smaller changes under chloralose or ketamine-induced anaesthesia, and, in certain cases, the stimulation produced apnea. After locally applied neurotoxic damage, the electrical stimulation failed to induce significant respiratory changes. It is suggested that the fast, small amplitude

ventilation is, probably, produced by high excitation that shifts the respiratory rhythm generator towards the upper limits of its regulatory range. The slowing of ventilation might be produced by an inhibitory mechanism, which is able to cause even apnea under anaesthesia.
Descriptors: basal ganglia, respiratory mechanics, anesthesia, basal ganglia, cats, electric stimulation, electrodes, implanted, excitatory amino acid agonists toxicity, globus pallidus, globus pallidus, globus pallidus, kainic acid toxicity.

Araujo, I.C., L.G. Pompermayer, F. Antunes, A.P. de Souza, and M.A.F. Lopes (2001). **Efeito analgesico do butorfanol na dor somatica em gatos anestesiados com propofol. [Analgesic effect of butorphanol on somatic pain in cats anesthetized with propofol]**. *Ciencia Rural* 31(1): 61-66. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: cats, anesthesia, anesthetics, neurotropic drugs.
Language of Text: Portuguese; Summaries in English and Portuguese.

Axner, E., B. Strom, and C. Linde Forsberg (1997). **Sperm morphology is better in the second ejaculate than in the first in domestic cats electroejaculated twice during the same period of anesthesia.** *Theriogenology* 47(4): 929-934. ISSN: 0093-691X.
NAL Call Number: QP251.A1T5
Abstract: Several species produce ejaculates of inferior quality after a period of sexual abstinence, but the frequency of semen collection has thus far not been shown to affect sperm morphology in felids. The aim of this study was to determine whether sperm morphology and motility would differ between 2 ejaculates collected from the same cat within a short interval. Fifteen male domestic cats were anesthetized and then electroejaculated twice, with a 5- to 10-min interval between treatments. A standardized electroejaculation regimen was used with 80 stimuli, from 2 to 5 V, for each ejaculate. The first ejaculates contained significantly higher ($P<0.05$) proportions of distal droplets, coiled tails and immotile spermatozoa than the second ejaculates, which contained significantly higher proportions of morphologically normal spermatozoa (40.9 vs 54.6%) but a lower sperm count (39.0 X 10(6) vs 5.2 X 10(6). The higher proportions of defective spermatozoa and the lower motility in the first ejaculate than in the second were probably due to the aging of spermatozoa in the epididymis. These results show that the second ejaculate collected within a short interval has better sperm morphology and motility than the first and that this should be considered when evaluating semen quality in the domestic cat and when collecting cat semen to be used for artificial insemination or to be frozen for storage.
Descriptors: cats, spermatozoa, morphology, motility, abnormalities, electroejaculation, frequency, semen, quality, aging, ejaculatory abstinence, sperm aging.

Backman, S.B., F.E. Ralley, and G.S. Fox (1994). **Anaesthesia for cardiac transplant patients.** *Canadian Journal of Anaesthesia* 41(7): 655-656. ISSN: 0832-610X.
Descriptors: anesthesia, cholinesterase inhibitors, heart rate, heart transplantation, surgical procedures, bradycardia, cats, neostigmine, parasympathomimetics.
Notes: Comment On: Can J Anaesth. 1993 Oct;40(10):981-6.

Balmer, T. and A. Curwen (1997). **Analgesia in cats [Use of caprofen is unlicenced. Correspondence].** *Veterinary Record* 140(16): 435. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: drugs, surgical operations, analgesics, cats, neurotropic drugs, caprofen, postoperative care.

Barsotti, G., M.C. Malatesta, P. Melanie, and G. Breghi (1999). **Anaesthetic management of dogs and cats with diabetes mellitus [Gestione anestesiologica del cane e del gatto diabetici]**. *Annali Della Facolta Di Medicina Veterinaria Di Pisa* 52: 329-347. ISSN: 0365-4729.
NAL Call Number: 41.9 P67
Descriptors: anesthesia, diabetes mellitus, dogs, cats.
Language of Text: Italian; Summary in English.

Beckman, B. and L. Legendre (2002). **Regional nerve blocks for oral surgery in companion animals.** *Compendium of Continuing Education for the Practicing Veterinarian* 24(6): 439-444. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, local anesthesia, peripheral nerves, dentistry, local anesthetics, small animal practice, bupivacaine.

Benson, G.J. (1996). **Anesthetic emergencies - cardiac arrest.** In: *Small Animal's Anesthesia.*, Djurkliniken.: Moelndal, Sweden, p. 113-115.
Descriptors: dogs, cats, anesthesia, heart rate, resuscitation, circulation, disease control, physiological functions, therapy .

Benson, G.J. (1996). **Anesthesia for neonates and geriatric patients.** In: *Small Animal' s Anesthesia*, Djurkliniken: Moelndal, Sweden, p. 85-90.
Descriptors: puppies, kittens, dogs, cats, age, young animals, geriatric animals.

Best, P. (2001). **Use of anticholinergics in veterinary anaesthesia.** *Australian Veterinary Journal* 79(1): 22-3. ISSN: 0005-0423.
NAL Call Number: 41.8.Au72
Abstract: This viewpoint examines the time-honoured and popular use of anti-cholinergics in veterinary anaesthesia. The disadvantages of routine use and specific indications for the use of these useful drugs are discussed.
Descriptors: anesthesia, cholinergic antagonists, preanesthetic medication, cats, dogs, horses.

Blaze, C.A. and M.M. Glowaski (2004). ***Veterinary Anesthesia Drug Quick Reference***, Vol. X, Elsevier, Saunders: Missouri, 324 p. ISBN: 0721602606.
NAL Call Number: SF914 .B53 2004
Descriptors: anesthesia, case studies, dosage, drugs, electrocardiograms, resuscitation, cats, cattle, dogs, ferrets, goats, horses, pigs, rabbits, sheep, veterinarians.

Borenstein, N. and C. Desbois (1999). **Anestesia in situazioni d'urgenza. [Anaesthesia in case of emergency]**. *Summa* 16(9): 185-192.

Descriptors: emergencies, anesthesia, intensive care, trauma, anesthetics, postoperative care, cats.
Language of Text: Italian; Summary in English.

Borges, K.D.A., F.A.B. Viana, G.O.R. Alves, and D.S. Salmeron (2004). **Uso do cetoprofeno como analgesico e antiinflamatorio no pos-operatorio de tecidos moles [Use of ketoprofen as an analgesic and antiinflamatory drug in post-operative procedures in soft tissues]** . *A Hora Veterinaria* 24(142): 25-29. ISSN: 0101-9163.
Descriptors: animal tissues, ketoprofen, pain, surgery, cats, dogs.
Language of Text: Portuguese; Summaries in English and French.

Bostroem, I. (1996). **Smaertlindring aat katt [Analgesia for cats]** . In: *Foerdjupningsarbete*, Ultunabiblioteket, POB 7071, S-750 07 Uppsala - Sweden, Sveriges Lantbruksuniv: Uppsala, Sweden
Descriptors: cats, pain, analgesics, drugs, neurophysiology, neurotropic drugs, butorphanol .
Language of Text: Swedish; Summaries in English and Swedish.

Brock, K.A. (2001). **Preanaesthetic use of atropine in small animals.** *Australian Veterinary Journal* 79(1): 24-5. ISSN: 0005-0423.
NAL Call Number: 41.8.Au72
Abstract: Although it is unwise to recommend any preanaesthetic drug or regimen to be used routinely without consideration for the individual patient, the procedure being undertaken or the other drugs that will be used during the anaesthetic, of all anaesthetic-related drugs that might be under review, atropine is probably one of the least 'toxic' and least likely to cause life-threatening complications when used correctly. In most small veterinary practices there isn't the luxury of a dedicated anaesthetist available to monitor and manage each anaesthetised patient and the best form of cardiac monitor available may be an audible rate monitor. In this situation the advantages combined with the usual indications probably far outweigh the disadvantages of using atropine prophylactically. If a choice must be made, a sinus tachycardia under anaesthesia is probably preferable to a profound bradyarrhythmia. Absolute contraindications for using atropine are rare; the drug, when used alone, has low incidence of toxicity at clinically recommended doses in dogs and cats. Further, the new inhalation agents available to veterinarians (enflurane and isoflurane) do not sensitise the heart to the effect of catecholamines, so that the predominance of sympathetic tone produced when atropine is used is unlikely to precipitate dysarrthythmias during gaseous anaesthesia. Rhythm disturbances that occur under halothane anaesthesia when atropine is used, suggest there is some other cause, or agent, that is arrhythmogenic, such as an alpha 2 agonist, excessively deep level of anaesthesia, hypercapnia or hypoxaemia. Notwithstanding the above arguments, my preference, as a specialist anaesthetist, is that a drug is given only as required (not before) and that when, for example, any unusual heart rhythm occurs, all possible reasons for the occurrence (such as excessively deep anaesthesia or hypoventilation) are eliminated before other drugs like atropine or antiarrhythmics are administered.
Descriptors: adjuvants, anesthesia, atropine, muscarinic antagonists, preanesthetic medication, cats, dogs.

Brock, N. (1995). **Premedication of fragile dogs and cats.** *Candian Veterinary Journal* 36(8): 474-475. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: dogs, cats, preanesthetic medication, anesthesia, opioids.

Budic, Z.Z., Z.L. Cvetkovic and B.A. Petkovic (1997). ***Anestezija Malih Zivotinja. [Anesthesia of Small Animals]***, Prosveta : Nis,Yugoslavia, 115 p. ISBN: 8674552978.
Descriptors: dogs, cats, anesthesia, veterinary medicine.
Language of Text: Serbian.

Camara Filho, J.A., L.S. Ramadinha, M.R. Rodrigues, R.L. Silveira, and P.A. Caldas (2000). **Utilizacao do sitio sacrococcigeo na anestesia epidural em gatos domesticos [Use of the sacrococcygeal space in the epidural anaesthesia of cats]**. *Revista Brasileira De Ciencia Veterinaria* 7(3): 175-178. ISSN: 1413-0130.
Descriptors: anesthesia, local anesthesia, techniques, cats.
Language of Text: Portuguese with a summary in English.

Campbell, V.L. (2005). **Anesthetic protocols for common emergencies**. *Veterinary Clinics of North America, Small Animal Practice* 35(2): 435-453 . ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: anesthesia, emergencies, reviews, practice, cats.

Capner, C.A., B.D.X. Lascelles, and A.E. Waterman Pearson (1997). **Survey of attitudes in UK veterinary surgeons to perioperative analgesia.** *Journal of Veterinary Anaesthesia* 24(1): 42. ISSN: 0950-7817.
Descriptors: veterinarians, human behavior, analgesics, surgical operations, animal pain, medicine, cats, behavior, neurotropic drugs, non steroidal anti-inflammatory agents.
Notes: Meeting Information: Autumn conference of the Association of Veterinary Anaesthetists, Bristol, UK, 25-27 September 1996.

Carpenter, R.E., G.R. Pettifer, and W.J. Tranquilli (2005). **Anesthesia for geriatric patients**. *Veterinary Clinics of North America, Small Animal Practice* 35(3): 571-580. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: anesthesia, anesthetics, animal, dosage, geriatrics, old age, preoperative care, cats.

Carroll, G.L., L.B. Howe, M.R. Slater, L. Haughn, E.A. Martinez, S.M. Hartsfield, and N.S. Matthews (1998). **Evaluation of analgesia provided by postoperative administration of butorphanol to cats undergoing onychectomy.** *Journal of the American Veterinary Medical Association* 213(2): 246-250. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, analgesics, surgical operations, claws, removal, recovery, lameness.

Carroll, G.L., L.B. Howe, and K.D. Peterson (2005). **Analgesic efficacy of preoperative administration of meloxicam or butorphanol in onychectomized cats**. *Journal of the American Veterinary Medical Association* 226(6): 913-919. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3

Descriptors: pharmaceuticals, medicine, neutering, cats, clinical techniques, onychectomy, analgesia, lameness score, meloxicam, butorphanol, acepromazine, PCV, BUN, glucose.

Cassu, R.N., S.P. Luna, F.J. Teixeira Neto, J.R. Braz, S.S. Gasparini, and A.J. Crocci (2004). **Evaluation of laryngeal mask as an alternative to endotracheal intubation in cats anesthetized under spontaneous or controlled ventilation.** *Veterinary Anaesthesia and Analgesia* 31(3): 213-221. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Abstract: OBJECTIVE: To compare the cardiorespiratory effects and incidence of gastroesophageal reflux with the use of a laryngeal mask airway (LMA) or endotracheal tube (ET) in anesthetized cats during spontaneous (SV) or controlled ventilation (CV). STUDY DESIGN: Prospective randomized experimental trial. ANIMALS: Thirty-two adult crossbred cats, weighing 2.7 +/- 0.4 kg. METHODS: The cats were sedated with intramuscular (IM) methotrimeprazine (0.5 mg kg(-1)) and buprenorphine (0.005 mg kg(-1)), followed 30 minutes later by induction of anesthesia with intravenous (IV) thiopental (12.5-20 mg kg(-1)). An ET was used in 16 cats and an LMA in the remaining 16 animals. Anesthesia was maintained with 0.5 minimum alveolar concentration (0.6%) of halothane in oxygen using a Mapleson D breathing system. Cats in both groups were further divided into two equal groups (n = 8), undergoing either SV or CV. Neuromuscular blockade with pancuronium (0.06 mg kg(-1)) was used to facilitate CV. Heart and respiratory rates, direct arterial blood pressure, capnometry (PE'CO2) and arterial blood gases were measured. Gastric reflux and possible aspiration was investigated by intragastric administration of 5 mL of radiographic contrast immediately after induction of anesthesia. Cervical and thoracic radiographs were taken at the end of anesthesia. Data were analyzed using anova followed by Student-Newman-Keuls, Kruskal-Wallis or Friedman test where appropriate. RESULTS: Values for PaCO2 and PE'CO2 were higher in spontaneously breathing cats with the LMA when compared with other groups. Values of PaO2 and hemoglobin oxygen saturation did not differ between groups. Gastroesophageal reflux occurred in four of eight and two of eight cats undergoing CV with ET or LMA, respectively. There was no tracheal or pulmonary aspiration in any cases. CONCLUSIONS AND CLINICAL RELEVANCE: The use of an LMA may be used as an alternative to endotracheal intubation in anesthetized cats. Although aspiration was not observed, gastric reflux may occur in mechanically ventilated animals.
Descriptors: cats, intubation, laryngeal masks, intravenous anesthetics, carbon dioxide, gastresophageal reflux, respiration, thiopental.

Champagnat, J. and D.W. Richter (1994). **The roles of k+ conductance in expiratory pattern generation in anaesthetized cats**. *The Journal of Physiology* 479(1): 127-138. ISSN: 0022-3751.
NAL Call Number: 447.8 J82
Descriptors: caesium, tetraethylammonium, K+ current blockers, cell biology, membranes, respiratory system, anesthesia, cats, GABA B receptor, calcium.

Chen, B.X., Z.C. Hua, and T.Z. Deng (1995). **Effect of dexmedetomidine on spinal evoked potentials in cats**. *Anesthesia and Analgesia* 80(2 SUPPL.): S70. ISSN: 0003-2999.

Descriptors: cell biology, neural coordination, adrenoceptor, analgesic drug, dexmedetomidine, nociception, pharmacodynamics .

Clutton, E. and P. Pascoe (2003). **Proceedings of the American College of Veterinary Anesthesiologists** . *Proceedings of the American College of Veterinary Anesthesiologists 27th Annual Meeting, October 10, 2002-October 11, 2002, Orlando, Florida*, Blackwell: Oxford, UK, Vol. 30, p. 100-120.
NAL Call Number: SF914 .V47
Descriptors: acepromazine, anesthesia, anesthetics, analgesics, butorphanol, diazepam, isoflurane, ketamine, laboratory animals, lidocaine, medetomidine, pharmacodynamics, propofol, surgery, thiopental, urethane, xylazine, cats.

Clutton, E. and P. Pascoe (2003). **Proceedings of the Association of Veterinary Anaesthetists** . *Proceedings of the Association of Veterinary Anaesthetists Autumn Meeting, September 26, 2002-September 28, 2002, Crete, Greece*, Blackwell: Oxford, UK, Vol. 30, p. 88-99.
NAL Call Number: SF914 .V47
Descriptors: acepromazine, anesthesia, analgesics, conferences, detomidine, fentanyl, halothane, isoflurane, ketoprofen, lambs, medetomidine, non-steroidal anti-inflammatory agents, piglets, surgery, xylazine, cats.

Cornick Seahorn, J.L. (1994). **Anesthetic management of patients with cardiovascular disease.** *Compendium on Continuing Education for the Practicing Veterinarian* 16(9): 1121-1193. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, circulatory disorders, anesthesia, circulation, genetic disorders, cardiovascular agents, disorders, drugs, functional disorders, physiological functions, hemodynamics, arrhythmia, congenital abnormalities, preanesthetic medication, literature reviews.

Cornick Seahorn, J.L. (1998). **L'anestesia nei soggetti con malattie cardiovascolari. [Anaesthetic management of patients with cardiovascular disease]**. *Veterinaria Cremona* 12(4): 39-57. ISSN: 0394-3151.
Descriptors: anesthesia, drugs, heart diseases, dogs, cats.
Language of Text: Italian; Summary in English.

Crawford, P. (2004). **Dental anaesthesia techniques**. *Veterinary Nursing Times* 4(11): 6-7.
Descriptors: anesthesia, anesthetics, analgesics, dentistry, neuroleptics, non steroidal anti-inflammatory agents, peripheral nerves, surgery, techniques, teeth, cats, horses.

Cruz, M.L., S.P.L. Luna, G.B. Castro, F. Massone, and A.L. Rosa (2000). **A preliminary trial comparison of several anesthetic techniques in cats.** *Candian Veterinary Journal* 41(6): 481-485. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: cats, anesthesia, drug combinations, atropine, xylazine, fentanyl, anesthetics, heart rate, respiration rate, body temperature, romifidine, methotrimeprazine,

midazolam .
Language of Text: English; Summary in French.

Cullen, C.L., C. Lim, and J. Sykes (2005). **Tear film breakup times in young healthy cats before and after anesthesia**. *Veterinary Ophthalmology* 8(3): 159-165. ISSN: 1463-5216.
Online: http://www.blackwell-synergy.com/servlet/useragent?func=showIssues&code=vop
NAL Call Number: SF891 .V47
Descriptors: anesthesia, aqueous humour, conjunctiva, diagnosis, diagnostic techniques, lipids, mucins, tears, cats, feline herpesvirus, Mycoplasma.

Cunha, J.M., S.R.G. Cortopassi, and A. Machado (2002). **[Analgesia transoperatoria induzida pela morfina ou meperidina em gatos submetidos a osteossintese] Transoperative analgesia induced by morphine or meperedine in cats submitted to osteosynthesis** . *Ciencia Rural* 32(1): 67-72. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: cats, bone diseases, surgical operations, morphine, anesthesia, Sao Paulo, alkaloids, america, Brazil, musculoskeletal diseases, organic diseases, South America, gato, osteossintese .
Language of Text: Portuguese.

Dobromylskyj, P. (1996). **Cardiovascular changes associated with anaesthesia induced by medetomidine combined with ketamine in cats.** *The Journal of Small Animal Practice* 37(4): 169-72. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Abstract: Fifteen cats had anaesthesia induced by intramuscular injection of medetomidine combined with ketamine. By five minutes after drug administration, heart rate had decreased by 31 per cent, respiratory rate had decreased by 70 per cent and systolic blood pressure had increased by 69 per cent. Atipamezole administration was associated with a decrease in systolic blood pressure and an increase in heart and respiratory rates. Time to first head lift was eight minutes and to sternal recumbency 12 minutes after atipamezole administration. Postoperative analgesia was provided by methadone, administered when the cats adopted sternal recumbency.
Descriptors: anesthesia, general, anesthetics, dissociative, hemodynamic processes, hypnotics and sedatives, imidazoles, ketamine, pressure, castration, cats, drug combinations, heart rate, injections, intramuscular, medetomidine, respiration, time factors.

Dugdale, A. (2004). **Capnography for anaesthesia**. *Veterinary Times* 34(43): 14-16. ISSN: 1352-9374.
Descriptors: anesthesia, anesthetics, circulation, carbon dioxide, cardiac output, equipment, methodology, pets, pharmacodynamics, respiration, respiration rate, ventilation, cats.

Duke, T. (1995). **A new intravenous anesthetic agent: propofol.** *Candian Veterinary Journal* 36(3): 181-183. ISSN: 0008-5286.

NAL Call Number: 41.8 R3224
Descriptors: dogs, cats, injectable anesthetics, propofol, anesthesia, pharmacodynamics.

Dunn, K. (2005). **Anaesthesia in the geriatric small animal**. *Veterinary Times* 35(11): 10-11. ISSN: 1352-9374.
Descriptors: anesthesia, anesthetics, cardiovascular system, central nervous system, geriatrics, old age, pets, pharmacodynamics, preanesthetic medication, respiratory system, safety, cats.

Dye, T. (2004). **Respiratory complications associated with anaesthesia - Part 2**. *Veterinary Times* 34(47): 8. ISSN: 1352-9374.
Descriptors: adverse effects, anesthesia, anesthetics, clinical aspects, larynx, nasopharynx, respiratory diseases, trachea, cats.

Egger, C.M., L.E. Glerum, S.W. Allen, and M. Haag (2003). **Plasma fentanyl concentrations in awake cats and cats undergoing anesthesia and ovariohysterectomy using transdermal administration.** *Veterinary Anaesthesia and Analgesia* 30(4): 229-36. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Abstract: OBJECTIVE: To measure the plasma fentanyl concentrations achieved over time with transdermal fentanyl patches in awake cats and cats undergoing anesthesia and ovariohysterectomy. STUDY DESIGN: Randomized prospective experimental study. ANIMALS: Twenty-four purpose-bred cats. METHODS: Cats were randomly assigned to three groups for Part I of a larger concurrent study. Group P received only a 25 micro g hour-1 transdermal fentanyl patch. Group P/A received the patch and anesthesia. Group A received only anesthesia. After a minimum 1-week washout period, the cats were randomly reassigned to two groups for Part II of the larger study. Group P/A/O received the patch, anesthesia and ovariohysterectomy. Group A/O received anesthesia and ovariohysterectomy. Patches were left in place for 72 hours and plasma samples were obtained for fentanyl analysis while the patches were in place, and for 8 hours after patch removal for cats in Group P, P/A, and P/A/O. RESULTS: The 25 micro g hour-1 transdermal fentanyl patches were well tolerated by the cats in this study (mean body weight of 3.0 kg) and no overt adverse effects were noted. Mean plasma fentanyl concentrations over time, mean plasma fentanyl concentrations at specific times (8, 25, 49, and 73 hours after patch placement), time to first detectable plasma fentanyl concentration, time to reach maximum plasma fentanyl concentration, maximum plasma fentanyl concentration, mean plasma fentanyl concentration from 8 to 73 hours, elimination half-life, and total area under concentration (AUC) were not statistically different among the groups. CONCLUSIONS: Halothane anesthesia and anesthesia/ovariohysterectomy did not significantly alter the plasma fentanyl concentrations achieved or pharmacokinetic parameters measured, when compared with awake cats. There was a high degree of individual variability observed both within and between groups of cats in parameters measured. CLINICAL SIGNIFICANCE: The high degree of variability observed suggests that careful observation of cats with fentanyl patches in place is required to assess efficacy and any potential adverse effects. Anesthesia and anesthesia/ovariohysterectomy do not appear to alter plasma fentanyl concentrations achieved by placement of a 25 micro g hour-1 transdermal fentanyl patch

when compared to cats not undergoing these procedures.
Descriptors: analgesics, cats, cutaneous administration, analgesics, anesthesia, area under curve, animal behavior, cats surgery, fentanyl, hysterectomy, ovariectomy, pain measurement, prospective studies, wakefulness.

Erhardt, W., R. Kostlin, and J. Henke (2001). **Anasthesie zu Untersuchungen und Operationen am Auge beim Kleintier: Ein Uberblick [Anaesthesia for ophthalmologic examination and surgery in small animals. An overview]**. *Tierarztliche Praxis* 29(6): 339-345. ISSN: 1434-1239.
NAL Call Number: SF603 .V433
Descriptors: anesthesia, eye diseases, surgery, cats.
Language of Text: German with a summary in English.

Erkert, R.S. and C.G. MacAllister (2005). **Use of a eutectic mixture of lidocaine 2.5% and prilocaine 2.5% as a local anesthetic in animals**. *Journal of the American Veterinary Medical Association* 226(12): 1990-1992. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: adverse effects, anesthesia, drug combinations, drug formulations, lidocaine, local anaesthetics, methaemoglobin, medicine, cats, dogs.

Eurides, D., P.M.C. Freitas, F.C.D. Mota, E.d.A. Naves, L.A.F.d. Silva, M.d.S. Melo, M.R. Goulart, and R. Resende (2002). **Utilizacao da prilocaina na anesthesia perineural do membro pelvico em gatos *(Felis domestica*). [Use of prilocaine for the perineural anaesthesia of pelvic/hind limb in cats *(Felis domestica*)]**. *A Hora Veterinaria* 22(130): 55-57. ISSN: 0101-9163.
Descriptors: anesthesia, anesthetics, limbs, pharmacodynamics, cats.
Language of Text: Portuguese; Summary in English.

Farber, N.E., E. Samso, D. Schwabe, and W.T. Schmeling (1994). **Dexmedetomidine modulates cardiovascular responses to stimulations of central nervous system pressor sites in cats anesthetized with halothane**. *Anesthesia and Analgesia* 78(2 Suppl.): S106. ISSN: 0003-2999.
Descriptors: dexmedetomidine, cardiovascular system, central nervous system, halothane, anesthesia, cats, cell biology, drug interactions, telencepHalic electrical activity, meeting abstract.
Notes: Meeting Information: 68th Clinical and Scientific Congress of the International Anesthesia Research Society, March 5-9, 1994; Orlando, Florida.

Farber, N.E., D. Schwabe, J. Schmidt, J.P. Kampine, and W.T. Schmeling (1995). **Desflurane attenuates cns-mediated pressor responses in cats: A comparison with halothane and isoflurane**. *Journal of the Federation of American Societies for Experimental Biology* 9(3): A393. ISSN: 0892-6638.
NAL Call Number: QH301 .F3
Descriptors: cardiovascular regulation, central nervous system, desflurane, general anesthetic drugs, halothane, isoflurane, meeting abstract.
Notes: Meeting Information: Experimental Biology 95, Part I, Atlanta, Georgia, USA; April 9-13, 1995.

Gantke, S. and U. Matis (2002). **Atemgasklimatisierung beim intubierten Kleintier in Abhangigkeit von Korpermasse und Frischgasfluss [Climatisation of anesthetic gases in the intubated small animal as a function of body weight and fresh gas flow]**. *Tierarztliche Praxis* 30(3): 164-171. ISSN: 1434-1239.
NAL Call Number: SF603 .V433
Descriptors: acclimatization, anesthesia, body weight, humidity, inhaled anaesthetics, respiration, temperature, cats.
Language of Text: German with a summary in English.

Garcia Fernandez, P., I. Alvarez Gomez de Segura, and J. Benito de la Vibora (2001). **Protocolos anestesicos y analgesicos en procedimientos quirurgicos habituales. [Anesthetic and analgesic protocols in usual surgery procedures].** *Canis Et Felis*(no.53): 65-72. ISSN: 1133-2751.
Descriptors: dogs, cats, surgical operations, analgesics, anesthetics, neurotropic drugs.
Language of Text: Spanish.

Garrod, L.A. and L. Wetmore (2000). **Trauma y anestesia. [Trauma and anaesthesia]**. *Selecciones Veterinarias* 8(4): 358-362. ISSN: 0327-859X.
Descriptors: anesthesia, anesthetics, trauma, cats, dogs.
Language of Text: Spanish.

Gaschen, F., L. Gaschen, G. Seiler, M. Welle, V.B. Jaunin, D.G. Jmaa, G. Neiger Aeschbacher, and M. Ade Damilano (1998). **Lethal peracute rhabdomyolysis associated with stress and general anesthesia in three dystrophin-deficient cats.** *Veterinary Pathology* 35(2): 117-123. ISSN: 0300-9858.
NAL Call Number: 41.8 P27
Descriptors: cats, muscular diseases, anesthesia, muscular dystrophy, proteins, necrosis, lesions, muscles, age, case studies, cell membranes, stress, metabolic disorders, potassium, phosphorus, hypercalcaemia, creatine kinase, aspartate aminotransferase, alanine aminotransferase, acidosis, mortality, symptoms, alkali metals, aminotransferases, body parts, cell structure, disorders, elements, enzymes, metabolic disorders, metallic elements, muscular diseases, musculoskeletal diseases, musculoskeletal system, nonmetals, organic diseases, phosphotransferases, transferases, contractile proteins, isoflurane, deficiency, skeletal muscle, histochemistry, hyperkalemia, hyperphosphatemia, hypercalcemia .

Ghanawat, H.G. and M.B. Mantri (1996). **Ketamine-xylazine and ketamine-diazepam anaesthesia in cats**. *Indian Veterinary Journal* 73(2): 184-187. ISSN: 0019-6479.
NAL Call Number: 41.8 IN2
Descriptors: nervous system, respiration, medicine, cats, diazepam, general anesthetic drug, heart rate, ketamine, muscle relaxation, premedication, recovery rate, temperature, xylazine .

Giselle, H. (2001). **Anestesia en pediatria. [Anaesthesia of pups and kittens.]**. *Selecciones Veterinarias* 9(3): 255-264. ISSN: 0327-859X.
Descriptors: anesthesia, kittens, puppies, cats, dogs.
Language of Text: Spanish.

Golden, A.L., J.M. Bright, G.B. Daniel, D. Fefee, D. Schmidt, and R.C. Harvey (1998). **Cardiovascular effects of the alpha 2-adrenergic receptor agonist medetomidine in clinically normal cats anesthetized with isoflurane**. *American Journal of Veterinary Research* 59(4): 509-513. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: effects, medetomidine, isoflurane, pressure, heart rate, flow, intramuscular injection, cats.

Gomez Villamandos, R.J., J.M. Santisteban, J.I. Redondo, J.M. Dominguez, M.E. Galka, I. Ruiz, and I. Avila (1998). **Los anticolinergicos en anestesia veterinaria [Anticholinergic drugs in veterinary anaesthesia]**. *Medicina Veterinaria* 15(4): 197-211. ISSN: 0212-8292.
Descriptors: atropine, anesthesia, parasympatholytics, domestic animals, dogs, cats.
Language of Text: Spanish; Summary in English.

Grunbaum, E.G. (1997). **Kutyak es macskak muteti altatas utani veseelegtelensegenek megelozese es kezelese. [Prevention and treatment of kidney failure after anaesthesia in dogs and cats.]**. *Magyar Allatorvosok Lapja* 119(11): 698-700. ISSN: 0025-004X.
Descriptors: anesthesia, disease prevention, kidney diseases, cats.
Language of Text: Hungarian.

Guzel, O. (2003). **Kedi ve kopeklerde kullanlan anestetik ajanlarn kalp uzerine etkileri [Effects of anesthetic agents used in cats and dogs on the heart]**. *Kafkas Universitesi Veteriner Fakultesi Dergisi* 9(2): 215-218. ISSN: 1300-6045.
Descriptors: anesthesia, anesthetics, arrhythmia, heart, cats.
Language of Text: Turkish; Summary in English.

Hai, M.A., M.A. Hossain, and M.M. Rahman (1996). **Effects of certain general anaesthetics on clinical and haematological parameters in cats**. *Bangladesh Veterinary Journal* 30(1/2): 47-52. ISSN: 0378-8113.
Descriptors: anesthesia, anesthetics, xylazine, ketamine, diazepam, hematology, respiration rate, leukocyte count, neutrophils, erythrocyte count, body temperature, cats.

Hall, L. (1996). **Outpatient anaesthesia for dogs and cats.** In: *Small Animal' s Anesthesia.*, Djurkliniken.: Moelndal, Sweden, p. 125-126.
Descriptors: dogs, cats, anesthesia, anesthetics, disease control, drugs, neurotropic drugs, therapy .

Hall, L. (1996). **Post-operative analgesia for dogs and cats.** In: *Small Animal' s Anesthesia.*, Djurkliniken: Moelndal, Sweden, p. 27-31.
Descriptors: dogs, cats, analgesics, surgical operations, pain, disease control, drugs, neurotropic drugs, therapy .

Hall, L. (1996). **History of veterinary anaesthesia in Europe- 1946-1996: Small animals.** In: *Small Animal' s Anesthesia.*, Djurkliniken: Moelndal, Sweden, p. 9-11.
Descriptors: cats, dogs, anesthetics, Europe, history, drugs, neurotropic drugs.

Hall, T.L., T. Duke, H.G.C. Townsend, N.A. Caulkett, and S.L. Cantwell (1999). **The effect of opioid and acepromazine premedication on the anesthetic induction dose of propofol in cats.** *Candian Veterinary Journal* 40(12): 867-870 . ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: cats, preanesthetic medication, opioids, acepromazine, dosage, propofol, anesthesia.
Language of Text: English; Summary in French.

Hansen, B. (1997). **Appendix:Drug [analgesic] dosage recommendations**. *Seminars in Veterinary Medicine and Surgery Small Animal* 12(2): 139-142. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: drug therapy, anti-inflammatory agents, local anaesthesia, analgesics, cats.

Hansen, B.D. (1994). **Analgesic therapy.** *Compendium on Continuing Education for the Practicing Veterinarian* 16(7): 868-875. ISSN: 0193-1903.
NAL Call Number: SF601.C66
Descriptors: dogs, cats, pain, analgesics, agonists, surgical operations, joint diseases, disease control, drugs, neurophysiology, neurotropic drugs, organic diseases, therapy, extralabel use, nonsteroidal anti-inflammatory drugs, alpha 2 adrenergic agonists, opioid agonists, opioid agonist antagonists, dosage, postoperative care, osteoarthritis .

Hansson, M. and E. Aengeby (1996). **Evaluation of the anaesthetic effect of saffan in combination with medetomidine for cats.** Djurkliniken: Moelndal (Sweden), p. 141-143.
Descriptors: cats, anesthetics, drugs, neurotropic drugs.

Hellsten, C. (1998). **Kipulaakkeiden kaytto kissalla. Kirjallisuuskatsaus. II. Opioidit ja alpha 2-agonistit. [Use of analgesics in cats. A literature study. II. Opioids and alpha 2-agonists]**. *Suomen Elainlaakarilehti* 104(1): 7-11. ISSN: 0039-5501.
NAL Call Number: 41.8 F49
Descriptors: drugs, reviews, dosage, opioids, non steroidal anti-inflammatory agents, analgesics, neurotropic drugs, cats.
Language of Text: Finnish; Summary in English.

Hellyer, P.W. (1996). **General anesthesia for dogs and cats.** *Veterinary Medicine* 91(4): 314-325. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, anesthesia, anesthetics, costs, drugs, neurotropic drugs, preanesthetic medication.

Henke, J. and W. Erhardt (1996). **Die Hyperkapnie als Narkosekomplikation im Rahmen einer Hypoventilation [Hypercapnia as a complication in anaesthesia caused by hypoventilation]**. *Praktische Tierarzt* 77(5): 390-396. ISSN: 0032-681X.
NAL Call Number: 41.8 P882
Descriptors: adverse effects, hypercapnia, acidosis, reviews, anesthesia, carbon dioxide, disorders, cats.
Language of Text: German with a summary in English.

Hikasa, Y. (1994). **Feline inhalation anaesthesia**. *Journal of Veterinary Medicine, Japan* 47(12): 1001-1005. ISSN: 0447-0192.
Descriptors: anesthesia, cats.
Language of Text: Japanese.

Hikasa, Y., H. Kawanabe, K. Takase, and S. Ogasawara (1996). **Comparisons of sevoflurane, isoflurane, and halothane anesthesia in spontaneously breathing cats.** *Veterinary Surgery* 25(3): 234-243. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: cats, anesthesia, nitrous oxide, pressure, halothane, heart rate, gas exchange, respiratory disorders, anesthetics, acidosis, circulation, disorders, drugs, functional disorders, metabolic disorders, neurotropic drugs, nitrogen oxides, organic halogen compounds, organochlorine compounds, oxides, physiological functions, heart rate, respiration rate, hypercapnia, inhaled anesthetics.

Hikasa, Y., C. Okabe, K. Takase, and S. Ogasawara (1996). **Ventricular arrhythmogenic dose of adrenaline during sevoflurane, isoflurane, and halothane anaesthesia either with or without ketamine or thiopentone in cats.** *Research in Veterinary Science* 60(2): 134-7. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Abstract: The doses of adrenaline required to induce ventricular arrhythmia during sevoflurane, isoflurane and halothane anaesthesia, either with or without infusions of ketamine (76 micrograms kg-1 min-1) or thiopentone (0.5 mg kg-1 min-1), were determined in cats. Groups of six to eight cats were maintained at end-tidal concentrations equivalent to 1.25 times the minimal alveolar concentration of each anaesthetic. The mean dose of adrenaline required to induce arrhythmia during sevoflurane anaesthesia (19.0 micrograms kg-1) was approximately 11 times higher than that required during halothane anaesthesia (1.66 micrograms kg-1) and the same as that required during isoflurane anaesthesia (19.0 micrograms kg-1). Ketamine tended to decrease the requirement of adrenaline during halothane anaesthesia, but not significantly, and did not change the requirement during isoflurane or sevoflurane anaesthesia. Thiopentone did not change the requirement for adrenaline during halothane, isoflurane or sevoflurane anaesthesia. It was concluded that either with or without ketamine or thiopentone, the effect of sevoflurane on the sensitisation of the feline myocardium to the arrhythmogenic effects of adrenaline was significantly less than that of halothane and not different from that of isoflurane.
Descriptors: anesthesia, general, anesthetics, dissociative, anesthetics, general, epinephrine, methyl ethers, ventricular fibrillation, intravenous anesthetics, pressure, cats, diastole, ethers, halothane, isoflurane, ketamine, systole, thiopental, tidal volume, ventricular fibrillation.

Hikasa, Y., M. Yamashita, K. Takase, and S. Ogasawara (1998). **Prolonged sevoflurane, isoflurane and halothane anaesthesia in oxygen using rebreathing or non-rebreathing system in cats.** *The Journal of Veterinary Medicine* 45(9): 559-575. ISSN: 0931-184X.
NAL Call Number: 41.8 Z5
Descriptors: cats, anesthesia, isoflurane, halothane, anesthetics, oxygen, respiration,

clinical aspects, heart rate, acidosis, pressure, carbon dioxide, enzyme activity, alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase, bilirubin, sugar, glucose, urea, nitrogen, insulin.

Hikasa, Y., T. Yoshikai, K. Takase, and S. Ogasawara (1997). **Comparisons of prolonged sevoflurane, isoflurane, and halothane anaesthesia combined with nitrous oxide in spontaneously breathing cats.** *Zentralblatt Fur Veterinarmedizin/ Reihe A* 44(7): 427-442. ISSN: 0514-7158.

Abstract: The clinical, cardiopulmonary, haematologic, and serum biochemical effects of sevoflurane, isoflurane and halothane anaesthesia with 66% nitrous oxide, were compared in healthy, premedicated cats breathing spontaneously during 6 h of anaesthesia. Recovery time from anaesthesia with sevoflurane-nitrous oxide was more rapid than that with halothane-nitrous oxide, but it does not differ from that with isoflurane-nitrous oxide. The degree of respiratory acidosis with sevoflurane-nitrous oxide anaesthesia was similar to that with isoflurane-nitrous oxide and was less than that with halothane-nitrous oxide. There were no significant differences among the groups in the heart rate, arterial pressures, haematological and serum biochemical values. The three anaesthetic regimens induced a similar degree of hyperglycemia during anaesthesia. Serum biochemical examination did not reveal apparent hepatic or renal injuries after each anaesthesia. Time-related increases in respiration rate and arterial carbon dioxide partial pressure were observed during prolonged halothane-nitrous oxide anaesthesia. No significant time-related changes in cardiopulmonary variables were observed during either sevoflurane- or isoflurane-nitrous oxide anaesthesia. Therefore, sevoflurane-nitrous oxide may be used as an effective and safe anaesthetic combination similar to isoflurane-nitrous oxide for long-term anaesthesia in healthy cats.

Descriptors: combined anesthetics, inhalation anesthetics, cats, ethers, halothane, isoflurane, methyl ethers, nitrous oxide, respiration.

Hird, J.F.R. (1996). **The clinical use of medetomidine and atipamezole for sedation and anesthesia.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Assocaition* 10: 432-434.

NAL Call Number: SF605.N672

Descriptors: dogs, cats, drug combinations, anesthesia, medetomidine, atipamezole.

Hodgson, D.S., C.I. Dunlop, P.L. Chapman, and J.L. Grandy (1998). **Cardiopulmonary effects of anesthesia induced and maintained with isoflurane in cats.** *American Journal of Veterinary Research* 59(2): 182-185. ISSN: 0002-9645.

NAL Call Number: 41.8 Am3A

Descriptors: cats, anesthesia, anesthetics, drugs, cardiovascular system, circulation, composition, respiratory system, gases, respiration, body parts, drugs, fluids, neurotropic drugs, physical states, physiological functions, inhaled anesthetics, hemodynamics, respiratory gases, lung ventilation.

Hofmeister, E.H. (2003). **Anesthesia for the acute abdomen patient**. *Clinical Techniques in Small Animal Practice* 18(1): 45-52. ISSN: 1096-2867.

NAL Call Number: SF911. S45

Descriptors: abdomen, anesthesia, anesthetics, cardiovascular system, digestive system diseases, oxygen requirement, pain, pharmacodynamics, postoperative care, cats, dogs.

Housiaux, N. and E. Troncy (2002). **Gestion de la douleur chez les carnivores domestiques: l' analgesie transcutanee est bien toleree. [Management of pain in domestic carnivores: transcutaneous analgesia is well tolerated.]**. *Le Point Veterinaire* 33(225): 50-53. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: cats, pain, analgesics, application, drugs, neurotropic drugs.
Language of Text: French.

Hugonnard, M., A. Leblond, S. Keroack, J.L. Cadore, and E. Troncy (2004). **Attitudes and concerns of French veterinarians towards pain and analgesia in dogs and cats.** *Veterinary Anaesthesia and Analgesia* 31(3): 154-163. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Abstract: OBJECTIVE: To compare the attitudes of French veterinarians to pain, and their provision of analgesia to animals, with that reported from other countries. STUDY DESIGN: Epidemiological study. METHODS: In June 1999, 379 French veterinarians were surveyed to ascertain their views on pain evaluation and control in dogs and cats, and their use of analgesics in daily practice. Survey results are expressed as a percentage of responses. RESULTS: The questionnaire was returned by 189 veterinarians (49.9%). The response rate was influenced by age (younger veterinarians were more likely to respond) but not gender. A majority (99.5%) expressed moderate to extreme concern over pain in their patients. Pain evaluation was based on the animal's attitude (88.3% dogs, 82.5% cats), interaction with the caregiver, response to palpation of the painful area (66.5% dogs, 62.7% cats) and inappetence (29.3% dogs, 46.3% cats, $p < 0.001$). Only 14.3% of respondents considered their knowledge of pain recognition to be inadequate. Many (58.8%) considered their methods of pain quantification and control (47% dogs, 59% cats) to be inadequate. Difficulties in recognizing pain (58.3%), a lack of knowledge in the appropriate use of analgesics (41.7%) and fear of drug side effects (30%) were used to explain inadequate provision of analgesia. Only 16.1 and 8.1% used opioids in dogs and cats, respectively. This low level of use resulted from the imposition of French narcotic legislation (79.9%) and lack of knowledge of opioid pharmacology (73.7%). Nonsteroidal anti-inflammatory drugs (NSAIDs) and glucocorticoids were the most commonly used analgesics in both species (100% (dogs) and 96.7% (cats)). The most popular NSAID used in France was tolfenamic acid, followed by meloxicam (dogs), ketoprofen, nimesulide (cats) and carprofen (dogs). The type of surgery performed influenced the use of analgesics, from 17.2% for castration to 83.7% for orthopaedic procedures. Nonsurgical conditions believed to warrant analgesia included osteoarthritis (97.8%), trauma (97.3%) and bone neoplasia (93.4%). Female veterinarians were more likely than males to evaluate pain and provide analgesia. CONCLUSION: French practitioners demonstrate a level of interest in analgesia, which appears to be at least equivalent to that reported from English-speaking countries. The signs used to indicate the presence of pain do not, in general, appear to differ. Excessive confidence in their ability to recognize pain (despite a general ignorance of the subject), the minor role of animal health technicians in pain management and misconceptions about analgesics

(mainly opioids) are French pecularities.
Descriptors: analgesia utilization, attitude of health personnel, cats, dogs, pain, veterinarians in France, pain measurement, questionnaires.

Ide, T., Y. Okitsu, S. Nehashi, F. Yamamoto, and T. Nishino (2001). **The effect of epidural anesthesia on respiratory distress induced by airway occlusion in isoflurane-anesthetized cats.** *Anesthesia and Analgesia* 92(3): 749-54. ISSN: 0003-2999.
Abstract: The role of afferent information from the chest wall in the genesis of dyspnea is not fully elucidated. We have developed an animal model for the study of airway occlusion (AO) and proposed new concepts of minimum alveolar anesthetic concentration for AO (MACAOR) and the duration from the start of AO to the onset of the positive motor response (DOCCL) to evaluate respiratory distress quantitatively. We examined the effects of thoracic epidural anesthesia on respiratory distress by using our animal model. Adult cats (n = 24) were anesthetized with isoflurane, and an epidural catheter was placed after T9 laminectomy. After determination of MACAOR, DOCCL was measured. Animals were then randomly assigned into three groups: the EPD Group (n = 12) received epidural 1% lidocaine (0.4 mL/kg), IM saline (0.4 mL/kg), and saline infusion. The IM Group (n = 6) received epidural saline (0.4 mL/kg), IM 1% lidocaine (1 mL/kg), and saline infusion. The PHE Group (n = 6) received epidural 1% lidocaine (0.4 mL/kg) and IV phenylephrine (0.5-1 microg. kg(-1). min(-1)) to maintain a stable arterial blood pressure. DOCCL and MACAOR were measured in each animal at 15 min after the administration of drugs. Plasma lidocaine concentrations were measured before and after epidural or IM injection. DOCCL was significantly longer after epidural injection in all groups than before the injection. Although there was no significant difference in the values of MACAOR between before and after the epidural injection in the EPD Group, the IM administration of lidocaine in the IM Group significantly reduced MACAOR. Plasma concentrations of lidocaine were similar in all groups at all measurement points. Our data indicate that thoracic epidural anesthesia using 1% lidocaine significantly reduced respiratory distress induced by AO. This effect is most likely caused by a systemic effect of lidocaine rather than by reduced afferent information from the chest wall. IMPLICATIONS: Thoracic epidural anesthesia reduced respiratory distress induced by airway occlusion. This effect is most likely caused by the systemic effect of lidocaine, rather than by the reduced afferent information from the chest wall.
Descriptors: anesthesia, epidural, inhalation anesthetics, dyspnea, isoflurane, lidocaine, respiration, pressure, cats, heart rate, lidocaine.

Itoh, N. and S. Itoh (1996). **Efficacy of atipamezole on xylazine-ketamine anaesthesia in cats**. *Journal of Veterinary Medicine, Japan* 49(3): 193-196. ISSN: 0447-0192.
Descriptors: anesthesia, antagonists, ketamine, drug combinations, xylazine, medetomidine, cats.
Language of Text: Japanese; Summary in English.

James, G.S. (2001). **Anestesia: complicaciones y mortalidad. [Complications and death following anaesthesia]**. *Selecciones Veterinarias* 9(1): 26-28. ISSN: 0327-859X.
Descriptors: anesthesia, causes of death, death, cats.
Language of Text: Spanish.

Johnson, C. (1995). **Modern small animal anaesthesia and the concept of the triad**. *Veterinary Practice* 27(15): 12-14. ISSN: 0042-4897.
NAL Call Number: SF601. V5
Descriptors: small animal practice, medetomidine, diazepam, morphine, methadone, fentanyl, pethidine, drug combinations, preanaesthetic medication, cats.

Johnson, C. (1995). **The management and induction of anaesthesia**. *Veterinary Practice* 27(16): 10. ISSN: 0042-4897.
NAL Call Number: SF601. V5
Descriptors: anesthesia, benzodiazepines, ketamine, thiopental, pets, preanaesthetic medication, cats.

Joubert, K.E. (2000). **Routine veterinary anaesthetic management practices in South Africa**. *Journal of the South African Veterinary Association* 71(3): 166-172. ISSN: 0301-0732.
Descriptors: veterinary profession, practice, anesthesia, anesthetics, sterilization, questionnaires, surgery, mortality, promazine, preanaesthetic medication, halothane, cats.

Joubert, K.E. (2001). **The use of analgesic drugs by South African veterinarians**. *Journal of the South African Veterinary Association* 72(1): 57-60. ISSN: 0301-0732.
NAL Call Number: 41.8 SO8
Descriptors: analgesics, flunixin, ketamine, morphine, non steroidal anti-inflammatory agents, opioids, pain, pethidine, phenylbutazone, postoperative care, questionnaires, practice, xylazine, cats, dogs.

Kaymaz, A.A. and C. Perk (1997). **Nefropatili kedi ve kopeklerde genel anestezi proseduru [General anaesthesia in cats and dogs with nephropathy]**. *Veteriner Fakultesi Dergisi Istanbul* 23(2): 373-380. ISSN: 0378-2352.
Descriptors: anesthesia, kidney diseases, cats.
Language of Text: Turkish with a summary in English.

Keroack, S., B. Langevin, and E. Troncy (2002). **Analgesie ds carnivores domestiques. Quels analgesiques utiliser en periode perioperatoire? [Analgesia in dogs and cats. Which analgesic to use in the perioperative period?]**. *Le Point Veterinaire* 33(223): 48-53. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: dogs, cats, surgical operations, analgesics, drugs, neurotropic drugs.
Language of Text: French.

Khursheed, M. (2001). **Anestesia: revision en felinos. [Anaesthesia of cats]**. *Selecciones Veterinarias* 9(1): 29-34. ISSN: 0327-859X.
Descriptors: anesthesia, anesthetics, etomidate, medetomidine, propofol, cats.
Language of Text: Spanish.

Kim InBong, Kim MooKang, Cho SungWhan, Kim DuckHwan, You MyungJo, Lee SeongHo, Lee SeongOk, Kwon GeonOh, Kim MyungCheol, and Nam TchiChou (1999). **Studies on feline electroacupuncture anaesthesia**. *Korean Journal of Veterinary Clinical Medicine* 16(2): 413-416. ISSN: 1225-4800.

Descriptors: anesthesia, head, laparotomy, pain, surgery, acupuncture, cats.
Language of Text: Korean; Summary in English.

Kirkwood, P.A., M. Lawton, and T.W. Ford (2002). **Plateau potentials in hindlimb motoneurones of female cats under anaesthesia.** *Experimental Brain Research* 146(3): 399-403. ISSN: 0014-4819.
Abstract: Central respiratory drive potentials (CRDPs) were observed in intracellular recordings from hindlimb motoneurones of anaesthetized, paralysed, ovariohysterectomized female cats, artificially ventilated so as to have a strong respiratory drive under hyperoxic hypercapnea. The animals comprised two groups: three animals treated for 7 days with oestradiol benzoate (oestrous), and three untreated (non-oestrous). Several features of the CRDPs suggested the involvement of voltage-sensitive channels, including variability in the CRDP amplitude and potentiation of the CRDP by depolarizing currents. Clear plateau potentials, related to or triggered by depolarizing phases of the CRDPs, occurred in six motoneurones, three in response to depolarizing currents, three spontaneously. This is the first report of plateau potentials in mammalian motoneurones under anaesthesia. The mechanisms accessed here by the respiratory inputs are deduced to be particularly potent, perhaps because of a distal dendritic location. Plateau-like effects were more common in the oestrous animals, which suggests a specific role for the plateau potentials in the production of the stereotyped movements of female receptive behaviour.
Descriptors: action potentials, anesthesia adjuvants, hindlimb, motor neurons, action potentials, cats, estrus, hindlimb, motor neurons.

Kohn, D.F. (1997). ***Anesthesia and Analgesia in Laboratory Animals***, American College of Laboratory Animal Medicine series, Academic Press: San Diego, California, 426 p. ISBN: 0124175708 .
NAL Call Number: SF996.5.A54
Abstract: Pharmacology of injectable anesthetics -- Pharmacology of inhalation anesthetics -- Pharmacology of analgesics --Paralytic agents -- Monitoring of anesthesia -- Monitoring of analgesia -- Anesthesia equipment: types and uses --Design of surgical suites and postsurgical care units --Anesthesia and analgesia in rodents -- Anesthesia and analgesia in rabbits -- Anesthesia and analgesia in nonhuman primates -- Anesthesia and analgesia in dogs, cats, and ferrets -- Anesthesia and analgesia in ruminants -- Anesthesia and analgesia in swine -- Anesthesia and analgesia in nontraditional laboratory animal species --Postoperative support and intensive care -- Current research in anesthesia and trends in clinical applications.
Descriptors: laboratory animals, surgical operations, anesthesia, injectable anesthetics, inhalataion anesthetics, analgesics, paralytic agents, rabbits, rodents, nonhuman primates, dogs, cats, ferrets, ruminants, swine, postoperative care.

Kona Boun, J.J., A. Silim, and E. Troncy (2005). **Immunologic aspects of veterinary anesthesia and analgesia**. *Journal of the American Veterinary Medical Association* 226(3): 355-363. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: adverse effects, allergies, anesthesia, anesthetics, analgesics, immune

system, immunity, infectious diseases, neoplasms, non steroidal anti-inflammatory agents, pharmacodynamics, stress, stress response, surgery, vaccination, cats.

Kos, J. and M. Cergolj (1998). **Anestezija u opstetriciji pasa i macaka [Anaesthesia in obstetrics in dogs and cats]**. In: *Veterinarski Dani, October 13, 1998-October 17, 1998, Rovinj, Croatia,* Hrvatska veterinarska komora: Zagreb, Croatia, p. 229-234. ISBN: 9539657652.
Descriptors: obstetrics, anesthesia, surgery, dystocia, cesarean section, female animals, cats, dogs.
Language of Text: Croatian; Summary in English.

Kramer, S. (1997). **Padiatrische und geriatrische Kleintierpatienten als Risikogruppen beim Narkosemanagement. [Risks associated with anaesthesia in young and old companion animals]**. *Tierarztliche Praxis* 25(6): 637-642. ISSN: 1434-1239.
NAL Call Number: SF603 .V433
Descriptors: small animal practice, risk, anesthesia, young animals, geriatrics, cats.
Language of Text: German with a summary in English.

Kumano, H., H. Furuya, H. Yomosa, T. Nagahata, T. Okuda, and T. Sakaki (1994). **Response of pial vessel diameter and regional cerebral blood flow to co-2 during midazolam administration in cats**. *Acta Anaesthesiologica Scandinavica* 38(7): 729-733. ISSN: 0001-5172.
Descriptors: cerebral microcirculation, cats, transport and circulation, nitrous oxide, nervous system, neural coordination, general anesthetic drug, midazolam .

Kuntze, A. (1997). **Zur Anasthesie bei Heimtieren (Kleinsauger, Psittaciden und Reptilien). [Anaesthesia in pets (small animals, psittacines and reptiles)]**. *Tierarztliche Praxis* 24(6): 600-603. ISSN: 0303-6286.
NAL Call Number: SF603 .V4
Descriptors: anesthesia, pets, anesthetics, hypoglycemia, hypoxia, hypothermia, animal behaviour, cats, Psittaciformes, reptiles.
Language of Text: German with a summary in English.

Kuznetsov, I.E. and L.V. Natrus (1999). **Characteristics of background firing activity of the rostral hypothalamic neurons and analysis of modifications due to stimulation of evolutionary distinct cortical areas**. *Fiziolohichnyi Zhurnal* 45(5): 24-30. ISSN: 0201-8489.
Abstract: In acute experiments on cats under mixed narcosis (ketamine + N2O) we have investigated background firing activity of the rostral hypothalamic neurons and analyzed it modifications due to serial stimulation (100 imp/s, during 5 s) of the prefrontal, cingulate, pyriform cortexes and hippocampus. Analysis of the ongoing mean frequency histograms allowed to single out three types of background firing activity with different rhythmical properties. Three types of interspike intervals distribution i.e. asymmetrical (A), symmetrical (S) and polymodal (P) have been distinguished as well. Cortical stimulation was found to transform types of interspike intervals distribution in 15% of hypothalamic neurons. S-type changed into P-type and A-type - into P-type. Author discussed correlation between the character of background firing activity, types of

interspike intervals distribution and functional properties of hypothalamic neurons.
Descriptors: cats, ketamine, nitrous oxide, hypothalamic neurons, frequency histograms, nervous system, neural coordination.
Language of Text: Ukrainian.

Laredo Alvarez, F.G., E. Belda Mellado, and M. Escobar Gil de Montes (2001). **Emergencies and complications in small animal anaesthesia (II) [Accidentes y complicaciones en anestesia de pequenos animales (II)]**. *Anales De Veterinaria De Murcia* 17: 27-40. ISSN: 0213-5434.
Descriptors: adverse effects, anesthesia, cats.
Language of Text: Spanish; Summary in English.

Larenza, M.P., Y.P.S. Moens, P.W. Kronen, and U. Schatzmann (2004). **Comparison of post-operative analgesia and recovery quality after racemic ketamine or S-ketamine in female cats undergoing ovariectomy: Preliminary results**. In: *Aktualitaten aus der Gastroenterologie, June 3, 2004-June 5, 2004, 35 Jahresversammlung,* Schweizerische Vereinigung fur Kleintiermedizin: Zurich, Switzerland, 207 p.
Descriptors: anesthesia, surgical recovery, analgesia, ketamine, S-ketamine, cats, ovariectomy, recovery quality.

Larson, M.D. and P.O. Talke (2001). **Effect of dexmedetomidine, an alpha2-adrenoceptor agonist, on human pupillary reflexes during general anaesthesia.** *British Journal of Clinical Pharmacology* 51(1): 27-33. ISSN: 0007-1188.
Abstract: AIMS: To test the hypothesis that the alpha2-adrenergic agonist, dexmedetomidine, dilates the pupil and does not alter the pupillary light reflex of anaesthetized patients. METHODS: Eight volunteers were administered general anaesthesia with propofol, nitrous oxide and alfentanil. One hour and 25 min after induction of anaesthesia, a 45 min infusion of dexmedetomidine was begun, targeting a plasma concentration of 0.6 ng x ml(-1). Pupil size, pupillary light reflex amplitude, light reflex recovery time, and reflex dilation were measured before and during dexmedetomidine infusion. RESULTS: Dexmedetomidine produced no change in pupil size and light reflex recovery time, increased the light reflex from 0.30 +/- 0.14 to 0.37 +/- 0.12 mm and significantly reduced pupillary reflex dilation by 72 +/- 62%. CONCLUSIONS: These pupillary effects of dexmedetomidine in humans are difficult to reconcile with the findings obtained in cats and rats that have demonstrated a direct inhibitory effect of alpha2-adrenergic agonists on the pupilloconstrictor nucleus. The increase in the magnitude of the light reflex in response to dexmedetomidine does not necessarily involve an anxiolytic mechanism.
Descriptors: adrenergic alpha agonists, anesthesia, general, dexmedetomidine, receptors, adrenergic, alpha 2 agonists, reflex, pupillary, adult, pressure, heart rate.

Lascelles, B.D.X., P. Cripps, S. Mirchandani, and A.E. Waterman (1995). **Carprofen as an analgesic for postoperative pain in cats: dose titration and assessment of efficacy in comparison to pethidine hydrochloride.** *Journal of Small Animal Practice* 36(12): 535-541. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: cats, pain, analgesics, anti-inflammatory agents, surgical operations,

neurophysiology, neurotropic drugs, pethidine, non-steroidal anti-inflammatory agent, carprofen, postoperative care.

Lascelles, D. and A. Waterman (1997). **Analgesia in Cats.** *In Practice* 19(4): 203-213. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: pain, surgical operations, anesthesia, analgesics, cats, drugs, neurotropic drugs, preanesthetic medication.

Ledecky, V., M. Hluchy, and H.A. Lopes (1999). **Clinical experience with the use of tiletamine and zolazepam (preparation zoletil) in anaesthesia in cats in surgery.** *Folia Veterinaria* 43(1): 13-15. ISSN: 0015-5748.
Descriptors: cats, anesthesia, medicine, tiletamine, zolazepam, Zoletil, sedation, veterinary surgery.
Language of Text: Slovak; Summary in English.

Lee, I., N. Yamagishi, K. Oboshi, and H. Yamada (2004). **Distribution of new methylene blue injected into the lumbosacral epidural space in cats.** *Veterinary Anaesthesia and Analgesia* 31(3): 190-194. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Abstract: OBJECTIVE: To determine the effects of injection volume and vertebral anatomy on the spread of new methylene blue (NMB) injected into the lumbosacral epidural space in cats. STUDY DESIGN: Prospective experimental study. SAMPLE POPULATION: Sixteen cats. METHODS: Cats were randomly assigned to four groups and received from 0.1 to 0.4 mL kg(-1) of 0.12% NMB in 0.9% saline. Injection was made into the lumbosacral epidural space using a dorsal approach with the cats in sternal recumbency. The extent of cranial migration of the dye as indicated by the staining of epidural fat and dura mater was measured. RESULTS: The mean +/- SD (range) number of stained vertebrae in the 0.3 and 0.4 mL kg(-1) groups, were 11.5 +/- 1.5 (T7-T11) and 12.4 +/- 1.8 (T6-T10), respectively. This was significantly greater than the number in the 0.1 and 0.2 mL kg(-1) groups, 4.3 +/- 0.6 (L3-L4) and 6.0 +/- 0.7 (L1-L2) vertebrae, respectively ($p < 0.001$). Linear regression analysis showed that the volume injected correlated significantly with the number of stained vertebrae ($R2 = 0.83$, $p < 0.001$). In the dorsal and lateral aspect of the spinal cord, NMB solution distributed between epidural fat and dura mater. Migration under the spinal cord occurred along the two longitudinal epidural veins. CONCLUSIONS AND CLINICAL RELEVANCE: The larger the volume of solution injected into the lumbosacral epidural space in cats, the greater the spread.
Descriptors: epidural anesthesia, cats, methylene blue, injections, lumbosacral region.

Lerche, P., W.W. Muir, and T.L. Grubb (2002). **Mask induction of anaesthesia with isoflurane or sevoflurane in premedicated cats.** *The Journal of Small Animal Practice* 43(1): 12-5. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Abstract: A comparison was made of the time to and quality of induction of anaesthesia when sevoflurane (n=14) or isoflurane (n=14) was delivered by mask in premedicated healthy adult cats presented for elective surgery. Times to induction and intubation were

significantly shorter with sevoflurane (210 +/- 57 seconds and 236 +/- 60 seconds, respectively) than with isoflurane (264 +/- 75 seconds and 292 +/- 73 seconds). The quality of induction was similar for both agents. Two cats in each group developed opisthotonus of less than 45 seconds' duration. Both sevoflurane and isoflurane produced mask induction of anaesthesia of a similar quality in this species. Sevoflurane provided more rapid induction of anaesthesia and establishment of a controlled airway than isoflurane.
Descriptors: inhalation anesthetics, cats, isoflurane, methyl ethers, acepromazine, inhalation anesthesia, inhalation anesthetics, cats surgery, heart rate, isoflurane, laryngeal masks, methyl ethers, orchiectomy, ovariectomy, premedication, respiration, treatment outcome.

Lucena, R., J. Ignacio Redondo, J.M. Santisteban, P.J. Ginel, M. Novales, and R. Gomez Villamandos (2000). **Romifidine-propofol-halothane anesthesia for endoscopic exploration of the digestive tract in dogs**. *Canine Practice* 25(3): 8, 10-11. ISSN: 1057-6622.
NAL Call Number: SF991.A1C3
Descriptors: anesthesia, digestive tract, atropine, endoscopy, halothane, mouth, propofol, surgery, vomiting, diagnostic techniques, dogs, cats.

Machon, R. (1999). **The recovery period care for cats and dogs recovering from general anaesthesia**. *Massey University: Veterinary Continuing Education Publication* 190: 211-216. ISSN: 0112-9643.
NAL Call Number: SF604.P82
Descriptors: anesthesia, recovery, cats.
Notes: .

Mack, P.O., T.H. Ng, and I.C. Song (1994). **Anaesthesia for animals in experimental research.** *Annals of the Academy of Medicine, Singapore* 23(4): 470-4. ISSN: 0304-4602.
Abstract: Animal anaesthesia is a wide and varied subject considering the great number of available animal models, each having its characteristic tolerance and reaction to anaesthesia and its behavioural peculiarity. It is more often than not that experimental researchers tend to give scant attention to animal anaesthesia in the preparation of a research protocol as a result of which their research findings can become difficult or impossible to interpret. This article outlines the fundamental anaesthetic requirements and techniques in various animals and the practices adopted by the Department of Experimental Surgery, Singapore General Hospital. Consideration in the choice of anaesthetic drugs in various animal models and experimental situations, and problems of animal handling before and after anaesthesia are highlighted.
Descriptors: anesthesia, general, animal welfare, animals, laboratory, acid base equilibrium, anesthesia recovery period, anesthetics, anesthetics, animal rights, pressure, catheterization, peripheral, cats, animal disease models, dogs, intubation, intratracheal, mice, monitoring, intraoperative, overdose, poultry, preanesthetic medication, rabbits, rats, swine.

Mama, K. (1998). **New drugs in feline anesthesia.** *Compendium on Continuing Education for the Practicing Veterinarian* 20(2): 125-139. ISSN: 0193-1903.

NAL Call Number: SF601 .C66
Descriptors: cats, injection, anesthetics, analgesics, drug combinations, halothane, ketamine, dosage, risk, respiration rate, gases, application, composition, drugs, neurotropic drugs, organic halogen compounds, organochlorine compounds, physiological functions, respiration, midazolam, tiletamine, zolazepam, desflurane, sevoflurane, medetomidine, propofol, isoflurane, inhaled anesthetics, etomidate .

Maral, N.E. and S. Aslan (1999). **Kopek ve kedi sezaryen operasyonlarinda kullanilan anestezi yontemleri ve ozellikleri [Methods and properties of anaesthesia of caesarean section in dogs and cats]**. *Veteriner Hekimler Dernegi Dergisi* 70(3/4): 18-27. ISSN: 0377-6395.
Descriptors: anesthesia, analgesics, fetus, pregnancy, caesarean section, surgery, cats.
Language of Text: Turkish with a summary in English.

Masuda, A., A. Haji, M. Kiriyama, Y. Ito, and R. Takeda (1995). **Effects of sevoflurane on respiratory activities in the phrenic nerve of decerebrate cats**. *Acta Anaesthesiologica Scandinavica* 39(6): 774-781. ISSN: 0001-5172.
Descriptors: pharmacology, respiration, general anesthetic drug, halothane, cats, decerebrate, nerve discharge, pharmacodynamics, sevoflurane, vagotomy, ventilation .

Mates, N., A. Timen, A. Muste, L. Oana, D. Neculoiu, and I. Vasaliut (1995). **Observations on Zoletil (zolazepam and tiletamine) in general anaesthesia of animals [Observatii privind produsul "Zoletil" in anestezia generala la animale]**. *Buletinul Universitatii De Stiinte Agricole Cluj Napoca Seria Zootehnie Si Medicina Veterinara* 49: p.423-428. ISSN: 0557-4668.
Descriptors: anesthesia, neuroleptics, anesthetics, rabbits, nutria, Myocastor, cats.
Language of Text: Romanian; Summary in English.

Mates, N., A. Timen, A. Muste, L. Oana, D. Neculoiu, and I. Vasaliut (1996). **Aspecte cu privire la efectul produsului "Zoletil" in anestezia generala la animale [Zoletil (tiletamine HCl/zolazepam) in the general anaesthesia of animals]**. *Revista Romana De Medicina Veterinara* 6(2): 169-176. ISSN: 1220-3173.
Descriptors: anesthesia, anesthetics, rabbits, mink, deer, Cervidae, cats, dogs.
Language of Text: Romanian with summaries in French and English.

Mathews, K.A. and D.H. Dyson (2005). **Analgesia and chemical restraint for the emergent patient**. *Veterinary Clinics of North America, Small Animal Practice* 35(2): 481-515. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: anesthetics, emergencies, restraint of animals, reviews, trauma, cats.

Matthews, N.S. (1999). **Clinical Anesthesia**. *Veterinary Clinics of North America, Small Animal Practice* 29(3): 611-835. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: reviews, anesthesia, anesthetics, small animal practice, new drugs, cats, felidae.

Matthews, N.S., S. Hartke, and J.C.Jr. Allen (2003). **An evaluation of pulse oximeters in dogs, cats and horses.** *Veterinary Anaesthesia and Analgesia* 30(1): 3-14. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Abstract: OBJECTIVE: Evaluation of five pulse oximeters in dogs, cats and horses with sensors placed at five sites and hemoglobin saturation at three plateaus. STUDY DESIGN: Prospective randomized multispecies experimental trial. ANIMALS: Five healthy dogs, cats and horses. METHODS: Animals were anesthetized and instrumented with ECG leads and arterial catheters. Five pulse oximeters (Nellcor Puritan Bennett-395, NPB-190, NPB-290, NPB-40 and Surgi-Vet V3304) with sensors at five sites were studied in a 5 x 5 Latin square design. Ten readings (SpO2) were taken at each of three hemoglobin saturation plateaus (98, 85 and 72%) in each animal. Arterial samples were drawn concurrently and hemoglobin saturation was measured with a co-oximeter. Accuracy of saturation measurements was calculated as the root mean squared difference (RMSD), a composite of bias and precision, for each model tested in each species. RESULTS: Accuracy varied widely. In dogs, the RMSD for the NPB-395, NPB-190, NPB-290, NPB-40 and V3304 were 2.7, 2.2, 2.4, 1.7 and 2.7% respectively. Failure to produce readings for the NPB-395, NPB-190, NPB-290, NPB-40 and V3304 were 0, 0, 0.7, 0, and 20%, respectively. The Pearson correlation coefficients for the tongue, toe, ear, lip and prepuce or vulva were 0.95, 0.97, 0.69, 0.87 and 0.95, respectively. In horses, the RMSD for the NPB-395, NPB-190, NPB-290, NPB-40 and V3304 were 3.1, 3.0, 4.7, 3.3 and 2.1%, respectively while rates of failure to produce readings were 10, 21, 0, 17 and 60%, respectively. The Pearson correlation coefficients for the tongue, nostril, ear, lip and prepuce or vulva were 0.98, 0.94, 0.88, 0.93 and 0.94, respectively. In cats, the RMSD for all data for the NPB-395, NPB-190, NPB-290, NPB-40 and V3304 were 5.9, 5.6, 7.9, 7.9 and 10.7%, respectively while failure rates were 0, 0.7, 0, 20 and 32%, respectively. The correlation coefficients for the tongue, rear paw, ear, lip and front paw were 0.54, 0.79,.0.64, 0.49 and 0.57, respectively. For saturations above 90% in cats, the RMSD for the NPB-395, NPB-190, NPB-290, NPB-40 and V3304 were 2.6, 4.4, 4.0, 3.5 and 4.8%, respectively, while failure rates were 0, 1.7, 0, 25 and 43%, respectively. CONCLUSIONS AND CLINICAL RELEVANCE: Accuracy and failure rates (failure to produce a reading) varied widely from model to model and from species to species. Generally, among the models tested in the clinically relevant range (90-100%) RMSD ranged from 2-5% while failure rates were highest in the V3304.
Descriptors: anesthesia, cats, dogs, horses, oximetry, catheterization, electorcardiography, equipment failure, heart rate, oximetry standards, reproducibility of results.

Melanie, P., A. Briganti, E. Bianchi, and G. Breghi (2003). **Ernia diaframmatica nel gatto: Gestione anestesiologica [Diaphragmatic hernias in cats. Management of anaesthesia]**. *Obiettivi e Documenti Veterinari* 24(9): 19-22. ISSN: 0392-1913.
Descriptors: anesthesia, diaphragm, hernia, reviews, cats.
Language of Text: Italian.

Mendes, G.M., A.L. Selmi, G.R. Barbudo Selmi, B.T. Lins, and J.P. Figueiredo (2003). **Clinical use of dexmedetomidine as premedicant in cats undergoing propofol-sevoflurane anaesthesia**. *Journal of Feline Medicine and Surgery* 5(5): 265-270. ISSN: 1098-612X.

NAL Call Number: SF985 .J68
Descriptors: adverse effects, anesthesia, anesthetics, gases, pressure, body temperature, heart rate, pharmacodynamics, potency, preanaesthetic medication, propofol, respiration rate, surgery, cats.

Moon, P.F. (1996). **Short-term anesthetic techniques.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 10: 17-18.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, anesthesia, anesthetics, neurotropic drugs.

Muir, W.W. (1998). **Anesthesia for dogs and cats with cardiovascular disease. I.** *Compendium on Continuing Education for the Practicing Veterinarian* 20(1): 78-87. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, anesthesia, heart diseases, cardiovascular diseases, risk, circulation, anesthetics, heart rate, circulation, cardiovascular diseases, drugs, neurotropic drugs, organic diseases, physiological functions, cardiac insufficiency, cardiac output, preanesthetic medication, cardiac rhythm.

Mushahwar, V.K., Y. Aoyagi, R.B. Stein, and A. Prochazka (2004). **Movements generated by intraspinal microstimulation in the intermediate gray matter of the anesthetized, decerebrate, and spinal cat**. *Canadian Journal of Physiology and Pharmacology* 82(8-9): 702-714. ISSN: 0008-4212.
NAL Call Number: 444.8 C16
Descriptors: methods, muscular system, nervous system, decerebration, microwires, intraspinal microstimulation, spinalization, anesthesia, movement primitives, movement vectors, cats.

Natalini, C.C. (2001). **Sevoflurane, desflurane, and xenon new inhaled anesthetics in veterinary medicine**. *Ciencia Rural* 31(1): 177-183. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: absorption, chemical properties, inhaled anaesthetics, new drugs, physical properties, potency, reviews, medicine, xenon, cats.
Language of Text: English; Summary in Portuguese.

Neely, C.F., I. Matot, and J. Nguyen (1994). **Identification of selective pharmacological probes for p2x purinoceptors in the feline pulmonary vascular (pc) bed**. *Anesthesiology* 81(3A): A704. ISSN: 0003-3022.
Descriptors: cell biology, nervous system, neural coordination, anesthesia, pharmacodynamics, feline pulmonary vascular bed, p2x purinoceptors .

Neiger Aeschbacher, G. (2002). **Anasthesie und Analgesie bei Heimsaugern. Teil 2: Intra- und postoperative Betreuung. [Anaesthesia and analgesia in pet mammals. Part 2. Intra- and post-operative care]**. *Schweizer Archiv Fur Tierheilkunde* 144(11): 597-604. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Descriptors: anesthesia, analgesics, body temperature, heart rate, monitoring,

respiration, surgery, cats.
Language of Text: German with a summary in French and Italian.

Nicholson, A. (1996). **Monitoring techniques and equipment for small animal anaesthesia.** *Australian Veterinary Journal* 74(2): 114-123 . ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: dogs, cats, anesthesia, monitoring, respiration, cardiovascular system, nervous system, body temperature, equipment.

Nicholson, A. and A. Watson (2001). **Survey on small animal anaesthesia.** *Australian Veterinary Journal* 79(9): 613-9. ISSN: 0005-0423.
NAL Call Number: 41.8.Au72
Abstract: OBJECTIVE: To ascertain anaesthetic practices currently for dogs and cats in Australia. METHODS: A questionnaire was distributed to 4,800 veterinarians throughout Australia, seeking data on numbers of dogs and cats anaesthetised per week; drug preferences for anaesthetic premedication, induction and maintenance; use of tracheal intubation, supplemental nitrous oxide and anaesthetic antagonists; and types of vaporisers, breathing systems and anaesthetic monitoring devices used or available. Additional questions concerned proportions of different animal types seen in the practice, and the respondent's university and year of graduation. RESULTS: The response rate was 19%; 95% of respondents graduated from Australian universities, about half since 1985. Most responses (79%) came from mainly small animal practices. On average 16 dogs and 12 cats were anaesthetised each week. Premedication was used more often in dogs than cats, with acepromazine and atropine most favoured in both species. For anaesthetic induction, thiopentone was most preferred in dogs and alphaxalone/alphadolone in cats. Inhaled agents, especially halothane, were preferred for maintenance in both species. Most respondents usually employed tracheal intubation when using inhalational anaesthetic maintenance, but intubation rates were lower during injectable anaesthetic maintenance and a minority of respondents provided supplemental O2. Nitrous oxide was administered regularly by 13% of respondents. The agents most frequently used to speed recovery from anaesthesia were doxapram and yohimbine. The most widely used vaporisers were the Fluotec Mark III and the Stephens machine. Most (95%) respondents used a rebreathing circuit for large dogs and a non-rebreathing system was used for small dogs by 68% of respondents. Most respondents (93%) indicated some form of aid was available to monitor general anaesthesia: the three most mentioned were an apnoea alarm, oesophageal stethoscope and electrocardiogram. CONCLUSION: Diverse approaches were evident, but there appeared to be less variation in anaesthetising dogs: premedication was more frequent and less varied in type, while thiobarbituates dominated for induction and inhalants for maintenance. Injectable maintenance techniques had substantial use in cats, but little in dogs. Evident disparity between vaporisers available and circuits used suggested either confusion in terminology or incorrect use of some vaporisers in-circuit. While most respondents used monitoring equipment or a dedicated observer to invigilate anaesthesia, the common reliance on apnoea alarms is of concern, because of unproven reliability and accuracy.
Descriptors: anesthesia, cats, dogs, preanesthetic medication, anesthesia, anesthesia statistics and numerical data, anesthesia recovery period, intravenous anesthesia, animals,

domestic, Australia, cats surgery, data collection, dogs surgery, preanesthetic medication, preanesthetic medication statistics and numerical data, questionnaires, time factors.

Niranjan, C.V., C.L. Srinivas, S.M. Jayadevappa, and B.N. Ranganath (1994). **Clinical observations in ketamine hydrochloride anaesthesia with phenothiazine tranquilizers in cats**. *Indian Veterinary Journal* 71(9): 900-902. ISSN: 0019-6479.
NAL Call Number: 41.8 IN2
Descriptors: dental and oral system, cats, nervous system, toxicology, ketamine hydrochloride, chlorpromazine, medicine, anesthesia induction, general anesthetic drug, muscle relaxation, no, reduced salivary secretion, smooth recovery, tranquilizer drug, triflupromazine .

Nishimura, R. (1994). **Maintenance anaesthesia in cats**. *Journal of Veterinary Medicine, Japan* 47(12): 997-1000. ISSN: 0447-0192.
Descriptors: anesthesia, cats.
Language of Text: Japanese.

Novello, L. (2001). **Il paziente traumatizzato: dal dipartimento di Emergenza/Urgenza (DEU) alla sala operatoria: assistenza, inquadramento ed anestesia nel paziente traumatizzato con lesione scheletrica [Care of the traumatized patient from the emergency department to the operating room. Care, assessment and anaesthesia for traumatized patients with skeletal damage]**. *Medicina Felina* 1(2): 13-26.
Descriptors: anesthesia, surgery, trauma, cats.
Language of Text: Italian.

Nyman, G. (1996). **Labeled and nonlabeled drugs for sedation, analgesia and anaesthesia in Swedish small animal practice.** In: *Small Animal' s Anesthesia*, Djurkliniken: Moelndal, Sweden, p. 15-17.
Descriptors: neurotropic drugs, analgesics, anesthetics, dogs, cats, sweden, disease control, drugs, Europe, neurotropic drugs, scandinavia, therapy, western Europe.

Nyman, G. (1996). **The use of alfa2-adrenergic agonists/antagonists in Swedish small animal practice.** In: *Small Animal's Anesthesia,* Djurkliniken: Moelndal, Sweden, p. 133-139.
Descriptors: dogs, cats, neurotropic drugs, analgesics, anesthetics, Sweden, drugs, Europe, neurotropic drugs, Scandinavia, western Europe, survey, questionnaires, non-steroidal anti-inflammatory agents.

Ogawa, S., H. Saito, S. Saeki, and H. Suzuki (1994). **Reflex sympathetic activities during inhalation of anaesthetics in cats: nitrous oxide.** *Neuroscience Letters* 168(1-2): 16-8. ISSN: 0304-3940.
NAL Call Number: QP351.N3
Abstract: The effects of nitrous oxide on the late reflex potential, a medullary component of somato-sympathetic reflex potentials, induced from the lumbar sympathetic trunk by electrical stimulation of the femoral nerve was investigated in brain intact cats and midbrain decerebrated cats under adequate anaesthesia with intravenous urethane and alpha-chloralose. The late reflex potential was depressed by inhalation of

75% nitrous oxide in oxygen in brain intact cats. Midbrain decerebration itself caused marked potentiation of the late reflex potential, although subsequent inhalation of 75% nitrous oxide did not cause any depressive effect on the potentiated late reflex potential. No significant changes in arterial pressure and heart rate were seen during the experiments. From these results, we concluded that anaesthetic concentrations of nitrous oxide might activate the descending inhibitory system from higher areas in the central nervous system.
Descriptors: inhalation anesthesia, femoral nerve, nitrous oxide, reflex, sympathetic nervous system, cats, decerebrate state, electric stimulation, femoral nerve, nitrous oxide, sympathetic nervous system, time factors.

Pereira, G.G., M.H. Larsson, F.L. Yamaki, E.C. Soares, R.J. Yamato, M.L. Neto, T.R. Froes, and L.V. Bastos (2004). **Effects of propofol on the electrocardiogram and systolic blood pressure of healthy cats pre-medicated with acepromazine.** *Veterinary Anaesthesia and Analgesia* 31(3): 235-238. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Abstract: OBJECTIVE: To obtain and analyze the electrocardiogram and systolic blood pressure of cats before, during, and after a continuous infusion of propofol. STUDY DESIGN: Prospective, uncontrolled experimental trial. ANIMALS: Twenty healthy adult crossbred male and female cats aged between 3 and 5 years, weighing 2.8-5.0 kg (mean 3.9 kg). METHODS: Cats were pre-medicated with acepromazine 0.1 mg kg(-1) subcutaneously and anesthesia was induced with intravenous (IV) propofol 6 mg kg(-1) and maintained with a continuous infusion of propofol at 0.5 mg kg(-1) minute(-1) for 60 minutes. Electrocardiographic parameters and systolic blood pressure obtained by Doppler ultrasound were recorded before pre-medication (T0), 30 (T30), and 60 (T60) minutes after beginning the continuous infusion, and 30 minutes after its cessation (T90). Repeated measures anova was used to perform statistical analysis. RESULTS: A significant decrease in heart rate was observed at all time points when compared with T0 values. The PR interval increased significantly at T60 and T90. Systolic blood pressures during anesthesia were significantly lower than at T0 and T90. CONCLUSION AND CLINICAL RELEVANCE: The changes seen were not clinically important in normal cats but given the reduction in heart rate and systolic blood pressure, careful consideration should be given before using this technique in patients in which hypotension or a reduction in heart rate would be poorly tolerated.
Descriptors: intravenous anesthetics, cats, electorcardiography, propofol.

Pereira, P.M., A.L. Selmi, M.K. Notomi, E.M.P. Almeida, and N. Nunes (1997). **Treatment of arrhythmias during and after anaesthesia [Tratamento de arritmias nos periodos trans e pos-anestesicos]**. *Clinica Veterinaria* 2(11): 31-34. ISSN: 0009-9082.
Descriptors: anesthesia, arrhythmia, heart diseases, treatment, cats, dogs.
Language of Text: Portuguese; Summary in English.

Portella, L.V., C.C. Natalini, E.C. Toledo, J.A. Franca, T.L. Moreira, and T.C. Oliveira de (1996). **Cardiovascular and respiratory effects of anaesthesia with propofol in cats previously treated with xylazine/ketamine [Efeitos cardiovasculares e respiratorios da inducao anestesica com propofol em felinos pre-medicados com xilazina/cetamina]**. *Ciencia Rural* 26(2): 223-227. ISSN: 0103-8478.

NAL Call Number: S192. R4
Descriptors: xylazine, ketamine, heart rate, respiration rate, anesthetics, anesthesia, propofol, cats.
Language of Text: Portuguese with a summary in English.

Pypendop, B. (2005). **Anestesiologia del cane e del gatto controllare la ventilazione con la capnografia .[Anaesthesia in dogs and cats: controlling ventilation by capnography]**. *Summa* 22(1): 7-8.
Descriptors: anesthesia, carbon dioxide, cats, dogs.
Language of Text: Italian.

Quessada, A.M., C.S.A. Santana, and H.L. Silva (2001). **Anestesia local para ovariectomia em gatas. [Local anesthesia for ovariectomy in cats]**. *Semina Londrina* 22(2): 175-177. ISSN: 0101-3742.
NAL Call Number: Q33. S46
Descriptors: local anesthesia, local anesthetics, ovariectomy, surgery, surgical operations, techniques, cats.
Language of Text: Portuguese with a summary in English.

Ragan, B.G., A.J. Nelson, J.H. Foreman, G.W. Bell, and G.A. Iwamoto (2004). **Effects of a menthol-based analgesic balm on pressor responses evoked from muscle afferents in cats.** *American Journal of Veterinary Research* 65(9): 1204-1210. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: analgesic, muscle afferents, cats, menthol, balm.

Rajan, R. (1996). **Stability of efferent-mediated protection against acoustic overexposure with long maintenance under barbiturate anaesthesia.** *Audiology and Neuro Otology* 1(6): 339-58. ISSN: 1420-3030.
Abstract: When anaesthetized animals are maintained over a long period, crossed-cochlear suppressive and enhancement-in-noise effects mediated by the olivocochlear bundle (OCB), as well as some OCB neuronal responses, show time-dependent variations. The present study determined if there were any such changes in OCB-mediated crossed-cochlear protection against compound action potential (CAP) threshold losses caused by a standard loud sound exposure at 11 kHz, presented under conditions either not evoking OCB-mediated protection (i.e. monaural exposure) or evoking protection (binaural exposure). Maintaining animals for periods up to approximately 30 h from initial anaesthetization resulted in non-significant changes in pre-exposure CAP thresholds. There were also only small changes over select frequency ranges in threshold losses caused by the monaural or binaural loud sound, after a single exposure as well as when the testing of OCB function was extended to examine effects after dual successive exposures, the latter result being determined by application of a previously described additivity model. The features of OCB-mediated protection also showed good stability over the long maintenance. These results are discussed as providing further circumstantial evidence that protection is mediated by a different OCB subcomponent to that/those responsible for other OCB-mediated crossed-cochlear effects. In general, the results show that the barbiturate anaesthetic used here does not significantly modulate the crossed-cochlear OCB effect of protection, even though it has

been shown elsewhere to significantly depress other crossed-cochlear OCB effects.
Descriptors: auditory fatigue, cochlear nerve, cochlear nucleus, hearing loss, noise induced, olivary nucleus, anesthesia, general, auditory fatigue, cats, cochlear nerve, cochlear nucleus, efferent pathways, efferent pathways, evoked potentials, auditory, brain stem, evoked potentials, auditory, brain stem, hypnotics and sedatives, olivary nucleus, pentobarbital.

Raptopoulos, D. and A.D. Galatos (1995). **Post anaesthetic reflux oesophagitis in dogs and cats.** *Journal of Veterinary Anaesthesia* 22: 6-8. ISSN: 0950-7817.
Descriptors: esophagitis, gastric juices, pH, esophageal diseases, anesthesia .

Rauser, P. (1998). **Vyuziti Telazolu k anestezii psa a kocky [Use of Telazol (tiletamine and zolazepam) for anaesthesia of dogs and cats]**. *Veterinarstvi* 48(6): 234-236. ISSN: 0506-8231.
NAL Call Number: 41.8 V6439
Descriptors: anesthetics, anesthesia, dogs, cats.
Language of Text: Czech with a summary in English.

Reynold, W.T. (1996). **Outline of sequential analgesic anaesthesia with fentanyl, alfentanil and sufentanil used in high-risk cardiopulmonary cases**. *Australian Veterinary Practitioner* 26(2): 74-75. ISSN: 0310-138X.
NAL Call Number: SF601.A9
Descriptors: cardiovascular system, respiratory system, surgery, anesthesia, anesthetics, fentanyl, cats.

Rintasalo, J. and O. Vainio (1995). **Selvitys anestesiakatannoista Suomen elainvastaanotoilla [A survey of anaesthesia practices in Finnish small animal clinics]**. *Suomen Elainlaakarilehti* 101(9): 541-544. ISSN: 0039-5501.
NAL Call Number: 41.8 F49
Descriptors: veterinary practice, analgesics, mortality, monitoring, anti-inflammatory agents, postoperative care, inhaled anaesthetics, medetomidine, xylazine, methadone, surveys, questionnaires, anesthesia, small animal practice, cats.
Language of Text: Finnish with a summary in English.

Robertson, S.A., P.M. Taylor, J.W. Sear, and G. Keuhnel (2005). **Relationship between plasma concentrations and analgesia after intravenous fentanyl and disposition after other routes of administration in cats**. *Journal of Veterinary Pharmacology and Therapeutics* 28(1): 87-93. ISSN: 0140-7783.
Online: http://www.blackwell-synergy.com/servlet/useragent?func=showIssues&code=jvp
NAL Call Number: SF915.J63
Descriptors: analgesics, body temperature, drug delivery systems, fentanyl, intravenous injection, oral administration, pharmacodynamics, cats.

Ross, A. and S. Cuvelliez (1997). **The use of propofol in companion animals**. *Medecin Veterinaire Du Quebec* 27(2): 59-62. ISSN: 0225-9591.
Descriptors: nervous system, feline, medicine, anesthesia induction, propofol,

anesthesia method, anesthesiology, pharmacodynamics, sedative, hypnotic drug.
Language of Text: French.

Roth, S., R. Nunez Hernandez, and Z. Pietrzyk (1994). **Halothane and vascular response to CO-2 in the retina in cats**. *Anesthesia and Analgesia* 78(2 SUPPL.): S370. ISSN: 0003-2999.
Descriptors: transport and circulation, cardiovascular system, nervous system, carbon dioxide, choroidal circulation, general anesthetic drug, halothane, retina.

Sarma, B., Amresh Kumar, and Harnam Singh (1996). **Clinical and anaesthetic effects of detomidine and ketamine in cats**. *Indian Veterinary Journal* 73(6): 665-668. ISSN: 0019-6479.
NAL Call Number: 41.8 IN2
Descriptors: dosage, anesthesia, detomidine, ketamine, drug combinations, cats.

Scandone, M. and L. Novello (2001). **Anestesia totalmente endovenosa (TIVA - Total Intra Venous Anesthesia): aggiornamenti e presentazione di un caso clinico [Total intravenous anaesthesia (TIVA): an up-date and description of a clinical case]**. *Veterinaria Cremona* 15(1): 85-94. ISSN: 0394-3151.
Descriptors: anesthesia, anesthetics, atropine, case reports, clinical aspects, fentanyl, injection, ketamine, mastectomy, propofol, surgical operations, dogs.
Language of Text: Italian with a summary in English.

Schalla, K. and A. Schalla (1996). **Ogolne zasady przeprowadzania znieczulenia ogolnego u psa i kota [General anaesthesia in dogs and cats - general considerations]**. *Magazyn Weterynaryjny* 5(6): 464-468. ISSN: 1230-4425.
Descriptors: anesthesia, inhaled anaesthetics, monitoring, cats.
Language of Text: Polish.

Scrollavezza, P. and G. Signorini (1994). **Attenti al risveglio. Complicanze del risveglio post-anestetico nel cane e nel gatto [Pay attention to recovery from anaesthesia. Complications of post-anaesthetic recovery in dogs and cats]**. *Obiettivi e Documenti Veterinari* 15(10): 15-21. ISSN: 0392-1913.
Descriptors: anesthesia, postoperative, drug combinations, cats.
Language of Text: Italian.

Selmi, A.L., G.R. Barbudo Selmi, G.M. Mendes, J.P. Figueiredo, and B.T. Lins (2004). **Sedative, analgesic and cardiorespiratory effects of romifidine in cats.** *Veterinary Anaesthesia and Analgesia* 31(3): 195-206. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Abstract: OBJECTIVE: To evaluate the sedative, analgesic, and cardiorespiratory effects of intramascular (IM) romifidine in cats. STUDY DESIGN: Prospective, randomized experimental trial. ANIMALS: Ten healthy adult cats. METHODS: Romifidine (100, 200, and 400 microg kg(-1)) or xylazine (1 mg kg(-1)) was given IM in a cross-over study design. Heart rate (HR), respiratory rate (RR), rectal temperature (RT), hemoglobin saturation, oscillometric arterial pressure, and scores for sedation, muscle relaxation, position, auditory response, and analgesia were determined before and after

drug administration. Time to recumbency, duration of recumbency, and time to recover from sedation were determined. Subjective evaluation and cardiorespiratory variables were recorded before and at regular intervals for 60 minutes after drug administration. RESULTS: Bradycardia developed in all cats that were given romifidine or xylazine. No other significant differences in physiologic parameters were observed from baseline values or between treatments. Increasing the dose of romifidine did not result in increased sedation or muscle relaxation. Cats given xylazine showed higher sedation and muscle relaxation scores over time. Analgesia scores were significantly higher after administration of romifidine (400 microg kg(-1)) and xylazine (1 mg kg(-1)) than after romifidine at 100 or 200 microg kg(-1). Duration of lateral recumbency was not significantly different between treatments; however, cats took longer to recover after administration of 400 micro g kg(-1) romifidine. CONCLUSIONS AND CLINICAL RELEVANCE: Bradycardia is the most important adverse effect after IM administration of romifidine at doses ranging from 100 to 400 microg kg(-1) or 1 mg kg(-1) of xylazine in cats. The sedative effects of romifidine at 200 microg kg(-1) are comparable to those of 1 mg kg(-1) of xylazine, although muscle relaxation and analgesia were significantly less with romifidine than with xylazine.
Descriptors: adrenergic alpha agonists, anesthetics, cats, imidazoles, body temperature, dose response relationship, heart rate, intramuscular injections, muscle relaxation, respiration.

Selmi, A.L., G.R. Barbudo Selmi, G.M. Mendes, C. Mcmanus, and C.S. Martins (2003). **O butorfanol na anestesia pela romifidina-tiletamina-zolazepam em gatos [Butorphanol in romifidine-tiletamine-zolazepam anesthesia in cats]**. *Ciencia Rural* 33(6): 1067-1073. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: cats, anesthesia, quality, respiratory systems, cardiovascular system research.
Language of Text: Portuguese; Summaries in English and Portuguese.

Selmi, A.L., G.M. Mendes, G.R. Barbudo Selmi, and J.P. Figueiredo (2003). **Cardiovascular effects of butorphanol in romifidine/midazolam/ketamine anaesthesia in cats [Efeitos cardiovasculares do butorfanol na anestesia por romifidina/midazolam/cetamina em gatos**. *Revista Brasileira De Ciencia Veterinaria* 10(2): 88-92. ISSN: 1413-0130.
Descriptors: adverse effects, anesthesia, anesthetics, analgesics, butorphanol, cardiovascular agents, drug combinations, heart, ketamine, surgery, cats.
Language of Text: Portuguese; Summary in English.

Sendler, K., C. Lendl, I. Henke, K. Otto, U. Matis, S. Mundt, and W. Erhardt (1994). **Zur Anaesthesie bei der Katze mit Tiletamin/Zolazepam in Minimaldosierung [Minimal dose anesthesia with Tiletamine/Zolazepam in cats]**. *Tieraerztliche Praxis* 22(3): 226-290. ISSN: 0303-6286.
NAL Call Number: SF603.V4
Descriptors: cats, anesthesia, anesthetics, drug combinations, side effects, drugs, neurotropic drugs, toxicity .
Language of Text: German with summaries in German and English.

Shimizu, B.J., D. Eurides, F.C. Mota, E.C. Mastrantonio, P.M. Freitas, F.O. Carneiro Silva, M.C.S. Fioravanti, and L.A. da Silva (2002). **Anestesia perineural do membro pelvico de gatos (*Felis domestica*). [The cats hindlimb perineural anesthesia (*Felis domestica*)]**. *Revista Brasileira De Ciencia Veterinaria* 9(1): 8-11. ISSN: 1413-0130.
Descriptors: anesthesia, limbs, peripheral nerves, cats.
Language of Text: Portuguese; Summary in English.

Shimizu, M. and T.R. Saito (1995). **Latest trials in anaesthesia of small animals**. *Journal of Veterinary Medicine, Japan* 48(1): 41-44. ISSN: 0447-0192.
Descriptors: anesthesia, pentobarbital, ketamine, halothane, isoflurane, cats.
Language of Text: Japanese.

Skarda, R.T., J.E. Hubbell, W.W. Muir, R.M. Bednarski, and D.E. Mason (1996). **Sedation and anesthesia in dogs and cats with cardiovascular disease: part iii: ventilation, monitoring of respiration, and postoperative analgesia**. *Schweizer Archiv Fuer Tierheilkunde* 138(6): 312-318. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Descriptors: cardiovascular system, heart disease, surgical techniques, respiratory system, medicine, anesthetic drug, diazepam ketamine, halothane, isoflurane, propofol, tranquilizer drug, buprenophrine.
Language of Text: German.

Skarda, R.T., W.W. Muir, R.M. Bednarski, J.A.E. Hubbell, and D.E. Mason (1995). **Sedation und Narkose bei Hund und Katze mit Herzkreislaufkrankheit. 2. Teil: Narkoseplanung an Hand der Pathophysiologie, Herzarrhythmien. [Sedation and anesthesia in dogs and cats with cardiovascular disease. Part 2: Anesthetic plan considering the pathophysiology, cardiac arrhythmias]**. *Schweizer Archiv Fuer Tierheilkunde* 137(12): 543-551. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Abstract: The purpose of this study was to review the incidence of cardiac arrhythmias in 137 anesthetised dogs and 13 anesthetised cats with congenital or acquired heart disease that were referred for correction of different procedures. The anesthetic plan considered the risks of anesthesia based upon the pathophysiology of cardiac lesions and the anesthetic drug effects on the cardiovascular system. Recommendations are made for dogs with decreased cardiac contractility, cardiac disease with volume overload, cardiac disease with pressure overload, and pericardial tamponade. Prompt therapy was given to a percentage of animals in order to control arrhythmia and support cardiovascular system, by using atropine or glycopyrrolate, lidocaine, and dopamine. Cardiac arrest occurred in 5 dogs; 3 and 2 of those were in asystole and ventricular fibrillation respectively. All dogs were intubated at the time of the incidence and were resuscitated, using standard techniques of cardiopulmonary reanimation.
Descriptors: dogs, cats, cardiovascular diseases, heart diseases, medicine, therapy, surgical operations, anesthesia, anesthetics, neurotropic drugs, atropine, dopamine, alkaloids, amines, amino compounds, biogenic amines, cardiovascular diseases, catecholamines, disease control, drugs, neurophysiology, neurotransmitters, neurotropic drugs, organic diseases.
Language of Text: German; Summaries in German, English, French and Italian.

Sndak, N. (2000). **Kopek ve kedilerde tiletamin-zolazepam anestezisi [Tiletamine-zolazepam anaesthesia in dogs and cats]**. *Veteriner Cerrahi Dergisi* 6(3/4): 63-66. ISSN: 1300-7106.
Descriptors: anesthesia, anesthetics, drug combinations, cats, dogs.
Language of Text: Turkish with a summary in English.

Souza, A.P., L.G. Pompermayer, F. Antunes, I.C. Araujo, and R.M.N. Silva (2003). **Anaesthesia by continuous infusion and intermittent injection of propofol in cats premedicated with acepromazine [Anestesia por infusao continua e doses fracionadas de propofol em gatos pre-tratados com acepromazina]**. *Ars Veterinaria* 19(2): 119-125. ISSN: 0102-6380.
Descriptors: acepromazine, anesthesia, drug delivery systems, propofol, techniques, cats.
Language of Text: Portuguese; Summary in English.

Souza, A.P., L.G. Pompermayer, M.S.L. Lavor, T.S. Duarte, and R.M.N. Silva (2002). **[Butorfanol na anestesia com propofol em gatas pre-tratadas com levomepromazina.] Butorphanol on the anesthesia by propofol in female cats premedicated with levomepromazine.** *Ciencia Rural* 32(4): 589-594. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: cats, anesthesia, surgical operations, drugs, gato, anesthesia, ovario, cirurgia, medicamento .
Language of Text: Portuguese.

Stanway, G. (1999). **Advanced anaesthesia**. *British Small Animal Veterinary Association: Manual of Advanced Veterinary Nursing*, British Small Animal Veterinary Association : Quedgeley, UK, p. 69-84. ISBN: 090521451X.
Online: www.bsava.com
NAL Call Number: SF774.5 .B73
Descriptors: anesthesia, practice, dogs, cats.

Stanway, G.W., P.M. Taylor, and D.C. Brodbelt (2002). **A preliminary investigation comparing pre-operative morphine and buprenorphine for postoperative analgesia and sedation in cats**. *Veterinary Anaesthesia and Analgesia* 29(1): 29-35. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Descriptors: analgesics, duration, heart rate, morphine, neuroleptics, pharmacodynamics, respiration, cats.

Tacke, S. (2001). **A totalis intravenas anaesthesia (TIVA) az inhalacios anaesthesia alternativaja [Total intravenous anaesthesia (TIVA) an alternative to inhalation anaesthesia?]**. *Magyar Allatorvosok Lapja* 123(8): 500-502. ISSN: 0025-004X.
Descriptors: anesthesia, fentanyl, inhaled anaesthetics, intravenous injection, ketamine, propofol, cats, dogs.
Language of Text: Hungarian.

Tacke, S. (1996). **Die totale intravenose Anasthesie (TIVA) mit Aphaxolon/Alphadolon (SaffanReg.) zur dauerhaften Ruhigstellung bei zwei Katzen mit schwerer Dyspnoe. [Intravenous anaesthesia with alfaxolone and alfadolone for prolonged sedation of two cats with dyspnoea]**. *Tierarztliche Praxis* 24(5): 484-488. ISSN: 0303-6286.
NAL Call Number: SF603 .V4
Descriptors: anesthesia, cats.
Language of Text: German with a summary in English.

Tagawa, M. (1994). **Measures to counteract complications of anaesthesia in cats**. *Journal of Veterinary Medicine, Japan* 47(12): 1013-1017. ISSN: 0447-0192.
Descriptors: anesthesia, cats.
Language of Text: Japanese.

Takebe, M. (1994). **Injection anaesthesia in cats. Medetomidine/ketamine combination anaesthesia and its reversal with atipamezole**. *Journal of Veterinary Medicine, Japan* 47(12): 1007-1011. ISSN: 0447-0192.
Descriptors: anesthesia, drug antagonism, narcotic antagonists, ketamine, medetomidine, cats.
Language of Text: Japanese.

Tanaka, K. (1994). **Ketamine anaesthesia in young cats (less than a year old)**. *Journal of Veterinary Medicine, Japan* 47(12): 1019-1021. ISSN: 0447-0192.
Descriptors: anesthesia, ketamine, cats.
Language of Text: Japanese.

Tarakanov, I.A., Y.A.K. Kurambaev, and V.A. Safonov (1994). **Influence of general anesthesia on acute experimental poisoning of cats with the organophosphorus pesticide**. *Bulletin of Experimental Biology and Medicine* 117(6): 587-590. ISSN: 0007-4888.
NAL Call Number: 442.8 B87AE
Descriptors: anesthesia, poisoning, organophosphorus compounds, formothion, organophosphorus insecticides, laboratory animals, toxicology, pentobarbital, atropine, respiration, cats.

Thomasy, S.M., B. Pypendop, S. Stanley, and J. Ilkiw (2004). **Pharmacokinetics of intravenous lidocaine and its active metabolite, monoethylglycinexylidide in cats anesthetized with isoflurane**. *Journal of Veterinary Internal Medicine* 18(3): 433. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: anesthesiology, cats, lidocaine, monoethylglycinexylidide, isoflurane.

Trinh Thi Cam Van (1997). **Su dung Zoletil gay me trong phau thuat gia suc nho [Use of Zoletil (tiletamine and zolazepam) for induction of anaesthesia in surgery of small animals]**. *Khoa Hoc Ky Thuat Thu Y* 4(4): 74-76. ISSN: 0868-2933.
Descriptors: anesthesia, surgery, anesthetics, dogs, cats.
Language of Text: Vietnamese; Summaries in French and English.

Troncy, E. (2004). **Anestesiologia del cane e del gatto misurazione della pressione arteriosa polmonare [Anaesthesiology of dogs and cats by measuring arterial pulmonary pressure]**. *Summa* 21(2): 7-8.
Descriptors: anesthesia, anesthetics, pressure, cats, capnography.
Language of Text: Italian.
Notes: Anaesthesia in dogs and cats: controlling ventilation by capnography.

Troncy, E. (2002). **Anesthesiologie du chien et du chat. Quelle analgesie pour les douleurs chroniques neurogenes? [Anaesthesiology in dogs and cats. Which analgesia for chronic neurogenic pains?]**. *Le Point Veterinaire* 33(223): 9. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: dogs, cats, pain, nervous system diseases, analgesics, drugs, neurotropic drugs, organic diseases, therapy .
Language of Text: French.

Troncy, E., N. Diss, P. Coupat, S. Cuvelliez, and J.P. Genevois (1999). **Anesthesie loco-regionale chez les carnivores domestiques. 2. Realisation pratique et indications diverses techniques d' anesthesie - analgesie regionale. [Loco-regional anaesthesia in domestic carnivores. 2. Practical realisation and indication of several regional anaesthesia - analgesia techniques.]**. *Le Point Veterinaire* 30(201): 13-22. ISSN: 0303-4997.
Descriptors: dogs, cats, anesthesia, anesthetics, medicinal properties, drugs, neurotropic drugs.
Language of Text: French.

Troncy, E., N. Diss, P. Coupat, S. Cuvelliez, and J.P. Genevois (2001). **Anestesia loco-regionale nei carnivori domestici: 1-Concetti generali di anestesia-analgesia loco-regionale [Loco-regional anaesthesia in domestic carnivores 1-General concepts in loco-regional anaesthesia and analgesia]**. *Summa* 18(6): 7-9.
Descriptors: anesthesia, analgesics, mode of action, pain, cats.
Language of Text: Italian with a summary in English.

Troncy, E., N. Diss, P. Coupat, S. Cuvelliez, and J.P. Genevois (2001). **Anestesia loco-regionale nei carnivori domestici: 2. Realizzazione pratica e indicazioni delle diverse tecniche di anestesia-analgesia regionale. [Loco-regional anaesthesia in domestic carnivores 2-Practical realisation and indication of several regional anaesthesia-analgesia techniques]**. *Summa* 18(6): 11-22.
Descriptors: anesthesia, analgesics, drug delivery systems, infiltration, local anesthesia, pain, surgery, topical application, cats.
Language of Text: Italian with a summary in English.

Troncy, E., N. Diss, P. Coupat, S. Cuvelliez, and J.P. Genevois (1999). **Anesthesie loco-regionale chez les carnivores domestiques: 1. Concepts generaux d'anesthesie-analgesie loco-regionale [Local and regional anaesthesia in dogs and cats. 1. General concepts of local/regional anaesthesia and analgesia]**. *Le Point Veterinaire* 30(201): 437-439. ISSN: 0303-4997.
Descriptors: anesthesia, analgesics, local anaesthetics, local anesthesia, conduction

anesthesia, injectable anaesthetics, cats.
Language of Text: French; Summary in English.

Troncy, E., N. Diss, P. Coupat, S. Cuvelliez, and J.P. Genevois (1999). **Anesthesie loco-regionale chez les carnivores domestiques 2. Realisation pratique et indications de diverses techniques d'anesthesie-analgesie regionale [Local and regional anaesthesia in dogs and cats. 2. Practical applications and indications for various regional anaesthesia-analgesia techniques]**. *Le Point Veterinaire* 30(201): 441-450. ISSN: 0303-4997.
Descriptors: anesthesia, local anesthesia, conduction anesthesia, techniques, injectable anaesthetics, local anaesthetics, cats.
Language of Text: French with a summary in English.

Troncy, E., S. Junot, S. Keroack, V. Sammut, P. Pibarot, J.P. Genevois, and S. Cuvelliez (2002). **Results of preemptive epidural administration of morphine with or without bupivacaine in dogs and cats undergoing surgery: 265 cases (1997-1999).** *Journal of the American Veterinary Medical Association* 221(5): 666-72. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Abstract: OBJECTIVE: To determine prevalence of adverse effects associated with epidural administration of morphine with or without bupivacaine in dogs and cats undergoing surgery and evaluate effects of epidural administration of morphine on postoperative pain severity. DESIGN: Retrospective study. ANIMALS: 242 dogs and 23 cats. PROCEDURE: Morphine with or without bupivacaine was administered prior to surgery with a Tuohy needle, spinal needle, or epidural catheter. In 18 dogs that underwent surgery twice, results of preemptive epidural administration of morphine with or without bupivacaine were compared with results of systemic administration of oxymorphone and ketoprofen. RESULTS: The delivered fraction of isoflurane was significantly lower in animals given morphine and bupivacaine than in animals given morphine alone. Analgesia was of significantly longer duration in dogs given morphine and bupivacaine than in dogs given morphine alone. During anesthesia, mild respiratory and cardiovascular depression was reported. Seven dogs and 2 cats had urine retention, and 2 dogs developed pruritus. Six dogs vomited when a second dose of morphine was given epidurally the day after surgery. Eight of 72 dogs had delayed hair growth. In 18 dogs that underwent surgery twice, the delivered fraction of isoflurane was significantly lower and the duration of analgesia was significantly longer when morphine with or without bupivacaine was given epidurally than when oxymorphone and ketoprofen were given. CONCLUSIONS AND CLINICAL RELEVANCE: Results suggest that preemptive epidural administration of morphine with or without bupivacaine is a safe and effective method of inducing long-lasting analgesia in dogs and cats and is superior to standard management of postoperative pain with repeated injection of oxymorphone and ketoprofen.
Descriptors: epidural analgesia, analgesics, local anesthetics, bupivacaine, cats, dogs, morphine, epidural analgesia, analgesics, local anesthetics, local anesthetics, bupivacaine, cats surgery, dogs surgery, injections, epidural, ketoprofen, morphine, oxymorphone, pain measurement, postoperative pain, postoperative pain, retrospective studies, safety, time factors, treatment outcome.

Valverde, C.R., C.R. Gregory, and J.E. Ilkiw (2002). **Anesthetic management in feline renal transplantation**. *Veterinary Anaesthesia and Analgesia* 29(3): 117-125. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Descriptors: allografts, anesthesia, atropine, hypertension, isoflurane, kidney transplant, nitrous oxide, opioids, postoperative, preanaesthetic medication, preoperative care, surgery, surgical operations, survival, transplantation, cats.

Verstegen, J. (1996). **Evaluation of the anaesthetic effects of saffan and propofol used alone or in combination with medetomidine in cats**. *Journal of Veterinary Anaesthesia* 23(2): 80. ISSN: 0950-7817.
Descriptors: evaluation, drug combinations, anesthesia, propofol, medetomidine, cats.

Walla, L. (1994). **Analgesia in old dogs and cats**. *Medycyna Weterynaryjna* 50(1): 32-33. ISSN: 0025-8628.
NAL Call Number: 41.8 M463
Descriptors: biochemistry and molecular biophysics, and lymphatics, transport and circulation, cardiovascular system, neural coordination, medicine, anesthesia, electorcardiography, kidney function.
Language of Text: Polish.

Walsh, K.P., J.C. Brearley, and K.S. Cullum Hanshaw (2000). **The effect of pre-anaesthetic medication on the incidence of cardiac arrhythmias during halothane anaesthesia in cats**. *Veterinary Anaesthesia and Analgesia* 27(1): 45-49. ISSN: 1467-2987.
NAL Call Number: SF914 .V47
Descriptors: anesthesia, halothane, acepromazine, arrhythmia, preanaesthetic medication, diazepam, cats.

Wiese, A.J., W.W.I. Muir, and T.E. Wittum (2005). **Characteristics of pain and response to analgesic treatment in dogs and cats examined at a veterinary teaching hospital emergency service**. *Journal of the American Veterinary Medical Association* 226(12): 2004-2009. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: analgesics, drug combinations, inflammation, pain, cats.

William, M.W. (2001). **Anestesia y enfermedad cardiovascular. [Anaesthesia of dogs and cats with cardiovascular disorders]**. *Selecciones Veterinarias* 9(2): 113-125. ISSN: 0327-859X.
Descriptors: anesthesia, heart diseases, cats, dogs.
Language of Text: Spanish.

Williams, V.M., B.D.X. Lascelles, and M.C. Robson (2005). **Current attitudes to, and use of, peri-operative analgesia in dogs and cats by veterinarians in New Zealand**. *New Zealand Veterinary Journal* 53(3): 193-202. ISSN: 0048-0169.
NAL Call Number: 41.8 N483
Descriptors: analgesics, attitudes, continuing education, non steroidal anti-inflammatory agents, opioids, pain, small animal practice, veterinarians, cats.

Winkler, K.P., C.L. Greenfield, and G.J. Benson (1997). **The effect of wound irrigation with bupivacaine on postoperative analgesia of the feline onychectomy patient.** *American Animal Hospital Association* 33(4): 346-352. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: surgical operations, wounds, anesthetics, pain, cats, drugs, lesions, neurotropic drugs, declawing, postoperative.

Yamada, H., F. Torres, T. Tamaki, E.E. Transfeldt, and P.A. Laizzo (1994). **Effects of halothane, isoflurane and enflurane on motor potentials evoked by transcranial magnetic stimulation in cats**. *Anesthesia and Analgesia* 78(2 SUPPL.): ABSTRACT S492. ISSN: 0003-2999.
Descriptors: membranes, cell biology, morphology, nervous system, cats, enflurane, general anesthetic drug, halothane, isoflurane, non invasive motor function monitor, spinal surgery.

Yates, D. (1995). **New horizons in small animal injectable anaesthesia**. *Irish Veterinary Journal* 48(5): 176-178. ISSN: 0368-0762.
NAL Call Number: 41.8 IR4
Descriptors: anesthesia, drug combinations, butorphanol, medetomidine, ketamine, xylazine, cats.

Zeltzman, P. (2003). **Le sevoflurane: le gaz ideal pour l'anesthesie? [Anaesthesia of dogs and cats. Sevoflurane the ideal gas for anaesthesia]** . *Le Point Veterinaire* 34(237): 10-11. ISSN: 0303-4997.
Descriptors: anesthesia, cats, dogs.
Language of Text: French.

Zilberstein, L. and D. Tessier Vetzel (2004). **Anestesia pediatrica del cane e del gatto. [Paediatric anaesthesia in dogs and cats]**. *Summa* 21(1): 17-24.
Descriptors: anesthesia, cardiovascular system, muscle relaxants, preanaesthetic medication, young animals, cats, dogs.
Language of Text: Italian with a summary in English.

Zilberstein, L. and D. Tessier Vetzel (2003). **Anesthesie pediatrique du chien et du chat [Paediatric anaesthesia in dogs and cats]**. *Le Point Veterinaire* 34(232): 30-35. ISSN: 0303-4997.
Descriptors: anesthesia, benzodiazepines, cardiovascular system, heart rate, newborn animals, pharmacodynamics, phenothiazines, preanaesthetic medication, respiration, cats.
Language of Text: French; Summary in English.

Behavior & Welfare

Anonymous (1998). **Swedish regulations for keeping pets**. *Dansk Veterinaertidsskrift* 81(2): 48. ISSN: 0106-6854.
NAL Call Number: 41.9 D23
Descriptors: animal care, animal welfare laws, pet store regulations, cats.
Language of Text: Danish.

Anonymous (2003). **Toying with enrichment options.** *Lab Animal* 32(10): 7. ISSN: 0093-7355.
NAL Call Number: QL55.A1L33
Descriptors: behavior, environmental enrichment, cats, music, *Pan troglodytes*, play and playthings.

Anonymous (2004). **[Udtalelse om katte: fra det dyreetiske rad] Comments on cats: From the animal welfare perspective**. *Dansk Veterinaertidsskrift* 87(21): 26-33. ISSN: 0106-6854.
NAL Call Number: 41.9 D23
Descriptors: animal welfare, identification, pets, stray animals, cats.
Language of Text: Danish.

Bennett, R.M. (1998). **The economics of welfare in companion animals**. In: *Ethics, welfare, law and market forces: The veterinary interface Proceedings of a Symposium, November 14, 1996-November 15, 1996, Royal College of Veterinary Surgeons, UK*, Universities Federation for Animal Welfare (UFAW): Wheathampstead, UK, p. 135-143.
Online: www.ufaw.org.uk
Descriptors: animal welfare, pets, economics, cats.

Braastad, B.O. (1999). **Ethological research related to animal welfare at the Department of Animal Science, The Agricultural University of Norway.** *Nordisk Jordbrugsforskning* 81(3): 286-292. ISSN: 0048-0495.
NAL Call Number: 11 N752
Descriptors: stress, animal welfare, livestock, reproduction, research, poultry .

Braastad, B.O. and M. Bakken (2002). **Behaviour of dogs and cats.** In: *The Ethology of Domestic Animals: An Introductory Text*, CABI Publishing: New York, New York, USA, p. 173-192. ISBN: 0 85199 60.
Descriptors: behavioral, mental disorders, aggression, animal welfare, communication, domestication, human interaction, mating behavior, parental behavior, play, predatory behavior, social behavior.

Bradshaw, J.W.S., S.L. Brown, S.E. Cook, K.J. Durman, H.N. Feldman, G. Kerby, D.W. Macdonald, S. McCune, M. Mendl, W.C. Passanisi, I.H. Robinson, and D.F.E. Smith (1997). **An ethogram for behavioural studies of the domestic cat (*Felis silvestris catus L.*)**. In: *Proceedings of the second international conference on environmental enrichment., August 21, 1995, Copenhagen, Denmark*, Copenhagen Zoo, Denmark, p. 356-359. ISBN: 8789431146.

Descriptors: cats, domestic animals, social behavior, feeding habits, case studies, behavior.

Crouse, S.J., E.R. Atwill, M. Lagana, and K.A. Houpt (1995). **Soft surfaces: A factor in feline psychological well-being**. *Contemporary Topics in Laboratory Animal Science* 34(6): 94-97. ISSN: 1060-0558.
NAL Call Number: SF405.5A23
Descriptors: cats as laboratory animals, cages, animal welfare, physical activity, behavior, culture media, animal housing, pillows, activity sampling, substrates .

Davis, S.L. and P.R. Cheeke (1998). **Do domestic animals have minds and the ability to think? A provisional sample of opinions on the question.** *Journal of Animal Science* 76(8): 2072-2079. ISSN: 0021-8812.
NAL Call Number: 49 J82
Abstract: Faculty, staff; and graduate students in a number of departments, students in an under-graduate course, and some groups outside the university were polled to obtain their perceptions about whether domestic animals have minds, the ability to think, and differing degrees of intelligence (the surveys focused only on horses, cows, sheep, dogs, chickens, pigs, cats, and turkeys). A clear majority of all groups surveyed (except the Department of Zoology) said yes, they believe animals have minds, but a substantial number of those in animal sciences and zoology (17 to 25%) said no. A number of others in animal sciences, zoology, and philosophy (11 to 37%) refused to answer the question because the concept of mind was not defined. From 80 to 100% of respondents in other groups said yes to the question of minds. From 67 to 100% of all participants said yes, they perceive that animals have the ability to think, but a substantial number of animal scientists, zoologists, veterinarians, and English faculty said no, animals don't think (6 to 33%). On the question Do domestic animals differ in relative intelligence?, the responses varied from 88% in animal sciences to 100%. Surprisingly, when asked to rank different animal species by intelligence, there was a remarkable degree of similarity across all groups regardless of background: the overall ranking from highest intelligence to lowest was dog, cat, pig, horse, cow, sheep, chicken, and turkey. Most of the respondents believed that the possession of minds, thought, and intelligence were relevant factors in how animals should be treated and the prevalent concept was that we should not be cruel to animals, but should treat them. humanely.
Descriptors: livestock, mental ability, surveys, opinions, animal welfare, bioethics.

de Monte, M. and G. Le Pape (1997). **Behavioural effects of cage enrichment in single-caged adult cats.** *Animal Welfare* 6(1): 53-66. ISSN: 0962-7286.
NAL Call Number: HV4701 .A557
Descriptors: cats, cages, enrichment, animal behavior, abnormal behavior, behavior patterns, laboratory, animal welfare, environmental enrichment, objects .

Dodds, W.J. (2003). **Animal health care, well-being and nutrition**. *Official Gazette of the United States Patent and Trademark Office Patents* 1268(4) ISSN: 0098-1133.
Online: http://www.uspto.gov/web/menu/patdata.html
NAL Call Number: T223. A21

Descriptors: nutrition, computer, enhanced housing, clinical techniques, diagnostic techniques, laboratory techniques, animal health care, cats.

East, M.L. and J. Hurst (2000). **Workshop: Animal welfare**. *Advances in Ethology*(35): 20. ISSN: 0931-4202.
Descriptors: philosophy and ethics, cats, animal products, animal welfare, zoological gardens, meeting abstract.
Notes: 3rd International Symposium on Physiology and Ethology of Wild and Zoo Animals,Berlin, Germany; October 4-7, 2000.

Epstein, M., N.F. Kuehn, G. Landsberg, B.D. Lascelles, S.L. Marks, J.M. Schaedler, and H. Tuzio (2005). **American Animal Hospital Association Senior Care Guidelines for Dogs and Cats.** *Journal of the American Animal Hospital Association* 41(2): 81-91. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Abstract: This paper provides a working framework for enhancing the well-being of senior pet dogs and cats. Approaches to screening the medical status of senior pets are described in detail, with particular emphasis on establishing baseline data in healthy animals, the testing of clinically ill animals, and assessing senior pets prior to anesthesia and surgery. The management of pain and distress and the application of hospice and palliative care are addressed. Advice on ways to approach euthanasia and dealing with end-of-life issues is also provided.
Descriptors: cats, well-being, aging, anesthesia, hospice, euthanasia.

Ferrari, A. (1997). **Comfort e benessere dei carnivori domestici [Comfort and welfare of dogs and cats]**. *Obiettivi e Documenti Veterinari* 18(4): 61-66. ISSN: 0392-1913.
Descriptors: animal welfare, animal behavior, cats.
Language of Text: Italian.

Gorrel, C. (2000). **Home care: Products and techniques**. *Clinical Techniques in Small Animal Practice* 15(4): 226-231. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: periodontal diseases, prevention, treatment, chemical plaque, cats, oral hygiene, toothbrushing .

Grant, D.I. (1998). **Perceived and actual welfare issues - companion animals**. In: *Proceedings of a Symposium: Ethics, welfare, law and market forces: the veterinary interface, November 14, 1996-November 15, 1996, Royal College of Veterinary Surgeons, UK*, Universities Federation for Animal Welfare (UFAW): Wheathampstead, UK, p. 107-114.
Online: www.ufaw.org.uk
Descriptors: pets, animal welfare, cats.

Griffin, B. (2001). **Prolific cats: The impact of their fertility on the welfare of the species**. *Compendium on Continuing Education for the Practicing Veterinarian* 23(12): 1058-1069. ISSN: 0193-1903.
NAL Call Number: SF601. C66
Descriptors: animal welfare, contraception, euthanasia, female fertility, parturition, population control and density, reproduction, sterilization, stray animals.

Grommers, F.J., L.J.E. Rutgers, and J.M. Wijsmuller (1995). **Animal welfare - intrinsic value - integrity: Developments in the appreciation of the domestic animal**. *Tijdschrift Voor Diergeneeskunde* 120(17): 490-494. ISSN: 0040-7453.
NAL Call Number: 41.8 T431
Descriptors: animal husbandry, ecology, integumentary system, surgery, medicine, battery cage, declawing, cats, welfare.
Language of Text: Afrikaans.

Hartmann, K. and M. Kuffer (1998). **Karnofsky's score modified for cats**. *European Journal of Medical Research* 3(1-2): 95-98.
Abstract: The index of Karnofsky evaluating quality of life was originally developed by David A. Karnofsky in 1948. It determines the ability of a patient to carry on normal activities in life by using a scale from 0 to 100%. This index was modified for the cat. The index enables judgment of life quality and well-being in cats which is very difficult to interpret. Objectivity is given by a classification orientated in details concerning general condition as well as eating, playing, sleeping, and social behavior.
Descriptors: cats, Karnofsky performance status, quality of life, well-being.

Hawkins, K.R., J.W.S. Bradshaw, and R.A. Casey (2004). **Correlating cortisol with a behavioural measure of stress in rescue shelter cats.** *Animal Welfare* 13(Suppl.): S242-S243. ISSN: 0962-7286.
NAL Call Number: HV4701 .A557
Descriptors: behavior, cat stress score, animal welfare, behavioral responses, individual housing, rescue shelter, cortisol as a measure of stress.
Notes: Meeting Information: Universities Federation for Animal Welfare (UFAW) Symposium on Science in the Service of Animal Welfare, Edinburgh, UK; April 2-4, 2003.

Hawthorne, A.J., G.G. Loveridge, and L.J. Horrocks (1997). **The behaviour of domestic cats in response to a variety of surface-textures.** In: *Proceedings of the 2nd International Conference on Environmental Enrichment., August 21, 1995-August 25, 1995, Copenhagen Zoo, Denmark*, Copenhagen, Denmark, 372 p. ISBN: 8789431146.
Descriptors: pet animals, cats, behavior, animal welfare, captivity, housing.

James, A.E. (1995). **The laboratory cat.** *Australian and New Zealand Council for TheCare of Animals in Research and Teaching (ANZCCART) News* 8(1): 1-8. ISSN: 1039-9089.
Online: http://www.adelaide.edu.au/ANZCCART/publications/FS_Cat8.pdf
NAL Call Number: SF405.5 .A3
Descriptors: cats, laboratory animals, animal welfare, animal husbandry, animal housing, animal nutrition, anesthesia, analgesics, laboratory, cat diseases.

Kessler, M.R. and D.C. Turner (1999). **Socialization and stress in cats (*Felis silvestris catus*) housed singly and in groups in animal shelters.** *Animal Welfare* 8(1): 15-26. ISSN: 0962-7286.
NAL Call Number: HV4701 .A557
Descriptors: cats, shelters, stress, cages, group size, individual characteristics.

Kessler, M.R. and D.C. Turner (1997). **Stress and adaptation of cats (*Felis silvestris catus*) housed singly, in pairs and in groups in boarding catteries.** *Animal Welfare* 6(3): 243-254. ISSN: 0962-7286.
NAL Call Number: HV4701 .A557
Descriptors: animal husbandry, animal welfare, adaptation, cats, animal housing, stress.

Landsberg, G. (1996). **Feline behavior and welfare**. *Journal of the American Veterinary Medical Association* 208(4): 502-505. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: animal welfare, behavior, cats, social behavior, vocalizations.

Ledger, R. and V. O'Farrell (1996). **Factors influencing the reactions of cats to humans and novel objects.** In: *Proceedings of the 30th International Congress of the International Society for Applied Ethology, August 14, 1996-August 17, 1996, Guelph, Ontario, Canada.*, University of Edinburgh, 112 p. ISBN: 0889554528.
NAL Call Number: SF756.7.I57
Descriptors: kittens, temperament, fearfulness, laboratory animals, selective breeding, meeting abstact.

Loveridge, G. (1994). **Provision of environmentally enriched housing for cats.** *Animal Technology* 45(2): 69-87. ISSN: 0264-4754.
NAL Call Number: QL55.I5
Abstract: This paper describes the philosophy and design incorporated into the construction and operation of cat buildings in a centre that houses both dogs' and cats in the most animal friendly conditions providing maximum environmental interest to the pet consistent with the requirements of nutritional and behavioural studies. The husbandry systems use best health care practices, with emphasis on canine or feline companionship and the human pet relationships.
Descriptors: cats, animal housing, environment, enrichment, design, animal husbandry, socialization, animal welfare.

Loveridge, G.G., L.J. Horrocks, and A.J. Hawthorne (1995). **Environmentally enriched housing for cats when housed singly.** *Animal Welfare* 4(2): 135-141. ISSN: 0962-7286.
NAL Call Number: HV4701 .A557
Descriptors: cats, animal welfare, animal housing, enrichment.

Maehler, M. and R. Moerstedt (1995). **Management of experimental cat breeding**. *Deutsche Tieraerztliche Wochenschrift* 102(9): 371. ISSN: 0341-6593.
NAL Call Number: 41.8 D482
Descriptors: nutrition, reproduction, diet, environmental enrichment, fatty acid, feline behavior, pregnancy diagnosis, protein requirements.
Language of Text: German.

McCobb, E.C., G.J. Patronek, A. Marder, J.D. Dinnage, and M.S. Stone (2005). **Assessment of stress levels among cats in four animal shelters**. *Journal of the American Veterinary Medical Association* 226(4): 548-555. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3

Descriptors: urinary system, medicine, hematuria, urologic disease, cortisol to creatinine ratio, behavioral assessment scale, non invasive techniques, animal shelter, animal welfare, environmental enrichment, stress level, cat stress score, hematuria.

McCune, S. (1995). **Enriching the environment of the laboratory cat.** In: *Environmental Enrichment Information Resources for Laboratory Animals, 1965-1995: Birds, Cats, Dogs, Farm Animals, Ferrets, Rabbits, and Rodents,* The Dept.: Washington, DC, p. 27-33. ISBN: 090076791X.
NAL Call Number: AHV4701.A94 no.2
Descriptors: cats, animal welfare, laboratory animals, enrichment, environment.

McCune, S. (1997). **Enriching the environment of the laboratory cat: A review**. In: *Proceedings of the second international conference on environmental enrichment, 21- 25 Aug 1995, Copenhagen, Denmark,* Copenhagen Zoo, Denmark, p. 103-117. ISBN: 8789431146.
Descriptors: catsas laboratory animals, environmental enrichment, captivity, animal welfare, habitat improvement, animal housing.

McCune, S. (1995). **The impact of paternity and early socialisation on the development of cats' behaviour to people and novel objects.** *Applied Animal Behaviour Science* 45(1-2): 109-124. ISSN: 0168-1591.
NAL Call Number: QL750 .A6
Descriptors: cats, animal welfare, social behavior, human-animal relationships.

Mills, D.S., S.L. Bailey, and R.E. Thurstans (2000). **Evaluation of the welfare implications and efficacy of an ultrasonic 'deterrent' for cats.** *Veterinary Record* 147(24): 678-680. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: cats, ultrasonic devices, animal welfare, repellents, efficacy, animal behavior, behavior change.

Murry, A.C.Jr. and M.O. Downs (1998). **An introductory-level companion animal care course: student perception and subsequent performance.** *Journal of Animal Science* 76(7): 1976-1982. ISSN: 0021-8812.
NAL Call Number: 49 J82
Abstract: A survey and pre- and postcourse examinations were administered to students (n = 23) enrolled in a companion animal (dog and cat) care course. The course objectives were to assess a student's knowledge base and then help him or her gain the knowledge to maintain the health, well-being, and longevity of companion animals. Four teaching modules were used in this course: 1) general lectures by the instructor; 2) special topics presented by guest professors; 3) videos shown in class; and 4) out-of-class experiential learning projects. The examination questions were developed from these modules. At the end of the academic term (quarter), students evaluated the course and each teaching module using a scale of 1 (= poor) to 5 (= very good). Seventy percent of the students enrolled in the course were female. The disciplines represented were animal health/preveterinary medicine (34.8%), animal science (21.7%), arts and science (13.0%), education (8.7%), forestry (8.6%), nursing education (4.4%), and 8.7% undecided. Only 15% had been exposed to an animal and dairy science introductory course. Students rated

the course good (4.2 +/- .83 with 5 = very good) and agreed (4.4 +/- .87 with 5 = strongly agree) that the course provided a valuable learning experience. Average student score on the precourse examination (38.6% correct answers) improved dramatically on the postcourse examination (92.0% correct answers; P < .001). A positive correlation was observed between students' evaluation of the teaching modules and their total postcourse examination score (P < .05). Results indicated that the companion animal care course attracted students from disciplines other than that of. animal science. Students evaluated the course as favorable, and their knowledge base of companion animal care was significantly expanded.
Descriptors: dogs, agricultural education, cats, animal health, animal husbandry, teaching, college students, science, survey.

Nau, M.N. (1995). **Protection des carnivores domestiques: reglementation nationale et europeenne [Small animal welfare: National and European legislation]**. *Le Point Veterinaire* 27(170): 299-305. ISSN: 0303-4997.
Descriptors: animal welfare, legislation, cats.
Language of Text: French with a summary in English.

Neville, P.F. (2004). **An ethical viewpoint: The role of veterinarians and behaviourists in ensuring good husbandry for cats.** *Journal of Feline Medicine and Surgery* 6(1): 43-48. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Abstract: Cat owners commonly consider their pets to be members of their families, and many factors contribute to a high level of owner attachment to their cats. Suppression of a cat's emotional needs in favour of the emotional requirements of the owner may produce a less satisfactory relationship for the owner, and usually for the cat as well. Owners' failure to comprehend their cat's true demands of life, and their false expectation of their ability to fulfil human psychological demands lies at the heart of many feline behaviour problems.
Descriptors: animal husbandry, animal welfare, behavioral therapy, cats, United States, veterinarians.

Ottway, D.S. and D.M. Hawkins (2003). **Cat housing in rescue shelters: A welfare comparison between communal and discrete-unit housing.** *Animal Welfare* 12(2): 173-189. ISSN: 0962-7286.
NAL Call Number: HV4701 .A557
Descriptors: cats, animal behavior, animal stress, group housing, cages, animal welfare, group size, animal housing.

Overall, K.L. and D. Dyer (2005). **Enrichment strategies for laboratory animals from the viewpoint of clinical veterinary behavioral medicine: Emphasis on cats on dogs.** *Institute for Laboratory Animal Research Journal* 46(2): 202-215. ISSN: 1084-2020.
NAL Call Number: QL55 .A1I43
Abstract: Behavioral wellness has become a recent focus for the care of laboratory animals, farm and zoo animals, and pets. Behavioral enrichment issues for these groups are more similar than dissimilar, and each group can learn from the other. The emphasis on overall enhancement for laboratory dogs and cats in this review includes an emphasis

on behavioral enrichment. Understanding the range of behaviors, behavioral choices, and cognitive stimulation that cats and dogs exhibit under non-laboratory conditions can increase the ability of investigators to predict which enrichments are likely to be the most successful in the laboratory. Many of the enrichment strategies described are surprisingly straightforward and inexpensive to implement.
Descriptors: animal husbandry, animal welfare, laboratory animals, behavioral medicine, cats, dogs, nutrition, standards of animal housing, noise, stress.

Pageat, P. (1995). **Confort et bien-etre des carnivores domestiques: pour une evaluation objective [Welfare and wellbeing of pets: An objective evaluation]**. *Le Point Veterinaire* 26(165): 13-21. ISSN: 0303-4997.
Descriptors: dogs, cats, pet animals, animal welfare, behavioral evaluations, animal welfare.
Language of Text: French.

Paul, E.S. and A.L. Podberscek (2000). **Veterinary education and students' attitudes towards animal welfare.** *Veterinary Record* 146(10): 269-272. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: animal welfare, attitudes toward animal welfare, education, questionnaires, schools, emotions .

Poe, E. and K. Hope (2000). **Group housing products for cats**. *Lab Animal* 29(4): 40-43. ISSN: 0093-7355.
NAL Call Number: QL55.A1L33
Descriptors: cats, cages, group size, space requirements, environmental enrichment, animal welfare, physical activity, mental stress, social dominance, gang housing, dividers .

Rehbinder, C., P. Baneux, D. Forbes, H.v.N.W. Herck, Z. Rugaya, and G. Winkler (1998). **The Federation of European Laboratory Animal Science Associations recommendations for the health monitoring of breeding colonies and experimental units of cats, dogs and pigs.** *Laboratory Animals* 32(1): 1-17. ISSN: 0023-6772.
Online: www.FELASA.org
NAL Call Number: QL55. A1L3
Descriptors: laboratory animals, cats, dogs, swine, animal welfare, animal health programs, montoring health of laboratory animals.

Rochlitz, I. (1999). **Recommendations for the housing of cats in the home, in catteries and animal shelters, in laboratories and in veterinary surgeries.** *Journal of Feline Medicine and Surgery* 1(3): 181-91. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Abstract: In recent years, there has been an increase in interest in applied ethology and animal welfare, and an increase in the popularity of the domestic cat. This has stimulated research on the behaviour and welfare of cats kept in different environments. This article presents a review of the recent research and makes recommendations for the housing of domestic cats in the home, in catteries and animal shelters, in laboratories and in

veterinary surgeries.
Descriptors: animal welfare, cats, housing, literature review.

Rochlitz, I., A.L. Podbersce, and D.M. Broom (1998). **Welfare of cats in a quarantine cattery.** *Veterinary Record* 143(2): 35-39. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: cats, animal welfare, quarantine, animal behavior, hydrocortisone, creatinine, adaptation.

Rochlitz, I., A.L. Podberscek, and D.M. Broom (1995). **The behaviour and welfare of cats in a quarantine cattery**. In: *Proceedings of the 29th International Congress of the International Society for Applied Ethology, August 3, 1995-August 5, 1995, Exeter, UK,* Universities Federation for Animal Welfare (UFAW): Potters Bar, UK, p. 125-126. ISBN: 090076928.
Online: www.ufaw.org.uk
NAL Call Number: SF756.7 I57
Descriptors: animal behavior, quarantine, animal welfare, cats.

Ryan Gullahorn, J. (1998). **Cattery behavior.** *Feline Practice* 26(6): 16-17. ISSN: 1057-6614.
NAL Call Number: SF985.F4
Descriptors: cats, animal behavior, groups.

Saigeman, S. (1998). **Environmental enhancement of cats - What? why? how?** *Animal Technology* 49(3): 145-154. ISSN: 0264-4754.
NAL Call Number: QL55.I5
Descriptors: cats, laboratory animals, animal housing, animal welfare.

Scott, S. (2001). **Welfare considerations of companion animal behaviour problems**. *Research in Veterinary Science* 70(Supplement A): 31. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Descriptors: animal care, behavior, animal welfare, behavior management .
Notes: 55th Annual Conference on Current Topics in Veterinary Science, Scarborough, England, UK; April 09-12, 2001.

Shalev, M. (1996). **USDA proposes eliminating dog tethering and sets new temperatures for dogs and cats**. *Lab Animal* 25(8): 14. ISSN: 0093-7355.
NAL Call Number: QL55.A1L33
Descriptors: animal welfare, tethering, animal housing, Federal regulations, temperature guidelines, cats, dogs.

Smith, C.P., V. Taylor and C. Nicol (Editors) (1995). ***Environmental Enrichment Information Resources for Laboratory Animals 1965-1995: Birds, Cats, Dogs, Farm Animals, Ferrets, Rabbits, and Rodents.***, Vol. IX, The Dept.: Washington, D.C., 294 p. ISBN: 090076791X.
NAL Call Number: AHV4701.A94 no.2
Descriptors: laboratory animals bibliograpHy, animal welfare.
Notes: Produced jointly by the Animal Welfare Information Center and the Universities Federation for Animal Welfare--September 1995.

Anonymous (1995). **Cat Bibliography**. In: C.P. Smith and V.a.N.C. Taylor (Editors), *Environmental Enrichment Resources for Laboratory Animals 1965-1995: Birds, Cats, Dogs, Farm Animals, Ferrets, Rabbits, and Rodents*, The Dept.: Washington, D.C., p. 35-41. ISBN: 09-007-6791X.
NAL Call Number: AHV4701.A94 no.2
Descriptors: cats, animal welfare, behavior, bibliograpHies, environmental enrichment .

Turner, D.C. (1995). **Ethology and companion animal welfare**. *Schweizer Archiv Fuer Tierheilkunde* 137(2): 45-49. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Descriptors: behavior, human ecology, anthropology, philosophy and ethics, medicine, ecology, social relationships .
Language of Text: German.

Turner, D.C. (1995). **Ethologie und Wohlbefinden bei Heimtieren. [Ethology and well-being of pet]**. *Schweizer Archiv Fur Tierheilkunde* 137(2): 45-49. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Descriptors: animal welfare, animal behavior, pets, cats, dogs.
Language of Text: German with a summary in English; French and Italian.

U.S.A. American Veterinary Medical Association: Animal Welfare Forum (1996). **Animal Welfare Forum. The welfare of cats.** *Journal of the American Veterinary Medical Association* 208(4): 497. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: behavior, vaccination, people, shelters, animal housing, animal welfare, anthrozoology .

Van Den Bos, R., M.K. Meijer, and B.M. Spruijt (2000). **Taste reactivity patterns in domestic cats (*Felis silvestris catus*)**. *Applied Animal Behaviour Science* 69(2): 149-168. ISSN: 0168-1591.
NAL Call Number: QL750. A6
Descriptors: behavior, cats, sensory reception, general taste properties, less flavored food, more flavored food, perceived palatability, taste reactivity patterns, palatability score.

Von Wenzlawowicz, C. (1995). **Tierschutz bei der Haltung von Tieren fur die tiergestutzte Therapie an Heimen un Krankenhausern [Animal welfare aspects of pet facilitated therapy in homes and hospitals]**. *Deutsche Tierarztliche Wochenschrift* 102(11): 425-426. ISSN: 0341-6593.
NAL Call Number: 41.8 D482
Descriptors: pet therapy, legislation, guidelines, mental health, animal welfare.
Language of Text: German; Summary in English.

Diabetes

Anonymous (1998). *Proceedings from C-Vet (NZ) 1998 Summer Symposium on Focus on Endocrine Disorders, March 6, 1998-March 13, 1998, Christchurch, New Zealand,* Book No. 181., VetLearn Foundation, Massey University: Palmerston North, New Zealand, 94 p.
NAL Call Number: SF604.P82 no.181
Descriptors: diabetes mellitus, hypothyroidism, hypoadrenocorticism, dogs, cats, hyperthyroidism.

Altnsaat, C. (2003). **Hayvanlarda Diabetes mellitus [Diabetes mellitus in animals]**. *Hayvanclk Arastirma Dergisi* 13(1/2): 72-80. ISSN: 1300-2031.
NAL Call Number: SF1.H39
Descriptors: clinical aspects, diabetes mellitus, diabetic acidosis, diabetic neuropathy, diagnosis, hyperglycemia, insulin secretion, kidney diseases, lipidosis, metabolic disorders, pancreas islets, pancreatitis, pathogenesis, reviews, cats.
Language of Text: Turkish; Summary in English.

Andersson, H. (1998). **S-fruktosamin - ett glukosminne [S-fructosamine - a glucose memory]**. *Svensk Veterinaertidning* 50(14): 659-661. ISSN: 0346-2250.
NAL Call Number: 41.9 SV23
Descriptors: dogs, cats, hyperglycemia, diabetes, sugar, laboratory diagnosis, enzyme composition, metabolic disorders.
Language of Text: Swedish with a summary in English.

Appleton, D.J., J.S. Rand, and G.D. Sunvold (2005). **Basal plasma insulin and homeostasis model assessment (HOMA) are indicators of insulin sensitivity in cats.** *Journal of Feline Medicine and Surgery* 7(3): 183-193. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Abstract: The objective of this study was to compare simpler indices of insulin sensitivity with the minimal model-derived insulin sensitivity index to identify a simple and reliable alternative method for assessing insulin sensitivity in cats. In addition, we aimed to determine whether this simpler measure or measures showed consistency of association across differing body weights and glucose tolerance levels. Data from glucose tolerance and insulin sensitivity tests performed in 32 cats with varying body weights (underweight to obese), including seven cats with impaired glucose tolerance, were used to assess the relationship between Bergman's minimal model-derived insulin sensitivity index (S(I)), and various simpler measures of insulin sensitivity. The most useful overall predictors of insulin sensitivity were basal plasma insulin concentrations and the homeostasis model assessment (HOMA), which is the product of basal glucose and insulin concentrations divided by 22.5. It is concluded that measurement of plasma insulin concentrations in cats with food withheld for 24 h, in conjunction with HOMA, could be used in clinical research projects and by practicing veterinarians to screen for reduced insulin sensitivity in cats. Such cats may be at increased risk of developing impaired glucose tolerance and type 2 diabetes mellitus. Early detection of these cats would enable preventative intervention programs such as weight reduction, increased

physical activity and dietary modifications to be instigated.
Descriptors: cats, insulin, diabetes, glucose, obesity, HOMA, glucose tolerance.

Bach, J.M. (2000). **La pancreas endocrine, entre constance et variation [Normal and abnormal function of the endocrine pancreas]**. *Le Point Veterinaire* 31(209): 17-24. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: dogs, cats, pancreas, endocrine glands, insulin, glucagon, somatostatin, hormones, energy, carbohydrate, endocrine diseases, diabetes, hypoglycemia, animal glands, body parts, digestive system, disorders, metabolic disorders, organic diseases, peptides .
Language of Text: French; Summaries in English and French.

Bartholovitsch A., Windberger U., Schwarz G., Czarnecki L., and Losert U. (1999). **Blood viscosity in diabetic vs. Non-diabetic (diabetes mellitus) canine and feline patients**. *Biorheology* 36(1-2): 85-86. ISSN: 0006-355X.
Descriptors: lymphatic system, transport, circulation, endocrine system, chemical coordination, homeostasis, diabetes mellitus, endocrine disease, pancreas, metabolic disease.

Behrend, E.N. (2000). **Treatment of diabetes mellitus II.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 14: 245-248.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, therapy, diabetes mellitus.

Behrend, E.N. (2000). **Treatment of diabetes mellitus 1.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 14 : 241-244.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, therapy, diabetes mellitus.

Behrend, E.N. (2004). **Management and monitoring of the insulin-dependent diabetic: update on diabetes mellitus**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 345-347.
Descriptors: alpha glucosidase, sugar, clinical aspects, diabetes, diabetes mellitus, disease control, glucosidase inhibitors, hypoglycemia, insulin, metabolic disorders, monitoring, therapy, cats.

Behrend, E.N. (2004). **Diabetes mellitus**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 350-352.
Descriptors: alpha glucosidase, sugar, diabetes, diabetes mellitus, disease control, glucosidase inhibitors, guanidines, hypoglycemic agents, insulin, metabolic disorders, sulfonylureas, therapeutic diets, therapy, transition elements, vanadium, cats.

Behrend, E.N. (2002). **Diabetes mellitus: an update on oral hypoglycemic agents and monitoring options**. *Veterinary Medicine* 97(10): 743-751. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: acarbose, albumins, biguanides, sugar, diabetes mellitus, diet treatment,

haemoglobin, hyperglycemia, hypoglycemia, hypoglycemic agents, insulin, pharmacodynamics, sulfonylureas, transition elements, urine, cats.

Behrend, E.N. (2002). **Managing diabetes insipidus and other causes of polyuria and polydipsia**. *Veterinary Medicine* 97(10): 753-761. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: chlorpropamide, clinical aspects, diabetes insipidus, diagnostic techniques, differential diagnosis, diuretics, polydipsia, polyuria, thirst, vasopressin, water deprivation, cats.

Behrend, E.N. and D.S. Greco (2000). **Feline diabetes mellitus: evaluation of treatment.** *Compendium of Continuing Education for the Practicing Veterinarian* 22(5): 440-452. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, diabetes mellitus, clinical aspects, sugar, glucose tolerance, insulin, dosage, hypoglycemia, hypoglycemic agents, differential diagnosis, literature reviews.

Behrend, E.N. and D.S. Greco (2000). **Treatment of feline diabetes mellitus: overview and therapy.** *Compendium of Continuing Education for the Practicing Veterinarian* 22(5): 423-439. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, diabetes mellitus, therapeutic diets, insulin secretion, hyperglycemia, gluconeogenesis, differential diagnosis, sugar, obesity, weight control, crude fiber, dietary protein, dietary fat, insulin, dosage, sulfonylureas, biguanides, acarbose, hypoglycemic agents, pharmacodynamics, ketosis, alpha glucosidase, enzyme inhibitors, vanadium, drugs, literature reviews.

Benarroch, E.E. (1994). **Neuropeptides in the sympathetic system: presence, plasticity, modulation, and implications.** *Annals of Neurology* 36(1): 6-13. ISSN: 0364-5134.
Abstract: Neuropeptides are ubiquitous in the sympathetic system and modulate transmission at the levels of the intermediolateral cell column, sympathetic ganglia, and neuroeffector junctions. Several neuropeptide-containing pathways from the hypothalamus and medulla modulate excitability of preganglionic neurons. Neuropeptides coexist with norepinephrine or acetylcholine in subpopulations of chemically coded, target-specific sympathetic ganglion neurons. Neuropeptide Y is colocalized in adrenergic vasoconstrictor neurons, whereas vasoactive intestinal polypeptide is colocalized in cholinergic sudomotor neurons. Neuropeptide expression is plastic; during development, neurons that switch from a noradrenergic to a cholinergic phenotype increase expression of vasoactive intestinal polypeptide, somatostatin, and substance P. Preganglionic inputs increase neuropeptide Y and inhibit substance P expression. Sympathetic denervation produces sprouting of sensory fibers containing substance P and calcitonin gene-related peptide in target tissues. Neuropeptides from preganglionic fibers (e.g., enkephalin) and primary afferents (e.g., substance P, vasoactive intestinal polypeptide) modulate transmission in sympathetic ganglia. Neuropeptide Y produces vasoconstriction, prejunctional inhibition of norepinephrine release, and postjunctional potentiation of norepinephrine effects. Plasma neuropeptide Y increases during intense sympathoexcitation, hypertension, and pheochromocytoma. Dystrophic

neurites containing neuropeptide Y occur in human sympathetic ganglia during aging, diabetes, and dysautonomia. Sympathetic neuropeptides may thus have important clinical implications.
Descriptors: neuropeptides, sympathetic nervous system, aging, autonomic nervous system diseases, cats, diabetic neuropathies, ganglia, sympathetic, ganglia, sympathetic, hypothalamus, medulla oblongata, neural pathways, neuronal plasticity, nEuropeptide y, synaptic transmission.

Bertoy, E.H., R.W. Nelson, and E.C. Feldman (1995). **Effect of lente insulin for treatment of diabetes mellitus in 12 cats.** *Journal of the American Veterinary Medical Association* 206(11): 1729-1731. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, insulin, diabetes mellitus, efficacy.

Brady, M.A., J.S. Dennis, and C. Wagner Mann (2003). **Evaluating the use of plasma hematocrit samples to detect ketones utilizing urine dipstick colorimetric methodology in diabetic dogs and cats**. *Veterinary Emergency and Critical Care* 13(1): 1-6. ISSN: 1534-6935.
NAL Call Number: SF778.J68
Descriptors: colorimetry, diabetes mellitus, diagnosis, diagnostic techniques, haematocrit, ketones, ketonuria, ketosis, methodology, urine, cats, dogs.

Braun, J.P. and C. Medaille (1997). **Diagnostic et surveillance du diabete sucre du chien et du chat: interet du dosage de la fructosamine. Une revue. [Diagnosis and monitoring of diabetes mellitus in dogs and cats: use of fructosamine measurement. A review]**. *Revue De Medecine Veterinaire* 148(12): 945-950. ISSN: 0035-1555.
NAL Call Number: 41.8 R32
Descriptors: diabetes mellitus, diagnosis, diagnostic techniques, measurement, sugar, fructose, normal values, reviews, hyperglycemia, nutritional disorders, diabetes, cats.
Language of Text: French with a summary in English.

Braun, R.D., T.C. Fisher, H.J. Meiselman, and D.L. Hatchell (1996). **Decreased deformability of polymorphonuclear leukocytes in diabetic cats.** *Microcirculation* 3(3): 271-8. ISSN: 1073-9688.
Abstract: OBJECTIVE: Polymorphonuclear leukocytes (PMN) have been found to be less deformable in humans with non-insulin-dependent diabetes. It has therefore been hypothesized that white blood cells (WBC) may affect the development of diabetic microangiopathy. This study was designed to determine whether PMN or small and large lymphocytes were less deformable in a large animal model of diabetes-chronically hyperglycemic pancreatectomized cats. METHODS: Venous blood was withdrawn from 13 normal and 14 diabetic cats. The diabetic cats had been kept in poor metabolic control since their pancreatectomy (7-113 months before this study). Blood cell counts, hemoglobin concentration, hematocrit, erythrocyte volume, and WBC differential counts were obtained from the blood samples. Purified mononuclear WBC and PMN fractions were obtained by separating the blood on a discontinuous Percoll gradient. The deformability of each cell fraction was determined using a Cell Transit Analyzer (ABX,

Montpellier, France) that measures the transit time of cells through 7.5-microns pores. By varying the sampling rate of the CTA and the pressure difference across the filter, the subpopulations of the mononuclear fractions (small and large lymphocytes) could be identified and each subpopulation analyzed separately. RESULTS: Median transit times for the PMN and small lymphocytes were significantly greater for the diabetic cats, but no difference was found in the large lymphocyte fractions. CONCLUSIONS: These results are in accordance with the finding that PMN are less deformable in humans with diabetes. We also showed that the small lymphocytes from diabetic cats have prolonged transit times. The results suggest that PMN may contribute to the development of microangiopathies like diabetic retinopathy. Diabetic cats may prove useful for testing potential therapies to improve WBC deformability.
Descriptors: diabetes mellitus, neutrophils, flow velocity, cats, animal disease models, erythrocyte volume, hematocrit, leukocyte count.

Breitsameter, I., L.C.R. Fan, and C.B. de Carvalho (1994). **A review of diabetes mellitus in animals [Diabetes melito - revisao bibliografica.]**. *Ciencia Rural* 24(1): 217-221. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: diabetes mellitus, diagnosis, sugar, insulin, diabetes, cats.
Language of Text: Portuguese; Summary in English.

Broderick, J.P., T. Hagen, T. Brott, and T. Tomsick (1995). **Hyperglycemia and hemorrhagic transformation of cerebral infarcts.** *Stroke* 26(3): 484-7. ISSN: 0039-2499.
Abstract: BACKGROUND: Identification of factors that predispose to bleeding into ischemic brain could lead to safer use of thrombolytic agents in the setting of ischemic stroke. Recently de Courten-Meyers and colleagues reported that occluding the middle cerebral artery of markedly hyperglycemic cats was associated with 5-fold more frequent and 25-fold more extensive hemorrhage into infarcts than in normoglycemic animals. Hemorrhage associated with hyperglycemia in cats was much more pronounced with reperfusion than with permanent middle cerebral artery occlusion. CASE DESCRIPTION: We describe two patients with a unique presentation of diffuse hemorrhagic infarction of the caudate and lentiform nuclei associated with initially marked hyperglycemia and the subsequent development of hemichorea. CONCLUSIONS: We hypothesize that the marked hyperglycemia due to poor control of diabetes contributed to the hemorrhagic change of the caudate and lenticular nuclei. Because the hemorrhage in hyperglycemic cats was more pronounced in the setting of reperfusion, hemorrhagic risk associated with hyperglycemia should be investigated, particularly in ongoing thrombolytic treatment trials for acute ischemic stroke. We encourage other acute stroke investigators to prospectively look at the risk of brain hemorrhage in stroke patients with marked hyperglycemia.
Descriptors: cerebral hemorrhage, cerebral infarction, hyperglycemia, aged, brain ischemia, caudate nucleus, cerebral hemorrhage, cerebral infarction, chorea, corpus striatum, diabetes, hypertension.

Broussard, J.D. and M.E. Peterson (1994). **Comparison of two ultralente insulin preparations iwth protoamine zinc insulin in clinically normal cats.** *American Journal of Veterinary Research* 55(1): 127-131. ISSN: 0002-9645.

NAL Call Number: 41.8 Am3A
Abstract: The absorption kinetics and glycemic effects of 3 long-acting insulin preparations (protamine zinc beef-pork insulin, ultralente beef-pork insulin, and ultralente human insulin) were evaluated in 9 healthy, adult, domestic shorthair cats (6 males, 3 females). A triple crossover study was performed, in which the serial serum concentrations of insulin and glucose were determined over a 24-hour period after sc administration of the 3 insulin preparations (dosage, 1.0 U/kg of body weight) at 3-week intervals. A control study was also performed in 4 of the cats by serially collecting samples for insulin and glucose determinations after administration of insulin diluent. After administration of protamine zinc insulin (PZI), mean (+/- SEM) serum insulin concentration increased significantly (P < 0.05) above baseline, reached a peak value (484 +/- 287 pmol/L) at 1 hour, and remained significantly (P < 0.05) higher than baseline at 24 hours. After administration of ultralente human insulin, the serum insulin curve was similar to that obtained after PZI administration, but mean serum insulin concentration took longer to peak (538 +/- 177 pmol/L at 4 hours). After administration of ultralente beef-pork insulin, mean peak serum insulin concentration was lower (220 +/- 54 pmol/L, not statistically significant) than that obtained after administration of PZI and ultralente human insulins; it then decreased to values statistically indistinguishable from baseline by 16 hours. The area under the serum insulin concentration curve for PZI (5,063 +/- 681 pmol.h/L) and ultralente human insulin (4,138 +/- 439 pmol.h/L) was significantly (P < 0.05) larger than that for ultralente beef-pork insulin. (2,378 +/- 561 pmol.h/L). Serum glucose concentration decreased after administration of all 3 insulins, but the decrease was not different from that observed after diluent (control) administration. Results of this study indicate that differences may exist between absorption of PZI, ultralente human, and ultralente beef-pork insulins. Of the 2 ultralente insulin preparations, human insulin appears better absorbed than beef-pork insulin, but these findings need to be confirmed in cats with naturally acquired diabetes mellitus.
Descriptors: cats, insulin, drug formulations, absorption, glucose, protamine zinc beef pork insulin, ultralente beef pork insulin, ultralente human insulin.

Bruskiewicz, K.A., R.W. Nelson, E.C. Feldman, and S.M. Griffey (1997). **Diabetic ketosis and ketoacidosis in cats: 42 cases (1980-1995).** *Journal of the American Veterinary Medical Association* 211(2): 188-192. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, ketosis, ketoacidosis, diabetes, metabolic disorders, clinical aspects, disease prevalence, treatment, prognosis.

Bruyette, D.S. (1997). **Diabetic ketoacidosis**. *Seminars in Veterinary Medicine and Surgery Small Animal* 12(4): 239-247. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: ketoacidosis, reviews, pathogenesis, diabetes mellitus, catecholamines, glucagon, somatotropin, hydrocortisone, diagnosis, treatment, insulin, bicarbonates, disease prevention, cats.

Budzynski, E., N. Wangsa Wirawan, L. Padnick Silver, D. Hatchell, and R. Linsenmeier (2005). **Intraretinal pH in diabetic cats.** *Current Eye Research* 30(3): 229-40. ISSN: 0271-3683.

Abstract: PURPOSE: To examine intraretinal extracellular H+ concentration([H+]o) in diabetic cats. METHODS: Double-barreled H+-selective microelectrodes were used to measure [H+]o as a function of retinal depth ([H+]o profiles) in four cats with different stages of diabetic retinopathy. Profiles from "normal"and "damaged" areas of the retina were compared to profiles previously obtained from healthy cats. RESULTS: In the healthy retina, [H+]o is generally highest in the middle of the retina and decreases toward the choroid and the vitreous. In 48 % of the profiles from diabetic animals with visible retinopathy, the inner retinal gradient was reversed so that the vitreous was more acidic than the middle of the retina. The profiles with reversed inner retinal gradients were classified as damaged. On the average, the inner retina tended to be 0.07-0.08 pH units more acidic in diabetic animals than in healthy normoglycemic animals, but of similar acidity to healthy hyperglycemic animals. In areas with damaged inner retinal gradients, net H+ production in the outer retina was also impaired. CONCLUSIONS: While the number of animals is small, we conclude that the [H+](O) distribution varied from normal to damaged in the same retina. Diabetes seems to lead to an acidification of the inner retina that appears to be at least partly related to hyperglycemia and which may be important in the progression of retinopathy.
Descriptors: acidosis, diabetic retinopathy, acidosis, cats, diabetic retinopathy, animal disease models, electroretinograpHy, fluorescein angiograpHy, hydrogen ion concentration, ion selective electrodes.

Carr, A. (2004). **The diabetes-pancreatitis relationship**. *Veterinary Practice News* 16(10): 31. ISSN: 1528-6398.
Descriptors: animal feeding, animal, diabetes, diagnosis, insulin, pancreatic diseases, pancreatitis, pathogenesis, remission, cats.

Casella, M., G. Wess, and C.E. Reusch (2002). **Measurement of capillary blood glucose concentrations by pet owners: a new tool in the management of diabetes mellitus.** *Journal of the American Animal Hospital Association* 38(3): 239-245. ISSN: 0587-2871 .
NAL Call Number: SF601 .A5
Descriptors: dogs, cats, sampling, ears, capillaries, diabetes mellitus, sugar, monitoring, species differences, errors, small animal practice.

Celik, S. and R. Bal (2002). **Kopek ve kedilerde diabetes mellitus: Bobrek fonksiyon bozukluklari ve idrar tasi olusumu ile iliskisi. [Diabetes mellitus in dogs and cats: Relevance with renal dysfunctions and formation of the urine stones.]**. *Uludag University Journal of the Faculty of Veterinary Medicine* 21(1-2-3): 43-48. ISSN: 1301-3173.
Descriptors: diabetes, dogs, cats, kidneys, kidney diseases, turkey, body parts, disorders, Europe, metabolic disorders, organic diseases, southern Europe, urinary tract, urinary tract diseases, urogenital system, western Europe.
Language of Text: Turkish with a summary in English.

Christopher, M.M. (1995). **Hematologic complications of diabetes mellitus.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 625-637. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, diabetes mellitus, hematology, disorders, erythrocytes, proteins, leukocytes, platelets, coagulation, literature reviews.

Christopher, M.M., J.D. Broussard, C.W. Fallin, N.J. Drost, and M.E. Peterson (1995). **Increased serum D-lactate associated with diabetic ketoacidosis.** *Metabolism, Clinical and Experimental* 44(3): 287-290. ISSN: 0026-0495.
NAL Call Number: 448.8 M56
Descriptors: cats, diabetes, experimentation, metabolic disorders, lactic acid, fatty acids, ketones, liver, serum, acids, animal morphology, digestive system, disorders, metabolic disorders, organic acids, ketone, methylglyoxal, diabetes mellitus, 3 hydroxybutyric acid.

Christopher, M.M., J.D. Broussard, and M.E. Peterson (1995). **Heinz body formation associated with ketoacidosis in diabetic cats.** *Journal of Veterinary Internal Medicine* 9(1): 24-31. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: cats, heinz bodies, diabetes mellitus, ketoacidosis, hemolytic anemia, hyperglycemia, free radicals, oxygen, picture, 3 hydroxybutyric acid.

Christopher, M.M. and S. O'Neill (2000). **Effect of specimen collection and storage on blood glucose and lactate concentrations in healthy, hyperthyroid and diabetic cats.** *Veterinary Clinical Pathology* 29(1): 22-28. ISSN: 0275-6382.
NAL Call Number: SF601 .A54
Descriptors: cats, sugar, sampling, storage, quantitative analysis, lactic acid, diabetes, hyperthyroidism, glucose, duration, hematocrit, techniques.

Church, D.B. (1996). **Canine and feline diabetes mellitus.** In: N.C. Kelly and J.M. Wills (Editors), *Manual of Companion Animal Nutrition and Feeding.*, British Small Animal Veterinary Association (BSAVA). Cheltenham, United Kingdom, p. 167-170. ISBN: 090521434X.
Descriptors: metabolic disorders, diagnosis, diabetes, diet treatment, cats, dogs, disease control, disorders, metabolic disorders, therapy, clinical aspects.

Clark, A. and M.R. Nilsson (2004). **Islet amyloid: a complication of islet dysfunction or an aetiological factor in Type 2 diabetes?** *Diabetologia* 47(2): 157-69. ISSN: 0941-5602.
Abstract: The role of islet amyloidosis in the onset and progression of Type 2 diabetes remains obscure. Islet amyloid polypeptide is a 37 amino-acid, beta-cell peptide which is co-stored and co-released with insulin. Human islet amyloid polypeptide refolds to a beta-conformation and oligomerises to form insoluble fibrils; proline substitutions in rodent islet amyloid polypeptide prevent this molecular transition. Pro-islet amyloid polypeptide (67 amino acids in man) is processed in secretory granules. Refolding of islet amyloid polypeptide may be prevented by intragranular heterodimer formation with insulin (but not proinsulin). Diabetes-associated abnormal proinsulin processing could contribute to de-stabilisation of granular islet amyloid polypeptide. Increased pro-islet amyloid polypeptide secretion as a consequence of islet dysfunction could promote fibrillogenesis; the propeptide forms fibrils and binds to basement membrane glycosamino-glycans. Islet amyloid polypeptide gene polymorphisms are not universally associated with Type 2 diabetes. Transgenic mice expressing human islet amyloid polypeptide gene have increased islet amyloid polypeptide concentrations but develop islet amyloid only against a background of obesity and/or high fat diet. In transgenic mice, obese monkeys and cats, initially small perivascular deposits progressively increase

to occupy 80% islet mass; the severity of amyloidosis in animal models is related to the onset of hyperglycaemia, suggesting that islet amyloid and the associated destruction of islet cells cause diabetes. In human diabetes, islet amyloid can affect less than 1% or up to 80% of islets indicating that islet amyloidosis largely results from diabetes-related pathologies and is not an aetiological factor for hyperglycaemia. However, the associated progressive beta-cell destruction leads to severe islet dysfunction and insulin requirement.
Descriptors: amyloid, amyloidosis, type 2 diabetes mellitus, islets of langerhans, amino acid sequence, amyloid, amyloid, amyloidosis, amyloidosis, diabetes mellitus, type 2, glucose intolerance, glucose intolerance, glycosylation, electron microscopy, biological models, molecular sequence data, mutation, proinsulin, protein conformation, protein precursors, sequence homology, amino acid.

Cohen, M. and G.S. Post (2002). **Water transport in the kidney and nephrogenic diabetes insipidus.** *Journal of Veterinary Internal Medicine* 16(5): 510-517. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: dogs, cats, mice, laboratory, renal function, vasopressin, kidneys, hormone secretion, membrane permeability, binding proteins, protein kinase, drug toxicity, nephrotoxicity, diabetes insipidus, diuretics, literature reviews, aquaporins .

Comazzi, S., S. Paltrinieri, V. Spagnolo, and P. Sartorelli (2002). **Some aspects of erythrocyte metabolism in insulin-treated diabetic dogs**. *Research in Veterinary Science* 72(1): 23-27. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Descriptors: blood, diabetes mellitus, erythrocyte fragility, erythrocytes, glucose 6 phosphate dehydrogenase, glutathione, glycerate 2,3 bisphosphate, hematology, insulin, species differences, therapy, cats, dogs, man.

Connally, H.E. (2002). **Critical care monitoring considerations for the diabetic patient.** *Clinical Techniques in Small Animal Practice* 17(2): 73-78. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: dogs, cats, diabetes mellitus, disease diagnosis, diagnostic techniques, medical treatment, glucose, monitoring.

Cowan, S.M. and S.E. Bunch (2001). **Oral antidiabetic drugs for cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(7): 633-642. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, man, diabetes mellitus, hyperglycemia, hypoglycemic agents, glipizide, metformin, acarbose, glucosidase inhibitors, mode of action, oral administration, efficacy, troglitazone .

Crans, D.C. (2000). **Chemistry and insulin-like properties of vanadium(IV) and vanadium(V) compounds.** *Journal of Inorganic Biochemistry* 80(1-2): 123-131. ISSN: 0162-0134.
NAL Call Number: QD415.B5
Abstract: The chemistry of vanadium compounds that can be taken orally is very timely since a vanadium(IV) compound, KP-102, is currently in clinical trials in humans, and the fact that human studies with inorganic salts have recently been reported. VO(acac)2 and

VO(Et-acac)2 (where acac is acetylacetonato and Et-acac is 3-ethyl-2,4-pentanedionato) have long-term in vivo insulin mimetic effects in streptozotocin induced diabetic Wistar rats. Structural characterization of VO(acac)2 and two derivatives, VO(Me-acac)2 and VO(Et-acac)2, in the solid state and solution have begun to delineate the size limits of the insulin-like active species. Oral ammonium dipicolinatooxovanadium(V) is a clinically useful hypoglycemic agent in cats with naturally occurring diabetes mellitus. This compound is particularly interesting since it represents the first time that a well-characterized organic vanadium compound with the vanadium in oxidation state five has been found to be an orally effective hypoglycemic agent in animals.
Descriptors: hypoglycemic agents, insulin, vanadium, vanadium compounds, oral administration, glucose, cats, diabetes mellitus, diabetes mellitus, hydrogen ion concentration, hypoglycemic agents, magnetic resonance spectroscopy, molecular structure, rats, rats, wistar, stereoisomerism, vanadium, vanadium compounds.

Crenshaw, K.L. (2000). **CVT update: monitoring treatment of diabetes mellitus in dogs and cats**. In: J.D. Bonagura (Editor), *Kirk's Current Veterinary Therapy XIII: Small Animal Practice*, W.B. Saunders: Philadelphia, USA, p. 348-350. ISBN: 0721655238.
Descriptors: diabetes mellitus, hemoglobin, glucose, monitoring, treatment, cats.

Crenshaw, K.L. and M.E. Peterson (1996). **Pretreatment clinical and laboratory evaluation of cats with diabetes mellitus: 104 cases (1992-1994).** *Journal of the American Veterinary Medical Association* 209(5): 943-949. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, diabetes mellitus, symptoms, ketoacidosis, medical records, clinical aspects.

Crenshaw, K.L., M.E. Peterson, L.A. Heeb, S.D. Moroff, and R. Nichols (1996). **Serum fructosamine concentration as an index of glycemia in cats with diabetes mellitus and stress hyperglycemia.** *Journal of Veterinary Internal Medicine* 10(6): 360-364. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: cats, amino sugars, diagnosis, serum, sampling, sugar, hyperglycemia, diabetes, amino compounds, composition, carbohydrates, disorders, metabolic disorders, sugars, stress induced hyperglycemia.

Dall, V. (1999). **Preclinical safety pharmacology studies on the rapid-acting insulin analogue insulin aspart.** *Arzneimittel Forschung* 49(5): 463-70. ISSN: 0004-4172.
Abstract: [B28 Asp]-human insulin (insulin aspart, CAS 116094-23-6, X14) is a rapidly absorbed analogue of human insulin currently undergoing development for the treatment of diabetes mellitus. Cardiovascular studies and a range of standard behavioural, neurological and organ function tests were conducted in various animal species to investigate potential secondary pharmacological effects of insulin aspart. Single intravenous injections (to ensure maximum bioavailability) of a range of doses of insulin aspart were compared with a soluble human insulin preparation. The validity of the test systems was always tested with appropriate positive and/or negative (vehicle) control compounds. Secondary effects due to hypoglycaemia were identified by simultaneous administration of a glucose solution along with the highest dose of insulin aspart and the

vehicle as negative control. No safety issues were raised by these experiments; insulin aspart and soluble human insulin exhibited similar pharmacological profiles throughout.
Descriptors: hypoglycemic agents toxicity, insulin, autonomic nervous system, animal behavior, cats, central nervous system, convulsants toxicity, guinea pigs, hemodynamic processes, insulin toxicity, kidney, mice, rats, rats, wistar, respiratory mechanics, swine.

de Koning, E.J., J.J. van den Brand, V.L. Mott, S.B. Charge, B.C. Hansen, N.L. Bodkin, J.F. Morris, and A. Clark (1998). **Macrophages and pancreatic islet amyloidosis.** *Amyloid:The Journal of Protein Folding Disorders* 5(4): 247-54. ISSN: 1350-6129.
Abstract: Islet amyloid formed from islet amyloid polypeptide (IAPP, amylin) is found in spontaneously diabetic monkeys and cats. Islet amyloidosis is progressive, apparently irreversible and is associated with destruction of insulin-secreting cells. The role of macrophages in the destruction and removal of islet amyloid is unknown. Therefore, the presence and morphology of macrophages were determined by electron and quantitative light microscopy in islets of diabetic and nondiabetic man and monkeys and in transgenic mice expressing the gene for human IAPP. Tissue macrophages were present in all pancreatic sections and tissue distribution was similar in exocrine and endocrine areas. There was no difference in macrophage density in amyloidotic and amyloid-free islets in monkeys and man. Macrophage density was similar in islets of transgenic mice expressing human IAPP which do not contain amyloid in vivo but in which fibrils are formed in vitro following islet isolation compared to islets from mice expressing rat IAPP which is not amyloidogenic. IAPP amyloid fibrils were visible by electron microscopy in lysosomes of pancreatic macrophages in man, monkeys and human IAPP transgenic mice. Thus, human IAPP is internalised but inefficiently degraded by tissue macrophages. Diabetes-associated amyloidosis is not associated with visible recruitment of macrophages for removal of amyloid or islet debris.
Descriptors: amyloidosis, islets of langerhans, macrophages, aged, aged 80 and over, amyloid, amyloidosis, diabetes mellitus, type 2, haplorhini, islets of langerhans, islets of langerhans ultrastructure, macrophages ultrastructure, mice, mice, transgenic, electron microscopy, middle aged, rats.

Debraekeleer, J. (2004). **Nutritional support for dogs and cats with diabetes mellitus**. *Veterinary Times* 34(34): 22-25. ISSN: 1352-9374.
Descriptors: etiology, carnitine, clinical aspects, diabetes mellitus, diagnosis, dietary carbohydrate, dietary fat, dietary protein, disease prevalence, energy, epidemiology, fibre, hyperglycemia, insulin, minerals, nutritional support, obesity, pathogenesis, therapy, trace elements, vitamins, cats.

DeClue, A.E., L.A. Cohn, M.E. Kerl, and C.E. Wiedmeyer (2004). **Use of continuous blood glucose monitoring for animals with diabetes mellitus**. *Journal of the American Animal Hospital Association* 40(3): 171-173. ISSN: 0587-2871.
Online: http://www.jaaha.org/cgi/content/full/40/3/171
NAL Call Number: SF601 .A5
Descriptors: blood analysis, sugar, diabetes mellitus, diagnosis, diagnostic techniques, domestic animals, insulin, pets, sensors, therapy, cats.

Diehl, K.J. (1995). **Long-term complications of diabetes mellitus. II. Gastrointestinal and infectious.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 731-751. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, man, diabetes mellitus, digestive system, digestive system diseases, mouth diseases, infectious diseases, pathogenesis, respiratory system, urinary tract, skin, infections, diagnosis, therapy, literature reviews, late.

Dowling, P.M. (2000). **Two transition metals show promise in treating diabetic cats.** *Veterinary Medicine* 95(3): 190-193. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: cats, diabetes mellitus, treatment, chromium, vanadium, efficacy, dosage, food supplements.

Dowling, P.M. (1995). **Insulin therapy for dogs and cats.** *Candian Veterinary Journal* 36(9): 577-579. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: cats, insulin, treatment, diabetes, dogs.

Dreimane, D. (2002). **Aptaukosanas un liekais svars - galvenais cukura diabeta riska faktors kakiem [Obesity and overweight - the main risk factor of diabetes for cats]**. *Veterinarais Zurnals*(no.6): 13-15. ISSN: 1407-0065.
Descriptors: animal diseases, metabolic disorders, overweight, diabetes, cats, diet, disease control, Latvia, body condition.
Language of Text: Latvian.

Dunn, K. (2005). **Why we are seeing more diabetic cats**. *Veterinary Times* 35(6): 10. ISSN: 1352-9374.
Descriptors: biochemical receptors, sugar, body fat, carbohydrate, chromium, diabetes mellitus, glucokinase, glycogen, hyperglycemia, insulin, leptin, lifestyle, obesity, predisposition, risk factors, sex differences, therapeutic diets, toxicity, cats.

Elliott, D.A., E.C. Feldman, P.D. Koblik, V.F. Samii, and R.W. Nelson (2000). **Prevalence of pituitary tumors among diabetic cats with insulin resistance.** *Journal of the American Veterinary Medical Association* 216(11): 1765-1768. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, pituitary, neoplasms, diabetes mellitus, insulin, resistance, disease prevalence, computed tomography, imagery, dimensions.

Elliott, D.A., R.W. Nelson, E.C. Feldman, and L.A. Neal (1997). **Glycosylated hemoglobin concentration for assessment of glycemic control in diabetic cats.** *Journal of Veterinary Internal Medicine* 11(3): 161-165. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: diabetes, hyperglycemia, sugar, haemoglobin, monitoring, disease control, cats, composition, proteins, disorders, metabolic disorders, metalloproteins, proteins, diabetic control, hyperglycemia .

Elliott, D.A., R.W. Nelson, C.E. Reusch, E.C. Feldman, and L.A. Neal (1999). **Comparison of serum fructosamine and blood glycosylated hemoglobin concentrations for assessment of glycemic control in cats with diabetes mellitus.** *Journal of the American Veterinary Medical Association* 214(12): 1794-1798. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, diabetes mellitus, proteins, hemoglobin, sugar, monitoring.

Farr, A.K., R.D. Braun, W.T. Cefalu, A.D. Bell Farrow, Z.Q. Wang, and D.L. Hatchell (1999). **Increased nonenzymatically glycosylated proteins in the vitreous humor of diabetic animals.** *Laboratory Animal Science* 49(1): 58-61. ISSN: 0023-6764.
NAL Call Number: 410.9 P94
Abstract: One of the earliest pathologic changes of diabetes mellitus is increased nonenzymatic glycosylation (i.e., glycation) of proteins, which results in abnormal aggregation of collagen fibrils and production of superoxide radicals. These abnormalities may be responsible for the precocious senescence of connective tissue associated with the disease. We sought to determine whether glycation is increased in the vitreous humor of short-term diabetic cats (6 months' duration) and rabbits (2 months' duration), using a nitroblue tetrazolium colorimetric assay for fructosamine. Vitreous protein fructosamine concentration was significantly higher in diabetic cats and rabbits, compared with that in control (nondiabetic) animals. These results indicate that glycation is increased in the vitreous humor of short-term diabetic animals, and therefore may be one of the initial triggers for clinically apparent diabetic retinopathy.
Descriptors: diabetes mellitus, glycoproteins, vitreous body, glucose, cats, diabetes mellitus, fructosamine, glucose, glycosylation, hemoglobin a, glycosylated, pancreatectomy, rabbits.

Feldhahn, J.R., J.S. Rand, and G. Martin (1999). **Insulin sensitivity in normal and diabetic cats.** *Journal of Feline Medicine and Surgery* 1(2): 107-115. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, insulin, diabetes, glucose tolerance, normal values.

Feldman, E.C. (2002). **Successful management of non-responsive diabetic cats.** *Proceedings of the North American Veterinary Conference : Eastern States Veterinary Association* 16: 232-234.
NAL Call Number: SF605 .N672
Descriptors: cats, diabetes, hypoglycemic agents.

Feldman, E.C., R.W. Nelson, and M.S. Feldman (1997). **Intensive 50-week evaluation of glipizide administration in 50 cats with previously untreated diabetes mellitus.** *Journal of the American Veterinary Medical Association* 210(6): 772-777. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, glipizide, diabetes mellitus, oral administration, sugar, insulin, serum, hemoglobin, long term experiments, glycosylated hemoglobin percentage.

Frank, G., W. Anderson, H. Pazak, E. Hodgkins, J. Ballam, and D. Laflamme (2001). **Use of a high-protein diet in the management of feline diabetes mellitus.** *Veterinary Therapy* 2(3): 238-246. ISSN: 1528-3593.

NAL Call Number: SF601 .V4745
Descriptors: cats, diabetes mellitus, high protein diet, diet therapy.

Galac, S. and V. Cestnik (1994). **Diabetes mellitus (dm) pri psih in mackah [Diabetes mellitus (dm) in dogs and cats]**. *Veterinarske Novice* 20(11): 326-333. ISSN: 0351-5842.
Descriptors: dogs, cats, diabetes, diagnosis, therapy, disease control, disorders, metabolic disorders.
Language of Text: Slovenian with summaries in English and Slovenian.

Garcia, J.L. and D.S. Bruyette (1998). **Using oral hypoglycemic agents to treat diabetes mellitus in cats.** *Veterinary Medicine* 93(8): 736-742. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: cats, hypoglycemic agents, oral administration, diabetes mellitus, pharmacodynamics, efficacy.

German, S.V. (1995). **Novyi pankreaticheskii polipeptid amilin. [New pancreatic polypeptide amylin]**. *Klinicheskaia Meditsina* 73(5): 7-11. ISSN: 0023-2149.
Descriptors: amyloid, amyloid secretion, aged, cats, diabetes mellitus, type 2, dogs, haplorhini, insulin secretion, islets of langerhans secretion, mice, rats.
Language of Text: Russian.

Goossens, M.M.C., R.W. Nelson, E.C. Feldman, and S.M. Griffey (1998). **Response to insulin treatment and survival in 104 cats with diabetes mellitus (1985-1995).** *Journal of Veterinary Internal Medicine* 12(1): 1-6. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: cats, diabetes, insulin, sugar, postmortem examination, pancreatitis, pancreas, atrophy, survival, pancreas islets.

Gough, A. (2004). **Diabetes mellitus in dogs and cats: how to approach the problem case**. *Veterinary Times* 34(33): 10-12. ISSN: 1352-9374.
Descriptors: animal feeding, sugar, clinical aspects, corticotropin, diabetes mellitus, diagnosis, hyperglycemia, hypoglycemia, hypoglycemic agents, insulin, obesity, weight reduction, cats.

Goy Thollot, I. (2001). **La chetoacidosi diabetica nei carnivori domestici. [Diabetic ketoacidosis in domestic carnivores]**. *Summa* 18(9): 34-35.
Descriptors: clinical aspects, diabetes, diagnosis, domestic animals, ketoacidosis, therapy, cats.
Language of Text: Italian.

Goy Thollot, I. and S. Daminet (2001). **Il diabete mellito del gatto: 1 - patogenesi e diagnosi. [Diabetes mellitus in cats. 1 - pathogenesis and diagnosis]**. *Summa* 18(9): 20-26.
Descriptors: diabetes, diabetes mellitus, diagnosis, endocrine diseases, pathogenesis, cats.
Language of Text: Italian; Summary in English.

Goy Thollot, I. and S. Daminet (2001). **Il diabete mellito del gatto: 2 - aggiornamenti in terapia e trattamento a lungo termine. [Diabetes mellitus in cats. II. Treatment and long-term prospects]**. *Summa* 18(9): 27-33.
Descriptors: diabetes mellitus, prognosis, treatment, cats.
Language of Text: Italian.

Greco, D.S. (1999). **Diabetic dilemmas: Managing the tough cases.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 13: 187-188.
NAL Call Number: SF605.N672
Descriptors: cats, dogs, diabetes, treatment.

Greco, D.S. (1999). **Advances in the treatment of feline diabetes mellitus.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 13: 183-186.
NAL Call Number: SF605.N672
Descriptors: cats, diabetes mellitus, treatment.

Greco, D.S. (1997). **Endocrine emergencies. I. Endocrine pancreatic disorders.** *Compendium on Continuing Education for the Practicing Veterinarian* 19(1): 15-23, 83. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, digestive system diseases, pancreas, endocrine diseases, diabetes, acidosis, metabolic disorders, diagnosis, therapy, parenteral feeding, insulin, sugar, electrolytes, hypoglycemia, animal glands, composition, body parts, digestive system, disorders, extrabuccal feeding, feeding, hormones, metabolic disorders, organic diseases, peptides, emergency treatment, ketoacidosis, medical treatment, fluid therapy, hypoglycemia .

Greco, D.S. (2004). **Obesity and non-insulin dependent diabetes**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 18: 358-360.
Descriptors: blood, proteins, sugar, diabetes, diabetes mellitus, disease control, hyperglycemia, hypoglycemic agents, insulin, metabolic disorders, monitoring, obesity, cats.

Greco, D.S. (2001). **Diagnosis of diabetes mellitus in cats and dogs**. *Veterinary Clinics of North America, Small Animal Practice* 31(5): 845-853. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: age differences, arginine, sugar, breed differences, clinical aspects, diabetes mellitus, diabetic acidosis, diagnosis, glucagon, glucose tolerance test, glycosuria, haemoglobin, hyperglycemia, insulin, insulin secretion, ketoacidosis, polydipsia, polyuria, sex differences, cats.

Greco, D.S. (1999). **Diabetes mellitus**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 274-287. ISBN: 0721670784.
NAL Call Number: SF981. S29
Descriptors: diagnosis, diabetes, metabolic disorders, diabetes mellitus, clinical aspects, treatment, insulin, cats, dogs.

Greco, D.S. (2000). **Treatment of non-insulin-dependent diabetes mellitus in cats using oral hypoglycemic agents**. In: J.D. Bonagura (Editor), *Kirk' s Current Veterinary Therapy XIII: Small Animal Practice*, W.B. Saunders: Philadelphia, USA, p. 350-354. ISBN: 0721655238.
Descriptors: treatment, diabetes mellitus, insulin, sugar, pathogenesis, hypoglycemic agents, insulin secretion, cats.

Greco, D.S., J.D. Broussard, and M.E. Peterson (1995). **Insulin therapy.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 677-689. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, diabetes mellitus, insulin, drug formulations, drug delivery systems, dosage, injection, medical treatment, diabetes management, insulin regimens.

Gunn Moore, D. (2005). **Feline endocrinopathies.** *Veterinary Clinics of North America, Small Animal Practice* 35(1): 171-210 . ISSN: 0195-5615.
NAL Call Number: SF601 .V523
Abstract: Feline endocrinopathies (excluding diabetes mellitus) include hyperthyroidism, hypothyroidism, acromegaly, hyposomatotropism, diabetes insipidus, hyperadrenocorticism, primary sex hormone-secreting adrenal tumors, primary hyperaldosteronism, pheochromocytoma, hypoadrenocorticism, hyperparathyroidism, and hypoparathyroidism. Each of these conditions will be discussed including their prevalence, cause, clinical signs, diagnosis, treatment options, and prognosis.
Descriptors: feline, hyperthyroidism, hypothyroidism, acromegaly, diabetes insipidus, clinical diagnosis.

Haberer, B. and C.E. Reusch (1998). **Glycated haemoglobin in various pathological conditions: investigations based on a new, fully automated method.** *Journal of Small Animal Practice* 39(11): 510-517. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: dogs, cats, hemoglobin, chromatography, automation, accuracy, diabetes mellitus, anemia, polycythemia, uremia, liver diseases, sugar, hematocrit, urea, creatinine.

Hebert, F. (2001). **Diabetes mellitus follow-up in domestic carnivores.** *Le Point Veterinaire* 32(212): 44-47. ISSN: 0303-4997.
Descriptors: cats, diabetes, composition, diagnosis, metabolic disorders.
Language of Text: French.

Hebert, F. (2001). **Suivi du diabete sucre chez les carnivores domestiques. [Diabetes mellitus follow-up in dogs and cats]**. *Le Point Veterinaire* 32(212): 44-47. ISSN: 0303-4997.
Descriptors: blood sugar, diabetes, diabetes mellitus, diagnosis, metabolic disorders, cats.
Language of Text: French with a summary in English.

Hoenig, M. (2002). **Drug options for managing feline diabetes.** *Compendium of Continuing Education for the Practicing Veterinarian* 24(5B): 7-9. ISSN: 0193-1903.

NAL Call Number: SF601 .C66
Descriptors: cats, diabetes mellitus, metformin, insulin.

Hoenig, M. (1994). **Selection of insulin types.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 8: 217-218.
NAL Call Number: SF605.N672
Descriptors: insulin, dogs, cats, diabetes.

Hoenig, M. (1994). **Classification of types of diabetes mellitus: Implications for management.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 8: 216-217.
NAL Call Number: SF605.N672
Descriptors: diabetes mellitus, cats, disease management.

Hoenig, M. (1998). **Diagnose und behandlung des diabetes mellitus bei hund und katze [Diagnosis and treatment of diabetes mellitus in dogs and cats]**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 12(12): 1094-1096.
NAL Call Number: SF605.N672
Descriptors: insulin, diabetes mellitus, dogs, cats.
Language of Text: German with a summary in English.

Hoenig, M., S. Alexander, J. Holson, and D.C. Ferguson (2002). **Influence of glucose dosage on interpretation of intravenous glucose tolerance tests in lean and obese cats.** *Journal of Veterinary Internal Medicine* 16(5): 529-532. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: cats, body condition, obesity, glucose tolerance test, glucose, dosage, insulin secretion, insulin, resistance, diagnosis, diabetes.

Hoenig, M. and D.C. Ferguson (2002). **Effects of neutering on hormonal concentrations and energy requirements in male and female cats.** *American Journal of Veterinary Research* 63(5): 634-9. ISSN: 0002-9645.
NAL Call Number: 41.8 AM3A
Abstract: OBJECTIVE: To determine whether changes in concentrations of hormones involved in glucose and fatty acid homeostasis are responsible for the increased probability that neutered cats will develop obesity and diabetes mellitus. ANIMALS: 10 male and 10 female weight-maintained adult cats. PROCEDURE: Results of glucose tolerance tests and concentrations of hormones and nonesterified fatty acids (NEFA) were examined before and 4, 8, and 16 weeks after neutering. RESULTS: Caloric requirements for weight maintenance were significantly decreased 8 and 16 weeks after neutering in females. Glucose concentrations during a glucose tolerance test did not change in neutered females or males. The area under the curve (AUC) for insulin was significantly higher in males, compared with females, before neutering. However, the AUC for insulin increased and was significantly higher 4 and 8 weeks after neutering in females. The AUC for insulin did not change in neutered male cats. Leptin concentrations did not change in females but increased significantly in males 8 and 16 weeks after neutering. Thyroxine concentrations did not change after neutering; however, free thyroxine concentration was significantly higher in females than males before

neutering. Baseline concentrations of NEFA were significantly higher in female than male cats before but not after neutering. Suppression of NEFA concentrations after glucose administration decreased successively in male cats after neutering, suggesting decreased insulin sensitivity. CONCLUSIONS AND CLINICAL RELEVANCE: Changes in NEFA suppression, caloric intake, and leptin concentrations may be indicators of, and possible risk factors for, the development of obesity in cats after neutering.
Descriptors: castration, insulin, leptin, thyroxine, area under curve, body mass index, cats, energy intake, fatty acids, nonesterified, fatty acids, nonesterified cerebrospinal fluid, glucose, glucose tolerance test, lipids.

Ihle, S.L. (1995). **Nutritional therapy for diabetes mellitus.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 585-598. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, diabetes mellitus, therapeutic diets, clinical nutrition, caloric intake, feeding frequency, diet, sugar, nutrient content, literature reviews, medical treatment, diabetes management.

Jones, B.R. (1997). **Selected feline endocrine diseases.** In: *Abildgaard symposium, 7: Small Animal Diseases : Proceeding, October 17, 1997-October 19, 1997, Copenhagen (Denmark),* Kongelige Veterinaer- og Landbohoejskole: Copenhagen (Denmark), p. 55-63.
Descriptors: cats, endocrine diseases, pituitary gland, diabetes, kidney diseases, thyroid gland, adrenal glands.

Kerl, M.E. (2001). **Diabetic ketoacidosis: treatment recommendations.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(4): 330-340. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, dogs, diabetes, ketoacidosis, dehydration physiological, fluid therapy, intravenous injection, catheterization, water electrolyte imbalance, hyponatremia, hypokalemia, sugar, insulin, dosage, hyperglycemia, intramuscular injection, constant rate infusion, hypophosphatemia, hypomagnesemia .

Kirsch, M. (1995). **Hypokaliaemische Myopathie bei der Katze [Hypokalemic myopathy in cats]**. *Tieraerztliche Praxis* 23(2): 167-171. ISSN: 0303-6286.
NAL Call Number: SF603 .V4
Descriptors: cats, diabetes, potassium, mineral, deficiency diseases, muscular diseases, etiology, therapy, alkali metals, disease control.
Language of Text: German with summaries in German and English.

Kirsch, M. (1998). **Inzidenz von bakteriellen Zystitiden bei diabetischen Hunden und Katzen zum Zeitpunkt der Diagnosestellung. Retrospektive Untersuchung fur den Zeitraum 1990-1996. [Occurrence of cystitis in dogs and cats with diabetes mellitus, established at the time of clinical examination. A retrospective study, 1990-1996]**. *Tierarztliche Praxis* 26(1): 32-36. ISSN: 0303-6286.
NAL Call Number: SF603 .V4
Descriptors: diabetes mellitus, cats, *Escherichia coli*, polydipsia, polyuria, bacterial cystitis,

dogs.
Language of Text: German with a summary in English.

Kley, S., M. Casella, and C.E. Reusch (2004). **Evaluation of long-term home monitoring of blood glucose concentrations in cats with diabetes mellitus: 26 cases (1999-2002).** *Journal of the American Veterinary Medical Association* 225(2): 261-266. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, diabetes, glucose, home monitoring.

Kokina, I. and L. Jemeljanovs (2000). **Diabetes mellitus iespejama etiologija un klinisko izpausmju ipatnibas mazajiem dzivniekiem [Different etiology and clinical peculiarities of Diabetes mellitus in small animals]**. *Veterinarmedicinas Raksti* 275: 89-95. ISSN: 1407-1754.
Abstract: In Latvia the Diabetes mellitus in the small animal medicine has been little investigated. Before the 1990-ies it was not always precisely diagnosed or was believed to shave a lethal effect. The aim of the given work was to determine the frequency of the disease in small animals (cats, dogs) in Latvia and to investigate the pathogenesis and clinical symptoms in cats and dogs. Nowadays it is relatively easy to diagnose Diabetes mellitus. In this investigation all clinical cases of the disease diagnosed and treated at the Veterinary Medicine Centre clinic in the period of Julu 1999 - July 2000 have been analysed. It has been found that proper insuline therapy is one of the most important factors in the treatment of the disease, however there could be manifestation of different pathogenesis, secondary diseases and complications in each case. Deeper work has to be done to study the different pathophysiology of the disease in cats and dogs.
Descriptors: animal diseases, diabetes, dogs, cats, research, Latvia.
Language of Text: Latvian; Summaries in English and Latvian.

Kraus, M.S., C.A. Calvert, G.J. Jacobs, and J. Brown (1997). **Feline diabetes mellitus: a retrospective mortality study of 55 cats (1982-1994).** *American Animal Hospital Association* 33(2): 107-111. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: cats, diabetes, survival, mortality, pathogenesis, disorders, metabolic disorders, prognosis, causes of death.

Kudahl, J.C. (2003). **Kulhydratfattigt foder til diabeteskatte - en case story. [Carbohydrate-rich foods for diabetic cats. A case report]**. *Dansk Veterinaertidsskrift* 86(2): 25. ISSN: 0106-6854.
NAL Call Number: 41.9 D23
Descriptors: carbohydrates, case reports, diabetes, insulin, metabolic disorders, treatment, cats.
Language of Text: Danish.

Laflamme, D.P. (2005). **Nutrition for aging cats and dogs and the importance of body condition.** *Veterinary Clinics of North America, Small Animal Practice* 35(3): 713-42. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Abstract: Before recommending a diet for a senior pet, a thorough nutritional

evaluation should be completed. Although many middle-aged and older pets are overweight, a large percentage of geriatric cats and dogs have a low BCS. Approximately one third of cats older than 12 years of age may have a decreased ability to digest fat, whereas one in five may have a compromised ability to digest protein. Thus, appropriate diets for these two age groups may differ considerably. Mature (middle-aged) cats would likely benefit from a lower calorie food, whereas geriatric cats (>12 years of age) may need a highly digestible nutrient-dense diet. More than 40% of dogs between the ages of 5 and 10 years are overweight or obese. Such dogs may benefit from diets with lower fat and calories. Senior dogs also have an increased need for dietary protein, however. Therefore, healthy older dogs may benefit from diets with an increased protein-to-calorie ratio, providing a minimum of 25% of calories from protein. Common obesity-related conditions in dogs or cats include DM and OA. Diabetes differs between dogs and cats. Type I diabetes, common in dogs, seems to respond to fiber-enriched diets, whereas type II diabetes, common in cats, seems to benefit from high-protein and low-carbohydrate diets. OA, an inflammatory condition that occurs in approximately 20% of dogs, may benefit from weight management and nutrients that reduce the inflammatory responses, such as long-chain n-3 fatty acids.
Descriptors: cats, diet, health, geriatric, recommendations, n-3 long chain fatty acids.

Laflamme, D.P. (2004). **Diabetic cats and carbohydrates**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 18: 662-663.
Descriptors: amino acids, sugar, carbohydrate, carbohydrates, diabetes mellitus, diets, gluconeogenesis, glucosuria, hexokinase, insulin, nutritive value, obesity, protein, protein, protein synthesis, therapeutic diets, cats.

Lautt, W.W. (2003). **Practice and principles of pharmacodynamic determination of HISS-dependent and HISS-independent insulin action: methods to quantitate mechanisms of insulin resistance.** *Medicinal Research Reviews* 23(1): 1-14. ISSN: 0198-6325.
Descriptors: insulin, insulin resistance, liver, cats, dogs, rats.

Lautt, W.W., M.P. Macedo, P. Sadri, D.J. Legare, M.A. Reid, and M.P. Guarino (2004). **Pharmaceutical reversal of insulin resistance.** *Proceedings of the Western Pharmacology Society* 47: 30-2. ISSN: 0083-8969.
Abstract: Insulin action is approximately doubled following a meal. The mechanism of postprandial insulin sensitization is dependent on hepatic parasympathetic nerves regulated by the prandial status. The nerves provide a permissive signal to the liver that allows insulin to cause the release of a putative hepatic insulin sensitizing substance (HISS) that selectively stimulates glucose uptake into skeletal muscle but not liver or adipose tissue. The parasympathetic signal has several steps identified in the regulatory pathway; acetylcholine acts on muscarinic receptors leading to activation of nitric oxide synthase and generation of HISS. The meal-induced insulin (MIS) sensitization requires hepatic GSH, which decreases with fasting and several disease states. Interfering with the MIS process results in severe insulin resistance with the response to insulin being reduced by approximately 50% to levels seen in the fasted state. A wide range of conditions have been shown to be associated with insulin resistance attributed to lack of the MIS process including insulin resistance; in chronic liver disease produced by chemical damage or bile

duct ligation, hepatic denervation, sucrose fed rats, aging, spontaneously hypertensive rats, fetal alcohol exposed adult offspring, spontaneously insulin resistant rats, animals with pharmacological blockade of hepatic muscarinic receptors, NO synthase, cyclooxygenase, hepatic cGMP, and hepatic GSH levels. Pharmaceutical reversal of insulin resistance has been shown in several models using a variety of approaches including mimicking or potentiating the parasympathetic signal using cholinergic agonists, NO donors, cholinesterase antagonists, phosphodiesterase antagonists, and replenishment of hepatic GSH levels. These compounds are being evaluated for therapeutic application by our international academic/industry collaborative team. The MIS process has now been demonstrated in mice, rats, guinea pigs, cats, dogs, and humans, and has been demonstrated by independent laboratories.
Descriptors: insulin resistance, diabetes mellitus, type 2, food, insulin, liver, liver innervation, liver.

Levitan, D.M. (1997). **Transplantation for the treatment of diabetes mellitus**. *Seminars in Veterinary Medicine and Surgery Small Animal* 12(4): 268-273. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: diabetes mellitus, transplantation, treatment, pancreas, reviews, surgery, grafts, graft rejection, immunosuppressive agents, cats, dogs.

Link, K.R. and J.S. Rand (1998). **Reference values for glucose tolerance and glucose tolerance status in cats.** *Journal of the American Veterinary Medical Association* 213(4): 492-496. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, sugar, testing, diabetes, age, composition, disorders, metabolic disorders, normal values, guidelines, incidence, age differences.

Link, K.R.J., J.S. Rand, and J.K. Hendrikz (1997). **Evaluation of a simplified intravenous glucose tolerance test and a reflectance glucose meter for use in cats.** *Veterinary Record* 140(10): 253-256. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: sugar, diabetes, diagnosis, glucose, cats, testing, aldoses, composition, carbohydrates, disorders, metabolic disorders, monosaccharides, reducing sugars, sugars .

Linsenmeier, R.A., R.D. Braun, M.A. McRipley, L.B. Padnick, J. Ahmed, D.L. Hatchell, D.S. McLeod, and G.A. Lutty (1998). **Retinal hypoxia in long-term diabetic cats.** *Investigative Ophthalmology and Visual Science* 39(9): 1647-57. ISSN: 0146-0404.
Abstract: PURPOSE: To determine whether the retina is hypoxic in early stages of diabetic retinopathy in cats and to correlate intraretinal PO2 with fluorescein angiographic and histologic alterations. METHODS: Intraretinal PO2 was measured with microelectrodes in three cats with long-standing diabetes (>6 years) that had been followed with fluorescein angiographs every 6 months. Average PO2 in the inner vascularized half of the retina was compared with similar measurements in 21 control animals. Photoreceptor oxygen consumption was also compared. The retinal vascular endothelium of the diabetic animals was stained for ADPase activity in flatmounts, and transverse sections were used to visualize microscopic alterations in vascular structure. RESULTS: PO2 in the inner half of the retina was abnormally low in the diabetic cats,

7.7+/-5.2 mm Hg (35 penetrations in 3 cats) versus 16.4+/-9.3 mm Hg in normal cats (85 penetrations in 21 cats) (P << 0.001). Oxygenation was almost normal in some regions of the diabetic retinas, but little evidence of oxygen supply from the retinal circulation was observed in other regions. Inner retinal hypoxia was present in areas with no detectable capillary dropout in fluorescein angiograms or flatmounts. The worst changes histologically were microaneurysms, leukocyte and platelet plugging of aneurysms and venules, and degenerating endothelial cells in capillary walls. These histologic abnormalities were confined to small regions, some of which could be positively correlated with markedly abnormal PO2 profiles. Photoreceptor oxygen utilization was not affected in two diabetic cats, but was below normal in one animal in which choroidal PO2 was low. CONCLUSIONS: This is the first direct demonstration of retinal hypoxia in early diabetic retinopathy, before capillary dropout was evident clinically. Hypoxia was correlated with endothelial cell death, leukocyte plugging of vessels, and microaneurysms.
Descriptors: anoxia, diabetic retinopathy, oxygen, retinal vessels, anoxia, anoxia, apyrase, cats, diabetes mellitus, diabetes mellitus, diabetes mellitus, diabetic retinopathy, diabetic retinopathy, endothelium, vascular, endothelium, vascular, fluorescein angiograpHy, microelectrodes, oxygen consumption, pancreatectomy, photoreceptors, photoreceptors, retinal vessels, retinal vessels.

Lorenzo, A., B. Razzaboni, G.C. Weir, and B.A. Yankner (1994). **Pancreatic islet cell toxicity of amylin associated with type-2 diabetes mellitus.** *Nature* 368(6473): 756-60. ISSN: 0028-0836.
NAL Call Number: 472 N21
Abstract: The 37-amino-acid polypeptide amylin is the principal constituent of the amyloid deposits that form in the islets of Langerhans in patients with type-2 diabetes mellitus, but its role in the pathogenesis of this disease is unresolved. In view of the fact that the beta-amyloid protein that forms fibrils in Alzheimer's disease is toxic to neurons, we have investigated whether amylin fibrils could be toxic to pancreatic islet cells. We show here that human amylin is toxic to insulin-producing beta-cells of the adult pancreas of rats and humans. This toxicity is mediated by the fibrillar form of the amylin peptide and requires direct contact of the fibrils with the cell surface. The mechanism of cell death involves RNA and protein synthesis and is characterized by plasma membrane blebbing, chromatin condensation and DNA fragmentation, indicating that amylin induces islet cell apoptosis. These findings indicate that amylin fibril formation in the pancreas may cause islet cell dysfunction and death in type-2 diabetes mellitus.
Descriptors: amyloid toxicity, diabetes mellitus, type 2, langerhans cells ultrastructure, adult, amyloid beta protein, analysis of variance, apoptosis, cats, cell line, cells, cultured, diabetes mellitus, type 2, langerhans cells, microscopy, fluorescence, pc12 cells, peptide fragments, rats, rats, sprague dawley, species specificity.

Lurye, J. and E.N. Behrend (2001). **Diabetes mellitus**. In: M.R. Lappin (Editor), *Feline Internal Medicine Secrets*, Hanley & Belfus, Inc.: Philadelphia, USA, p. 276-288. ISBN: 1560534613.
NAL Call Number: SF985. F42
Descriptors: acromegaly, sugar, clinical aspects, diabetes mellitus, diagnosis, diet treatment, glipizide, glucose, hyperglycemia, insulin, medical treatment, prognosis, cats.

Lutz, T.A. and J.S. Rand (1996). **Plasma amylin and insulin concentrations in normoglycemic and hyperglycemic cats.** *Candian Veterinary Journal* 37(1): 27-34. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: cats, diabetes mellitus, insulin, pancreatic hormones, plasma, radioimmunoassay, glucose tolerance, hyperglycemia, hyperinsulinemia, secretion.
Language of Text: English; Summary in French.

Lutz, T.A. and J.S. Rand (1995). **Pathogenesis of feline diabetes mellitus.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 527-552. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: cats, mankind, diabetes, pathogenesis, insulin, secretion, sugar, histopathology, pancreas, hormones, glycoproteins, animal glands, composition, body parts, digestive system, disease control, disorders, hormones, metabolic disorders, peptides, physiological functions, proteins, therapy, beta cells, amylin, type 2 diabetes, man, glucose tolerance, pancreas islets, amyloid, deposition, hypersecretion, literature reviews.

Lutz, T.A. and J.S. Rand (1997). **Detection of amyloid deposition in various regions of the feline pancreas by different staining techniques.** *Journal of Comparative Pathology* 116(2): 157-70. ISSN: 0021-9975.
NAL Call Number: 41.8 J82
Abstract: Deposition of islet amyloid is a common finding in the pancreas of diabetic cats and it may contribute to the deterioration of glucose tolerance. Three techniques for detecting pancreatic amyloid deposition were compared in cats not known to be diabetic. Congo red (CR) staining was used for histological sections (35 cats) and tissue smear preparations (crush and smear [CS] technique; 35 cats, and an immunohistochemical method (18 cats) was used for the detection of amyloid derived from amylin. Six diabetic cats were used as positive controls for the immunohistochemical method. The amount of pancreatic amyloid demonstrated immunohistochemically was significantly correlated with that shown by CR staining in histological sections but not in CS preparations, which were less satisfactory. However, the amount of amyloid determined immunohistochemically was slightly but significantly higher than that seen in CR-stained sections. There was no difference in the amount of amyloid between the left limb middle segment and right limb of the pancreas. Amylin labelling was seen in about 70 to 80% of islet cells, mainly those located in the islet periphery and the labelling was most intense in the cell periphery.
Descriptors: amyloid, pancreas, cats, congo red, diabetes mellitus, dyes, immunohistochemistry, islets of langerhans, reference values, staining and labeling, tissue distribution.

Lutz, T.A., J.S. Rand, P. Watt, and A. Galloway (1994). **Pancreatic biopsy in normal cats**. *Australian Veterinary Journal* 71(7): 223-225. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: digestive system, cats, endocrine system, medicine, diabetes mellitus, diagnostic method.

Macintire, D.K. (1995). **Emergency therapy of diabetic crises: insulin overdose, diabetic ketoacidosis, and hyperosmolar coma.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 639-650. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, diabetes, insulin, metabolic disorders, dysregulation, therapy, diagnosis, side effects, disease control, disorders, functional disorders, hormones, metabolic disorders, peptides, diabetes mellitus, emergencies .

Magori, E., M. Nakamura, A. Inoue, A. Tanaka, N. Sasaki, H. Fukuda, H. Mizutani, T. Sako, N. Kimura, and T. Arai (2005). **Malate dehydrogenase activities are lower in some types of peripheral leucocytes of dogs and cats with type 1 diabetes mellitus.** *Research in Veterinary Science* 78(1): 39-44. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Descriptors: cats, malate dehydrogenase, leucocytes, diabetes mellitus.

Martin, G. and J. Rand (2000). **Current understanding of feline diabetes: part 2, treatment**. *Journal of Feline Medicine and Surgery* 2(1): 3-17. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: diabetes, reviews, treatment, diets, diet treatment, insulin, hypoglycemia, cats.

Martin, G.J. and J.S. Rand (2001). **Pharmacology of a 40 IU/ml porcine lente insulin preparation in diabetic cats: findings during the first week and after 5 or 9 weeks of therapy.** *Journal of Feline Medicine and Surgery* 3(1): 23-30. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, insulin, diabetes mellitus, subcutaneous injection, pharmacodynamics, plasma, sugar.

Martin, G.J.W. and J.S. Rand (1999). **Food intake and blood glucose in normal and diabetic cats fed ad libitum.** *Journal of Feline Medicine and Surgery* 1(4): 241-251. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, food intake, sugar, diabetes, unrestricted feeding, insulin, eating patterns, hyperglycemia, hypoglycemia, appetite.

Martin, G.J.W. and J.S. Rand (1999). **Evaluation of a polyurethane jugular catheter in cats placed using a modified Seldinger technique.** *Australian Veterinary Journal* 77(4): 250-254. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: cats, catheters, polyurethanes, veins, sampling, diabetes mellitus, jugular vein.

Martinez, A., C. Weaver, J. Lopez, S.J. Bhathena, T.H. Elsasser, M.J. Miller, T.W. Moody, E.J. Unsworth, and F. Cuttitta (1996). **Regulation of insulin secretion and blood glucose metabolism by adrenomedullin.** *Endocrinology* 137(6): 2626-32. ISSN: 0013-7227.
NAL Call Number: 448.8 EN2
Abstract: Adrenomedullin (AM), a recently discovered hypotensive peptide, is expressed in the endocrine pancreas of different species, as demonstrated by immunocytochemistry.

Electron microscopic studies with double immunogold showed colocalization of AM and pancreatic polypeptide. A homogeneous expression of AM receptor was found throughout the islet using in situ hybridization. Six different insulin- producing cell lines have been analyzed by reverse transcription-PCR and showed expression of both AM and its receptor. Two experimental models have been used to study the effects of AM in pancreatic physiology. 1) Analysis of isolated rat islets shows that AM inhibits insulin secretion in a dose-dependent manner. The monoclonal antibody MoAb-G6, which neutralizes AM bioactivity, was able to increase insulin release 5-fold; this effect was reversed by the addition of synthetic AM. 2) Oral glucose tolerance tests showed that iv injection of AM reduces the levels of insulin in the bloodstream with a concomitant increase in circulating glucose. These studies implicate AM as a newly defined factor of the insulin regulatory system that could be involved in disorders such as diabetes and obesity.
Descriptors: blood glucose, insulin secretion, pancreas, pancreas secretion, peptides, base sequence, cats, cell line, dogs, glucose tolerance test, guinea pigs, hamsters, immunohistochemistry, in situ hybridization, islets of langerhans, islets of langerhans, islets of langerhans secretion, electron microscopy, molecular sequence data, pancreas, peptides analysis, peptides, polymerase chain reaction, RNA, messenger analysis, rats, sprague dawley, tissue distribution.

Mathe, A. (2004). **Gyakorlati tanacsok a cukorbetegseggel kapcsolatban. [Some practical advice on the management of diabetic pets]**. *Kisallat Praxis* 5(4): 156-158. ISSN: 1585-9142.
Online: www.kisallatpraxis.hu
NAL Call Number: SF981 .K573
Descriptors: diabetes mellitus, diagnosis, metabolic disorders, cats.
Language of Text: Hungarian; Summary in English.

Mathes, M.A. (2002). **Home monitoring of the diabetic pet.** *Clinical Techniques in Small Animal Practice* 17(2): 86-95. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: cats, dogs, diabetes mellitus, glucose, urine, monitoring, diet therapy, exercise, insulin, drug injection.

McDonough, S. and R.A. Lewis (2002). **Evaluation of a new method for monitoring urine glucose in diabetic cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 24(5B): 17-19. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: diabetes mellitus, glucosuria, urine analysis, rapid.

Meij, B.J., G. Voorhout, T.S. van den Ingh, and A. Rijnberk (2001). **Transsphenoidal hypophysectomy for treatment of pituitary-dependent hyperadrenocorticism in 7 cats.** *Veterinary Surgery* 30(1): 72-86. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: cats, cushing's syndrome, hypophysectomy, treatment, clinical aspects, diabetes mellitus, postoperative, relapse.

Melian, C. (2004). **[Manejo de la diabetes mellitus felina.] Management of feline diabetes mellitus.** *Informacion Veterinaria (Espana)*(5): 26-28. ISSN: 1130-5436.
Descriptors: cats, diabetes, overweight, diagnosis, diet treatment, therapeutic diets, insulin, disease control, body condition, disorders, hormones, metabolic disorders, peptides, therapy .
Language of Text: Spanish.

Michel, K.E. and R.S. Hess (2002). **Advances in the nutritional management of feline diabetics.** *Compendium of Continuing Education for the Practicing Veterinarian* 24(9A): 50-55. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, dietary carbohydrate, diabetes mellitus, insulin secretion, therapeutic diets.

Michels, G.M., F.D. Boudinot, D.C. Ferguson, and M. Hoenig (2000). **Pharmacokinetics of the insulin-sensitizing agent troglitazone in cats.** *American Journal of Veterinary Research* 61(7): 775-8. ISSN: 0002-9645.
NAL Call Number: 41.8 AM3A
Abstract: OBJECTIVE: To determine pharmacokinetics of troglitazone in healthy cats after i.v. and oral administration of a single dose of the drug. ANIMALS: 5 healthy ovariohysterectomized adult cats. PROCEDURE: Using a randomized crossover design, cats were given 5 mg of troglitazone/kg of body weight i.v. and 40 mg of troglitazone/kg orally. Blood and urine samples were collected after drug administration, and concentrations of troglitazone in plasma and urine were determined by use of high-performance liquid chromatography. RESULTS: Area-moment analysis was used to calculate pharmacokinetic variables. Terminal phase half-life was 1.1 +/- 0.1 hours. Steady-state volume of distribution was 0.23 +/- 0.15 L/kg. After i.v. administration, clearance was 0.33 +/- 0.04 L/h/kg. Drug was not detected in urine samples. Mean bioavailability of orally administered troglitazone was 6.9%. CONCLUSIONS AND CLINICAL RELEVANCE: The overall disposition of troglitazone in cats was similar to that reported in other species, including humans. Troglitazone has low and variable oral bioavailability. Clearance of the compound is moderate. Little if any unchanged troglitazone is excreted in urine; thus, metabolism and biliary excretion play predominant roles in elimination of the drug. On the basis of troglitazone pharmacokinetics in healthy cats, as well as on the basis of pharmacodynamics of the drug in humans and other animals, a regimen that uses a dosage of 20 to 40 mg/kg administered orally once or twice per day to cats will produce plasma concentrations of the insulin-sensitizing agent that have been documented to be effective in humans.
Descriptors: cats, chromans, diabetes mellitus, type 2, hypoglycemic agents, thiazoles, thiazolidinediones, oral administration, area under curve, chromans, chromans, chromans urine, chromatography, high pressure liquid, cross over studies, diabetes mellitus, type 2, half life, hypoglycemic agents, hypoglycemic agents, hypoglycemic agents urine, injections, intravenous, random allocation, thiazoles, thiazoles, thiazoles urine.

Minkus, G., W. Breuer, and M. Kirsch (1998). **Diabetes mellitus bei jungen Hunden und Katzen. Fallbeschriebungen und ein Vergleich mit der releventen Literatur [Diabetes mellitus in pups and kittens. Case reports and review of the literature]**.

Tierarztliche Praxis 26(3): 180-186. ISSN: 0303-6286.
NAL Call Number: SF603 .V4
Descriptors: case reports, histopathology, puppies, kittens, diabetes mellitus, cats, literature review.
Language of Text: German with a summary in English.

Mizisin, A.P., G.D. Shelton, S. Wagner, C. Rusbridge, and H.C. Powell (1998). **Myelin splitting, schwann cell injury and demyelination in feline diabetic neuropathy**. *Acta Neuropathologica* 95(2): 171-174. ISSN: 0001-6322.
Descriptors: insulin dependent diabetes mellitus, endocrine disease, pancreas, Schwann cell injury, myelin splitting, case study.

Monroe, W.E. (2000). **What is the best insulin for cats.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 14: 270.
NAL Call Number: SF605.N672
Descriptors: diabetes, cats, insulin, treatment.

Morgan, R.V. (1995). **Delivery of systemic regular insulin via the ocular route in cats**. *Journal of Ocular Pharmacology and Therapeutics* 11(4): 565-573. ISSN: 1080-7683.
Descriptors: endocrinology, ocular irritation, medicine, diabetes mellitus, glycemic changes, euglycemic cats, ocular insulin administration, serum insulin.

Munana, K.R. (1995). **Long-term complications of diabetes mellitus. I. Retinopathy, nephropathy, neuropathy.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 715-730. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, diabetes mellitus, retinopathy, nephropathy, diabetic neuropathy, pathogenesis, histopathology, symptoms, hyperglycemia, man, comparisons, literature reviews, late, diabetic retinopathy, diabetic nephropathy.

Nelson, R. (2002). **Stress hyperglycemia and diabetes mellitus in cats.** *Journal of Veterinary Internal Medicine* v.16(2): 121-122. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: cats, stress, hyperglycemia, diabetes mellitus, sugar, diagnostic value, clinical aspects, small animal practice, sampling.

Nelson, R., D. Spann, D. Elliott, A. Brondos, and R. Vulliet (2004). **Evaluation of the oral antihyperglycemic drug metformin in normal and diabetic cats.** *Journal of Veterinary Internal Medicine* 18(1): 18-24. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: cats, metformin, diabetes mellitus, dosage, dose response.

Nelson, R.W. (2001). **How I treat feline diabetes mellitus.** *Proceedings of the North American Veterinary Conference* 15: 152.
NAL Call Number: SF605 .N672
Descriptors: cats, diabetes mellitus, treatment.

Nelson, R.W. (2000). **Oral medications for treating diabetes mellitus in dogs and cats.** *Journal of Small Animal Practice* 41(11): 486-490. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: dogs, cats, hypoglycemic agents, oral administration, chromium, vanadium, diabetes mellitus, treatment, pharmacodynamics, efficacy.

Nelson, R.W. (1995). **Treatment of feline diabetes with the sulfonylurea, glipizide.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 9: 159.
NAL Call Number: SF605.N672
Descriptors: cats, diabetes, therapy, disorders, metabolic disorders, therapy .

Nelson, R.W. (1995). **Diagnostic approach to apparent insulin ineffectiveness.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 9: 161-162.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, diabetes, insulin, metabolic disorders, peptides, therapy .

Nelson, R.W. (2000). **Selected topics in the management of diabetes mellitus in cats**. *Journal of Feline Medicine and Surgery* 2(2): 101-104. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: diabetes, diabetes mellitus, treatment, insulin, cats.

Nelson, R.W. (1996). **Treatment of diabetes mellitus in dogs and cats**. *Veterinary Quarterly* 18(sup1.): S27-S29. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: insulin, hypoglycemic agents, diets, diabetes, cats, dogs.

Nelson, R.W. and E.C. Feldman (2000). **Complications associated with insulin treatment of diabetes mellitus**. In: J.D. Bonagura (Editor), *Kirk's Current Veterinary Therapy XIII: Small Animal Practice*, W.B. Saunders: Philadelphia, USA, p. 354-357. ISBN: 0721655238.
Descriptors: diabetes mellitus, insulin, hypoglycemia, antibodies, allergic reactions, dogs, cats.

Nelson, R.W. and E.C. Feldman (1999). **Insulin therapy for diabetic dogs and cats**. *Irish Veterinary Journal* 52(6): 328-333. ISSN: 0368-0762.
NAL Call Number: 41.8 IR4
Descriptors: diabetes, therapy, insulin, treatment, cats.

Nelson, R.W., R.C. Lynn, C.C. Wagner Mann, and G.M. Michels (2001). **Efficacy of protamine zinc insulin for treatment of diabetes mellitus in cats.** *Journal of the American Veterinary Medical Association* 218(1): 38-42. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, diabetes mellitus, insulin, efficacy, sugar, clinical aspects, body weight, amino sugars, serum, fructosamine .

Nelson, R.W., J.C. Scott Moncrieff, E.C. Feldman, S.E. DeVries Concannon, P.H. Kass, D.J. Davenport, C.T. Kiernan, and L.A. Neal (2000). **Effect of dietary insoluble fiber on**

control of glycemia in cats with naturally acquired diabetes mellitus. *Journal of the American Veterinary Medical Association* 216(7): 1082-1088. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, diabetes mellitus, therapeutic diets, fiber, fiber content, sugar, treatment.

Nichols, R. (1997). **Complications and concurrent disease associated with diabetes mellitus.** *Seminars in Veterinary Medicine and Surgery Small Animals* 12(4): 263-7. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Abstract: Many animals with diabetes mellitus are severely ill on clinical presentation. The spectrum of disease is quite variable and includes diabetic ketoacidosis (DKA), ketosis without acidosis, hyperosmolar nonketotic syndrome (HNKS), and other nonketotic variants (negative urine ketones, serum osmolality < 340 mOsm/kg with or without acidosis). These more severe forms of diabetes are often precipitated by concurrent diseases such as pyelonephritis, pancreatitis, pyometra, hyperadrenocorticism, renal failure, and heart failure. To make matters worse, in-hospital treatment of diabetic dogs and cats is commonly associated with serious complications, including hypoglycemia, hypokalemia, and hypophosphatemia.
Descriptors: diabetes mellitus, cats, comorbidity, diabetes, diabetes mellitus diagnosis, diabetes mellitus therapy, diabetic ketoacidosis, dogs, potassium, potassium.

Nichols, R. (2000). **Clinical use of the vasopressin analogue DDAVP for the diagnosis and treatment of diabetes insipidus**. In: J.D. Bonagura (Editor), *Kirk's Current Veterinary Therapy XIII: Small Animal Practice*, W.B. Saunders: Philadelphia, USA, p. 325-326. ISBN: 0721655238.
Descriptors: diabetes insipidus, diabetes, vasopressin, diagnosis, treatment, synthetic hormones, cats.

Nichols, R. and K.L. Crenshaw (1995). **Complications and concurrent disease associated with diabetic ketoacidosis and other severe forms of diabetes mellitus.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 617-624. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, diabetes, metabolic disorders, ketosis, acidosis, hypoglycemia, potassium, hypophosphatemia, pathogenesis, therapy, side effects, alkali metals, disease control, disorders, elements, metabolic disorders, metallic elements.

Norman, E.J. and C.T. Mooney (2000). **Diagnosis and management of diabetes mellitus in five cats with somatotrophic abnormalities.** *Journal of Feline Medicine and Surgery* 2(4): 183-190. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, acromegaly, diabetes mellitus, somatotropin, clinical aspects, diagnosis, treatment, insulin like growth factor, uk.

Norris, C.R., R.W. Nelson, and M.M. Christopher (1999). **Serum total and ionized magnesium concentrations and urinary fractional excretion of magnesium in cats with diabetes mellitus and diabetic ketoacidosis.** *Journal of the American Veterinarian*

Medical Association 215(10): 1455-1459. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, diabetes mellitus, diabetic acidosis, ketoacidosis, magnesium, serum, urine, pressure, sugar.

Norsworth, G.D. (1998). **Choosing the right insulin type and dosage for diabetic cats**. *Veterinary Medicine* 93(4): 314, 318. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: insulin, dosage, diabetes, dosage effects, cats.

Norsworthy, G.D. (1995). **A rational approach to feline blood glucose curves.** *Veterinary Medicine* 90(11): 1064-1069. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: cats, sugar, monitoring, diabetes, insulin, composition, disease control, disorders, hormones, metabolic disorders, peptides, therapy, diabetes mellitus, regulation.

Norsworthy, G.D. (1999). **Dysregulation in diabetic cats: part 2**. *Veterinary Medicine* 94(3): 225-228. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: drug therapy, diets, monitoring, diabetes, treatment, dysregulation, cats.

Norsworthy, G.D. (1998). **Dysregulation in diabetic cats: part 1**. *Veterinary Medicine* 93(11): 966-967. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: diabetes, clinical aspects, treatment, insulin, cats.

Norsworthy, G.D. (1998). **Recognizing and treating hypoglycemia in diabetic cats**. *Veterinary Medicine* 93(8): 707, 710-711. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: hypoglycemia, treatment, insulin, etiology, clinical aspects, sugar, cats.

Okumus, Z. (1999). **Kopek ve kedilerde diabetes mellitus Bolum. 1: Etiyoloji, patogenez ve sagaltm [Diabetes mellitus in dogs and cats. Part 1: Aetiology, pathogenesis and treatment]**. *Kafkas Universitesi Veteriner Fakultesi Dergisi* 5(2): 223-231. ISSN: 1300-6045.
Descriptors: etiology, clinical aspects, diabetes, diabetes mellitus, diagnosis, glycosuria, hyperglycemia, insulin, metabolic disorders, pathogenesis, cats.
Language of Text: Turkish; Summary in English.

Orzechowski, A. (1998). **Cukrzyca GH zalezna. Opis wybranych przypadkow [Growth hormone-related diabetes. Case reports]**. *Magazyn Weterynaryjny* 7(5): 329-332. ISSN: 1230-4425.
Descriptors: endocrine diseases, diagnosis, diabetes mellitus, pathogenesis, case reports, clinical aspects, treatment, somatotropin, diabetes, cats.
Language of Text: Polish.

Ostaszewski, P. and M. Jank (2000). **Cukrzyca u kotow - jej przyczyny, rozpoznawanie i leczenie (cz.I) [Diabetes in cats - aetiology, diagnosis and treatment. Part I]**. *Magazyn Weterynaryjny* 9(46): 32-34. ISSN: 1230-4425.
Descriptors: diabetes mellitus, endocrine diseases, diagnosis, insulin, glucose, cats.
Language of Text: Polish.

Ostaszewski, P. and M. Jank (2000). **Cukrzyca u kotow (czesc II). Przyczyny, rozpoznawanie i leczenie [Diabetes in cats. Part II. Aetiology, diagnosis and treatment]**. *Magazyn Weterynaryjny* 9(47): 22-25. ISSN: 1230-4425.
Descriptors: endocrine diseases, glucose, insulin, diabetes, etiology, treatment, diagnosis, cats.
Language of Text: Polish.

Paxton, R. and L.X. Ye (2000). **Purification and characterization of a feline hepatic insulin receptor.** *American Journal of Veterinary Research* 61(12): 1625-32. ISSN: 0002-9645.
NAL Call Number: 41.8 AM3A
Abstract: OBJECTIVE: To elucidate the functional characteristics of a highly purified soluble liver insulin receptor in cats. SAMPLE POPULATION: Frozen livers from domestic cats were obtained commercially. PROCEDURES: The feline hepatic insulin receptor was purified from Triton X-100 solubilized plasma membranes by the use of several chromatography matrices, including affinity chromatography on an insulin-Sepharose matrix. RESULTS: The receptor, although not homogeneous, was purified 3,000-fold. Two silver-stained protein bands were identified following sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) with molecular weight of 134,000 and 97,000, which are similar to insulin receptors isolated from other animals. This isolated receptor had steady-state insulin binding by 40 minutes at 24 C. Optimal insulin binding occurred at pH 7.8 and with 150 mM NaCl. Under these conditions, a curvilinear Scatchard plot was obtained with the isolated receptor. Using a 2 binding-site model, the feline insulin receptor had a high-affinity low-capacity site with a dissociation constant (KD; nM) of 3 and a low-affinity high-capacity site with a K(D) of 1,180. The receptor also had tyrosine kinase activity toward an exogenous substrate that was stimulated by insulin and protamine. CONCLUSIONS AND CLINICAL RELEVANCE: Many of the reported characteristics of the liver insulin receptor in cats are similar to those for the receptor isolated from other animals and tissues, although some differences exist. These similarities suggest that characterization of the feline insulin receptor is important to understanding insulin resistance in cats with diabetes as well as in humans with diabetes.
Descriptors: liver, liver, receptor, insulin, receptor, insulin, animals, domestic, binding sites, cats, cell membrane, cell membrane, chromatography, affinity, chromatography, ion exchange, electropHoresis, polyacrylamide gel, insulin, kinetics, molecular weight, receptor, insulin.

Perez Alenza, M.D. (2001). **Feline diabetes mellitus. [Diabetes mellitus felina.]**. *Ciencias Veterinarias* 32: 173-192. ISSN: 0250-5649.
Descriptors: cats, diabetes, endocrine diseases, diagnosis, diet treatment, insulin, side effects, disease control, metabolic disorders.
Language of Text: Spanish.

Peterson, M.E. (1995). **Diagnosis and management of insulin resistance in dogs and cats with diabetes mellitus.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 691-713. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, diabetes mellitus, insulin, drug resistance, resistance mechanisms, differential diagnosis, therapy, hyperglycemia, medical treatment, diabetes management.

Peterson, M.E. (2003). **Diabetes mellitus in cats**. In: *Scientific Proceedings Veterinary Programme: British Small Animal Veterinary Association 46th Annual Congress, April 3, 2003-April 6, 2003, Birmingham, UK,*, British Small Animal Veterinary Association: Quedgeley, UK, p. 138-140.
Online: www.bsava.com
NAL Call Number: 41.8 J8292
Descriptors: diabetes mellitus, diagnosis, insulin, therapeutic diets, therapy, cats.

Plier, M.L., C.B. Grindem, P.S. MacWilliams, and J.B. Stevens (1998). **Serum fructosamine concentration in nondiabetic and diabetic cats.** *Veterinary Clinical Pathology* 27(2): 34-39. ISSN: 0275-6382.
NAL Call Number: SF601 .A54
Descriptors: cats, diabetes mellitus, hyperglycemia, sugar, serum, glycoproteins, assays, quantitative analysis, prognosis, diagnosis, glucose.

Plotnick, A.N. and D.S. Greco (1995). **Home management of cats and dogs with diabetes mellitus: common questions asked by veterinarians and clients.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 753-759. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: cats, dogs, diabetes mellitus, insulin, dosage, home care, sugar, monitoring, medical treatment, diabetes management.

Plotnick, A.N. and D.S. Greco (1995). **Diagnosis of diabetes mellitus in dogs and cats: contrasts and comparisons.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 563-570. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, diabetes, diagnosis, symptoms, insulin, metabolic disorders, sugar, stress, hyperglycemia, composition, disorders, hormones, metabolic disorders, peptides, nonketotic diabetes mellitus, stress induced hyperglycemia, ketoacidosis, hyperglycemia, literature reviews.

Proverbio, D. and E. Spada (2004). **Diabete mellito nel gatto [Diabetes mellitus in cats]**. *Obiettivi e Documenti Veterinari* 25(5): 25-32. ISSN: 0392-1913.
Descriptors: clinical aspects, diabetes, diagnosis, epidemiology, insulin, pathogenesis, reviews, symptoms, cats.
Language of Text: Italian.

Quintavalla, C. (1999). **Diabete mellito nel cane e nel gatto [Diabetes mellitus in dogs and cats. Clinical aspects]**. *Obiettivi e Documenti Veterinari* 20(Suppl to 7/8): 7-14. ISSN:

0392-1913.
Descriptors: diabetes, diabetes mellitus, etiology, pathogenesis, symptoms, diagnosis, therapy, reviews, cats.
Language of Text: Italian.

Rand, J. (1999). **Current understanding of feline diabetes. 1. Pathogenesis.** *Journal of Feline Medicine and Surgery* 1(3): 143-153. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, diabetes, pathogenesis, risk factors, diagnosis, classification, insulin, environmental factors, remission, stress, hyperglycemia, literature reviews.

Rand, J.S. (2002). **Understanding feline diabetes.** *Compendium of Continuing Education for the Practicing Veterinarian* 24(5B): 2-6. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, diabetes mellitus, risk factors, insulin secretion.

Rand, J.S. (1998). **Understanding feline diabetes: pathogenesis and management**. *Veterinary Quarterly* 20(Supplement1): S35-S37. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: diabetes, pathogenesis, insulin, amyloidosis, diagnosis, glucose, toxicity, glipizide, diets, cats.

Rand, J.S. (1997). **Understanding feline diabetes. Part I**. *Australian Veterinary Practitioner* 27(1): 17-26. ISSN: 0310-138X.
NAL Call Number: SF601.A9
Descriptors: physiopathology, symptoms, pathogenesis, reviews, diabetes, cats.

Rand, J.S. (1997). **Management of feline diabetes**. *Australian Veterinary Practitioner* 27(2): 68-78. ISSN: 0310-138X.
NAL Call Number: SF601.A9
Descriptors: insulin, sugar, treatment, animal feeding, exercise, fluid therapy, potassium, hypoglycemia, reviews.

Rand, J.S., L.M. Bobbermien, J.K. Hendrikz, and M. Copland (1997). **Over representation of Burmese cats with diabetes mellitus.** *Australian Veterinary Journal* 75(6): 402-405. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: cats, diabetes mellitus, hyperglycemia, breeds, risk, breed differences, sex differences, age differences, Queensland.

Rand, J.S., H.A. Farrow, L.M. Fleeman, and D.J. Appleton (2003). **Diet in the prevention of diabetes and obesity in companion animals.** *Asia Pacific Journal of Clinical Nutrition* 12(Suppl): S6. ISSN: 0964-7058.
NAL Call Number: QP141.A1A74
Abstract: Background - Diabetes in dogs occurs predominantly via a type 1 mechanism, whereas in cats, type 2 diabetes is most common. Investigations of diet in the prevention of diabetes and obesity in companion animals has focused on the calorie density of food;

the ratio of carbohydrate, fat, and protein; the carbohydrate source; the source and amount of fibre; and dietary supplements. Prevention of diabetes has mostly focused on dietary manipulations in cats that minimise insulin and glucose concentrations, thus reducing the demand on beta cells to produce insulin. Review - Dietary carbohydrate content has the greatest effect on blood glucose and insulin concentrations. In healthy cats, a high carbohydrate diet (carbohydrate 47%, protein 25%, fat 26% of calories) is associated with 20-32% higher peak postprandial glucose concentrations than a moderate carbohydrate, high protein diet (carbohydrate 27%, protein 46%, fat 26% of calories). In diabetic cats, the insulin dose was reduced, and in some cats eliminated, when the diet was changed from moderate carbohydrate (23% of calories), high fibre (10.7% DM) to a low carbohydrate (6.5% of calories), high protein (46% of calories) diet. Dietary fat content affects insulin sensitivity in cats. A high fat diet (>46% of calories) is associated with higher insulin-to-glucose ratios, indicative of lower insulin sensitivity, than diets lower in fat (<25% calories). Evidence suggests that low fat diets may improve insulin sensitivity by decreasing non-esterified fatty acid and betahydroxybutyrate concentrations, which inhibit insulin action. Carbohydrate source and processing methods influence postprandial insulin concentrations. In cats and dogs, certain carbohydrates, including rice, have been shown to have higher glycaemic indices than others, such as sorghum or corn; that is, they produce a larger postprandial glucose and insulin rise. Although increased dietary fibre was initially shown to be beneficial in dogs and cats, several recent studies have shown no benefit compared to moderate fibre diets typical of most commercial foods. Several other dietary manipulations aimed at preventing or treating obesity and diabetes have recently been investigated in cats and dogs with promising results. These include vitamin A, chromium, and carnitine supplementation. Conclusion - Consumption of diets with low carbohydrate, high protein, and moderate fat content may be advantageous for prevention and management of obesity, impaired glucose tolerance, and diabetes in cats and dogs. Use of low glycaemic index carbohydrates and supplementation with carnitine, chromium, and vitamin A may also be advantageous.
Descriptors: diabetes, cats, obesity, prevention, post prandial insulin, glucose, glycemic index.

Rand, J.S., L.M. Fleeman, H.A. Farrow, D.J. Appleton, and R. Lederer (2004). **Canine and feline diabetes mellitus: nature or nurture.** *Journal of Nutrition* 134(8S): 2072S-2080S. ISSN: 0022-3166.
Descriptors: diabetes, cats, diet, Burmese, genetic factors, obesity, indoor confinement, inactivity.

Rand, J.S. and R.D. Marshall (2005). **Diabetes mellitus in cats.** *Veterinary Clinics of North America, Small Animal Practice* 35(1): 211-224. ISSN: 0195-5616.
NAL Call Number: SF601.V523
Abstract: Feline diabetes is a multifactorial disease with genetic and environmental factors, including diet, excess body weight, and physical inactivity, involved in its pathogenesis. Although type 2 diabetes is most common in cats, most cats are insulin-dependent at the time of diagnosis. If good glycemic control can be achieved early after diagnosis, a substantial proportion of diabetic cats go into clinical remission. Diabetic

remission may be facilitated by using a low-carbohydrate-high-protein diet combined with a long-acting insulin, such as glargine, administered twice daily. Rather than just controlling clinical signs, these new treatment modalities make curing feline diabetes a realistic goal for practitioners.
Descriptors: cats, diabetes mellitus, glycemic control, insulin, glargine, treatments.

Rand, J.S. and G.J. Martin (2001). **Management of feline diabetes mellitus**. *Veterinary Clinics of North America, Small Animal Practice* 31(5): 881-913. ISSN: 0195-5616.
NAL Call Number: SF601.V523
Descriptors: adenocarcinoma, sugar, clinical aspects, diabetes mellitus, diagnosis, diet, dosage, glucose, hydrocortisone, hyperglycemia, hypoglycemia, hypoglycemic agents, insulin, insulin secretion, ketoacidosis, kidney diseases, nervous system diseases, obesity, pancreatitis, pathogenesis, retinopathy, reviews, sex differences, somatotropin, cats.

Reusch, C. and M.A. Hoyer Ott (1995). **Zur Bedeutung der Fructosamin-Bestimmung in der Ueberwachung des Diabetes mellitus. 1. Untersuchungen bei gesunden und diabetischen Katzen sowie bei Katzen mit sogenannter Stresshyperglykaemie [The importance of fructosamine-analysis in the control of Diabetes mellitus. 2. Investigations in normal and diabetic cats as well as in cats with so-called stress induced hyperglycemia.]**. *Kleintierpraxis* 40(2): 95-100. ISSN: 0023-2076.
NAL Call Number: 41.8 K67
Descriptors: cats, diabetes, glucose, insulin, hyperglycemia, stress, therapy, aldoses, carbohydrates, disease control, hormones, metabolic disorders, monosaccharides, peptides, reducing sugars, sugars .
Language of Text: German with summaries in English and French.

Reusch, C.E. and B. Haberer (2001). **Evaluation of fructosamine in dogs and cats with hypo- or hyperproteinaemia, azotaemia, hyperlipidaemia and hyperbilirubinaemia.** *Veterinary Record* 148(12): 370-376. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: dogs, cats, amino sugars, hypoproteinemia, hyperproteinemia, uremia, hyperlipemia, hyperbilirubinemia, diabetes mellitus.

Reusch, C.E. and K. Tomsa (1999). **Serum fructosamine concentration in cats with overt hyperthyroidism.** *Journal of the American Veterinary Medical Association* 215(9): 1297-1300. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, hyperthyroidism, amino sugars, serum, diabetes mellitus, hyperproteinemia, albumins, sugar, proteins.

Reusch, C.E., G. Wess, and M. Casella (2001). **Home monitoring of blood glucose concentration in the management of diabetes mellitus.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(6): 544-557. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, diabetes mellitus, pet care, sugar, monitoring, sampling, capillaries, ears, accuracy, errors, hypoglycemia, hyperglycemia, case reports, insulin, somogyi pHenomenon.

Ristic, J.M., M.E. Herrtage, S.M. Walti Lauger, L.A. Slater, D.B. Church, L.J. Davison, and B. Catchpole (2005). **Evaluation of a continuous glucose monitoring system in cats with diabetes mellitus.** *Journal of Feline Medicine and Surgery* 7(3): 153-62. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Abstract: A continuous glucose monitoring system (CGMS) was evaluated in 14 cats with naturally occurring diabetes mellitus. The device measures interstitial fluid glucose continuously, by means of a sensor placed in the subcutaneous tissue. All cats tolerated the device well and a trace was obtained on 15/16 occasions. There was good correlation between the CGMS values and blood glucose concentration measured using a glucometer (r=0.932, P<0.01). Limitations to the use of the CGMS are its working glucose range of 2.2-22.2 mmol/l (40-400 mg/dl) and the need for calibration with a blood glucose measurement at least every 12 h. When compared to a traditional blood glucose curve, the CGMS is minimally invasive, reduces the number of venepunctures necessary to assess the kinetics of insulin therapy in a patient and provides a truly continuous glucose curve.
Descriptors: diabetes, glucose, monitoring, sensor, insulun therapy.

Root, M.V., K.H. Johnson, W.T. Allen, and S.D. Johnston (1995). **Diabetes mellitus associated with pancreatic endocrine insufficiency in a kitten.** *Journal of Small Animal Practice* 36(9): 416-420. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: kittens, diabetes, case studies, hyperglycemia, genetic disorders, metabolic disorders, digestive system diseases, pancreas, animal glands, body parts, cats, digestive system, disorders, metabolic disorders, organic diseases, young animals.

Sai, P. (1996). **Infections hereditaires et congenitales, endocrinologie: les diabetes sucres [diabete de type 1, diabete de type 2, insulinodependance] [Hereditary and congenital diseases in pets, endocrinology: sugar diabetes [type 1 diabete, type 2 diabete, insulindependent].** *Le Point Veterinaire* 28(180): 57-62. ISSN: 0303-4997.
Descriptors: dogs, cats, diabetes, genetic disorders, pathogenesis, disorders, metabolic disorders.
Language of Text: French.

Sai, P. (1997). **Endocrinologie: les diabetes sucres [Endocrinology: sugar diabetes]**. *Le Point Veterinaire* 28(180): 805-810. ISSN: 0303-4997.
Descriptors: insulin, sugar, glucose, epidemiology, autoimmunity, autoimmune diseases, etiology, hereditary diseases, genomes, histopathology, diabetes mellitus, diabetes, cats.
Language of Text: French with a summary in English.

Sako, T. (2003). **Diabetes in the small animal clinic**. *Journal of Veterinary Medicine, Japan* 56(1): 53-59. ISSN: 0447-0192.
Descriptors: diabetes, treatment, cats.
Language of Text: Japanese.

Sander, C., A. Horauf, and C. Reusch (1998). **Indirekte Blutdruckmessung bei Katzen mit Diabetes mellitus, chronische Nephropathie und hypertropher Kardiomyopathie**

[Indirect measurement of blood pressure in cats with diabetes mellitus, chronic kidney disease and hypertrophic myocardial disease]. *Tierarztliche Praxis* 26(2): 110-118. ISSN: 0303-6286.
NAL Call Number: SF603 .V4
Descriptors: heart diseases, hypertension, diabetes mellitus, kidney diseases, ultrasonography, ultrasonic diagnosis, cats, Doppler ultrasonography.
Language of Text: German with a summary in English.

Scarlett, J.M. and S. Donoghue (1998). **Associations between body condition and disease in cats.** *Journal of the American Veterinary Medical Association* 212(11): 1725-1731. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: north eastern states usa, cats, body condition, animal diseases, body weight, overweight, thinness, diabetes, movement disorders, skin diseases, diarrhea, america, body condition, digestive disorders, disorders, functional disorders, metabolic disorders, north america, organic diseases, usa, lameness .

Schaer, M. (1995). **Surgery in the diabetic pet.** *Veterinary Clinics of North America, Small Animal Practice* 25(3): 651-660. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: cats, diabetes, surgical operations, therapy, disease control, disorders, metabolic disorders, diabetes mellitus, preoperative care, postoperative care, medical treatment.

Sieber Ruckstuhl, N.S., N. Alt, and C.E. Reusch (2004). **Messung der Blutglukose aus Kapillarblut vom Ohr bei diabetischen Hunden und Katzen [Measurement of the blood glucose from the capillary blood from the ear in diabetic dogs and cats.]**. *Schweizer Archiv Fur Tierheilkunde* 146(2): 92-93. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Descriptors: analytical specimen collection, sugar, cats, blood glucose, diabetes, dogs.
Language of Text: German.

Sieber Ruckstuhl, N.S., M. Casella, and C.E. Reusch (2003). **Heimmonitoring des Blutglukosespiegels durch Besitzer diabetische Hunde und Katzen [Home monitoring of blood glucose concentrations by owners of diabetic dogs and cats]**. *Swiss Archive for Veterinary Medicine* 145(11): 537-543. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Abstract: Generation of blood glucose curves is essential to monitor glycemic control in dogs and cats with diabetes mellitus. Up till now blood collection and blood glucose measurements could only be performed in a hospital. However, glucose concentrations measured in a hospital environment can markedly differ from concentrations measured at home, due to reduced appetite, different activity level and stressful handling. At the Clinic of Small Animal Internal Medicine, University of Zurich, a new method to collect capillary blood from the ear and to measure blood glucose by means of a portable glucose meter has been developed. This method enables owners of diabetic dogs or cats to determine blood glucose concentrations and generate blood glucose curves at home. Three cases demonstrate, how much blood glucose concentrations at home may differ

from those in the hospital and how home monitoring can help to establish diabetic control in dogs and cats.
Descriptors: cats, dogs, diabetes, monitoring, sugar, composition, metabolic disorders, glycemic control, blood collection method, home monitoring of blood glucose levels.
Language of Text: German with summaries in German, English, French and Italian.

Skelly, B. (2002). **Causes, consequences and control of potassium imbalance in small animals.** *In Practice* 24(10): 596-604. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: dogs, cats, hyperkalemia, hypokalemia, potassium, disease diagnosis, mineral, small animal practice, renal failure, fluid therapy, hypoadrenocorticism, hyperthyroidism, diabetes mellitus, differential diagnosis.

Slebodzinski, A.B. (2002). **Cukrzyca u kotow. Cz. I. Rozpoznawanie [Diabetes in cats. Part I. Diagnosis]**. *Zycie Weterynaryjne* 77(7): 342-346. ISSN: 0137-6810.
NAL Call Number: SF604. Z9
Descriptors: blood, diabetes, diagnostic techniques, glucose, insulin, ketoacidosis, pancreatic diseases, cats.
Language of Text: Polish.

Slebodzinski, A.B. (2002). **Cukrzyca u kotow. Cz. II. Leczenie [Diabetes mellitus in cats. Part II. Treatment]**. *Zycie Weterynaryjne* 77(8): 390-394. ISSN: 0137-6810.
NAL Call Number: SF604. Z9
Descriptors: acidosis, diabetes mellitus, glucose, insulin, treatment, cats.
Language of Text: Polish with a summary in English.

Slebodzinski, A.B. (1998). **Patofizjologia wewnatrzwydzielniczej funkcji trzustki psow i kotow (czesc IV). Leczenie stanow niedoczynnosci wewnatrzwydzielniczej komorek B trzustki [Physiopathology of the endocrine pancreas disorders. Part IV. Treatment of diabetes in dogs and cats]**. *Zycie Weterynaryjne* 73(10): 377-381. ISSN: 0137-6810.
NAL Call Number: SF604. Z9
Descriptors: diabetes mellitus, therapy, insulin, treatment, cats.
Language of Text: Polish.

Slebodzinski, A.B. (1998). **Patofizjologia wewnatrzwydzielniczej funkcji trzustki psow i kotow. Czesc II. Cukrzyca (diabetes mellitus) [Physiopathology of endocrine pancreas in dogs and cats. Part II. Diabetes mellitus]**. *Zycie Weterynaryjne* 73(8): 298-300. ISSN: 0137-6810.
NAL Call Number: SF604. Z9
Descriptors: pathology, diagnosis, insulin, diabetes mellitus, cats.
Language of Text: Polish.

Soyer, C. (2003). **Endocrinologie du chien et du chat : interets et limites du dosage de la fructosamine. [Endocrinology in dogs and cats: advantages and limits of determination of fructosamine.]**. *Le Point Veterinaire* 34(238): 10-11. ISSN: 0303-4997.
Descriptors: dogs, cats, sugar, diabetes, diagnosis, composition, disorders, metabolic

disorders.
Language of Text: French.

Sparkes, A.H. (1999). **Cats, diabetes and stress.** *Journal of Feline Medicine and Surgery* 1(4): 1. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, diabetes, stress, hyperglycemia.

Starkey, S.R., K. Tan, and D.B. Church (2004). **Investigation of serum IGF-1 levels amongst diabetic and non-diabetic cats.** *Journal of Feline Medicine and Surgery* 6(3): 149-155. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, insulin like growth factor I, diabetes mellitus.

Stein, J.E. and D.S. Greco (2002). **Portable blood glucose meters as a means of monitoring blood glucose concentrations in dogs and cats with diabetes mellitus.** *Clinical Techniques in Small Animal Practice* 17(2): 70-72. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: cats, dogs, diabetes mellitus, glucose, meters, portable equipment.

Struble, A.L. and R.W. Nelson (1997). **Non-insulin-dependent diabetes mellitus in cats and humans.** *Compendium on Continuing Education for the Practicing Veterinarian* 19(8): 935-939, 942-945. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: diabetes, pathogenesis, cats, mankind, classification, diagnosis, therapy, overweight, diet, body condition, disorders, metabolic disorders, therapy, medical treatment, comparisons .

Struble, A.L. and R.W. Nelson (1999). **Il diabete mellito non insulino-dipendente nel gatto e nell'uomo [Non-insulin dependent diabetes mellitus in cats and humans]**. *Veterinaria Cremona* 13(2): 5-13. ISSN: 0394-3151.
Descriptors: diabetes, reviews, diabetes mellitus, cats, man.
Language of Text: Italian.

Switzer, E. and I. Nolte (2004). **Diagnostik und Therapie beim Diabetes mellitus von Hund und Katze [Diagnosis and therapy of diabetes mellitus in dogs and cats]**. *Praktische Tierarzt* 85(9): 640-644. ISSN: 0032-681X.
NAL Call Number: 41.8 P882
Descriptors: clinical aspects, diabetes mellitus, diagnosis, obesity, therapy, cats.
Language of Text: German.

Switzer, E. and I. Nolte (2003). **Aufzeichnung und Interpretation von Blutglukoseprofilen bei diabetischen Hundeh und Katzen: neue Moglichkeiten anhand der 24-Stunden-Langzeitmessung. [Generating and interpreting blood glucose profiles in diabetic dogs and cats: new opportunities by 24-hour-monitoring]**. *Tierarztliche Praxis* 31(6): 373-376. ISSN: 1434-1239.
NAL Call Number: SF603 .V433

Descriptors: blood sugar, diabetes, hypoglycemia, monitoring, small animal practice, cats.
Language of Text: German; Summary in English.

Temo, K., E. Rudloff, M. Lichtenberger, and R. Kirby (2004). **Hypernatremia in critically ill cats: pathophysiology.** *Compendium on Continuing Education for the Practicing Veterinarian* 26(6): 422-433. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: metabolic diseases, homeostasis, diabetes insipidus, acute course.

Thiess, S., C. Becskei, K. Tomsa, T.A. Lutz, and M. Wanner (2004). **Effects of high carbohydrate and high fat diet on plasma metabolite levels and on iv glucose tolerance test in intact and neutered male cats.** *Journal of Feline Medicine and Surgery* 6(4): 207-218. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, high fat diet, carbohydrate intake, carbohydrate, glucose tolerance, lipid, diabetes mellitus.

Thompson, M.D., S.M. Taylor, V.J. Adams, C.L. Waldner, and E.C. Feldman (2002). **Comparison of glucose concentrations in blood samples obtained with a marginal ear vein nick technique versus from a peripheral vein in healthy cats and cats with diabetes mellitus.** *Journal of the American Veterinary Medical Association* 221(3): 389-392. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, diabetes mellitus, sugar, veins, ears, sampling, stress, portable instruments.

Thoresen, S.I. (1998). ***Fruktosamin (glyserte serum proteiner) ved diagnostikk og oppfoelging av lidelser karakterisert av langvarig hyperglykemi, hypoglykemi og hypoproteinemi hos hunder og katter. [Fructosamine (glycated serum proteins) in diagnosing and monitoring diseases with persistent hyperglycaemia, hyperglycaemia and hypoproteinaemia in dogs and cats]***. Dissertation, Norges Veterinaerhoegskole: Oslo, Norway .
Descriptors: dogs, cats, diabetes, serum, monitoring, diagnosis, proteins, sugar, hyperglycemia, amines, storage, temperature, biochemistry, amino compounds, composition.
Language of Text: Summaries in English and Norwegian.
Notes: ISBN: 8299463602.

Thoresen, S.I., E. Bjerkas, M. Aleksandersen, and R.L. Peiffer (2002). **Diabetes mellitus and bilateral cataracts in a kitten.** *Journal of Feline Medicine and Surgery* 4(2): 115-122. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: kittens, diabetes mellitus, cataract, atypical course, histopathology, pancreas, eyes, symptoms, diagnosis, case reports.

Thoresen, S.I. and W.P. Bredal (1996). **Clinical usefulness of fructosamine measurements in diagnosing and monitoring feline diabetes mellitus.** *Journal of Small Animal Practice* 37(2): 64-68. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: diabetes, monitoring, diagnosis, proteins, sugar, hyperglycemia, cats, amines, insulin, therapy, amino compounds, composition, disease control, disorders, hormones, metabolic disorders, peptides, fructosamine .

Thoresen, S.I. and J. Grondalen (1995). **Diabetes mellitus in dogs and cats: a review**. *Norsk Veterinaertidsskrift* 107(2): 101-111. ISSN: 0029-2773.
NAL Call Number: 41.8 N81
Descriptors: endocrine system, chemical coordination and homeostasis, diabetes, cats, medicine.
Language of Text: Norwegian.

Towell, T.L. and L.C. Shell (1994). **Endocrinopathies that affect peripheral nerves of cats and dogs.** *Compendium of Continuing Education for the Practicing Veterinarian* 16(2): 157-161. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: diabetes mellitus, hypothyroidism, endocrine diseases, nervous system diseases, diabetic neuropathy, cats, dogs, hypoadrenocorticism, insulinoma .

Towell, T.L. and L.G. Shell (1994). **Endocrinopathies that affect the central nervous system of cats and dogs.** *Compendium on Continuing Education for the Practicing Veterinarian* 16(11): 1461-1466. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, dogs, endocrine diseases, central nervous system, symptoms, diabetes, thyroid gland, adrenal glands, carcinomas, animal glands, body parts, disorders, endocrine glands, metabolic disorders, neoplasms, nervous system, organic diseases, hypoadrenocorticism, insulinoma, control, diabetes mellitus, hypothyroidism, hypoparathyroidism, Cushing' s syndrome.

Wass, C.T. and W.L. Lanier (1996). **Glucose modulation of ischemic brain injury: review and clinical recommendations.** *Mayo Clinic Proceedings* 71(8): 801-12. ISSN: 0025-6196.
Abstract: Ischemic brain injury is the third-leading cause of death among Americans and the leading cause of serious disability. Based on studies of animal models, a substantial amount of experimental evidence shows that hyperglycemia at the onset of brain ischemia worsens postischemic neurologic outcome. Consistent with these observations, hyperglycemia also is associated with a worsening of postischemic brain injury in humans. In humans, however, data are often difficult to interpret because of problems in determining the timing of hyperglycemia relative to a critical ischemic event and in elucidating the effect of coexisting pathophysiologic processes (for example, a stress response) on outcome. Glucose modulation of neurologic injury is observed when ischemia is either global (for example, that accompanying cardiac arrest or severe systemic hypotension) or focal (for example, that accompanying thrombotic or embolic stroke). Toxicity is probably the result of an intracellular lactic acidosis. Specifically, the associated hydrogen ions are injurious to neurons and glia. On the basis of these factors,

we recommend diligent monitoring of blood glucose concentrations in patients who are at increased risk for new-onset, ongoing, or recurring cerebral ischemia. In such patients, the use of fluid infusions, corticosteroid drugs, and insulin, as well as stress management, should be tailored to treat preexisting hyperglycemia and prevent new-onset hyperglycemia. Maintenance of normoglycemia is recommended. When one attempts to treat preexisting hyperglycemia, care should be taken to avoid rapid fluid shifts, electrolyte abnormalities, and hypoglycemia, all of which can be detrimental to the brain.
Descriptors: brain ischemia, glucose, adrenal cortex hormones, glucose, brain, cats, diabetes, diabetes mellitus, dogs, haplorhini, hyperglycemia, hyperglycemia, hyperglycemia, insulin, ischemic attack, transient, prognosis, rabbits, rats, stress.

Webb, C.B. (2002). **Troubleshooting the diabetic small animal patient.** *Clinical Techniques in Small Animal Practice* 17(2): 79-85. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: dogs, cats, diabetes mellitus, disease diagnosis, insulin, dosage, drug injection, glucose, monitoring.

Westermark, P. (1996). **Islet pathology of non-insulin-dependent diabetes mellitus (NIDDM).** *Diabetic Medicine* 13(9 Suppl 6): S46-8. ISSN: 0742-3071.
Abstract: Islet amyloid polypeptide (IAPP) gives rise to islet amyloid fibrils in NIDDM. Islet amyloid tends to replace islet cells, especially beta-cells and may act as a diffusion barrier. It has also been proposed that IAPP amyloid fibrils are beta-cell cytotoxic. The pathogenesis of islet amyloid is not clear and several factors are probably necessary for amyloid formation. One factor is an amyloidogenic amino acid sequence of IAPP and a second is probably a high local concentration of IAPP. Islet amyloid is not seen in the normal human pancreas and has not been described in the pancreata of transgenic mice over-expressing human IAPP. However, islet amyloid is rapidly deposited in in vitro cultivated islets from these transgenic animals and in isolated normal human islets transplanted into nude mice. Consequently, besides an amyloidogenic structure and high production of IAPP, further factors are necessary for islet amyloid formation in NIDDM.
Descriptors: amyloid, amyloid, diabetes mellitus, type 2, islets of langerhans, amino acid sequence, amyloid biosynthesis, cats, diabetes mellitus, type 2, hamsters, haplorhini, islets of langerhans, islets of langerhans transplantation, islets of langerhans transplantation, mice, mice, nude, mice, transgenic, molecular sequence data, rats, sequence homology, amino acid.

Whitley, N.T., K.J. Drobatz, and D.L. Panciera (1997). **Insulin overdose in dogs and cats: 28 cases (1986-1993).** *Journal of the American Veterinary Medical Association* 211(3): 326-330. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: dogs, cats, insulin, duration, pathogenesis, weight, hypoglycemia, diabetes, risk, case studies, disorders, hormones, metabolic disorders, peptides, time, incidence, clinical aspects, treatment, prognosis, hypoglycemia, illness, risk factors.

Woods, J.P., D.L. Panciera, P.S. Snyder, M.W. Jackson, and S.L. Smedes (1994). **Diabetes mellitus in a kitten.** *Journal of the American Animal Hospital Association* 30(2): 177-180.

ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: kittens, diabetes, pathogenesis, case studies, insulin, cats, disorders, hormones, metabolic disorders, peptides, young animals, disease course.

Xie, H. and W.W. Lautt (1996). **Insulin resistance of skeletal muscle produced by hepatic parasympathetic interruption.** *American Journal of Physiology* 270(5 Pt 1): E858-63. ISSN: 0002-9513.
NAL Call Number: 447.8 AM3
Abstract: The objective was to determine the site of insulin resistance produced by intraportal atropine or surgical hepatic denervation. A modified euglycemic clamp was used in fasted cats to test the acute effect of insulin (100 mU/kg) on arteriovenous glucose gradients across the hindlimbs (mainly reflecting skeletal muscle), the guts (all organs draining into the portal vein), and the liver. Responses to insulin were determined before and after hepatic denervation and after 3 mg/kg intraportal atropine. The interventions were done in random order. Responses after either intervention were similar and were not potentiated by the combined treatment. Regional insulin resistance was assessed by comparing the change in glucose gradients in response to insulin before and after treatments. Hepatic and gut responses to insulin were unaltered, but hindlimb responses were significantly impaired after denervation or atropine. We speculate that the hepatic parasympathetic nerves regulate release of a liver-generated factor that selectively controls insulin effectiveness in skeletal muscle. This mechanism may be involved with insulin resistance in non-insulin-dependent diabetes and chronic liver disease.
Descriptors: insulin resistance, liver innervation, muscle, skeletal, parasympathetic nervous system, arteries, atropine, glucose analysis, cats, denervation, glucose clamp technique, hindlimb supply, injections, intravenous, insulin, intestines supply, liver circulation, portal system, veins.

Zerbe, C.A. (2001). **What is so special about feline diabetes mellitus.** *Journal of Feline Medicine and Surgery* 3(2): 99-103. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, diabetes mellitus, treatment, glucose, toxicity, hypoglycemic agents, diet, exercise, diabetic neuropathy, hypoglycemia.

Housing

Anonymous (2000). **Draft comparison of space allowance/stocking density and the EU draft recommendations.** *Animal Technology* 51(2): 101-109. ISSN: 0264-4754.
NAL Call Number: QL55.I5
Descriptors: laboratory animals, space requirements, floor space, mice, rats, hamsters, gerbils, guinea pigs, rabbits, dogs, cats, cages, cage size, group size, group housing.

Anonymous (2001). **Outbreaks of multidrug-resistant *Salmonella Typhimurium* associated with veterinary facilities - Idaho, Minnesota, and Washington, 1999** . *Morbidity and Mortality Weekly Report* 50(33): 701-704. ISSN: 0149-2195.
NAL Call Number: RA407.3 M56
Descriptors: amoxicillin, ampicillin, antibacterial agents, cefalotin, ceftriaxone, chlorampHenicol, clavulanic acid, diarrhea, epidemiology, gentamicin, human diseases, kanamycin, multiple drug resistance, outbreaks, salmonellosis, streptomycin, sulfamethoxazole, tetracycline, zoonoses, cats, man, *Salmonella typhimurium*.

Ando, J., T. Sawada, and M. Nagata (1997). **Occurrence of dermatophytosis in a cattery**. *Journal of the Japan Veterinary Medical Association* 50(6): 341-343. ISSN: 0446-6454.
NAL Call Number: 41.9J275
Descriptors: outbreaks, diagnosis, treatment, disinfection, itraconazole, chlorhexidine, skin diseases, lesions, dermatophytes, dermatomycoses, cats, *Microsporum canis.*
Language of Text: Japanese; Summary in English.

Baker, J., M.D. Barton, and J. Lanser (1999). **Campylobacter species in cats and dogs in South Australia.** *Australian Veterinary Journal* 77(10): 662-666. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: cats, dogs, campylobacter, *Campylobacter jejuni*, *Campylobacter coli*, age differences, sex differences, animal housing, animal health, animal husbandry, South Australia, *Campylobacter upsaliensis*.

Barnett, S.W. (2001). ***Introduction to Animal Technology***, X edition, Blackwell Science Ltd.: Osney Mead, Oxford, UK, 112 p. ISBN: 0632055944.
NAL Call Number: SF406.I58
Descriptors: animal health, housing environment, routine animal house procedures, feeding and watering, breeding, experimental procedures, euthanasia, occupational safety, laboratory animals, Animals (Scientific Procedures) Act of 1986.

Benites, N.R., P.A. Melville, and A.S. Silva (2003). **Homeopathic treatment of stray cats admitted to a cattery with respiratory diseases and dermatoses [Tratamento homeopatico de felinos abandonados confinados em gatil acometidos por doencas respiratorias e dermatoses]**. *Clinica Veterinaria* 8(47): 68-70. ISSN: 1413-571X.
Online: http://www.editoraguara.com.br/cv/atual.htm
Descriptors: homeopathy, respiratory diseases, skin diseases, cats, feline calicivirus, feline rhinotracheitis virus.
Language of Text: Portuguese.

Bradshaw, J.W.S. and S.L. Hall (1999). **Affiliative behaviour of related and unrelated pairs of cats in catteries: a preliminary report.** *Applied Animal Behavioural Science* 63(3): 251-255. ISSN: 0168-1591.
NAL Call Number: QL750 .A6
Descriptors: cats, kinship, socialization, grooming, orientation.

Brown, R.M. and K.S. Rogers (2001). **Neutropenia in dogs and cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(6): 534-543. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, leukopenia, neutrophils, hematopoiesis, bacterial diseases, breed differences, susceptibility, leukocyte count, bone marrow disorders, fever, colony stimulating factor, leukopoiesis .

Cave, T.A., C. Knottenbelt, D.J. Mellor, M. Liddon, and S.W.J. Reid (2001). **Feline dysautonomia in a closed colony of pet cats**. *Veterinary Record* 149(25): 779. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: clinical aspects, dysautonomia, outbreaks, regurgitation, cats.

Cave, T.A., C. Knottenbelt, D.J. Mellor, F. Nunn, P. Nart, and S.W.J. Reid (2003). **Outbreak of dysautonomia (Key-Gaskell syndrome) in a closed colony of pet cats**. *Veterinary Record* 153(13): 387-392. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: dysautonomia, heart rate, motility, esophgus, outbreaks, pets, cats.

Evans, T.F. and H. Strom (1999). **Sundhedsradgivning af katteri [Health advice for catteries]**. *Dansk Veterinaertidsskrift* 82(12): 534-36. ISSN: 0106-6854.
NAL Call Number: 41.9D23
Descriptors: veterinary education, curriculum, health, animal housing, cats.
Language of Text: Danish.

Fascetti, A.J., Q.R. Rogers, and J.G. Morris (2002). **Blood copper concentrations and cuproenzyme activities in a colony of cats.** *Veterinary Clinical Pathology* 31(4): 183-188. ISSN: 0275-6382.
NAL Call Number: SF601 .A54
Descriptors: cats, mineral content, copper, enzyme activity, superoxide dismutase, ceruloplasmin, erythrocytes, age differences, sex differences.

Guillot, J., E. Malandain, F. Jankowski, K. Rojzner, C. Fournier, F. Touati, R. Chermette, W. Seewald, and R. Schenker (2002). **Evaluation of the efficacy of oral lufenuron combined with topical enilconazole for the management of dermatophytosis in catteries.** *Veterinary Record* 150(23): 714-718. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: cats, dermatophytes, microsporum canis, chitin synthesis inhibitors, oral administration, dermatomycoses, topical application, antifungal agents, lesions, treatment, efficacy.

Harpold, L.M., A.M. Legendre, M.A. Kennedy, P.J. Plummer, K. Millsaps, and B. Rohrbach (1999). **Fecal shedding of feline coronavirus in adult cats and kittens in an Abyssinian cattery.** *Journal of the American Veterinary Medical Association* 215(7): 948-951. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, kittens, coronavirus, feces, shedding, age, antibodies, seroconversion, seasonal variation.

Helps, C.R., P. Lait, A. Damhuis, U. Bjornehammar, D. Bolta, C. Brovida, L. Chabanne, H. Egberink, G. Ferrand, A. Fontbonne, M.G. Pennisi, T. Gruffydd Jones, D. Gunn Moore, K. Hartmann, H. Lutz, E. Malandain, K. Mostl, C. Stengel, D.A. Harbour, and E.A.M. Graat (2005). **Factors associated with upper respiratory tract disease caused by feline herpesvirus, feline calicivirus, *Chlamydophila felis* and *Bordetella bronchiseptica* in cats: experience from 218 European catteries**. *Veterinary Record* 156(21): 669-673. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: antibodies, disease prevalence, disease surveys, epidemiology, respiratory diseases, risk factors, seroprevalence, *Bordetella bronchiseptica*, cats, feline calicivirus, feline herpesvirus.

Hendriks, W.H., S. Wamberg, and M.F. Tarttelin (1999). **A metabolism cage for quantitative urine collection and accurate measurement of water balance in adult cats (Felis catus)**. *Journal of Animal Physiology and Animal Nutrition* 82(2/3): 94-105. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: excretion, feces, feed intake, feeding, inulin, creatinine, urine, estimation, techniques, analytical, water balance, collection, cats.

Hnilica, K.A. (2004). **Dermatophyte treatment for catteries and multicat homes**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 18: 283-285.
Descriptors: antifungal agents, calcium polysulfide, clipping, dermatophytes, disinfectants, disinfection, mycoses, treatment, cats, *Microsporum canis*.

Hnilica, K.A. and L. Medleau (2002). **Evaluation of topically applied enilconazole for the treatment of dermatophytosis in a Persian cattery.** *Veterinary Dematology* 13(1): 23-28. ISSN: 0959-4493.
NAL Call Number: SF901 .V47
Descriptors: cats, microsporum canis, dermatomycoses, antifungal agents, topical application, treatment, efficacy, safety.
Language of Text: English with summaries in French, German and Spanish.

Kessler, M.R. (1997). **Erhebung zur bestehenden Haltungssituation fur Katzen (*Felis catus*) in deutschschweizer Tierheimen. [Evaluation of the use of and need for housing for cats in the german-speaking part of Switzerland]**. *Schweizer Archiv Fur Tierheilkunde* 139(10): 435-440. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Descriptors: stray animals, quarantine, seasonal variation, summer, animal housing,

shelters, animal welfare, cats.
Language of Text: German with a summary in English; French and Italian.

Kessler, M.R. and D.C. Turner (1999). **Effects of density and cage size on stress in domestic cats (felis silvestris catus) housed in animal shelters and boarding catteries.** *Animal Welfare* 8(3): 259-267. ISSN: 0962-7286.
NAL Call Number: HV4701 .A557
Descriptors: cats, space requirements, stocking density, stress, floor space, group size, cage size, animal welfare, shelters, animal housing, catteries .

McCobb, E.C., G.J. Patronek, A. Marder, J.D. Dinnage, and M.S. Stone (2005). **Assessment of stress levels among cats in four animal shelters**. *Journal of the American Veterinary Medical Association* 226(4): 548-555. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: urinary system, medicine, hematuria, urologic disease, cortisol to creatinine ratio, behavioral assessment scale, non invasive techniques, animal shelter, animal welfare, environmental enrichment, stress level, cat stress score, hematuria.

McReynolds, C.A., M.R. Lappin, B. Ungar, L.M. McReynolds, C. Bruns, M.M. Spilker, M.A. Thrall, and J.S. Reif (1999). **Regional seroprevalence of Cryptosporidium parvum-specific IgG of cats in the United States.** *Veterinary Parasitology* 80(3): 187-195. ISSN: 0304-4017.
NAL Call Number: SF810.V4
Descriptors: cats, cryptosporidium parvum, IgG, immune serum, seroprevalence, risk factors, age differences, sex differences, breed differences, animal housing, geographical distribution, usa, indoor housing, outdoor housing.

Rochlitz, I. (2000). **Recommendations for the housing and care of domestic cats in laboratories.** *Lab Animal* 34(1): 1-9. ISSN: 0093-7355.
NAL Call Number: QL55.A1L33
Descriptors: cats, laboratory, cages, cage size, enrichment, social behavior, animal behavior, animal welfare, stocking density, regulations, environmental enrichment.

Rochlitz, I. (1999). **Recommendations for the housing of cats in the home, in catteries and animal shelters, in laboratories and in veterinary surgeries.** *Journal of Feline Medicine and Surgery* 1(3): 181-91. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Abstract: In recent years, there has been an increase in interest in applied ethology and animal welfare, and an increase in the popularity of the domestic cat. This has stimulated research on the behaviour and welfare of cats kept in different environments. This article presents a review of the recent research and makes recommendations for the housing of domestic cats in the home, in catteries and animal shelters, in laboratories and in veterinary surgeries.
Descriptors: animal welfare, cats, housing, literature review.

Rochlitz, I., A.L. Podbersce, and D.M. Broom (1998). **Welfare of cats in a quarantine cattery.** *Veterinary Record* 143(2): 35-39. ISSN: 0042-4900.

NAL Call Number: 41.8 V641
Descriptors: cats, animal welfare, quarantine, animal behavior, hydrocortisone, creatinine, adaptation.

Rochlitz, I., A.L. Podberscek, and D.M. Broom (1995). **The behaviour and welfare of cats in a quarantine cattery**. In: *Proceedings of the 29th International Congress of the International Society for Applied Ethology, August 3, 1995-August 5, 1995, Exeter, UK*, Universities Federation for Animal Welfare (UFAW): Potters Bar, UK, p. 125-126. ISBN: 090076928.
Online: www.ufaw.org.uk
NAL Call Number: SF756.7 I57
Descriptors: animal behavior, quarantine, animal welfare, cats.

Rusch, T. (1999). **Haltung von Hunden und Katzen in Tierheimen. [Housing of dogs and cats in animal shelters]**. *Deutsche Tierarztliche Wochenschrift* 106(4): 166-169. ISSN: 0341-6593.
NAL Call Number: 41.8 D482
Descriptors: animal housing, shelters, veterinarians, animal welfare, kennels, animal husbandry, cats.
Language of Text: German with a summary in English.

Ryan Gullahorn, J. (2000). **Giardia and effective cattery management for the veterinarian.** *Feline Practice* 28(2): 8-9. ISSN: 1057-6614.
NAL Call Number: SF985.F4
Descriptors: cats, *Giardia duodenalis*, *Giardia intestinalis*, giardiasis, small animal rearing, treatment, disease prevention.

Ryan Gullahorn, J. (1998). **Cattery behavior.** *Feline Practice* 26(6): 16-17. ISSN: 1057-6614.
NAL Call Number: SF985.F4
Descriptors: cats, animal behavior, groups.

Ryan Gullahorn, J. (1998). **Cattery medicine: infectious disease and parasites.** *Feline Practice* 26(3): 5-24. ISSN: 1057-6614.
NAL Call Number: SF985.F4
Descriptors: cats, protozoal infections, helminthoses, disease control.

Ryan Gullahorn, J. (1997). **Veterinary viewpoints in cattery medicine.** *Feline Practice* 25(5/6): 24-25. ISSN: 1057-6614.
NAL Call Number: SF985.F4
Descriptors: cats, animal health, veterinary medicine, catteries.

Unshelm, J. and A.C. Mack (1997). **[Tiergerechte Haltung und Bestandsregulierung von Katzen] Adequate housing and regulation of feline population** . *Deutsche Tierarztliche Wochenschrift* 104(2): 62-65. ISSN: 0341-6593.
NAL Call Number: 41.8 D482
Descriptors: housing, regulation, cages, animal housing, cats.
Language of Text: German; Summary in English.

Yoffe Sharp, B. and P. Olson (1996). **Veterinarians serving US animal care and control facilities**. *Journal of the American Veterinary Medical Association* 209(10): 1692-1696. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: animal welfare, animal housing, pets, animal health, identification, veterinarians, services, cats, dogs.

Nutrition

Anonymous (1999). **Panel report on feline senior health care.** *Compendium of Continuing Education for the Practicing Veterinarian* 21(7): 612-621. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, age groups, aging, pain, analgesics, anesthesia, animal nutrition, therapeutic diets, dentistry, mouth diseases, euthanasia, small animal practice.

Anonymous (2003). **Nutricao otima para caes e gatos [Optimal nutrition for dogs and cats]**. *Clinica Veterinaria* 8(47): 72-78. ISSN: 1413-571X.
Online: http://www.editoraguara.com.br/cv/atual.htm
Descriptors: nutrition, cats.
Language of Text: Portuguese.

Abood, S.K. (1998). **Nutritional assessment of the critical care patient.** *Veterinary Clinical Nutrition* 5(1): 7-10. ISSN: 1076-3872.
NAL Call Number: SF94.5 .V48
Descriptors: dogs, cats, therapeutic diets, medical records.

Abood, S.K. (1996). **Dietary management of feline hepatic lipidosis**. In: *Proceedings and abstracts 21st Congress of the World Small Animal Veterinary Association (WSAVA), October 20, 1996-October 23, 1996, Jerusalem, Israel*, World Small Animal Veterinary Association.: Jerusalem, Israel, p. 384-385.
Online: www.wsava.org
NAL Call Number: 41.8 J8292
Descriptors: liver diseases, cats, hepatic lipidosis, diet.

Abood, S.K. (1996). **Dietary management of feline obesity**. In: *Proceedings and abstracts 21st Congress of the World Small Animal Veterinary Association (WSAVA), October 20-23, 1996, Jerusalem, Israel*, World Small Animal Veterinary Association.: Jerusalem, Israel, p. 386-387.
Online: www.wsava.org
NAL Call Number: 41.8 J8292
Descriptors: diets, obesity, prevention, cats.

Ackerman, L. (1995). **Nondermatologic indications for fatty acid supplementation in dogs and cats.** *Veterinary Medicine* 90(12): 1156, 1158-1159. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, fatty acids, supplements, nutrient deficiencies, cardiovascular diseases, skeletomuscular anomalies, immune system, liver function, maternal nutrition.

Agar, S. (2001). ***Small Animal Nutrition.***, Butterworth-Heinemann: Boston, Massachussetts, 187 p. ISBN: 075064575X.
NAL Call Number: SF427.4 .A42
Descriptors: dogs, cats, nutrition, cat food, dog food, nutritional diseases.

Aitken, M. and M. Allen (1994). **Minerals and electrolytes. 1.** *In Practice* 16(2): 79-83. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: dogs, cats, dietary minerals, electrolytes, serum, normal values, serum albumin, calcium, hypercalcemia, hypocalcemia, hypermagnesemia, hypomagnesemia, phosphorus, magnesium, iron, phosphorus, potassium, chloride, fluid therapy, dosage.

Allan, F.J., D.U. Pfeiffer, B.R. Jones, D.H.B. Esslemont, and M.S. Wiseman (2000). **A cross-sectional study of risk factors for obesity in cats in New Zealand.** *Preventative Veterinary Medicine* 46(3): 183-196. ISSN: 0167-5877.
NAL Call Number: SF601.P7
Descriptors: cats, obesity, risk factors, surveys, diet, health, animal behavior, weight, length, limbs, body condition, households, new zealand.

Allen, T.A. (1996). **Measurement of the influence of diet on feline urinary pH.** *Veterinary Clinics of North America. Small Animal Practice* 26(2): 363-368. ISSN: 0195-5616.
NAL Call Number: SF601.V523 v.26 no.2
Descriptors: cats, urinary tract, disorders, pathophysiology.
Notes: Disorders of the feline lower urinary tract I: Etiology and pathophysiology.

Allenspach, K. and P. Roosje (2004). **Futterallergie-wie komme ich zur diagnose? [Food allergies diagnosis]**. In: *Aktualitaten Aus Der Gastroenterologie 35 Jahresversammlung,* Schweizerische Vereinigung fur Kleintiermedizin.: Zurich, Switzerland, p. 71-78.
Descriptors: diagnosis, food allergies, IgE, IgG, immunoglobulins, cats.
Language of Text: German.

Allison, R.W., E.D. Lassen, M.J. Burkhard, and M.R. Lappin (2000). **Effect of a bioflavonoid dietary supplement on acetaminophen-induced oxidative injury to feline erythrocytes.** *Journal of the American Veterinary Medical Association* 217(8): 1157-1161. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, erythrocytes, antioxidants, bioflavonoids, vitamin supplements, acetaminophen, oxidation, methemoglobin, heinz bodies, hematocrit, glutathione.

Alterio, N. and H. Moller (1997). **Diet of feral house cats *Felis catus*, ferrets *Mustela furo* and stoats *M. erminea* in grassland surrounding yellow-eyed penguin megadyptes antipodes breeding areas, South Island, New Zealand**. *Journal of Zoology* 243(4): 869-877. ISSN: 0952-8369.
NAL Call Number: QL1.J68
Descriptors: nutrition, competition, predators, endangered species, yellow eyed penguin, cats, ferrets, wildlife, weasels.

Anantharaman Barr, G., O. Ballevre, P. Gicquello, I. Bracco Hammer, J. Vuichoud, F. Montigon, and E. Fern (1994). **Fecal bile acid excretion and taurine status in cats fed canned and dry diets**. *Journal of Nutrition* 124(12S): 2546S-2551S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82

Descriptors: pets, amino acids, bile acids, excretion, taurine, nutritional state, dry feeds, wet feeding, cats.

Anderson, N. and H. Peiper (2000). **Super-nutrition for dogs and cats.** In: *Super-Nutrition for Dogs N' Cats: Preventive Medicine for Your Pets,* Safe Goods: East Canaan, ConnecticutISBN: 188482059X .
NAL Call Number: SF427.4 .A53
Descriptors: Dogs Nutrition, Dogs Food, Cats Nutrition, Cats Food, Pets Feeding and feeds, Pets Nutrition, Pets Health.

Anderson, P.J.B., Q.R. Rogers, and J.G. Morris (2002). **Cats require more dietary phenylalanine or tyrosine for melanin deposition in hair than for maximal growth**. *Journal of Nutrition* 132(7): 2037-2042. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: growth, hair, kittens, melanins, nutrient requirements, nutrition, nutritive value, phenylalanine, pigmentation, recommended dietary allowances, tyrosine, cats.

Appleton, D.J., J.S. Rand, G.D. Sunvold, and J. Priest (2002). **Dietary chromium tripicolinate supplementation reduces glucose concentrations and improves glucose tolerance in normal-weight cats.** *Journal of Feline Medicine and Surgery* 4(1): 13-25. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, glucose tolerance, chromium, supplementary feeding, dosage, glucose, insulin, carbohydrate, food intake, body weight.

Backus, R.C., J.G. Morris, S.W. Kim, J.A. O' Donnell, M.A. Hickman, C.A. Kirk, J.A. Cooke, and Q.R. Rogers (1998). **Dietary taurine needs of cats vary with dietary protein quality and concentration**. *Veterinary Clinical Nutrition* 5(2): 18-22. ISSN: 1076-3872.
NAL Call Number: SF94.5 .V48
Descriptors: taurine, requirements, amino acids, protein quality, intake, protein intake, cats.

Backus, R.C., Q.R. Rogers, and J.G. Morris (1994). **Microbial degradation of taurine in fecal cultures from cats given commercial and purified diets**. *Journal of Nutrition* 124(12): 2540S-2545S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: pet animal diets, amino acids, taurine balance, degradation, dietary protein, fecal analysis, bacteria, cats.

Bai, S.C., Q.R. Rogers, D.L. Wong, D.A. Sampson, and J.G. Morris (1998). **Vitamin B-6 deficiency and level of dietary protein affect hepatic tyrosine aminotransferase activity in cats**. *Journal of Nutrition* 128(11): 1995-2000. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: deficiency, protein intake, liver, tyrosine aminotransferase, activity, diets, tyrosine, deprivation, diurnal variation, food deprivation, pyridoxine, cats.

Baker, E. (1994). **Food allergy**. *Clinics in Dermatology* 12(4): 559-564. ISSN: 0738-081X.
Descriptors: allergic reactions, hypersensitivity, predisposition, pathogenesis, diagnosis, therapy, food allergies, cats.

Ballarini, G. (2004). **Allergie alimentari negli aniamli d'affezione [Food allergies in pet animals]**. *Obiettivi e Documenti Veterinari* 25(2): 35-38. ISSN: 0392-1913.
Descriptors: etiology, allergies, food allergies, pets, reviews, cats.
Language of Text: Italian.

Ballarini, G. (1996). **Alimentazione "personalizzata" degli animali familiari [Personalized nutrition for pet animals]**. *Obiettivi e Documenti Veterinari* 17(1): 17-22. ISSN: 0392-1913.
Descriptors: nutrient requirements, pets, pet foods, feeding, dietetics, nutrition, cats.
Language of Text: Italian.

Ballevre, O., G. Anantharaman Barr, P. Gicquello, C. Piguet Welsh, A.L. Thielin, and E. Fern (1994). **Use of the doubly-labeled water method to assess energy expenditure in free living cats and dogs.** *Journal of Nutrition* 124(12S): 2594S-2600S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cats, dogs, energy expenditure, body water, isotope labeling, methodology, plasma, kinetics, body composition, water, carbon dioxide, gas production.

Ballevre, O.P., F. Montigon, J. Vuichoud, K. Johnston, S. Marti, and L.B. Fay (1996). **Taurine metabolism in cats fed on commercial canned or dry foods**. *Proceedings of the Nutrition Society* 55(1): 65A. ISSN: 0029-6651.
NAL Call Number: 389.9 N953
Descriptors: metabolism, nutrition, medical sciences, essential amino acid, taurine, feline diets, diet composition.

Bartges, J. and W.H. Anderson (1997). **Dietary fiber**. *Veterinary Clinical Nutrition* 4(1): 25-28. ISSN: 1076-3872.
NAL Call Number: SF94.5 .V48
Descriptors: diet treatment, gastrointestinal diseases, feed supplements, sources, requirements, fiber, pet foods, literature reviews, cats.

Bartges, J.W. and S.A. Brown (2000). **Summary of dietary recommendations in urinary diseases**. In: J.D. Bonagura (Editor), *Kirk's Current Veterinary Therapy XIII: Small Animal Practice,* W.B. Saunders: Philadelphia, USA, p. 841-846. ISBN: 0721655238.
Descriptors: urinary tract diseases, nutritional support, therapeutic diets, cats.

Bartges, J.W. and I.F. Lane (2001). **Common dietary questions**. In: M.R. Lappin (Editor), *Feline Internal Medicine Secrets,* Hanley & Belfus, Inc.: Philadelphia, USA, p. 236-245. ISBN: 1560534613.
NAL Call Number: SF985 .F42
Descriptors: acidosis, anorexia, calcium oxalate, calorie modified diets, chloride, diet treatment, dietary fat, dietary protein, diets, energy requirements, hyperparathyroidism, hypokaliaemia, lipids, nutrient requirements, protein deficiencies, renal failure, sodium, urolithiasis, cats.

Bauer, J.E. (1996). **Hepatic disease, nutritional therapy, and the metabolic environment.** *Journal of the American Veterinary Medical Association* 209(11): 1850-1854. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: dogs, cats, liver diseases, therapeutic diets, liver function.

Bauer, J.E. (1994). **The potential for dietary polyunsaturated fatty acids in domestic animals.** *Australian Veterinary Journal* 71(10): 342-345. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: horses, dogs, cats, polyenoic fatty acids, diet, supplements, fish oils, seed oils, lipid, kidney diseases, immunological diseases, skin diseases, therapeutic diets, inflammation, endotoxins, n 3 fatty acids, n 6 fatty acids.

Bauer, J.E. (2004). **Lipoprotein-mediated transport of dietary and synthesized lipids and lipid abnormalities of dogs and cats**. *Journal of the American Veterinary Medical Association* 224(5): 668-675. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Descriptors: atherosclerosis, biochemical transport, hyperlipaemia, hyperlipoproteinaemia, lipid, lipid disorders, lipids, lipoproteins, cats.

Bauer, J.E. (2001). **Evaluation of nutraceuticals, dietary supplements, and functional food ingredients for companion animals**. *Journal of the American Veterinary Medical Association* 218(11): 1755-1760. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Descriptors: animal health, animal nutrition, consumer information, diet, food legislation, food safety, food supplements, pet foods, reviews, supplementary feeding, cats.

Bauer, J.E. (1997). **Diet selection and special considerations in the management of hepatic diseases**. *Journal of the American Veterinary Medical Association* 210(5): 625-629. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Descriptors: medicine, copper associated hepatic toxicosis, digestive system disease, hepatic diseases management, hepatic lipidosis, nutrition, therapeutic diets .

Bensignor, E. (2002). **[Diagnostische en therapeutische benadering van voedingsallergieen/intolerantie gepaard gaand met huid-problemen] Diagnostic and therapeutic aspects of food allergies in dogs and cats. Intolerance is accompanied by skin problems**. *Dier En Arts* 17(8/9): 252-257. ISSN: 0920-2412.
Descriptors: diagnosis, food allergies, skin diseases, treatment, cats.
Language of Text: Dutch.

Beynen, A.C. and R. Opitz (1994). **Isoenergetic substitution of dietary fat (beef tallow) for carbohydrates (cooked corn starch plus dextrin) does not affect magnesium absorption in cats**. *Journal of Animal Physiology and Animal Nutrition* 72(4/5): 176-183. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: tallow, carbohydrates, urolithiasis, diet treatment, treatment, prevention,

minerals, magnesium, absorption, fats, intake, diets, cats.
Language of Text: English; Summary in German.

Binns, S. and S. Dawson (1995). **Feline infectious upper respiratory disease.** *In Practice* 17(10): 458-461. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: cats, feline herpesvirus, feline calicivirus, bordetella bronchiseptica, conjunctivitis, chlamydia psittaci, respiratory diseases, vaccines, antibiotics, animal nutrition, epidemiology, diagnosis.

Biourge, V., J.M. Groff, J.G. Morris, and Q.R. Rogers (1994). **Long-term voluntary fasting in adult obese cats: nitrogen balance, plasma amino acid concentrations and urinary orotic acid excretion.** *Journal of Nutrition* 124(12S): 2680S-2682S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cats, fasting, obesity, nitrogen balance, nitrogen, amino acids, plasma, orotic acid, urine, excretion.

Biourge, V.C. (1997). **Nutrition and liver disease.** *Seminars on Veterinary Medical Surgery of Small Animals* 12(1): 34-44. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: cats, liver diseases, nutritional support, nutritional state, malnutrition, liver function, nutrition, dietary guidelines.

Biourge, V.C. (2003). **Dietary sodium chloride, a useful tool in the management of canine and feline lower urinary tract diseases**. *Waltham Focus* 13(2): 24-27. ISSN: 1354-0157.
Descriptors: hypertension, kidney diseases, sodium chloride, therapeutic diets, urinary tract diseases, urination, water intake, cats.

Blanchard, G. (2004). **Alimentazione del cane e del gatto: Alimentazione clinica: quali regole? [Clinical nutrition: What are the rules for sick dogs and cats?]**. *Summa* 21(8 Supplemento): 9-15.
Descriptors: heart diseases, nutrition, obesity, surgery, urolithiasis, cats.
Language of Text: Italian.

Blanchard, G. (2004). **Alimentazione del cane e del gatto: errori alimentari da evitare nel cane e nel gatto [Dietary errors to avoid in dogs and cats]**. *Summa* 21(8 Supplemento): 3-7.
Descriptors: errors, nutrition, nutritional disorders, cats.
Language of Text: Italian.

Blanchard, G., B.M. Paragon, F. Milliat, and C. Lutton (2002). **Dietary L-carnitine supplementation in obese cats alters carnitine metabolism and decreases ketosis during fasting and induced hepatic lipidosis**. *Journal of Nutrition* 132(2): 204-210. ISSN: 0022-3166.
Online: http://www.nutrition.org/cgi/content/abstract/132/2/204
NAL Call Number: 389.8 J82

Descriptors: animal models, carnitine, fasting, fatty acids, food supplements, ketosis, lipidosis, liver, obesity, cats.

Bottarini, N. (1999). **La terapia dietetica dell'insufficienza renale cronica [Dietary therapy in chronic renal failure in dogs and cats]**. *Obiettivi e Documenti Veterinari* 20(11): 19-21. ISSN: 0392-1913.
Descriptors: kidney diseases, diets, diet treatment, dietetics, cats.
Language of Text: Italian.

Bouvy, B.M. (1996). **Clinical application of enteral nutrition in small animal practice: a prospective study of 85 cases**. *Veterinary Surgery* 25(3): 262. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: enteral feeding, liquid diets, anorexia, feeding, nutrition, cats.

Bright, J.M., P.S. Sullivan, S.L. Melton, J.F. Schneider, and T.P. McDonald (1994). **The effects of n-3 fatty acid supplementation on bleeding time, plasma fatty acid composition, and in vitro platelet aggregation in cats.** *Journal of Veterinary Internal Medicine* 8(4): 247-252. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: cats, plasma, fatty acids, fish oils, platelets, embolism, feed supplements, eicosapentaenoic acid, coagulation, docosahexaenoic acid, platelet aggregation.

Brown, C.M., P.J. Armstrong, and H. Globus (1995). **Nutritional management of food allergy in dogs and cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 17(5): 637-659, 675. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, food allergies, elimination diets, allergens, glycoproteins, pruritus, diagnosis.

Brown, S.A. (1999). **Effects of dietary lipids on renal function in dogs and cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 21(11K,suppl.): 11-14. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: lipids, kidneys, cats, dietary fat, renal function.
Notes: Meeting Information: 1999 Purina Nutrition Forum Proceedings held June 4-6, 1998, St. Louis, Missouri.

Brown, S.A. (1994). **Dietary management of uroliths.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 8: 351-352.
NAL Call Number: SF605.N672
Descriptors: urolithiasis, dogs, cats, animal nutrition, diet.

Brown, S.A., W.A. Crowell, C.A. Brown, J.A. Barsanti, and D.R. Finco (1997). **Pathophysiology and management of progressive renal disease.** *Veterinary Journal* 154(2): 93-109. ISSN: 1090-0233.
NAL Call Number: SF601.V484
Abstract: Recently, the hypothesis that all renal diseases are inherently progressive and self-perpetuating has focused attention on adaptive changes in renal structure and

function that occur whenever renal function is reduced. These glomerular adaptations to renal disease include increases in filtration rate, capillary pressure and size, and are referred to as glomerular hyperfiltration, glomerular hypertension and glomerular hypertrophy, respectively. Extrarenal changes, such as dietary phosphate excess, systemic hypertension, hyperlipidaemia, acidosis and hyperparathyroidism occur in animals with renal disease and may be contributors to progression of renal disease. Emphasis in the management of companion animals with renal disease has shifted to identifying, understanding and controlling those processes that play a role in the progression from early to end-stage renal failure. Advances made by veterinary nephrologists in the past 15 years permit resolution of old controversies, formulation of new hypotheses and discussion of unresolved issues about the nature of progressive renal disease in dogs and cats.
Descriptors: dogs, cats, renal failure, renal function, disease course, treatment, literature reviews.

Brown, S.A., D.R. Finco, J.W. Bartges, C.A. Brown, and J.A. Barsanti (1998). **Interventional nutrition for renal disease**. *Clinical Techniques in Small Animal Practice* 13(4): 217-223. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: nutritional treatment, renal disease, kidney diseases, sodium, potassium, fiber, acids, acidosis, monoenoic fatty acids, energy intake, protein intake, literature review, cats.

Brown, S.A., K. Langford, and S. Tarver (1997). **Effects of certain vasoactive agents on the long-term pattern of blood pressure, heart rate, and motor activity in cats.** *American Journal of Veterinary Research* 58(6): 647-652. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, cardiovascular agents, pressure, heart rate, diurnal variation, movement, sodium restricted diets, telemetry, lisinopril, n omega nitro l arginine methyl ester.

Bueno, A.R., T.G. Cappel, G.D. Sunvold, G.A. Reinhart, and E.T. Clemens (2000). **Feline colonic morphology and mucosal tissue energetics as influenced via the source of dietary fiber.** *Nutrition Research* 20(7): 985-993. ISSN: 0271-5317.
NAL Call Number: QP141.A1N88
Descriptors: feline, colon, tissue, fiber, health, tissue.

Buffington, C. and D. Chew (1998). **Effects of diet on cats with non-obstructive lower urinary tract diseases: a review**. *Journal of Animal Physiology and Animal Nutrition* 80(2/5): 120-127. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: urolithiasis, urinary tract diseases, literature review, nutritional treatment, urine, water intake, diets, cats.

Buffington, C.A., J.L. Blaisdell, Y. Komatsu, and K. Kawase (1994). **Effects of choreito consumption on struvite crystal growth in urine of cats.** *American Journal of Veterinary Research* 55(7): 972-975. ISSN: 0002-9645.

NAL Call Number: 41.8 Am3A
Abstract: The effect of a dietary supplement, choreito, on in vitro struvite crystal growth in feline urine was evaluated. Adult specific-pathogen-free cats (4 females, 4 males) considered to be clinically normal on the basis of physical examination findings and normal results of CBC, serum biochemical analyses, and urinalyses obtained before the beginning of the study were used. Before 24-hour urine sample collections were made, cats were fed a commercial canned diet with 0 or 500 mg of choreito supplement/kg of body weight for at least 2 weeks in a cross-over design with 4 cats/treatment. Filtered urine samples were analyzed for urine pH, specific gravity, osmolality, and urine electrolytes. The struvite activity product was calculated, using a statistical software program that calculates urine saturation. Urine samples were placed in wells of cell culture plates, increasing concentrations of ammonium hydroxide were added to adjacent wells to stimulate struvite crystal growth, and the plates were incubated at 37 C. Crystal growth was assessed by determination of number of crystals and supersaturation index by direct visualization, using an inverted microscope. Supplementation of the diet with choreito (at this concentration) did not change urine pH, specific gravity, osmolality, urine electrolyte composition, or calculated struvite activity product. However, supplementation significantly ($P < 0.05$) reduced crystal number and supersaturation index. These results indicate that direct observation of struvite crystal formation in whole urine may more accurately predict the effects of treatments to prevent or treat struvite urolithiasis than do calculations based on electrolyte concentration that do not account for.
Descriptors: cats, magnesium ammonium phosphate, diuretics, crystals, growth, in vitro culture, urine, feed supplements, supersaturation.

Buffington, C.A., D.J. Chew, and S.P. DiBartola (1994). **Lower urinary tract disease in cats: is diet still a cause?** *Journal of the American Veterinary Medical Association* 205(11): 1524-1527. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: urinary tract diseases, etiology, pet foods, magnesium, urine, calcium, urolithiasis, diets, cats.

Buffington, C.A.T. (1995). **Enteral diet selection for cats**. *Veterinary Clinical Nutrition* 2(4): 135-136. ISSN: 1076-3872.
NAL Call Number: SF94.5 .V48
Descriptors: diets, composition, enteral feeding, cats, liquid diets.

Buffington, C.A.T. and D.J. Chew (1999). **Diet therapy in cats with lower urinary tract disorders**. *Veterinary Medicine* 94(7): 626-630. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: urinary tract, diets, urinary tract diseases, diagnosis, cystitis, urolithiasis, cats.

Buffington, C.A.T., C. Holloway and S.K. Abood (2004). ***Manual of Veterinary Dietetics***, Saunders: St. Louis, Missouri, 253 p. ISBN: 0721601235.
NAL Call Number: SF992.N88 B84

Descriptors: dogs, cats, nutritional disorders in animals, processed foods, diseases, nutrition-related diseases.

Buranakarl, C., S. Mathur, and S.A. Brown (2004). **Effects of dietary sodium chloride intake on renal function and blood pressure in cats with normal and reduced renal function**. *American Journal of Veterinary Research* 65(5): 620-627. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: blood pressure, glomerular filtration rate, hypokaliaemia, kidneys, potassium, renal function, sodium chloride, cats.

Burger, I.H. (1994). **Energy needs of companion animals: matching food intakes to requirements throughout the life cycle.** *Journal of Nutrition* 124(12S): 2584S-2593S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: pet foods, cats, dogs, birds, energy requirements, life cycle, energy content, assessment, methodology, growth, reproduction.

Burkholder, W.J. (2001). **Precision and practicality of methods assessing body composition of dogs and cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(9A): 1-10. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: body condition, body fat, costs.

Burkholder, W.J. (2000). **Dietary considerations for dogs and cats with renal disease**. *Journal of the American Veterinary Medical Association* 216(11): 1730-1734. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: kidneys, kidney diseases, diets, feeding, treatment, acidosis, dietary protein, anorexia, cats.

Burkholder, W.J. and J.E. Bauer (1998). **Foods and techniques for managing obesity in companion animals.** *Journal of the American Veterinary Medical Association* 212(5): 658-662. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: dogs, cats, obesity, diagnosis, effects, prevention, weight loss diets, weight reduction.

Butterwick, R. (2001). **Considerations for weight-reduction programs.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(9A): 43-44. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, pets, obesity, weight losses, weight loss diets.

Butterwick, R.F. and P.J. Markwell (1996). **Changes in the body composition of cats during weight reduction by controlled dietary energy restriction**. *Veterinary Record* 138(15): 354-357. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: body composition, weight reduction, energy, body weight, obesity, pet foods, cats.

Carey, D.P. and G.A. Reinhart (Editors) (1998). ***Recent Advances in Canine and Feline Nutrition. Volume II : 1998 Iams Nutrition Symposium Proceedings***, Orange Frazer Press: Wilmington, Ohio, 564 p. ISBN: 1882203216.
NAL Call Number: SF427.4 .I2 1998
Descriptors: dogs, cats, nutrition research, nutrition.

Case, L.P. (2000). ***Canine and Feline Nutrition: A Resource for Companion Animal Professionals.*** 2nd edition, Mosby: St. Louis, Missouri, 592 p. ISBN: 0323004431.
NAL Call Number: SF427.4 .C37
Descriptors: dog food, cat food, dogs, cats, nutrition, companion animals.

Chan, D.L., L.M. Freeman, M.A. Labato, and J.E. Rush (2002). **Retrospective evaluation of partial parenteral nutrition in dogs and cats.** *Journal of Veterinary Internal Medicine* 16(4): 440-445. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: dogs, cats, parenteral feeding, supplementary feeding, small animal practice, feed formulation, chemical composition, body weight, energy requirements, species differences, nutritional state, energy intake.

Chandler, M. (2002). **Essentials of nutrition in dogs and cats with gastrointestinal disease**. *In Practice* 24(9): 528-533. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: animal nutrition, carbohydrates, fats, fibre, gastrointestinal diseases, minerals, nutrients, nutritional disorders, proteins, therapeutic diets, vitamins, cats, dogs.

Chandler, M.L., W.G. Guilford, C.R.O. Lawoko, and T. Whittem (1999). **Gastric emptying and intestinal transit times of radiopaque markers in cats fed a high-fiber diet with and without low-dose intravenous diazepam.** *Veterinary Radiology and Ultrasound* 40(1): 3-5. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: cats, stomach emptying, transit time, small intestine, colon, fiber, contrast media, digestibility markers, diazepam, particle size, normal values.

Chandler, M.L. and D.A. Gunn Moore (2004). **Nutritional status of canine and feline patients admitted to a referral veterinary internal medicine service.** *Journal of Nutrition* 134(8S): 2050S-2052S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82

Cheeke, P.R. (1999). ***Applied Animal Nutrition: Feeds and Feeding.***, 2nd edition, Prentice Hall: Hemel Hempstead, UK
, 525 p. ISBN: 0137793316.
NAL Call Number: SF95 .C463
Descriptors: feedstuffs, domestic animals, feeds andfeeding, nutrients, digestion, feed analysis, concentrates, roughage, forages, micronutrients, feed additives, feeding behavior, water, diet formulation, swine, birds, cattle, ruminants, horses, rabbits, dogs, cats, furbearing animals, wild animals, zoos, fish, livestock, aquatic organisms, animal welfare.

Cheuk, W.L., and M. Dierking (Inventors) **Pet food composition and method**. 2002). *Official Gazette of the United States Patent and Trademark Office Patents*, 1261 (3). ISSN: 0098-1133.
Online: http://www.uspto.gov/web/menu/patdata.html
NAL Call Number: T223. A21
Descriptors: food composition, food processing method, feline pet food.

Chew, B.P., J.S. Park, B.C. Weng, T.S. Wong, M.G. Hayek, and G.A. Reinhart (2000). **Dietary beta -carotene absorption by blood plasma and leukocytes in domestic cats**. *Journal of Nutrition* 130(9): 2322-2325. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: blood, carotenes, carotenoids, beta carotene, leukocytes, absorption, lymphocytes, kinetics, cats.

Christ, M., K. Haseroth, E. Falkenstein, and M. Wehling (1999). **Nongenomic steroid actions: Fact or fantasy?** *Vitamins and Hormones* 57: 325-373. ISSN: 0083-6729 .
NAL Call Number: 386.2 H243
Descriptors: endocrine system, cell biology, cellular function, feline.

Church, S.C., J.A. Allen, and J.W.S. Bradshaw (1996). **Frequency-dependent food selection by domestic cats: a comparative study.** *Ethology* 102(6): 495-509. ISSN: 0179-1613.
NAL Call Number: QL750 .E74
Descriptors: cats, domestic animals, feeding preferences, diet, selection, animal nutrition, anti apostatic selection.

Cook, N.E., Q.R. Rogers, and J.G. Morris (1996). **Acid-base balance affects dietary choice in cats.** *Appetite* 26(2): 175-192. ISSN: 0195-6663.
NAL Call Number: QP141 .A1A64
Abstract: The effect of acid-base status on self-selection of dietary protein was examined in three groups of adult male cats fed 20% soybean-protein and lactalbumin diets formulated to produce acidic, neutral or alkaline status. In two experiments, cats were offered a choice between the 20% protein diets or (1) the same diet with additional protein as casein (49% total crude protein) or (2) the same diet with added soybean-protein and lactalbumin (43% crude protein). Casein contained 0.63 mmol H+/g and caused all three groups to avoid the high casein diets by day 4. The high soybean-protein-lactalbumin diets did not contain added acid but would produce some extra acid upon catabolism of the sulfur-containing amino acids. Again, all three groups avoided the high protein diets by day 4. In a third choice trial, cats adapted to three low protein diets containing appropriate electrolytes to cause neutrality, acidemia or alkalemia, were offered a choice between: neutral vs. acidic; acidic vs. neutral or basic vs. acidic. The cats chose the neutral, neutral and basic diet respectively, restoring or maintaining acid-base homeostasis for each situation. The diets producing acidosis lowered serum sodium and potassium concentrations. We conclude that cats select appropriate diets in an attempt to maintain acid-base homeostasis.
Descriptors: food preferences, dietary protein, lactalbumin, acid base equilibrium, soybeans, pH, feed formulation, casein, homeostasis, cats.

Cowgill, L.D. (2003). **Advanced therapeutic approaches for the management of uraemia--'the met and unmet needs'.** *Journal of Feline Medicine and Surgery* 5(1): 57-67. ISSN: 1098-612X.
NAL Call Number: SF985.J68
Descriptors: cats, uremia, renal failure, diet therapy, hypertension, nutrient deficiencies, hemodialysis.

Cox, C. (1997). **Naso-oesophageal tube feeding in dogs and cats.** *In Practice* 19(1): 30-32. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: dogs, cats, tube feeding, liquid diets, protein energy malnutrition.

Crissey, S.D., J.A. Swanson, B.A. Lintzenich, B.A. Brewer, and K.A. Slifka (1997). **Use of a raw meat-based diet or a dry kibble diet for sand cats (*Felis margarita*).** *Journal of Animal Science* 75(8): 2154-2160. ISSN: 0021-8812.
NAL Call Number: 49 J82
Abstract: Limited information is available on the utilization of different types of diets by captive exotic felid species. Utilization of diets by small exotic felids may differ depending on the diet fed. Eight sand cats (*Felis margarita*), which are small, 2- to 4-kg cats, were used to examine the digestibility of two types of diets: a raw meat-based diet and a dry kibble diet. Dry matter, crude protein and energy intakes and digestibilities were evaluated. Digestibilities for dry matter, energy, and crude protein were 83.5 +/- 4.8, 89.6 +/- 5.2, 92.4 +/- 5.3% for the raw meat-based diet and 72.7 +/- 12.3, 76.8 +/- 14.5, and 77.9 +/- 13.5% for the kibble diet. Physiological variables also were examined and included plasma taurine, vitamin A, retinyl palmitate, beta-carotene, calcium, and phosphorus. Plasma taurine means were 91.4 +/- 8.4 micromole/L in cats consuming the raw meat-based diet and 248.0 +/- 23.2 micromole/L in cats consuming the kibble diet. Plasma phosphorus was 5.2 +/- .1 and 4.5 +/- .1 mg/dL, respectively, in cats consuming raw meat-based kibble diets. beta-Carotene was 25.2 +/- 2.9 and 2.9 +/- .3 microgram/dL, respectively, for cats consuming the raw meat-based and kibble diets. These results indicate that diets formulated for small captive exotic felid species should be evaluated with respect to diet type nutrient utilization.
Descriptors: felis, exotics, diets, utilization, digestibility, intake, dry matter, crude protein, energy, plasma, taurine, retinol, retinyl palmitate, beta carotene, calcium, phosphorus, exotic cats.

Crootof, M. (2004). **Food allergy or intolerance? New test holds promise for making the distinction**. *Veterinary Practice News* 16(11): 20-21. ISSN: 1528-6398.
Descriptors: adverse effects, allergens, antigens, clinical aspects, diagnosis, diagnostic techniques, elimination diets, food allergies, IgE, metabolic disorders, protein sources, pruritus, symptoms, tests, cats.

Crowe, D.T.Jr., J. Devey, D.A. Palmer, and J.A. Churchill (1997). **The use of polymeric liquid enteral diets for nutritional support in seriously ill or injured small animals: clinical results in 200 patients.** *Journal of the American Animal Hospital Association* 33(6): 500-508. ISSN: 0587-2871.
NAL Call Number: SF601 .A5

Descriptors: dogs, cats, liquid diets, enteral feeding, tube feeding, body weight, serum albumin, protein.

D' Mello, J.P.F. (2003). ***Amino Acids in Animal Nutrition***, 2nd edition, Vol. xii, Oxford University Press: Edinburgh, UK, 513 p. ISBN: 085199654X.
NAL Call Number: SF98.A4 A44
Descriptors: amino acid, amino acids, animal nutrition, livestock, poultry, cats, dogs, reference manual.

Dann, J.R., M.A. Adler, K.L. Duffy, and C.J. Giffard (2004). **A potential nutritional prophylactic for the reduction of feline hairball symptoms.** *Journal of Nutrition* 134(8S): 2124S-2125S . ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cats, hairballs, nutrition therapy, prophylaxis.

Davenport, D.J. and E. Logan (1996). **Nutrition in periodontal disease**. *Publication Veterinary Continuing Education* 169: 173-178. ISSN: 0112-9643.
NAL Call Number: SF604. P82
Descriptors: dental infection, periodontal disease, dogs, cats, symptoms, dental health, oral malodor, prevention, management.

Davidson, G. (2000). **Glucosamine and chondroitin sulfate.** *Compendium of Continuing Education for the Practicing Veterinarian* 22(5): 454-458. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: horses, dogs, cats, glucosamine, chondroitin sulfate, oral administration, dosage, feed additives, cartilage, joints animal, osteoarthritis, pain, nutraceuticals .

Davies, L. (1996). **Diaetfoder [Prescription diets]** . *Dansk Veterinaertidsskrift* 79(17): 774-775. ISSN: 0106-6854.
NAL Call Number: 41.9D23
Descriptors: feeds, pets, diets, cats.
Language of Text: Danish.

Davis, K.L. (1999). ***Mixed-Breed Cats: Everything About Purchase, Care, Nutrition, Health Care, Behavior, and Showing.***, Barron's: Hauppauge, New York, 95 p. ISBN: 0764108050 .
NAL Call Number: SF442 .D366
Descriptors: cats, health, nutrition, pets, behavior, showing.

Demeterova, M. and V. Vajda (1997). **Zasady praktickej vyzivy a krmenia maciek [Principles of the practical nutrition and feeding of cats]**. *Slovensky Veterinarsky Casopis* 22(1): 25-30. ISSN: 1335-0099.
Descriptors: nutrition, cats.
Language of Text: Slovakian with a summary in English.

Dethioux, F. (2003). **Itchy? Have you considered food allergy?** *Veterinary Nursing Times* 3(1): 14-16.
Descriptors: clinical aspects, food allergies, pets, pruritus, skin diseases, cats, dogs.

Dickinson, P.J., P.J.B. Anderson, D.C. Williams, H.C. Powell, G.D. Shelton, J.G. Morris, and R.A. LeCouteur (2004). **Assessment of the neurologic effects of dietary deficiencies of phenylalanine and tyrosine in cats**. *American Journal of Veterinary Research* 65(5): 671-680. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: nervous system diseases, nutrient deficiencies, phenylalanine, protein deficiencies, tyrosine, cats.

Dimski, D.S. (1997). **Feline hepatic lipidosis.** *Seminars on Veterinary Medical Surgery of Small Animals* 12(1): 28-33. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: cats, lipidosis, liver diseases, diagnosis, treatment, therapeutic diets, prognosis, lipids, mobilization, very low density lipoprotein, fatty acids, oxidation.

Dimski, D.S. and J. Taboada (1995). **Feline idiopathic hepatic lipidosis.** *Veterinary Clinics of North America, Small Animal Practice* 25(2): 357-373. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: cats, lipidosis, liver cells, liver diseases, symptoms, diagnostic techniques, nutritional support, therapeutic diets.
Notes: In the series analytic: Liver disease, edited by Donna S. Dimski.

Dinev, D., G. Simeonova, H. Hubenov, A. Vachkov, B. Aminkov, and D. Dimov (2001). **Feline urologic syndrome (FUS). I. Aetiological role of nutrition and bacterial infection**. *Bulgarian Journal of Veterinary Medicine* 4(2): 93-102. ISSN: 1311-1477.
Online: http://www.uni-sz.bg/vmf/bjvm/htm
Descriptors: age, body weight, glucose, haematuria, ketone bodies, magnesium, pH, phosphorus, proteins, specific gravity, urinary calculi, urine analysis, urolithiasis, water intake, cats.

Dobenecker, B. (1994). ***Einfluss von Futterzusammensetzung und Nahrungsentzug auf ausgewahlte Parameter des Fettstoffwechsels bei ubergewichtigen Katzen [The influence of feed composition and food withdrawal on selected fat metabolism parameters in overweight cats]***. Dissertation, Tierarztliche Hochschule Hannover: Hannover, Germany. 115 p.
NAL Call Number: DISS F1994524
Descriptors: cats, obesity, food composition, food withdrawl, fat metabolism parameters.
Language of Text: German; Summay in English.

Dodi, P.L. (1999). **Alimentazione, cute e allergia nel cane e nel gatto [Nutrition, skin and allergy in dogs and cats]**. *Obiettivi e Documenti Veterinari* 20(9): 39-40. ISSN: 0392-1913.
Descriptors: skin diseases, nutrition, allergic reactions, diagnosis, therapy, allergies, food

allergies, cats.
Language of Text: Italian.

Dodi, P.L. (1999). **Vitamine idrosolubili nell'alimentazione dei carnivori. [Water-soluble vitamins in the nutrition of dogs and cats]**. *Obiettivi e Documenti Veterinari* 20(4): 23-24. ISSN: 0392-1913.
Descriptors: vitamins, vitamin B complex, folic acid, biotin, pantothenic acid, nicotinic acid, choline, ascorbic acid, nutrition, water soluble vitamins, dogs, cats.
Language of Text: Italian.

Dodi, P.L. (1998). **Nutrizione del cane e del gatto [Nutrition of dogs and cats]**. *Obiettivi e Documenti Veterinari* 19(10): 23-24. ISSN: 0392-1913.
Descriptors: pets, nutrition, nutrient requirements, cats.
Language of Text: Italian.

Donoghue, S. (1994). **Nutritional support of hospitalised dogs and cats.** *Australian Veterinary Journal* 71(10): 332-336. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: dogs, cats, animal hospitals, nutritional support, caloric intake, dietary protein, energy requirements, nutritional assessment, dietary fat, dietary carbohydrate, hospital diets, clinical nutrition.

Edgar, S.E., M.A. Hickman, M.M. Marsden, J.G. Morris, and Q.R. Rogers (1994). **Dietary cysteic acid serves as a precursor of taurine for cats.** *Journal of Nutrition* 124(1): 103-109. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: The ability of cats to use dietary cysteic acid as a precursor for taurine was examined. For 39 wk, six groups of four specific-pathogen-free cats each were fed purified diets that provided either 1.25 9 taurine or 0, 1.0, 2.0, 10 or 20 g cysteic acid/kg diet. Concentrations of taurine in plasma and whole blood were measured weekly for 13 wk and monthly until 39 wk. Muscle concentrations of taurine at 12 wk were measured on a biopsy sample of the semitendinosus muscle. Fecal and urinary excretions of taurine and cysteic acid at 17 wk were measured. Concentrations of taurine in plasma and whole blood were linearly and positively correlated with cysteic acid in the diet (r2 = 0.88). Urinary taurine, a major route of excess taurine excretion, was positively correlated with the cysteic acid concentration of the diet (r2 = 0.94). Muscle and whole-blood taurine concentrations were also positively correlated (r2 = 0.96) with dietary cysteic acid concentration. Gross and histopathological examinations were performed on cats fed diets containing 20 g cysteic acid/kg diet. No adverse gross clinical signs were observed in cats fed any diets containing cysteic acid; minor histopathologic changes of the pancreas and thyroid were found in three of four cats fed 20 g cysteic acid/kg diet. Results suggest that cats are able to use dietary cysteic acid as a precursor for taurine biosynthesis.
Descriptors: kittens, cysteic acid, diet, taurine, precursors, feces, urine, excretion, muscle tissue, biosynthesis, cats.

Edgar, S.E., C.A. Kirk, Q.R. Rogers, and J.G. Morris (1998). **Taurine status in cats is not maintained by dietary cysteinesulfinic acid**. *Journal of Nutrition* 128(4): 751-757. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: taurine, nutritional state, cysteinesulfinic acid, diets, depletion, excretion, feces, urine, intestines, intestinal mucosa, liver, mucosa, muscles, precursors, synthesis, cysteic acid, cats, rats.

Elliot, J., J.M. Rawlings, P.J. Markwell, and P.J. Barber (2000). **Survival of cats with naturally occurring chronic renal failure: effect of dietary management.** *Journal of Small Animal Practice* 41(6): 235-242. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: cats, survival, renal failure, phosphorus, protein modified diets, binding agents, phosphates, urea, plasma, parathyrin, hyperphosphatemia, hyperparathyroidism.

Elliott, D.A. (2002). **Application of peg-tubes for the nutritional management of renal failure.** *Proceedings of the North American Veterinary Conference* 16: 429-430.
NAL Call Number: SF605 .N672
Descriptors: cats, renal failure, therapeutic diets.

Fascetti, A.J., D.J. Maggs, M.L. Kanchuk, H.E. Clarke, and Q.R. Rogers (2004). **Excess dietary lysine does not cause lysine-arginine antagonism in adult cats.** *Journal of Nutrition* 134(8S): 2042S-2045S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cats, lysine, arginine, amino acids, diet.

Fascetti, A.J., Q.R. Rogers, and J.G. Morris (2000). **Dietary copper influences reproduction in cats**. *Journal of Nutrition* 130(5): 1287-1290. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: copper, reproduction, ceruloplasmin, diets, pregnancy, liver, superoxide dismutase, evaluation, cats.

Feldhahn, J. (1996). **The use of enteral nutrition in critically ill small animals**. *Australian Veterinary Practitioner* 26(2): 93-99. ISSN: 0310-138X.
NAL Call Number: SF601.A9
Descriptors: domestic animals, nutrient requirements, enteral feeding, nutritional support, diets, nutrition, feeding, reviews, cats.

Fettman, M.J., K.D. Valerius, G.K. Ogilvie, C.L. Bedwell, K.L. Richardson, J.A. Walton, and D.W. Hamar (1999). **Effects of dietary cysteine on blood sulfur amino acid, glutathione, and malondialdehyde concentrations in cats.** *American Journal of Veterinary Research* 60(3): 328-333. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, feed formulation, feeds, cysteine, sulfur amino acids, glutathione, oxidation, malonaldehyde, intake, cells.

Fettmann, M.J., C.A. Stanton, L.L. Banks, D.E. Johnson, D.W. Hamar, R.L. Hegstad, and S. Johnston (1998). **Effects of weight gain and loss on metabolic rate, glucose tolerance, and serum lipids in domestic cats.** *Research in Veterinary Science* 64(1): 11-16. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Abstract: Weight gain is a common problem in domestic cats, but little is known about its metabolic effects. The purpose of this study was to determine the effects of diet-induced weight gain and subsequent weight loss on metabolic rate, body composition, and glucose tolerance. Gain of approximately 20 per cent body weight (divided approximately equally between fat and fat-free mass) over three months resulted in insulin resistance in females, indicated by increases in basal insulin concentration (68.2+/-7.9 to 119 +/-16.5 pmol litre-1, P<0.05), insulin peak response to glucose (241.1 +/-31.6 to 315.0 +/-/23.0 pmol litre-1, P<0.05), and delta I/delta G (14.2+/-2.6 to 18.1+/-1.3 pmol mmol-1, P<0.05) compared with pre-gain values. The same numerical trend was noted in male cats, however, changes were not significant (P>0.05). Alterations in serum lipids included significant (P<0.05) elevations in triglyceride concentations in male cats and decreased beta-lipoprotein concentrations in both genders. Weight loss over three months normalised basal insulin, insulin response to glucose, and serum triglyceride concentrations, and resulted in significant (P<0.05) decreases in serum concentrations of beta- and pre-beta-lipoproteins, cholesterol, and triiodothyronine. Diet-induced weight gain of three months' duration, followed by three months' maintenance of increased body weight did not affect fasting or resting metabolic rate. Development and severity of impaired glucose tolerance, insulin resistance, and other changes may be affected by duration and possibly severity of weight gain.
Descriptors: cats, glucose tolerance, lipids, liveweight gain, weight losses, body composition, thyroid hormones, lipid.

Filippich, L.J. (1994). **Feline lower urinary tract disease: dietary considerations**. *Australian Veterinary Journal* 71(10): 326-327. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: urinary tract, urinary tract diseases, diets, cats.

Finco, D.R. (1998). **Chronic renal failure: Dietary protein and phosphorus.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 12: 399.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, therapeutic diets, chronic renal failure.

Finco, D.R., S.A. Brown, C.A. Brown, W.A. Crowell, G. Sunvold, and T.L. Cooper (1998). **Protein and calorie effects on progression of induced chronic renal failure in cats.** *American Journal of Veterinary Research* 59(5): 575-582. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, renal failure, disease course, dietary protein, protein intake, caloric intake, protein modified diets, calorie modified diets, kidneys, lesions, glomerular filtration rate.

Flatt, W.P. (2002). **Animal needs and uses (comparative nutrition)**. In: C.D. Berdanier (Editor), *Handbook of Nutrition and Food*, CRC Press Inc.: Boca Raton, USA, p. 163-172.

ISBN: 0849327059.
NAL Call Number: QP141.H345
Descriptors: animal nutrition, laboratory animals, nutrient requirements, poultry, cats, cattle, Colinus virginianus, dogs, ducks, fishes, fowls, foxes, geese, gerbils, goats, guineapigs, hamsters, horses, Japanese quails, mice, mink, pHasianus, pHeasants, pigs, Primates, rabbits, rats, sheep, turkeys, voles.

Fleeman, L. (2004). **Prevention of obesity in dogs and cats: how much food is enough food?** *Commonwealth Veterinary Association News* 20(1): 36-37.
Descriptors: body condition, disease prevention, energy requirements, obesity, pet foods, cats.

Freeman, L.M. (2004). **Surgical nutrition: diets for common surgical diseases**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 648-649.
Descriptors: body condition, body weight, calories, canned products, diets, gastrointestinal diseases, liver failure, neoplasms, nutrient requirements, postoperative care, protein content, surgery, therapeutic diets, urolithiasis, cats.

Freeman, L.M. (2004). **Nutrition bingo: food facts**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 18: 650-651.
Descriptors: diets, energy value, feed formulation, labelling, nutrient requirements, nutritive value, pet foods, pets, cats.
Notes: Meeting Information: Small animal and exotics Book one: Alternative medicine orthopedics, Orlando, Florida, USA; 17-21 January 2004.

Freeman, L.M. (1998). **Interventional nutrition for cardiac disease**. *Clinical Techniques in Small Animal Practice* 13(4): 232-237. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: pets, heart diseases, antioxidants, polyenoic fatty acids, taurine, carnitine, cachexia, malnutrition, obesity, diet treatment, potassium, magnesium, hypokaliaemia, cardiomyopathy, vitamin B complex, reviews, cats.

Freeman, L.M., D.J. Brown, F.W.K. Smith, and J.E. Rush (1997). **Magnesium status and the effect of magnesium supplementation in feline hypertrophic cardiomyopathy.** *Canadian Journal of Veterinary Research* 61(3): 227-231. ISSN: 0830-9000.
NAL Call Number: SF601 .C24
Descriptors: cats, cardiomyopathy, dietary minerals, magnesium, diets, serum, creatinine, urine, pH, specific gravity, lactose, heart rate, pressure, urinary tract diseases.
Language of Text: English; LS=French.

Funaba, M., M. Hashimoto, C. Yamanaka, Y. Shimogori, T. Iriki, S. Ohshima, and M. Abe (1996). **Effects of a high-protein diet on mineral metabolism and struvite activity product in clinically normal cats.** *American Journal of Veterinary Research* 57(12): 1726-1732. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, protein modifications, mineral, magnesium ammonium phosphate,

urolithiasis, protein content, diet, urine, mineral content, acidity, volume, water intake, food intake.

Funaba, M., A. Uchiyama, K. Takahashi, M. Kaneko, H. Yamamoto, K. Namikawa, T. Iriki, Y. Hatano, and M. Abe (2004). **Evaluation of effects of dietary carbohydrate on formation of struvite crystals in urine and macromineral balance in clinically normal cats**. *American Journal of Veterinary Research* 65(2): 138-142. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: calcium, carbohydrates, crude protein, fibre, magnesium, phosphorus, risk factors, urinary calculi, urine, urolithiasis, cats.

Funaba, M., T. Yamate, Y. Hashida, K. Maki, K. Gotoh, M. Kaneko, H. Yamamoto, T. Iriki, Y. Hatano, and M. Abe (2003). **Effects of a high-protein diet versus dietary supplementation with ammonium chloride on struvite crystal formation in urine of clinically normal cats.** *American Journal of Veterinary Research* 64(8): 1059-1064. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: high-protein diet, struvite crystals, ammonium chloride.

Ginzinger, D., D. Redenbach, J.E. Wilson, J. Betts, B.M. McManus, and M. Hayden (1996). **Diet-induced atherosclerosis in normal and lpl deficient heterozygote cats**. *Modern Pathology* 9(1): 29A. ISSN: 0893-3952.
Descriptors: atherosclerosis, cats, cardiovascular system, nutrition, animal model, lipoprotein lipase gene, pro atherogenic diet, heterozygote.
Notes: Meeting Information: 1996 Annual Meeting of the United States and Canadian Academy of Pathology, Washington, D.C., USA; March 23-29, 1996.

Goldstein, R.E., S.L. Marks, L.D. Cowgill, P.H. Kass, and Q.R. Rogers (1999). **Plasma amino acid profiles in cats with naturally acquired chronic renal failure.** *American Journal of Veterinary Research* 60(1): 109-113. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, renal failure, plasma, disease course, dietary protein, weight losses, appetite, body condition, amino acids, quantitative analysis.

Gonzalez, F.H.D., V. Carvalho, V. Moller, and F.R. Duarte (2003). **Blood biochemical profile in dogs and cats under different feeding diets**. *Archives of Veterinary Science* 8(1): 23-27. ISSN: 1517-784X.
NAL Call Number: SF604
Descriptors: blood, sugar, calcium, cholesterol, diets, haematocrit, hematology, haemoglobin, magnesium, nitrogen, phosphorus, serum albumin, cats.
Language of Text: English; Summary in Portuguese.

Goodwin, J.K. and K.N. Strickland (1998). **The role of dietary modification and nondrug therapy in dogs and cats with congestive heart failure.** *Veterinary Medicine* 93(10): 919-926. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, heart diseases, heart, failure, therapeutic diets, therapy,

nutritional state, sodium, electrolytes, cardiovascular agents, carnitine, taurine, fish oils, ubiquinones.

Gorman, N.T. (1995). **Vaccine-induced neoplasia.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 9: 253.
NAL Call Number: SF605.N672
Descriptors: cats, vaccination, sarcoma, neoplasms.

Gough, A. (2005). **Dietary management of feline struvite urolithiasis**. *Veterinary Times* 35(20): 18. ISSN: 1352-9374.
Descriptors: clinical aspects, disease prevention, epidemiology, nutritional support, therapeutic diets, therapy, urinary tract, urine, urolithiasis, water intake, cats.

Grant, D.C. and S.D. Forrester (2001). **Glomerulonephritis in dogs and cats: diagnosis and treatment.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(9): 798-805. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, glomerulonepHritis, diagnosis, diagnostic techniques, immunosuppressive agents, enzyme inhibitors, aspirin, therapeutic diets, prognosis.

Gray, C.M., R.K. Sellon, and L.M. Freeman (2004). **Nutritional adequacy of two vegan diets for cats.** *Journal of the American Veterinary Medical Association* 225(11): 1670-1675. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, vegan diet, dietary needs, health.

Groeneveld, E.A., H.J. Kappert, J. van der Kuilen, and A.C. Beynen (2001). **Consumption of fructooligosaccharides and nitrogen excretion in cats.** *International Journal Vitamin Nutrition Research* 71(4): 254-256. ISSN: 0300-9831.
NAL Call Number: 389.8 Z33
Abstract: In a cross-over study with adult cats the effect on nitrogen (N) excretion of a diet supplemented with fructooligosaccharides (FOS) was compared with a diet supplemented with an equal amount of fructose and glucose. FOS raised N excretion with faeces by 26% ($P < 0.05$) and non-significantly lowered N excretion with urine by 5%. Thus, there was a shift in N excretion from urine to faeces. The amount of faecal dry matter was significantly higher (by 23.3%) when FOS was consumed.
Descriptors: cats, animal models, oligosaccharides, nitrogen, excretion, food supplements, fructose, glucose, feces, composition, urine analysis, urine, dry matter.

Guaguere, G. and P. Prelaud (1998). **Les intolerances alimentaires [Food intolerance]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 33(Supplement 3): 389-406. ISSN: 0758-1882.
Descriptors: skin diseases, food allergies, allergies, diagnosis, immune response, reviews, cats.
Language of Text: French with a summary in English.

Guilford, G. (1999). **Feline nutrition update**. *Publication Veterinary Continuing Education*(191): 17-24. ISSN: 0112-9643.
NAL Call Number: SF604. P82 no.220
Descriptors: nutrient requirements, cats, commercial diets, pet food, nutritional disorders, treatment of nutritional disorders, hepatic lipidosis, amino acid deficiency, thiamin deficiency, food allergy, dysuria.
Notes: Meeting Information: New Zealand Veterinary Association (NZVA) Conference, Nelson, New Zealand; 28 June-3 July, 1999.

Guilford, W.G. (1994). **Adverse reactions to foods: a gastrointestinal perspective.** *Compendium of Continuing Education for the Practicing Veterinarian* 16(8): 957-961, 964-966, 968-969, 1018. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, food related disorders, food intolerance, pet foods, diagnosis, diet treatment, elimination diets, food allergies, symptoms, gastrointestinal diseases, allergens, fodo allergens.

Guilford, W.G. (1994). **Nutritional management of gastrointestinal tract diseases of dogs and cats.** *Journal of Nutrition* 124(12S): 2663S-2669S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: dogs, cats, gastrointestinal diseases, diet treatment, deglutition, stomach diseases, gastroenteritis, diarrhea, chronic course, acute course, intestinal diseases, protein loss, flatulence, sounds, dyspHagia, inflammatory bowel disease, large bowel disease, borborygmus .

Guilford, W.G., B.R. Jones, P.J. Markwell, D.G. Arthur, M.G. Collett, and J.G. Harte (2001). **Food sensitivity in cats with chronic idiopathic gastrointestinal problems**. *Journal of Veterinary Internal Medicine* 15(1): 7-13. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: allergens, clinical aspects, diagnosis, diarrhea, disease prevalence, food allergies, gastrointestinal diseases, IgE, vomiting, weight losses, cats.

Hall, E.J. (2002). **Treatment options for managing gastrointestinal disease in cats.** *Proceedings of the North American Veterinary Conference* 16: 258-260.
NAL Call Number: SF605 .N672
Descriptors: cats, gastrointestinal diseases, infections, therapeutic diets.

Hall, E.J. (1998). **Food allergy.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 12: 273-274.
NAL Call Number: SF605.N672
Descriptors: food allergies, dogs, cats, elimination diets.

Hall, E.J. (1994). **Gastrointestinal aspects of food allergy: a review.** *Journal of Small Animal Practice* 35(3): 145-152. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: dogs, cats, food allergies, digestive tract, food intolerance, immune system, symptoms, diagnosis, therapeutic diets, medical treatment.

Hall, J.A. (1996). **Potential adverse effects of long-term consumption of (n-3) fatty acids.** *Compendium of Continuing Education for the Practicing Veterinarian* 18(8): 879-895. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, diets, polyenoic fatty acids, lipogenesis, hyperglycemia, lipid peroxidation, atherosclerosis.

Halliwell, R.E.W. (1997). **Efficacy of hyposensitization in feline allergic diseases based upon results of in vitro testing for allergen-specific immunoglobulin E.** *Journal of the American Animal Hospital Association* 33(3): 282-288. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: cats, allergies, IGE, immune desensitization, diet, immunotherapy, efficacy.

Hammer, V.A., Q.R. Rogers, and R.A. Freedland (1996). **Threonine is catabolized by L-threonine 3-dehydrogenase and threonine dehydratase in hepatocytes from domestic cats (Felis domestica).** *Journal of Nutrition* 126(9): 2218-2226. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: Isolated hepatocytes were used to study threonine catabolism in kittens, and dietary threonine and crude protein were varied to study enzyme adaptation. Cells were isolated from 21-wk-old kittens which had been fed diets containing threonine at 4 or 8 g/kg of diet with either 200 or 500 g crude protein/kg of diet (2 x 2 factorial, n = 4/group). Production of CO2, glucose and various metabolites from [U-14C]threonine were measured. Inclusion of 10 mmol/L glycine, or glycine in combination with 10 mmol/L acetaldehyde + ethanol, in the incubation medium decreased formation of 14CO2 and [14C]glucose. At the same time, large amounts of [14C]glycine but no [14C]ethanol was formed. Inclusion of 10 mmol/L 2-ketobutyrate + 2-hydroxybutyrate decreased 14CO2 but not [14C]glucose production and resulted in the formation of [14C]2-hydroxybutyrate. Under all incubation conditions, 14CO2 and [14C]glucose production changed in response to alterations in dietary protein but not dietary threonine. It appears that threonine dehydratase and L-threonine 3-dehydrogenase, but not threonine aldolase, are active pathways for threonine metabolism in cats, and both enzymes are sensitive to levels of dietary protein.
Descriptors: butyric acid, hydro lyases, alcohol oxidoreductases, aldehyde lyases, enzyme activity, amino acid, dosage effects, carbon dioxide, experimental diets, catabolism, liver cells, protein intake.

Hammer, V.A., Q.R. Rogers, and J.G. Morris (1996). **Dietary crude protein increases slightly the requirement for threonine in kittens**. *Journal of Nutrition* 126(5): 1496-1504. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: protein, threonine, protein requirement, essential amino acids, growth, intake, requirements, cats.

Hand, M.S., C.D. Thatcher, R.L. Remillard and P. Roudebush (2002). ***Klinische Diatetik Fur Kleintiere, I Und II. [Clinical Dietetics for Small Animals, I and II],*** 4th edition,

Schlutersche GmbH & Co. KG, Verlag und Druckerei.
: Hannover, Germany, 1548 p.
Descriptors: animal feeding, animal health, case studies, pets, pet food, feeding guidelines, clinical dietetics, feeding sick animals.
Language of Text: German.

Hand, M.S. and L.D. Lewis (2000). ***Small Animal Clinical Nutrition.*** 4th edition, Mark Morris Institute: Topeka, Kan., 1192 p. ISBN: 0945837054.
NAL Call Number: SF992.N88 S63
Descriptors: dogs, cats, dieseases, nutrition, nutritional disorders, cat food, dog food.

Harbison, J.L., M.R. Slater, and L.M. Howe (2002). **Repeatability and prediction from a telephone questionnaire measuring diet and activity level in cats.** *Preventative Veterinary Medicine* 55(2): 79-94. ISSN: 0167-5877.
NAL Call Number: SF601.P7
Descriptors: cats, surveys, questionnaires, diet, physical activity, exercise, evaluation, animal health, temporal variation, data collection, errors, body condition, appetite, feeding frequency.

Harless, S.J. (1999). **Dietary supplement for alleviating behavioral problems in canines and reducing seizures in canines and felines**. *Official Gazette of the United States Patent and Trademark Office Patents* 1220(3): 2562. ISSN: 0098-1133.
NAL Call Number: T223. A21
Descriptors: nervous system, cats, nutrition, medicine, behavioral problems, dietary supplement, seizures, soy lecithin, taurine, treatment .

Hart, R.K., M.C. Calver, and C.R. Dickman (2002). **The index of relative importance: An alternative approach to reducing bias in descriptive studies of animal diets**. *Wildlife Research* 29(5): 415-421. ISSN: 1035-3712.
NAL Call Number: S960 .W5
Descriptors: animal feeding, diets, methodology, nutrition information, cats.

Harte, J.G., P.J. Markwell, R.M. Moraillon, G.G. Gettinby, B.H.E. Smith, and J.M. Wills (1994). **Dietary management of naturally occurring chronic renal failure in cats**. *Journal of Nutrition* 124(12 Suppl): 2660S-2662S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: renal failure, phosphorus, intake, protein intake, kidney diseases, diets, dietary protein, cats.

Harvey, R.G. (1996). **Nutrition and skin disorders**. In: N.C. Kelly and J.M. Wills (Editors), *British Small Animal Veterinary Association Manual of Companion Animal Nutrition and Feeding,* British Small Animal Veterinary Association: Cheltenham, UK, p. 153-160. ISBN: 090521434.
Descriptors: nutritional disorders, skin diseases, diet treatment, diets, cats, nutritional dermatosis, feeding management, breed susceptibility, literature review.

Hashimoto, M., M. Funaba, M. Abe, and S. Ohshima (1995). **Dietary protein levels affect water intake and urinary excretion of magnesium and phosphorus in laboratory cats**. *Experimental Animals* 44(1): 29-35. ISSN: 0007-5124.
NAL Call Number: QL55. J55
Descriptors: excretion, minerals, drinking water, laboratory animals, water intake, protein intake, magnesium, phosphorus, urine, dietary protein, cats.

Hashimoto, M., M. Funaba, S. Ohshima, and M. Abe (1995). **Characteristic relation between dietary metabolizable energy content and digestible energy content in laboratory cats**. *Experimental Animals* 44(1): 23-28. ISSN: 0007-5124.
NAL Call Number: QL55. J55
Descriptors: energy content, laboratory animals, laboratory, metabolizable energy, estimation, digestible energy, diets, cats.

Hashimoto, M., M. Funaba, M. Abe, and S. Ohshima (1996). **Effect of chronic high protein intake on magnesium, calcium, and phosphorus balance in growing cats**. *Experimental Animals* 45(1): 63-70. ISSN: 0007-5124.
NAL Call Number: QL55. J55
Descriptors: metabolism, nutrition, Cats, struvite crystallization, magnesium, phosphorus, calcium, mineral balance, high protein diet.

Hawthrone, A.J. and P.J. Markwell (2004). **Dietary sodium promotes increased water intake and urine volume in cats.** *Journal of Nutrition* 134(8S): 2128S-2129S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cats, diet, sodium, urinary output.

Hayasaki, M. (1994). **Nutrition and immunization in dogs and cats**. *Journal of Veterinary Medicine, Japan* 47(6): 487-490. ISSN: 0447-0192.
Descriptors: immunity, nutrition, immunization, cats.
Language of Text: Japanese.

Hayek, M.G. and G.A. Reinhart (1998). **Utilization of omega3 fatty acids in companion animal nutrition.** In: *The Return of [Omega] 3 Fatty Acids into the Food Supply 1, Land Based Animal Food Products and Their Health Effects / International Conference on the Return of [Omega] 3 Fatty Acids into the Food Supply*, World Review of Nutrition and Dietetics, Vol. 83, Karger: Basel; New York, p. 176-185. ISBN: 3805566948.
NAL Call Number: 389.1 W892 v.83
Descriptors: dogs, cats, animal feeding, lipid, nutrient requirements, nutrient sources, diet, supplements, literature reviews.

Hayek, M.G., S.P. Massimino, and M.A. Ceddia (2004). **Modulation of immune response through nutraceutical interventions: implications for canine and feline health.** *Veterinary Clinics of North America Small Animal Practice* 34(1): 229-247. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: immune system, feline health, nutrition, aging, exercise, immune response.

Heaton, P. and R. Ransley (2001). **The comet assay: A measure of DNA protection in cats fed diets developed with WALTHAM science**. *Waltham Focus* 11(3): 28-29. ISSN: 1354-0157.
Descriptors: antioxidants, cell ultrastructure, diets, DNA repair, free radicals, cats.

Heaton, P.R., R. Ransley, C.J. Charlton, S.J. Mann, J. Stevenson, B.H.E. Smith, J.M. Rawlings, and E.J. Harper (2002). **Application of single-cell gel electrophoresis (comet) assay for assessing levels of dna damage in canine and feline leukocytes**. *Journal of Nutrition* 132(6 Supplement S2): 1598S-1603S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: analytical method, DNA damage, feline leukocyte, single cell gel electropHoresis assay, comet assay, analytical method, visual analysis, computer image analysis, correlation.

Hedhammar, A. (1996). **Nutrition related orthopaedic diseases**. In: *British Small Animal Veterinary Association Manual of Companion Animal Nutrition and Feeding,* British Small Animal Veterinary Association (BSAVA).
: Cheltenham, UK, p. 198-206. ISBN: 090521434.
Descriptors: nutritional disorders, nutrient requirements, bone diseases, diet treatment, dogs, cats.

Hendriks, W.H., P.J. Moughan, and M.F. Tarttelin (1997). **Urinary excretion of endogenous nitrogen metabolites in adult domestic cats using a protein-free diet and the regression technique.** *Journal of Nutrition* 127(4): 623-629. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: The study was designed to determine urinary excretions of endogenous total, urea, ammonia and creatinine nitrogen in adult domestic cats. Endogenous urinary nitrogen metabolite excretions were determined by feeding adult cats a protein-free diet for 10 d or by regression to zero protein intake of the urinary nitrogen metabolite excretions of adult cats fed four levels of dietary protein. The mean (+/- SEM) endogenous total, urea and ammonia nitrogen excretions for the cats fed the protein-free diet were 360 (+/-11.3), 243 (+/-8.8) and 27.6 (+/-1.06) mg.kg body weight-0.75 d-1, respectively. Estimates of 316 (+/-53.9), 232 (+/-43.4) and 33.7 (+/-5.68) mg kg body weight-0.75.d-1, respectively, were obtained using the regression technique. The differences in results between the two techniques were not statistically significant. Daily excretions of creatinine nitrogen were not significantly (P = 0.64) different between the protein-free and regression technique (mean +/- SEM, 14.4 +/- 0.49 and 15.9 +/- 1.05 mg/kg body weight 0.75, respectively). The endogenous urinary total and urea nitrogen excretion of adult domestic cats is higher than values for other mammals such as humans, dogs, rats and pigs.
Descriptors: cats, dietary protein, urea, ammonia, creatine, nitrogen, nutrient uptake, urine, metabolites, excretion, protein intake, diet, dosage effects, body weight, comparisons, estimates, experimental diets, food intake.

Hendriks, W.H., R. Vather, S.M. Rutherfurd, K. Weidgraaf, and K.J. Rutherfurd Markwick (2004). **Urinary isovalthine excretion in adult cats is not gender dependent or increased by oral leucine supplementation.** *Journal of Nutrition* 134(8S): 2114S-2116S.

ISSN: 0022-3166.
NAL Call Number: 389.8 J82

Hendriks, W.H., P.J. Moughan, and M.F. Tarttelin (1996). **Gut endogenous nitrogen and amino acid excretions in adult domestic cats fed a protein-free diet or an enzymatically hydrolyzed casein-based diet**. *Journal of Nutrition* 126(4): 955-962. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: digestive system, nutrition, hydrolyzed casein, protein free diet, alanine, antibiotics, aspartic acid, glutamic acid, bacteria, glycine, histidine, isoleucine, leucine, lysine, methionine, proline, serine, taurine, valine, chromic oxide, ileum, fecal gut, peptides.

Hesta, M., E. Hoornaert, A. Verlinden, and G.P.J. Janssens (2005). **The effect of oligofructose on urea metabolism and faecal odour components in cats**. *Journal of Animal Physiology and Animal Nutrition* 89(3-6): 208-214. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: nutrition, digestive system, oligofructose, urinary system, reduced protein diet, solid pHase micro extraction, N 15, protein diet, sulpHur, urea, fecal odour component.

Hill, A.S., Q.R. Rogers, S.L. O'neill, and M.M. Christopher (2005). **Effects of dietary antioxidant supplementation before and after oral acetaminophen challenge in cats**. *American Journal of Veterinary Research* 66(2): 196-204. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: nutrition, lipoic acid, vitamin E, cysteine, acetaminophen, dietary antioxidant supplementation, lymphocyte blatogenesis, methhemoglobin, tbars, cbc, glutahione, dihydrolipoate.

Hill, P. (1999). **Diagnosing cutaneous food allergies in dogs and cats - some practical considerations**. *In Practice* 21(6): 287-294. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: allergies, diagnosis, pruritus, skin diseases, treatment, differential diagnosis, food allergies, cats.

Hill, R. (1996). **Simplified total parenteral nutrition in practice.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 10: 318-319.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, nutrition.

Holloway, C. and C.A.T. Buffington (1999). **Incorporating nutrition education into patient care**. *Feline Practice* 27(6): 5-6. ISSN: 0046-3639.
NAL Call Number: SF985.F4
Descriptors: pets, feeds, pet foods, nutrition education.

Houpt, K.A. and S. Zicker (2003). **Dietary effects on canine and feline behavior**. *Veterinary Clinics of North America, Small Animal Practice* 33(2): 405-416. ISSN: 0195-5616.

NAL Call Number: SF601. V523
Descriptors: aggression, amino acids, animal behaviour, dietary protein, diets, energy balance, energy restricted diets, fat, fibre, kittens, malnutrition, minerals, nutrient deficiencies, pups, reviews, tryptophan, vitamin deficiencies, cats.

Houston, D.M., N.E. Rinkardt, and J. Hilton (2004). **Evaluation of the efficacy of a commercial diet in the dissolution of feline struvite bladder uroliths.** *Veterinary Therapeutics Research in Applied Veterinary Medicine* 5(3): 187-201. ISSN: 1528-3593.
NAL Call Number: SF601 .V4745
Descriptors: cats, bladder calculi, diet therapy.

Howe, L.M. and H.W.Jr. Boothe (2002). **Diagnosing and treating portosystemic shunts in dogs and cats.** *Veterinary Medicine* 97(6): 448-459. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, vascular diseases, clinical aspects, diagnosis, liver function tests, treatment, therapeutic diets, medical treatment, surgery, postoperative, prognosis.

Hughes, K.L., M.R. Slater, S. Geller, W.J. Burkholder, and C. Fitzgerald (2002). **Diet and lifestyle variables as risk factors for chronic renal failure in pet cats**. *Preventative Veterinary Medicine* 55(1): 1-15. ISSN: 0167-5877.
NAL Call Number: SF601. P7
Descriptors: diet, kidney diseases, renal failure, risk assessment, risk factors, cats.

Hullar, I., S. Fekete, E. Andrasofszky, Z. Szocs, and T. Berkenyi (2001). **Factors influencing the food preference of cats**. *Journal of Animal Physiology and Animal Nutrition* 85(7/8): 205-211. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: beef, feeding habits, feeding preferences, fish, odors, poultry meat, taste, cats.

Hurley, K.J. and P. Markwell (2001). **Optimum nutrition for critical care patients**. *Waltham Focus* 11(3): 30-32. ISSN: 1354-0157.
Descriptors: antioxidants, carbohydrate, fats, nutrient requirements, nutrition, protein, vitamin B complex, cats, dogs.

Iben, C. and J. Leibetseder (1994). **Handrearing of orphaned puppies and kittens.** *Journal of Nutrition* 124(12S): 2630S-2632S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: puppies, kittens, dogs, cats, artificial rearing, artificial foods, milks, nutrient content, body weight, food intake, energy content, energy intake, digestibility, milk replacers.

Iben, C. (1996). ***Diatmanagement Bei Hund Und Katze [Diet Management for Dogs and Cats]***, G. Fischer: Jena, 155 p. ISBN: 3334609030.
NAL Call Number: SF427.4.I23
Descriptors: nutritional requirements, dogs, cats, diet.
Language of Text: German.

Ibrahim, W.H., J. Szabo, G.D. Sunvold, J.K. Kelleher, and G.G. Bruckner (2000). **Effect of dietary protein quality and fatty acid composition on plasma lipoprotein concentrations and hepatic triglyceride fatty acid synthesis in obese cats undergoing rapid weight loss**. *American Journal of Veterinary Research* 61(5): 566-572. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: diets, lipoproteins, obesity, protein quality, weight losses, body weight, cholesterol, energy requirements, essential fatty acids, fatty acids, high density lipoprotein, liver, protein sources, weight reduction, lipid disorders, dietary fat, dietary protein, liver diseases, lipidosis, cats.

Jackson, H.A. (2001). **Diagnostic techniques in dermatology: the investigation and diagnosis of adverse food reactions in dogs and cats.** *Clinical Techniques in Small Animal Practice* 16(4): 233-235. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: dogs, cats, food allergies, diagnostic techniques, dermatology, clinical aspects, therapeutic diets, diagnosis.

Jackson, J.R., R.D. Kealy, D.F. Lawler, J. Ballam, and D.P. Laflamme (1995). **Long-term safety of urine acidifying diets for cats**. *Veterinary Clinical Nutrition* 2(3): 100-103, 106-107. ISSN: 1076-3872.
NAL Call Number: SF94.5 .V48
Descriptors: diet treatment, acid base equilibrium, urolithiasis, composition, urine, acidification, diets, pet foods, cats.

Jank, M. (2004). **Zywienie psow i kotow w chorobie nowotworowej. Czesc II. Dodatki pokarmowe dla chorujacych zwierzat [Nutrition of dogs and cats with cancer. Part II: Food supplements for ill animals]**. *Zycie Weterynaryjne* 79(2): 85-87. ISSN: 0137-6810.
NAL Call Number: SF604. Z9
Descriptors: cachexia, diet treatment, feed supplements, flavonoids, neoplasms, nutrient requirements, polyenoic fatty acids, vitamin supplements, cats.
Language of Text: Polish with a summary in English.

Jank, M. (2004). **Zywienie psow i kotow chorobie nowotworowej. Czesc I. Wyniszczenie spowodowane nowotworzeniem oraz cechy karmy przeznaczonej dla chorujacych zwierzat [Nutrition of dogs and cats with cancer. Part I. Cancer emaciation and characteristics of diet formulation for patients]**. *Zycie Weterynaryjne* 79(1): 21-24. ISSN: 0137-6810.
NAL Call Number: SF604. Z9
Descriptors: animal nutrition, cachexia, carbohydrates, dietary fat, emaciation, energy sources, neoplasms, polyenoic fatty acids, therapeutic diets, cats.
Language of Text: Polish with a summary in English.

Janowicz, P. (2002). **Optimum vitamin nutrition throughout life** . *Feed Compounder, Pet Food Supplement* (3): 14-16.

Descriptors: animal nutrition, bones, growth, hair, immunity, intestines, kittens, pet foods, puppies, skin, vitamins, cats.

Jeffrey, S.C., N. Bataller, R.A. Martin, and M.L. Moon (1995). **Postsurgical nutritional management of megaesophagus secondary to persistent right aortic arch in a kitten.** *Feline Practice* 23(1): 17-23. ISSN: 1057-6614.
NAL Call Number: SF985 .F4
Descriptors: kittens, esophageal diseases, surgery, postoperative care, therapeutic diets, nutritional support, tube feeding, case reports, vascular ring anomaly.

Jergens, A.E. (2002). **Feline inflammatory bowel disease--current perspectives on etiopathogenesis and therapy.** *Journal of Feline Medicine and Surgery* 4(3): 175-178. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, gastrointestinal diseases, inflammation, pathogenesis, diagnosis, therapeutic diets.

Jergens, A.E. (1994). **Diagnosis and symptomatic therapy of acute gastroenteritis.** *Compendium of Continuing Education for the Practicing Veterinarian* 16(12): 1555-1564. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, gastroenteritis, symptoms, diarrhea, vomiting, diagnosis, clinical examination, feces, fluid therapy, therapeutic diets.

Jeusette, I., C. Tonglet, V. Defauw, L. Istasse, and M. Diez (2001). **The nutritional requirements of cats at different life stages: food for the cycle of life. II. Overweight cats, kittens and elderly cats [Les besoins du chat a differents stades physiologiques - les aliments du cycle de la vie. II. Le chat presentant un exces ponderal, le chaton et le chat senior]**. *Annales De Medecine Veterinaire* 145(4): 244-258. ISSN: 0003-4118.
NAL Call Number: 41.8 An78
Descriptors: animal nutrition, diet, kittens, nutrient requirements, nutrition, vitamins, cats.
Language of Text: French; Summary in English.

Jewell, D.E., P.W. Toll, K.J. Wedekind, and S.C. Zicker (2000). **Effect of increasing dietary antioxidants on concentrations of vitamin E and total alkenals in serum of dogs and cats.** *Veterinary Therapy* 1(4): 264-272. ISSN: 1528-3593.
NAL Call Number: SF601 .V4745
Descriptors: dogs, cats, vitamin E, dietary supplements, vitamin mineral supplements, antioxidant activity, biomarkers.

Jewell, D.E., C.A. Kirk, P.W. Toll, and S.C. Zicker (2002). **Composition and Method**. *Official Gazette of the United States Patent and Trademark Office Patents* 1259(4) ISSN: 0098-1133.
Online: http://www.uspto.gov/web/menu/patdata.html
NAL Call Number: T223. A21
Descriptors: animal husbandry, feline diet, ketosis, high fat, low carbohydrate .

Johnson, R.B. (2002). **Recent dental advances for companion animals through dietary means.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 16: 179-180.
NAL Call Number: SF605 .N672
Descriptors: pets, dogs, cats, dental plaque, diet.

Jones, B.R. (1996). **How I treat hyperlipidemia.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 10: 258-258.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, lipid disorders, treatment, therapeutic diets.

Jurgens, M.H. (2002). ***Animal Feeding and Nutrition***, 9th edition, Kendall/Hunt: Dubuque, Iowa, 588 p. ISBN: 0787278394.
NAL Call Number: SF95 .J87
Descriptors: feeding guidelines, animal nutrition, laboratory manuals, feeds and feeding.

Jurgens, M.H. (1997). ***Animal Feeding and Nutrition***, 8th edition, Kendall/Hunt: Dubuque, Iowa, 585 p. ISBN: 0787223077.
NAL Call Number: SF95.J8
Descriptors: nutrition, digestion, feedstuffs, livestock, horses, poultry, dogs, cats, feeding, table of equivalents, cattle, sheep, swine, commercial feeds, legislation and regulation, feed formulation.

Kelley, R.L., G.M. Davenport, G.D. Sunvold, C.B. Mikesell, and G.A. Reinhart (1998). **Effect of beet pulp on nutrient digestibility in the feline**. *Journal of Dairy Science* 81(SUPPL. 1): 174. ISSN: 0022-0302.
NAL Call Number: 44.8
Descriptors: digestive system, nutrition, beet pulp, vegetable, nutrient digestibility, meeting abstract.

Kelly, N.C. and J.M. Wills (1996). ***British Small Animal Veterinary Association Manual of Companion Animal Nutrition and Feeding***, British Small Animal Veterinary Association (BSAVA). Cheltenham, UK British Small Animal Veterinary Association (BSAVA).
, 280 p. ISBN: 090521434X.
Descriptors: animal nutrition, feeding, nutrient requirements, nutrition, pets, dogs, cats.

Kerl, M.E. and P.A. Johnson (2004). **Nutritional plan: matching diet to disease**. *Clinical Techniques in Small Animal Practice* 19(1): 9-21. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: anorexia, diets, enteral feeding, intensive care, nutrient requirements, nutrition, nutritional support, therapeutic diets, tube feeding, cats.

Kienzle, E. and S. Wilms Eilers (1994). **Struvite diet in cats: effect of ammonium chloride and carbonates on acid base balance of cats.** *Journal of Nutrition* 124(12S): 2652S-2659S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82

Descriptors: cats, diet, acidification, ammonium chloride, magnesium ammonium phosphate, calcium carbonate, sodium carbonate, acid base imbalance, urine, feces, pH, mineral content, ammonia, dry matter, digestibility, phosphorus, experimental diets.

Kim, H.W., B.P. Chew, T.S. Wong, J.S. Park, B.B.C. Weng, K.M. Byrne, M.G. Hayek, and G.A. Reinhart (2000). **Modulation of humoral and cell-mediated immune responses by dietary lutein in cats.** *Veterinary Immunology and Immunopathology* 73(3/4): 331-341. ISSN: 0165-2427.
NAL Call Number: SF757.2. V38
Descriptors: cats, xanthophyll, immune response, diet, feed supplements, pet foods, mitogens, monocytes, interleukin 2, IGG, delayed type hypersensitivity, concanavalin a, vaccines, retinol, alpha tocopherol, dosage effects, cd4+ lymphocytes, t lymphocytes, antigens, cd8 antigens, major histocompatibility complex.

Kim, S.W., Q.R. Rogers, and J.G. Morris (1996). **Maillard reaction products in purified diets induce taurine depletion in cats which is reversed by antibiotics**. *Journal of Nutrition* 126(1): 195-201. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: intestinal microorganisms, deficiency, amino acids, hydrolases, enzyme activity, heat treatment, diets, processing, taurine, nutritional state, Maillard reaction products, antibiotics, supplements, cats.

Kim, S.W., Q.R. Rogers, and J.G. Morris (1996). **Dietary antibiotics decrease taurine loss in cats fed a canned, heat-processed diet**. *Journal of Nutrition* 126(2): 509-515. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: processed diet, nutrition, antibiotics, bile acid, cholic acid, cholyltaurine hydrolase, feed additive, gastrointestinal tract, growth promotant, microbial taurine degradation, penicillin G, procaine, tetracycline, taurine excretion .

King, P.H. (1995). **Controle dietetico da LUTD. [Dietary control of lower urinary tract disease in dogs and cats.]**. *Caes e Gatos* 10(55): 26-27.
Descriptors: nutrition, etiology, treatment, diets, urinary tract diseases, nutritional disorders, diet treatment, cats.
Language of Text: Portuguese.

Kirk, C., J. Bauer, D. Drake, J. Olson, and M. Paul (1994). **Lifestage nutrition in cats. Part 2**. *Feline Practice* 22(5): 10-15. ISSN: 1057-6614.
NAL Call Number: SF985. F4
Descriptors: nutrient requirements, appetite, age, obesity, nutrition, cats.

Kirk, C., J. Bauer, D. Drake, J. Olson, and M. Paul (1994). **Lifestage nutrition in cats. Part 3**. *Feline Practice* 22(6): 11-15. ISSN: 1057-6614.
NAL Call Number: SF985. F4
Descriptors: nutrient requirements, obesity, diets, pet foods, nutrition, cats.

Kirk, C.A., J.L. Beverly, R.C. Ritter, M.J. Strieker, L. Brenner, J.G. Morris, and Q.R. Rogers (1994). **Diet-induced cholecystokinin release in cats**. 124(12 Suppl.): 2670S-2671S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: taurine, pancreozymin, protein sources, diets, heat treatment, dietary protein, cats.

Kirk, C.A. and D. Fritsch (2003). **The effect of high dietary salt intake on urinary mineral excretion in healthy cats**. *Veterinary Medicine* 98(7, Supplement): 21. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: diets, excretion, salt, urine, cats.

Kitao, Y. (1999). **Therapeutic diets for small animals in the field of internal medicine: five case reports**. *Journal of Veterinary Medicine, Japan* 52(2): 140-146. ISSN: 0447-0192.
Descriptors: diets, case reports, therapy, cats.
Language of Text: Japanese.

Komori, S. (1994). **Reduction of surgical stress in dogs and cats by pre- and post-operative food administration**. *Journal of Veterinary Medicine, Japan* 47(6): 484-486. ISSN: 0447-0192.
Descriptors: surgery, nutrition, stress, postoperative, cats.
Language of Text: Japanese.

Kovalenko, L.V., G.V. Pavlov, G.E. Folmanis, and N.S. Vavilov (1998). **Pharmacological properties of the iron ultrafine powders synthesized by low temperature hydrogen reduction**. *Doklady Akademii Nauk* 360(4): 571-573. ISSN: 0869-5652.
NAL Call Number: Q60 .D64
Descriptors: nutrition, feline, iron ultrafine powders, low temperature hydrogen reaction, synthetic method, indices, body weight dynamics, natural resistance.
Language of Text: Russian.

Krecic, M.R. (2001). **Feline inflammatory bowel disease: treatment, prognosis, and new developments.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(11): 964-973. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, intestinal diseases, inflammation, small intestine, colon, lymphatic system, diagnosis, biopsy, diagnostic value, intestinal mucosa, peyer patches, immune response, intestinal motility, disease course, t lymphocytes, therapeutic diets, corticoids, immunosuppression, cell mediated immunity, antibiotics, prognosis, therapy, literature reviews.

Kronfeld, D.S., S. Donoghue, and L.T. Glickman (1994). **Body condition of cats.** *Journal of Nutrition* 124(12S): 2683S-2684S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cats, body condition, nutritional support, hospitals, body weight.

Kucera, J. (2000). **Jsou nzkobilkovinne diety pro nefropatiky nutne? [Are low-protein diets necessary for nephropathic patients?]**. *Veterinarstvi* 50(2): 59-61. ISSN: 0506-8231.
NAL Call Number: 41.8 V6439
Descriptors: diets, dietary protein, feeding, homeostasis, kidney diseases, protein intake, kidneys, dogs, cats.
Language of Text: Czech with a summary in English.

Kulasek, G. and R. Krzeminski (2002). **Oligosacharydy - funkcjonalny skadnik pokarmow dla psow i kotow [Oligosaccharides - important dietary components for dogs and cats]**. *Zycie Weterynaryjne* 77(8): 398-405. ISSN: 0137-6810.
NAL Call Number: SF604. Z9
Descriptors: digestion, fibre, oligosaccharides, probiotics, cats.
Language of Text: Polish with a summary in English.

Kwochka, K.W. (2000). **The clinical management of food-related dermatoses.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association*(14): 213-215.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, food allergies, diagnosis, protein modified diets, treatment.

Labuc, R. (1997). ***Small Animal Medicine & Surgery. II - V532, Endrocrinology, Nutrition, Infectious Diseases, Oncology***, Vol. 532, Murdoch University: Perth, W.A., 191 p. ISBN: 0869055550 .
NAL Call Number: SF991.L33
Descriptors: dog diseases, cats, cat diseases, treatment options.

Lacombe, M. and M. Michels (2001). **Kosher-meat based pet food products**. *Official Gazette of the United States Patent and Trademark Office Patents* 1249((3)) ISSN: 0098-1133.
NAL Call Number: T223. A21
Descriptors: cat diet, kosher meat based pet food products, carbohydrates, fat, fiber.

Laflamme, D.P. (2001). **Challenges with weight-loss studies.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(9A): 45-50. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, obesity, body condition, weight loss diets.

Laflamme, D.P. (2004). **The perfect diet?** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 664-665.
Descriptors: diets, digestibility, energy content, energy requirements, feeding frequency, labelling, nutrient requirements, nutritive value, pet foods, cats, dogs.

Laflamme, D.P. (2004). **Homemade and commercial pet foods - diverse views of pet nutrition**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 666-667.
Descriptors: animal nutrition, body condition, diets, digesta, feed grains, nutrient balance, nutrient requirements, nutritive value, pet foods, pets, soya protein, cats.

Laflamme, D.P. and M. Kelly (2002). **Gerontology and longevity: an introduction.** *Compendium of Continuing Education for the Practicing Veterinarian* 24(9A): 1-3. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: man, dogs, cats, aging.

Laflamme, D.S. and G.M. Long (2004). **Evaluation of two diets in the nutritional management of cats with naturally occurring chronic diarrhea.** *Veterinary Therapeutics Research in Applied Veterinary Medicine* 5(1): 43-51. ISSN: 1528-3593.
NAL Call Number: SF601 .V4745
Descriptors: cats, diarrhea, diet therapy, high protein diet, carbohydrate intake.

Lahrssen, M. and J. Zentek (2002). **Wirksamkeit von probiotischen Mikroorganismen als Futterzusatzstoff: Leitlinien zur Prufung der Wirksamkeit von Mikroorganismen bei den Tierkategorien Hund, Katze und Pferd. [Efficacy of probiotic feed additives: guidelines for the evaluation of the efficiency of micro-organisms in dogs, cats and horses]**. *Deutsche Tierarztliche Wochenschrift* 109(1): 22-25. ISSN: 0341-6593.
NAL Call Number: 41.8 D482
Descriptors: feed additives, pet foods, probiotics, regulations, cats.
Language of Text: German; Summary in English.

Lane, I.F., G.F. Grauer, and M.J. Fettman (1994). **Acute renal failure. I. Risk factors, prevention, and strategies for protection.** *Compendium of Continuing Education for the Practicing Veterinarian* 16(1): 15-29, 76. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, renal failure, kidneys, glomerular filtration, flow, toxic substances, ischemia, calcium ions, ATP, hemodynamics, epithelium, poisoning, urination, risk, predisposition, water electrolyte imbalance, diet, nephropathy, diagnosis, disease prevention, risk factors.

Lechowski, R., E. Sawosz, and W. Klucinski (1998). **The effect of the addition of oil preparation with increased content of n-3 fatty acids on serum lipid profile and clinical condition of cats with miliary dermatitis.** *The Journal of Verterinary Medicine, Ser A* 45(6/7): 417-424. ISSN: 0931-184X.
NAL Call Number: 41.8 Z5
Descriptors: cats, lipids, serology, dermatitis, oils, feed supplements, fatty acids, treatment, evaluation, clinical examination, cholesterol, high density lipoprotein, triacylglycerols, saturated fatty acids, unsaturated fatty acids.

Legrand Defretin, V. (1994). **Differences between cats and dogs: a nutritional view.** *Proceedings of the Nutrition Society* 53(1): 15-24. ISSN: 0029-6651.
NAL Call Number: 389.9 N953
Descriptors: cats, dogs, nutrient requirements, vitamins, protein requirement, arginine, taurine, dietary protein, sulfur, amino acids, nicotinic acid, essential fatty acids, carbohydrate, animal nutrition, animal, young animals, literature reviews.

Legrand Defretin, V. (1994). **Energy requirements of cats and dogs--what goes wrong.** *International Journal of Obesity Related Disorders* 18(suppl.1): S8-S13. ISSN: 0307-0565.
NAL Call Number: RC628.A1O2
Descriptors: obesity, animal nutrition, energy requirements, environmental factors, old age, energy intake, dogs, cats.

Leibetseder, J. (1999). **Diatetik bei chronischer Niereninsuffizienz des Hundes und der Katze [Dietary management of chronic renal failure in dogs and cats]**. *Wiener Tierarztliche Monatsschrift* 86(1): 32-37. ISSN: 0043-535X.
NAL Call Number: 41.8 T345
Descriptors: disease prevention, treatment, diets, kidney diseases, phosphorus, uremia, dietary protein, sodium, hypertension, acidosis, anemia, cats.
Language of Text: German with a summary in English.

Leistra, M. and T. Willemse (2002). **Double-blind evaluation of two commercial hypoallergenic diets in cats with adverse food reactions.** *Journal of Feline Medicine and Surgery* 4(4): 185-188. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, diets, food allergies, food intolerance, pruritus, dietary protein, dermatology.

Lekcharoensuk, C., C.A. Osborne, J.P. Lulich, R. Pusoonthornthum, C.A. Kirk, L.K. Ulrich, L.A. Koehler, K.A. Carpenter, and L.L. Swanson (2001). **Association between dietary factors and calcium oxalate and magnesium ammonium phosphate urolithiasis in cats.** *Journal of the American Veterinary Medical Association* 219(9): 1228-1237. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, urolithiasis, calcium oxalate, magnesium ammonium phosphate, diets, sodium restricted diets, potassium, urine, acidity, moisture content, protein content, magnesium, phosphorus, calcium, dietary fat, dietary carbohydrate, fiber content.

Leon, A., W.R. Levick, and M.G. Sarossy (1995). **Lesion topography and new histological features in feline taurine deficiency retinopathy**. *Experimental Eye Research* 61(6): 731-741. ISSN: 0014-4835.
Descriptors: feline taurine deficiency, retinopathy, central retinal degeneration, nutrition, cone photoreceptors, sense organs, sensory reception, medicine.

Leopold Temmler, B. (2001). **Einsatz hydrolysierter Proteine in der Diatetik bei Hund und Katze [Use of hydrolyzed protein in diets for dogs and cats]**. *Praktische Tierarzt* 82(12): 1030-1033. ISSN: 0032-681X.
NAL Call Number: 41.8 P882
Descriptors: diet treatment, diets, food allergies, nutritional disorders, protein hydrolysates, cats, dogs.
Language of Text: German.

Lepine, A.J. (1996). **Canine and feline reproduction and neonatal health: a nutritional perspective.** In: *Recent advances in canine and feline nutritional research: Proceedings of the 1996*

Iams International Nutrition Symposium, April 17, 1996-April 20, 1996, Boca Raton, Florida, Orange Frazer Press: Wilmington, Ohio, 53-60 p. ISBN: 1882203097.
NAL Call Number: SF427.4.I26
Descriptors: cats, dogs, litter performance, perinatal mortality, placenta, species differences, maternal immunity, milk composition, enzymes, hormones, growth factors.

Lesponne, I., P. Verwaerde, and N. Prymenko (2004). **Nutrizione clinica del cane e del gatto: la nutrizione parenterale: obiettivi e indicazioni [Parenteral nutrition: objectives and indications]**. *Summa* 21(8 Supplemento): 25-29 .
Descriptors: malabsorption, nutritional disorders, nutritional support, parenteral feeding, cats.
Language of Text: Italian.

Lester, T., G. Czarnecki Maulden, and D. Lewis (1999). **Cats increase fatty acid oxidation when isocalorically fed meat-based diets with increasing fat content**. *American Journal of Physiology* 277(3): R878-R886. ISSN: 0002-9513.
NAL Call Number: 447.8 Am3
Descriptors: body fat, body weight, obesity, fats, oxidation, feeding, meat, lipid, cats.

Longland, A.C., M.K. Theodorou and I.H. Burger (2000). **The nutrition of companion animals**. In: M.K. Theodorou and J. France (Editors), *Feeding Systems and Feed Evaluation Models*, CABI Publishing: Wallingford, UK, p. 435-471. ISBN: 085199346X.
NAL Call Number: SF97.F39
Descriptors: pets, aquarium fishes, oRNAmental fishes, aviary birds, reviews, nutrition, nutrient requirements, feeding, birds, rats, dogs, cats.

Lowe, J.A. and P. Janowicz (2004). **Optimum nutrition and its role in maintaining canine and feline eye integrity**. *Pet Food Supplement, Feed Compounder*(6): 2-4. ISSN: 0950-771X.
Descriptors: aging, animal health, animal nutrition, antioxidants, ascorbic acid, cataract, congenital abnormalities, eye diseases, eye lens, eyes, fatty acids, nutrients, polyenoic fatty acids, retina, trace elements, vitamin E, vitamin supplements, cats.

Lowe, J.A. and S.J. Kershaw (1997). **The ameliorating effect of *Yucca schidigera* extract on canine and feline faecal aroma.** *Research in Veterinary Science* 63(1): 61-66. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Abstract: Addition of Yucca schidigera extract (YSE) products to canine or feline diets improved the character and reduced the intensity of faecal aroma as monitored by a human panel. The general condition of the animals was not adversely affected as monitored by faecal pH, food retention time, and blood cell counts. Blood urea increased significantly in YSE-treated cats, possibly due to the saponins of YSE affecting gut wall permeability. This finding contrasts with previously published reports of a reduction in blood urea on the addition of sarsaponin (from YSE) to rat diets and of YSE products to poultry and cattle diets.
Descriptors: dogs, cats, dog feces, odors, odor abatement, odor emission, *yucca schidigera*, plant extracts, pH, retention, erythrocyte count, leukocyte count, hematocrit, hemoglobin, urea, dog feeding, animal feeding.

Luckschander, N., C. Iben, G. Desprez, and V. Biourge (2004). **Does increasing dietary salt affect blood pressure in healthy adult cats?** *Veterinary Times* 34(45): 14. ISSN: 1352-9374.
Descriptors: blood pressure, body weight, diets, food intake, hypertension, pH, renal function, salt, sodium citrate, urination, water intake, cats.

Luckschander, N., C. Iben, G. Hosgood, C. Gabler, and V. Biourge (2004). **Dietary NaCl does not affect blood pressure in healthy cats.** *Journal of Veterinary Internal Medicine* 18(4): 463-467. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: sodium chloride, salt concentration, dietary minerals, urination, urine, diet therapy.

Lulich, J.P. (1997). **Is the diet the cause of calcium oxalate urolith formation in cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 19: 78-79. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, dietary calcium, urolith, kidney.

Lund, E.M., P.J. Armstrong, C.A. Kirk, L.M. Kolar, and J.S. Klausner (1999). **Health status and population characteristics of dogs and cats examined at private veterinary practices in the United States.** *Journal of the American Veterinary Medical Association* 214(9): 1336-1341. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: dogs, cats, animal health, animal diseases, disease prevalence, practice, disease surveys, risk factors, age, dog breeds, sex, body condition, diet, usa.

Maia, P.P. and M.E.P.B.de. Siqueira (2002). **Occurrence of aflatoxins B1, B2, G1 and G2 in some Brazilian pet foods.** *Food Additives and Contamination* 19(12): 1180-1183. ISSN: 0265-203X.
NAL Call Number: TX553.A3F65
Abstract: The presence of cereals and grains in the formulation of pet foods suggests the need to control aflatoxin contamination in these foods. The objective of the study was to analyse domestic pet food to determine the occurrence of aflatoxins as well as their risk to animal health. One hundred food samples (45 for dogs, 25 for cats, 30 for birds) were collected at random from pet shops in Alfenas city, south-east Brazil. Thin-layer chromatography was used for separation, identification and quantification of the compounds after validation of the method. Aflatoxins were detected in 12.0% of the samples. Levels of aflatoxins (B1 + B2 + G1 + G2) above the maximum limit established in Brazil (50 micrograms kg-1) for animal food were detected in five of the 12 positive samples (41.7%). The concentration of total aflatoxins was 15-374 micrograms kg-1 (mean 131 micrograms kg-1). All samples containing peanuts were positive for aflatoxin B1. Aflatoxins are carcinogenic and their consumption might be a risk for domestic animal health. The high prevalence of aflatoxin B1 in foods prepared for birds, species highly susceptible to aflatoxins, shows the need for the re-evaluation of the use of peanuts (present in seven of the eight samples positives for aflatoxin) and/or the addition of fungicides to the food.
Descriptors: pet foods, cats, dogs, birds, aflatoxins, contamination, quantitative analysis,

feed evaluation, feed formulation, peanuts, quality controls, animal health, analytical, brazil.

Mannella, C. (1994). **Enteral nutrition: Assisted feeding methods.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 8: 358-360.
NAL Call Number: SF605.N672
Descriptors: enteral feeding, dogs, cats.

Marks, S.L. (2001). **Diet and intestinal disease.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 15: 183-185.
NAL Call Number: SF605 .N672
Descriptors: dogs, cats, intestinal diseases, diet.

Marks, S.L. (2000). **Dietary management of feline pancreatitis.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 14: 490-491.
NAL Call Number: SF605.N672
Descriptors: cats, therapeutic diets, cats, pancreatitis.

Marks, S.L. (2000). **Dietary management of cystic and urethral calculi in cats.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 14: 488-489.
NAL Call Number: SF605.N672
Descriptors: urinary calculi, treatment, calcium oxalate, magnesium ammonium phosphate, therapeutic diets.

Marks, S.L. (1998). **Diagnostic and therapeutic approach to cats with chronic diarrhea.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 12: 278-280.
NAL Call Number: SF605.N672
Descriptors: diagnosis, therapeutic diets, diarrhea, cats.

Marks, S.L. (1998). **The principles and practical application of enteral nutrition.** In: *Advances in Fluid and Electrolyte Disorders II,* W.B. Saunders: Philadelphia, Pennsylvania, USA, p. 677-708.
Descriptors: enteral feeding, nutritional support, dogs, cats, nutrient requirements.

Marks, S.L., A.K. Cook, S. Griffey, P.H. Kass, and Q.R. Rogers (1997). **Dietary modulation of methotrexate-induced enteritis in cats.** *American Journal of Veterinary Research* 58(9): 989-996. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, therapeutic diets, elemental diets, enteritis, methotrexate, disease models, intestines, lymph nodes, amino acids, villi, height, surface area, complex diets.

Marks, S.L., Q.R. Rogers, and D.R. Stombeck (1994). **Nutritional support in hepatic disease. II. Dietary management of common liver disorders in dogs and cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 16(10): 1287-1290, 1292, 1294-1296. ISSN: 0193-1903.
NAL Call Number: SF601 .C66

Descriptors: dogs, cats, liver diseases, lipidosis, therapeutic diets, tube feeding, copper, toxicity, encephalopathy, lactulose, hepatitis, dietary protein, feline idiopathic hepatic lipidosis, chronic hepatitis.

Marks, S.L., Q.R. Rogers, and D.R. Strombeck (1994). **Nutritional support in hepatic disease. I. Metabolic alterations and nutritional considerations in dogs and cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 16(8): 971-979. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, liver, liver diseases, therapeutic diets, diet treatment, dietary protein, nutritional state, proteins, carbohydrates, nutritional intervention.

Marks, S.L., P.R. Vulliet, P.H. Kass, and Q.R. Rogers (1997). **Dietary composition alters methotrexate toxicity without changing its pharmacokinetic parameters in cats**. *Journal of Nutritional Biochemistry* 8(2): 79-84. ISSN: 0955-2863.
NAL Call Number: QP141 .A154
Descriptors: enteritis, composition, methotrexate, toxicity, intestinal mucosa, diarrhea, vomiting, depression, leukocytes, drug toxicity, diets, antineoplastic agents, cats.

Markwell, P.J. (2002). **[De medische en dieetmatige behandeling van katten met een aandoening van de lagere urinewegen] Medical and dietary treatment of cats with disorders of the lower urinary tract**. *Dier En Arts* 17(3): 49-54. ISSN: 0920-2412.
Descriptors: diets, obstruction, treatment, uraemia, urethra, urinary tract diseases, urolithiasis, cats.
Language of Text: Dutch.

Markwell, P.J. (1999). **Lower urinary tract diseases in cats: Dietary and medical management**. *Wiener Tierarztliche Monatsschrift* 86(1): 8-12. ISSN: 0043-535X.
NAL Call Number: 41.8 T345
Descriptors: diets, urinary tract diseases, urolithiasis, abnormalities, concretions, urethra, urine, calcium oxalate, treatment, cats.
Language of Text: English with a summary in German.

Markwell, P.J., P.J. Barber, J.M. Rawlings, and J. Elliott (1999). **Recent advances in the dietary management of chronic renal failure in cats**. *Recent Advances in Animal Nutrition in Australia* 12: 115-119. ISSN: 0819-4823.
Descriptors: chronic renal failure (CRF), cats, diet, phosphate, protein, oral phosphate binders, hormone concentrations.
Notes: Meeting Information: Proceedings of the 15th Symposium, Recent Advances in Animal Nutrition in Australia, University of New England, Armidale, Australia; 12-14 July 1999.

Markwell, P.J., C.A. Buffington, and B.H.E. Smith (1996). **New perspectives in the effect of diet on urinary parameters in cats**. In: *Proceedings and abstracts 21st Congress of the World Small Animal Veterinary Association, October 20, 1996-October 23, 1996, Jerusalem, Israel,* World Small Animal Veterinary Association.: Jerusalem, Israel, p. 212-216.
Online: www.wasava.org

NAL Call Number: 41.8 J8292
Descriptors: urine, biochemistry, diets, nutrition, cats.

Markwell, P.J. and C.J. Giffard (2000). **Dietary fibre in dogs and cats--applications in health and disease.** *Proceedings of the Nutrition Society* 24: 43-50. ISSN: 0314-1004.
NAL Call Number: QP141.A1N83
Descriptors: dogs, cats, fiber, diet, colon, ammonia, short chain fatty acids, gas production, fermentation, intestinal mucosa, beet pulp, chicory, copra meal, pea meal, solubility, in vitro.

Markwell, P.J., W.G. Guilford, B.R. Jones, J.G. Harte, and J. Wills (1998). **Prevalence of food sensitivity in cats with chronic pruritus, vomiting or diarrhoea**. In: *Proceedings of the Third World Congress of Veterinary Dermatology: Advances in veterinary dermatology, September 11, 1996-September 14, 1996, Edinburgh, Scotland*, Butterworth-Heinemann Ltd.: Oxford, UK, Vol. 3, 493 p. ISBN: 075063443X.
Descriptors: skin diseases, food allergies, pruritus, vomiting, diarrhea, intestinal diseases, elimination diets, digestive disorders, nutritional disorders, cats.

Matsumoto, H. (2002). **Use of feed supplements in skin diseases of small animals**. *Journal of Veterinary Medicine, Japan* 55(1): 44-48. ISSN: 0447-0192.
Descriptors: feed supplements, skin diseases, cats, dogs.
Language of Text: Japanese.

Mauldin, G.E. (2002). **Feeding the small animal cancer patient.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 16: 458-60.
NAL Call Number: SF605 .N672
Descriptors: small animal practice, neoplasms, dogs, cats, therapeutic diets.

Maxwell, A., R. Butterwick, R.M. Batt, and C. Camacho Hubner (1999). **Serum insulin-like growth factor (IGF)-I concentrations are reduced by short-term dietary restriction and restored by refeeding in domestic cats (Felis catus).** *Journal of Nutrition* 129(10): 1879-1884. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: Nutritional modulation of insulin-like growth factors (IGF) and their binding proteins (IGFBP) is well established. The effect of nutritional restriction on the serum IGF/IGFBP system of adult cats was investigated to evaluate serum IGF-I as a biochemical marker of nutritional status. Assays for measuring feline serum IGF and IGFBP were validated and normal ranges established in a study population of 46 healthy nonobese adult cats. Serum concentrations of IGF-I and IGF-II correlated significantly with body weight ($r=0.75$, $P < 0.0001$ and $r=0.34$, $P < 0.03$, respectively). Serum IGFBP profiles were similar to other species, including humans, dogs and guinea pigs. IGFBP-3 was the predominant binding protein reflecting IGF-I concentrations and body size. Serum IGFBP-2 concentrations were high relative to the normal human serum pool (NHS) control. Food withdrawal for 18 h followed by refeeding did not alter circulating IGF or IGFBP concentrations, including IGFBP-1, in nine cats. Short-term dietary restriction of nine adult cats to supply initially 56% (56%M) and then 42.5% (42.5%M) of calculated maintenance energy requirements for 14 d resulted in a significant weight loss

(P < 0.01). However, serum IGF-I concentrations fell significantly (-51%, P < 0.01) only with 42.5%M restriction. Serum IGF-II, IGFBP, insulin and albumin concentrations were not altered during the study. We conclude that nutrition does modulate the adult feline IGF/IGFBP system, but to a lesser extent than in other species. Further evaluation is required before serum IGF-I can be used for the assessment of nutritional status in adult cats.
Descriptors: cats, insulin like growth factor, binding proteins, serum, body weight, food restriction, weight losses, insulin, serum albumin, refeeding, energy intake, protein intake, energy restricted diets.

Mayeux, P., L. Dupepe, K. Dunn, J. Balsamo, and J. Domer (1995). **Massive fungal contamination in animal care facilities traced to bedding supply.** *Applied Environmental Microbiology* 61(6): 2297-2301. ISSN: 0099-2240.
NAL Call Number: 448.3 Ap5
Abstract: During the course of immunologic studies involving the gastrointestinal colonization of mice with Candida albicans, it became apparent that the animals were being exposed to large numbers of Aspergillus fumigatus spores which interfered with the C. albicans colonization. To determine the source of the A. fumigatus exposure and the extent of fungal contamination of the medical school vivarium and four satellite facilities, fungal analyses of feed, bedding, and air were undertaken. Initial samples from the air were collected with 3-h settle plates; air sampling following cleanup was done with an Andersen air sampler. The source of contamination in the mouse rooms was determined to be Beta Chip bedding, which came from the manufacturer highly contaminated. Beta Chip bedding (1 g) obtained from the manufacturer just prior to testing contained 10(4) CFU of A. fumigatus, 20 CFU of a zygomycete, and 10 CFU of a Penicillium sp. Coarse-grade Beta Chip had approximately one-half those levels of contamination. Pure Cob bedding was highly contaminated also, but with a Fusarium sp. and a Cladosporium sp. Untreated and heat-treated Sani-Chip as well as all other heat-treated preparations obtained from the manufacturer contained no detectable spores. Rodent chow direct from the manufacturer had no A. fumigatus, although it did contain 150 CFU of fungus per g, including 80 CFU of a Rhodotorula sp., 60 CFU of Cryptococcus uniguttulatus, and 1 CFU of a Penicillium sp. Unopened laboratory canine, feline diet, rabbit, and guinea pig chow, however, had 1.5 X 10(2) to 4.1 X 10(2) CFU of A. fumigatus per g. Air sampling confirmed the presence of numerous A. fumigatus spores prior to cleanup and the absence or significant reduction in spore.
Descriptors: aspergillus fumigatus, fungi, microbial contamination, litter, animal housing, mice, laboratory, laboratory rearing, food contamination, feeds, fungal spores, air spora, beta chip, sani chip, cob litter.

McClain, H.M., J.A. Barsanti, and J.W. Bartges (1999). **Hypercalcemia and calcium oxalate urolithiasis in cats: a report of five cases.** *Journal of the American Animal Hospital Association* 35(4): 297-301. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: cats, hypercalcemia, urolithiasis, calcium oxalate, case reports, serum, calcium ions, parathyrin, therapeutic diets.

McCracken, B. (2001). **Perinatal nutrition and neonatal immune function in dogs and cats.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(9A): 51-56. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: puppies, kittens, newborn animals, maternal nutrition, colostral immunity.

McDowell, L.R. (2003). ***Minerals in Animal and Human Nutrition***, 2nd edition, Elsevier: Amsterdam, 644 p. ISBN: 0444513671.
NAL Call Number: QP533.M33
Descriptors: animal nutrition, mineral deficiency, laboratory animals, livestock, poultry, mineral requirements, supplements, cats, cattle.

McIntosh, M.K. (2001). **Nutrients and compounds affecting body composition and metabolism.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(9A): 18-28. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, obesity, health protection, dietary fat, restricted feeding, dietary protein, fiber content, dog foods, linoleic acid, isotopes, carnitine, androsterone, dehydroepiandrosterone .

McLaughlin, R.M. and J.K. Roush (2002). **Medical therapy for patients with osteoarthritis.** *Veterinary Medicine* (2): 135, 137-140, 142-144. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, osteoarthritis, medical treatment, animal nutrition, weight control, exercise, physical therapy, anti-inflammatory agents, analgesics.

McMichael, M.A., L.M. Freeman, J. Selhub, E.A. Rozanski, D.J. Brown, M.R. Nadeau, and J.E. Rush (2000). **Plasma homocysteine, B vitamins, and amino acid concentrations in cats with cardiomyopathy and arterial thromboembolism.** *Journal of Veterinary Internal Medicine* 14(5): 507-512. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: cats, cardiomyopathy, embolism, plasma, homocysteine, vitamin B complex, amino acids, amino acid, methionine, arginine, taurine, age differences, heart, size, diets.

Messinger, L.M. (1995). **Therapy for feline dermatoses.** *Veterinary Clinics in North America : Small Animal Practice* 25(4): 981-1005. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: cats, skin diseases, treatment, therapy, antibodies, antiinfective agents, antihistaminics, behavior modification, fatty acids, progestogens, steroids, immunosuppressive agents, antineoplastic agents, retinoids, immune desensitization, elimination diets.
Notes: In the series analytic: Feline dermatology, edited by Gail Kunkle.

Michel, K.E. (2000). **Challenges in feline nutrition: Weight reduction in cats.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 14: 492-494.

NAL Call Number: SF605.N672
Descriptors: obesity, caloric intake, cats, nutrition.

Michel, K.E. (1995). **Nutritional management of liver disease.** *Veterinary Clinics of North America, Small Animal Practice* 25(2): 485-501. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, liver diseases, nutritional support, therapeutic diets, nutrient requirements, encephalopathy, lipidosis, copper, poisoning.
Notes: In the series analytic: Liver disease, edited by Donna S. Dimski.

Michel, K.E. (1998). **Interventional nutrition for the critical care patient: optimal diets**. *Clinical Techniques in Small Animal Practice* 13(4): 204-210. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: parenteral feeding, enteral feeding, diet treatment, composition, nutrient requirements, arginine, carnitine, short chain fatty acids, polyenoic fatty acids, antioxidants, branched chain amino acids, glutamine, intensive care, pets, protein, immunity, inflammation, digestive tract, nutritional support, reviews.

Midkiff, A.M., D.J. Chew, J.F. Randolph, S.A. Center, and S.P. DiBartola (2000). **Idiopathic hypercalcemia in cats.** *Journal of Veterinary Internal Medicine* 14(6): 619-626. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Descriptors: cats, hypercalcemia, serum, calcium, parathyrin, hydroxycholecalciferols, diagnosis, therapeutic diets, ion balance, urolithiasis, bioavailability, prednisone.

Miklisova, P. (2000). **Vyziva psu a kocek s jaternim onemocnenim [Nutrition of dogs and cats with liver diseases]**. *Veterinarstvi* 50(6): 10-11. ISSN: 0506-8231.
NAL Call Number: 41.8 V6439
Descriptors: liver diseases, nutrition, diet treatment, cats.
Language of Text: Czech.

Miller, C.C. and J.W. Bartges (2000). **Parenteral nutrition products**. In: J.D. Bonagura (Editor), *Kirk's Current Veterinary Therapy XIII: Small Animal Practice,* W.B. Saunders: Philadelphia, USA, p. 80-84. ISBN: 0721655238.
Descriptors: parenteral feeding, nutritional support, vitamins, fatty acids, electrolytes, trace elements, cats.

Miyata, K. (2001). **Pet nutrition studies for veterinary clinicians. Introduction**. *Journal of Veterinary Medicine, Japan* 54(1): 33-36. ISSN: 0447-0192.
Descriptors: nutrition, pets, veterinarians, practice, cats.
Language of Text: Japanese.

Momoi, Y. (2002). **Medical care of pets and feed supplements** . *Journal of Veterinary Medicine, Japan* 55(1): 40-43. ISSN: 0447-0192.
Descriptors: feed supplements, nutrition, pets, cats.
Language of Text: Japanese.

Momoi, Y., Y. Goto, K. Tanide, N. Takahashi, T. Watari, K. Yamazoe, H. Tsujimoto, and T. Kudo (2001). **Increase in plasma lipid peroxide in cats fed a fish diet**. *Journal of Veterinary Medical Science* 63(12): 1293-1296. ISSN: 0916-7250.
NAL Call Number: SF604 .J342
Descriptors: animal nutrition, diet, lipid peroxides, nutrition, oxidation, polyenoic fatty acids, raw fish, cats.

Morris, J.G. (2002). **Idiosyncratic nutrient requirements of cats appear to be diet-induced evolutionary adaptations.** *Nutrition Research Reviews* 15(1): 153-168. ISSN: 0954-4224.
NAL Call Number: QP141 .A1N87
Descriptors: cats, nutrient requirements, protein requirement, protein, adaptation, literature reviews, enzyme adaptation.

Morris, J.G. (2004). **Do cats need arachidonic acid in the diet for reproduction?** *Journal of Animal Physiology and Animal Nutrition* 88(4): 131-137. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: animal nutrition, arachidonic acid, body weight, fatty acids, litter size, nutrient requirements, pregnancy, reproduction, reproductive performance, reviews, sex differences, cats.

Morris, J.G. (2001). **Unique nutrient requirements of cats appear to be diet-induced evolutionary adaptations**. *Recent Advances in Animal Nutrition in Australia* 13: 187-194. ISSN: 0819-4823.
Descriptors: amino acid, arginine, carbohydrates, coat, color, enzyme activity, essential fatty acids, nicotinic acid, protein, retinol, reviews, taurine, vitamin D, vitamins, cats.

Morris, J.G. and K.E. Earle (1999). **Growing kittens require less dietary calcium than current allowances.** *Journal of Nutrition* 129(9): 1698-1704. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: We previously demonstrated that a purified diet containing 3.125 micrograms of cholecalciferol/kg was adequate to maintain plasma concentrations of 25-hydroxyvitamin D in growing kittens. With the use of this concentration of cholecalciferol, the response of growing kittens to varying levels of calcium in purified diets was measured. Five groups (treatments 1-5), each comprised of seven weaned kittens, were given diets containing 3.8, 5.0, 6.0, 7.2 or 8.1 g calcium/kg diet (Ca:P ratio of 1:1.25) from 9 to 18 wk of age. Two further groups of kittens (treatments 6 and 7) received similar diets containing 6.0 g Ca/kg diet, with Ca:P ratios of 1:1.55 and 1:2.61, respectively. No clinical signs of calcium deficiency were observed, i.e., growth rate, energy intake and plasma total calcium were not affected by the treatments. However, ionized calcium was significantly lower in kittens in treatment 7. Plasma phosphorus was lower in kittens in treatment 7 than in kittens in treatments 1, 2, 3 and 4, and there was a negative relationship between dietary and plasma phosphorus concentrations. Kittens in treatment 7 had a significantly higher alkaline phosphatase concentration in plasma than kittens in treatments 1, 2, 3 and 5. Kittens in treatment 1 had a lower percentage of bone minerals measured by dual-energy X-ray absorptiometry than kittens in treatments 2-6. These results indicate that the calcium requirement of growing kittens is not >6.0 g/kg diet, (calculated metabolizable energy approximately 20 kJ/g) and that kittens are not

very sensitive to inverse Ca:P ratios up to 1:1.55.
Descriptors: cats, kittens, calcium, dietary minerals, nutrient requirements, plasma, diet, experimental diets, dosage effects, growth rate, energy intake, phosphorus, alkaline phosphatase, peptides, body composition, bone mineralization, parathyrin, osteocalcin.

Morris, J.G., K.E. Earle, and P.A. Anderson (1999). **Plasma 25-hydroxyvitamin D in growing kittens is related to dietary intake of cholecalciferol**. *Journal of Nutrition* 129(4): 909-912. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cholecalciferol, diets, intake, kittens, calcium, phosphorus, synthesis, ultraviolet radiation, vitamin D, animal models, cats, man.

Morris, J.G. and Q.R. Rogers (1994). **Assessment of the nutritional adequacy of pet foods through the life cycle.** *Journal of Nutrition* 124(12S): 2520S-2534S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: pet foods, nutritional adequacy, life cycle, ingredients, nutrient requirements, nutrient availability, nutrient content, feed formulation, disease prevention, bioavailability, nutrient profiles.

Morris, J.G., Q.R. Rogers, and J.A. O' Donnell (2004). **Lysine requirement of kittens given purified diets for maximal growth**. *Journal of Animal Physiology and Animal Nutrition* 88(4): 113-116. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: animal feeding, growth, lysine, nitrogen, nutrient requirements, cats.

Morris, J.G., S.G. Yu, and Q.R. Rogers (2002). **Red hair in black cats is reversed by addition of tyrosine to the diet**. *Journal of Nutrition* 132(6): 1646S-1648S. ISSN: 0022-3166.
Online: http://www.nutrition.org/cgi/content/abstract/132/6/1646S
NAL Call Number: 389.8 J82
Descriptors: diets, feed supplements, hair follicles, nutrient requirements, tyrosine, cats.

Moser, N. (1998). **Vitamin and mineral nutritional programs for home prepared diets.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 12: 437.
NAL Call Number: SF605.N672
Descriptors: therapeutic diets, dogs, cats, meeting abstract.

Murtaugh, R.J. and L.M. Freeman (1998). **Interventional nutrition**. *Clinical Techniques in Small Animal Practice* 13(4): 193-244. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: nutrition, pets, kidney diseases, heart diseases, gastrointestinal diseases, neoplasms, parenteral feeding, enteral feeding, malnutrition, regulations, feed supplements, pet foods, reviews, nutritional support, antioxidants, polyenoic fatty acids, carnitine, amino acids, protein, vitamins, cats.

Mussa, P.P. and G. Meineri (1997). **Problematiche della integrazione alimentare nel cane e nel gatto [Problems in canine and feline feed integration]** . *Praxis Veterinaria Milano*

18(2): 25-27.
Descriptors: nutrition, cats.
Language of Text: Italian.

Nguyen, P., V. Leray, H. Dumon, L. Martin, B. Siliart, M. Diez, and V. Biourge (2004). **High protein intake affects lean body mass but not energy expenditure in nonobese neutered cats.** *Journal of Nutrition* 134(8S): 2084S-2086S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cats, dietary protein, energy expenditure, body mass.

Nguyen, P.G., H.J. Dumon, B.S. Siliart, L.J. Martin, R. Sergheraert, and V.C. Biourge (2004). **Effects of dietary fat and energy on body weight and composition after gonadectomy in cats.** *American Journal of Veterinary Research* 65(12): 1708-1713. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: gonadectomy, cat, dietary fat, body weight, body composition.

Niel, M.H.F. and A.C. Beynen (1997). **The intake of polyunsaturated fatty acids by cats is reflected in their adipose tissue**. *Veterinary Quarterly* 19(4): 150-153. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: diagnosis, diets, composition, fatty acids, polyenoic fatty acids, adipose tissue, fats, cats.

Nippen, O. (2001). **Majbeteg kutyak es macskak dietas taplalasa [Dietetics in liver diseases of dogs and cats]**. *Magyar Allatorvosok Lapja* 123(1): 29-32. ISSN: 0025-004X.
Descriptors: diet treatment, liver diseases, pets, nutrient requirements, diets, cats.
Language of Text: Hungarian.

Niza, M.M., C.L. Vilela, and L.M.A. Ferreira (2003). **Feline pansteatitis revisited: hazards of unbalanced home-made diets**. *Journal of Feline Medcine and Surgery* 5(5): 271-277. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: adipose tissue, etiology, alpha tocopherol, clinical aspects, diagnosis, diet, fatty degeneration, inflammation, treatment, cats.

Norris, C.R., M.M. Christopher, K.A. Howard, and R.W. Nelson (1999). **Effect of a magnesium-deficient diet on serum and urine magnesium concentrations in healthy cats.** *American Journal of Veterinary Research* 60(9): 1159-1163. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, magnesium, nutrient deficiencies, urine, serum, nutritional state, efficiency, hypomagnesemia, prediction.

Norsworthy, G.D. (1998). **Confronting feline anorexia: In and out of the hospital.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 12: 282-283.
NAL Call Number: SF605.N672
Descriptors: cats, nutritional support, therapeutic diets, feline anorexia.

Nott, H.M.R., S.I. Rigby, J.V. Johnson, S.J. Bailey, and I.H. Burger (1994). **Design of digestibility trials for dogs and cats.** *Journal of Nutrition* 124(12S): 2582S-2583S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: dogs, cats, digestibility, experimental design, sampling, feces.

O'Dair, H.A., P.J. Markwell, and I.E. Maskell (1996). **An open prospective investigation into aetiology in a group of cats with suspected allergic skin disease.** *Veterinary Dematology* 7(4): 193-202. ISSN: 0959-4493.
NAL Call Number: SF901 .V47
Descriptors: cats, arthropod allergies, siphonaptera, dermatitis, food allergies, dietary protein, allergens, atopy, disease prevalence.

Ogilvie, G.K. (1994). **Nutrition and cancer: Case reports**. In: *Proceedings of the North American Veterinary Conference. Eastern States Veterinary Association, January 15, 1994-January 20, 1994, Orlando, Florida,* Eastern States Veterinary Association: Orlando, Floida, p. 385-387.
Descriptors: neoplasms, enteral feeding, dogs, cats.

Ogilvie, G.K. (1998). **Interventional nutrition for the cancer patient**. *Clinical Techniques in Small Animal Practice* 13(4): 224-231. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: neoplasms, cachexia, feed supplements, energy intake, energy requirements, retinol, ascorbic acid, vitamin D, vitamin E, selenium, zinc, tea, flavonoids, nutritional support, enteral feeding, parenteral feeding, lipid, carbohydrate, garlic, cartilage, fibre, iron, pets, diet treatment, cats, Camellia sinensis, Allium sativum.

Ogilvie, G.K. (1996). **Recent discoveries: Nutrition and cancer - are eicosanoids the answer?** *Veterinary Clinical Nutrition* 3(3): 78-82. ISSN: 1076-3872.
NAL Call Number: SF94.5 .V48
Descriptors: nutrition, metabolic disorders, fatty acids, eicosanoids, neoplasms, cats, cancers.
Notes: Reprinted from the Thirteen Annual American College of Veterinary Internal Medicine Proceedings.

Orzechowski, A. (1998). **Dietetyczne metody leczenia i zapobiegania chorobom skory u psow i kotow [Dietary treatment and prevention of skin diseases in dogs and cats]**. *Nowa Weterynaria* 3(1): 34-44. ISSN: 1426-7632.
Descriptors: skin diseases, deficiency diseases, food allergies, diagnosis, nutritional disorders, diet treatment, cats.
Language of Text: Polish.

Orzechowski, A. (1997). **Postepowanie dietetyczne u psow i kotw po urazach i zabiegach chirurgicznych. Part II. Metody karmienia [Diets in the postoperative care for dogs and cats. Part II. Methods of feeding]**. *Nowa Weterynaria* 2(2): 2-11. ISSN: 0090-3558.
NAL Call Number: 41.9 W64
Descriptors: catheterization, fluid therapy, nutrient requirements, postoperative care,

diets, feeding, cats.
Language of Text: Polish.

Orzechowski, A. (1997). **Postepowanie dietetyczne u psow i kotow po urazach i zabiegach chirurgicznych. Czesc I. Zapotrzebowanie pokarmowe [Dietary treatment in the postoperative care in cats and dogs. Part I. Nutrient requirements]**. *Nowa Weterynaria* 2(1): 3-8. ISSN: 0090-3558.
NAL Call Number: 41.9 W64
Descriptors: nutrition, nutrients, stress, diets, arginine, glutamine, fatty acids, electrolytes, fluids, nutrient requirements, postoperative care, cats.
Language of Text: Polish.

Owen, K.Q. (2000). **L-carnitine and pet nutrition: losing weight and gaining muscle.** *Annals of Nutrient Metabolism* 44(2): 93-94. ISSN: 0250-6807.
NAL Call Number: RM214.N8
Descriptors: carnitine, pets, dogs, supplements, cats, overweight, muscle tissue, body lean mass, body fat, body composition.

Park, T., Q.R. Rogers, and J.G. Morris (1999). **High dietary protein and taurine increase cysteine desulfhydration in kittens.** *Journal of Nutrition* 129(12): 2225-2230. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: The objective of this study was to determine the effect of dietary protein and taurine on cysteine desulfhydration in various kitten tissues. Cysteine desulfhydration was assessed in liver, kidney, skeletal muscle, heart, spleen, brain and jejunum of kittens fed one of the following diets for 5 wk: 20% protein, 0% taurine diet (LPOT); 20% protein, 0.15% taurine diet (LPNT); 60% protein, 0% taurine diet (HPOT); and 60% protein, 0.15% taurine diet (HPNT). Cats fed LPOT and HPOT had been fed a taurine-free diet for 10 wk before the 5-wk experiment. The activity of cysteine desulfhydration was determined by measuring the production of H2 35S from 35S-cysteine in the presence and absence of alpha-ketoglutarate (alphaKG) in the incubation medium. Liver and kidney had the highest total activities among the tissues tested (P<0.01). Total hepatic desulfhydration activities [micromol H2S/(min(.)kg body wt)] in cats fed LPOT, LPNT, HPOT and HPNT were (mean +/- SEM) 117 +/- 6, 135 +/- 10, 137 +/- 10 and 190 +/- 9, respectively. Dietary taurine had a significant effect on activity when expressed per gram liver (P<0.01), per gram protein (P<0.05) and per kilogram body weight (P<0.001). Dietary protein had a significant effect (P<0.001) only when activity was expressed relative to body weight because of the significant effect of protein on relative liver weight. The direct pathway via cysteine desulfhydrase appears to be the major route of cysteine desulfhydration in kitten liver because the values obtained in the absence of alpha KG were 81-88% of those obtained in the presence of alphaKG.
Descriptors: kittens, dietary protein, depletion, nutrient deficiencies, taurine, cysteine, amino acid, diet, experimental diets, liver, brain, jejunum, weight, DNA, protein intake, dosage effects, nutrient intake, biochemical pathways, hydrogen.

Parkin, G.D. (1994). **Management of obesity--the practitioner's experience.** *International Journal of Obesity Related Disorders* 18(suppl.1): S36-S38. ISSN: 0307-0565.

NAL Call Number: RC628.A1O2
Descriptors: obesity, medicine, animal nutrition, aging, cats, dogs.

Pastoor, F.J.H., A.T.v. Klooster, J.N.J.J. Mathot, and A.C. Beynen (1995). **Increasing phosphorus intake reduces urinary concentrations of magnesium and calcium in adult ovariectomized cats fed purified diets.** *Journal of Nutrition* 125(5): 1334-1341. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: We assessed the phosphorus requirement of adult cats and the relationship between phosphorus intake and the fecal and urinary excretion of calcium, magnesium and phosphorus. Female cats (ovariectomized at the onset of sexual maturity) were fed purified diets containing 4.6, 9.2, 18.4 or 27.7 mmol phosphorus/MJ in a 4 X 4-wk crossover study. During the experiment, balance studies were performed and blood samples were taken. A dietary level of 4.6 mmol phosphorus/MJ was found to be sufficient to maintain phosphorus balance and normal plasma concentrations of phosphorus in the adult ovariectomized cats. Increasing levels of dietary phosphorus in the form of NaH2PO4.2H2O caused lower urinary pH values, lower urinary concentrations of calcium and magnesium, and higher urinary concentrations of phosphorus. When dietary levels of phosphorus were raised, the percentage of apparent absorption of magnesium was lower, whereas that of phosphorus was higher. Although it could be predicted that dietary phosphorus levels higher than the National Research Council recommendation of 9.2 mmol/MJ markedly reduced urinary struvite saturation, these higher levels are discouraged because they are associated with lower plasma phosphorus concentrations and creatinine clearance.
Descriptors: cats, diets, phosphorus, magnesium, calcium, dietary minerals, nutrient intake, nutrient nutrient interactions, nutrient requirements, ovariectomy, plasma, intestinal absorption, mineral absorption, nutrient balance, urine, feces, nutrient retention, urea, creatinine, uptake, alkaline phosphatase, enzyme activity, pH, excretion, food intake, female animals.

Pastoor, F.J.H., A.T.v. Klooster, J.N.J.J. Mathot, and A.C. Beynen (1994). **Increasing calcium intakes lower urinary concentrations of phosphorus and magnesium in adult ovariectomized cats.** *Journal of Nutrition* 124(2): 299-304. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: The effect of dietary calcium level on the fecal and urinary excretion of calcium, phosphorus and magnesium was studied in adult cats. Ovariectomized cats were fed purified diets containing 3.2, 4.8, 9.5 or 19.3 mmol calcium/MJ in a 4 X 4 wk crossover study. During the experiment, balance studies were performed and blood samples were taken. The adult ovariectomized cats maintained calcium balance at all four levels of calcium tested. Extra dietary calcium, in the form of CaCO3, caused a slight increase in urinary pH. Urinary concentrations of phosphorus and magnesium dropped, but that of calcium remained unchanged, when the cats were fed diets with increasing calcium levels. The percentages of apparent absorption of phosphorus and magnesium fell when calcium intake was raised. The dietary calcium level did not affect plasma concentrations of calcium, magnesium and phosphorus or plasma activity of alkaline phosphatase.

Descriptors: cats, calcium, nutrient intake, phosphorus, magnesium, nutrient nutrient interactions, mineral, nutrient balance, ovariectomized females, urine.

Pastoor, F.J.H., A.T.v. Klooster, R. Opitz, and A.C. Beynen (1995). **Effect of dietary magnesium level on urinary and faecal excretion of calcium, magnesium and phosphorus in adult, ovariectomized cats.** *British Journal of Nutrition* 74(1): 77-84. ISSN: 0007-1145.
NAL Call Number: 389.8 B773
Abstract: Dietary Mg restriction is generally considered to contribute to the prevention of struvite urolithiasis in cats, but its effects on faecal and urinary excretion of Ca and P have not been systematically investigated. The present study seeks to fill the gap. In a 4 X 4-week crossover study, ovariectomized cats were fed on purified diets containing either 0.40, 0.79, 1.59 or 3.17 mmol Mg/MJ (0.19, 0.38, 0.76 and 1.52 g Mg/kg diet). Increasing the dietary Mg level from 0.40 to 3.17 mmol Mg/MJ by the addition of extra MgCO3 raised urinary and faecal excretion of Mg from 0.14 to 0.68 mmol/MJ and from 0.28 to 1.66 mmol/MJ respectively. The 8-fold increase in Mg intake significantly raised urinary excretion of Ca from 0.06 to 0.09 mmol/MJ. Apparent absorption and urinary excretion of P were depressed by 13 and 25% respectively when the dietary Mg level was raised from 0.40 to 3.17 mmol/MJ. A dietary level of 0.40 mmol Mg/MJ (0.19 g Mg/kg diet) was found to be sufficient to maintain Mg balance in the adult ovariectomized cats fed on the purified diet.
Descriptors: cats, dietary minerals, magnesium, calcium, phosphorus, excretion, ovariectomized females, feces, urine, experimental diets, dosage effects, nutrient balance, liveweight, feed intake, intestinal absorption, mineral absorption, nutrient intake, outturn, plasma, creatinine, alkaline phosphatase, enzyme activity, balance studies.

Pastoor, F.J.H., R. Opitz, A.T. Klooster, and A.C. Beynen (1994). **Dietary calcium chloride vs. calcium carbonate reduces urinary pH and phosphorus concentration, improves bone mineralization and depresses kidney calcium level in cats**. *Journal of Nutrition* 124(11): 2212-2222. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: calcium chloride, nephrocalcinosis, calcium carbonate, pH, phosphorus, calcium, kidneys, sources, bone mineralization, cats.

Pastoor, F.J.H., R. Opitz, A.T.v. Klooster, and A.C. Beynen (1995). **Dietary phosphorus restriction to half the minimum required amount slightly reduces weight gain and length of tibia, but sustains femur mineralization and prevents nephrocalcinosis in female kittens.** *British Journal of Nutrition* 74(1): 85-100. ISSN: 0007-1145.
NAL Call Number: 389.8 B773
Abstract: The effects of dietary P restriction to half the recommended minimum level on growth, bone and renal mineralization and urinary composition were studied in female kittens. In two separate experiments, 8 week-old weanling kittens were fed on purified diets containing either 4.6 or 9.2 mmol P/MJ (2.8 or 5.6 g P/kg diet). In the second experiment there was an additional low-P diet in which the Ca concentration was reduced from 9.5 to 4.8 mmol/MJ (7.5 v. 3.8 g Ca/kg diet). P restriction slightly but systematically reduced weight gain (to a maximum of 16%) and growth of the tibia (by 1-4%); the former effect was statistically significant ($P < 0.05$) between the ages of 15 and 20 weeks

in Expt 1 only, and the latter did not reach statistical significance at any time point (P greater than or equal to 0.13). No adverse effect of P restriction was found on mineralization of femur at the age of 39 weeks. Kidney Ca concentrations were significantly lowered (Expt 1, 6 v. 20 micromoles/g dry weight, P < 0.001; Expt 2, 7 v. 16 micromoles/g dry weight, P < 0.01) in cats fed on the low-P diets, this effect not being affected by the dietary Ca:P ratio. Urinary P concentration was significantly depressed (by 50-96%) after feeding the low-P diets (P < 0.001). P intake did not influence P, Ca and Mg retention during the period of 15 to 39 weeks of age.
Descriptors: kittens, phosphorus, calcium, dietary minerals, nutrient intake, nutrient requirements, liveweight gain, tibia, femur, length, bone formation, bone mineralization, kidneys, heart, liver, mineral content, nephrocalcinosis, disease prevention, female animals, growth, experimental diets, age, pH, urine, excretion, nutrient nutrient interactions, ratios, nutrient retention, mineral absorption, plasma, creatinine, urea, body weight, feed intake, balance studies.

Pastoor, F.J.H., R. Opitz, A.T. van' t Klooster, and A.C. Byenen (1994). **Substitution of dietary calcium chloride for calcium carbonate reduces urinary pH and urinary phosphorus excretion in adult cats**. *Veterinary Quarterly* 16(3): 157-160. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: pet foods, calcium, diet, urine, pH, calcium chloride, calcium carbonate, composition, sources, cats.

Pastoor, F.J.H., A.T. van' t Klooster, G. van Tintelen, R. Opitz, and A.C. Beynen (1995). **The effect of dietary calcium on the excretion of calcium, magnesium and phosphorus in rats fed on purified feline diets**. *Journal of Animal Physiology and Animal Nutrition* 73(2): 86-95. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: minerals, mineral, calcium, phosphorus, magnesium, excretion, intake.
Language of Text: English; Summary in German.

Pawlosky, R., A. Barnes, and N.Jr. Salem (1994). **Essential fatty acid metabolism in the feline: relationship between liver and brain production of long-chain polyunsaturated fatty acids.** *Journal of Lipid Research* 35(11): 2032-2040. ISSN: 0022-2275.
NAL Call Number: 381 J8282
Abstract: A comparison was made between the liver and brain conversion of linoleic acid, 18:2n-6, and linolenic acid, 18:3n-3, to long chain polyunsaturated fatty acids in domestic felines. This report demonstrates that 6-desaturase activity does exist in the feline. The liver produced deuterium-labeled polyunsaturated fatty acids up to 22:4n-6 and 22:5n-3. The brain was found to accumulate the deuterium-labeled polyunsaturated fatty acids, 22:5n-6, 22:6n-3, 24:4n-6, 24:5n-6, 24:5n-3, and 24:6n-3. Adult felines were provided a diet consisting of either 10% fat (hydrogenated coconut oil-corn oil 9:1) containing no 20- or 22-carbon n-6 or n-3 fatty acids or a chow diet with meat and meat by-products that contained these long chain polyunsaturated fatty acids for a 6-month period. During this time, the in vivo production of long chain polyunsaturated fatty acids was evaluated in these animals. The cats were given oral doses of both [17,17,18,18,18-

2H]18:3n-3 and [9,10,12,13-2H]18:2n-6 and the deuterium-labeled fatty acid metabolites were measured in the blood, liver, and brain using a highly sensitive and specific gas chromatography-mass spectrometry technique. Contrary to previous claims, 6-desaturase activity was shown to exist in the feline. The evidence for this was the detection of [9,10,12,13-2H] 18:3n-6 which was converted from [9,10,12,13-2H]18:2n-6 and observed in the plasma. For the first time, direct evidence for the metabolism of n-3 fatty acids in cats was obtained by the detection of deuterium-labeled metabolites including the polyunsaturated fatty acid, 22:5n-3, in the plasma, following an oral dose of deuterium-labeled 18:3n-3. The more highly unsaturated deuterium-labeled 22- and 24-carbon fatty acids.

Descriptors: cats, liver, brain, long chain fatty acids, polyenoic fatty acids, lipid, essential fatty acids.

Pawlosky, R.J., Y. Denkins, G. Ward, and N.Jr. Salem (1997). **Retinal and brain accretion of long-chain polyunsaturated fatty acids in developing felines: the effects of corn oil-based maternal diets.** *American Journal of Clinical Nutrition* 65(2): 465-472. ISSN: 0002-9165.

NAL Call Number: 389.8 J824

Abstract: A study was carried out in domestic felines to determine whether corn oil-based maternal diets are an adequate source of essential fatty acids to support normal accumulation of long-chain polyunsaturated fatty acids in the brains and retinas of offspring and whether these diets have any subsequent effect on visual function. Female domestic felines were acclimated to one of six different defined diets 1 mo before mating and maintained on the diets throughout pregnancy and lactation. Four diets contained only corn and hydrogenated coconut oils as their source of fat in ratios of 1:9, 3:7, 6:4, and 9:1, respectively. Two reference diets also contained the long-chain polyunsaturated fatty acids arachidonate (20:4n-6) and docosahexaenoate (22:6n-3). When the offspring were 8 wk old, electroretinograms were obtained and the a- and b-wave implicit times were determined. The results showed that animals raised in litters in which the maternal diets were devoid of 20:4n-6 and 22:6n-3 had an increase in a- and b-wave implicit times compared with the controls. In the rod outer segments and brains of these animals, there were lower amounts of 22:6n-3 and higher amounts of long-chain n-6 polyunsaturated fatty acids compared with control animals. These findings showed that although corn oil-based diets were capable of maintaining 20:4n-6 concentrations in the developing brain and retina, only those diets containing 22:6n- 3 could support a high accumulation of docosahexaenoic acid in these tissues. Moreover, low amounts of 22:5n-6 in the brains of animals in all of the corn oil-diet groups suggested that young felines have a low biosynthetic capacity to produce this fatty acid or 22:6n-3. These.

Descriptors: docosenoic acids, maize oil, maternal nutrition, nutrient sources, essential fatty acids, brain, retina, vision, vision disorders, experimental diets, dietary fat, diet, coconut oil, arachidonic acid, fat deficiencies, kittens, cats, mothers, pregnancy, lactation, fatty acids, nervous system, fetal development, infant development, docosahexaenoic acid, nonessential fatty acids, omega 6 fatty acids, omega 3 fatty acids.

Pawlosky, R.J. and N.Jr. Salem (1996). **Is dietary arachidonic acid necessary for feline reproduction.** *Journal of Nutrition* 126(4S): 1081S-1085S. ISSN: 0022-3166.

NAL Call Number: 389.8 J82
Descriptors: cats, arachidonic acid, diet, reproduction, reproductive performance, nutrient requirements, maize oil, experimental diets, supplements, nutritional adequacy, dietary fat, nutrient uptake, newborn animals, liver, plasma, brain, milks, lactating females, fatty acids, maternal nutrition.

Peachey, S.E., J.M. Dawson, and E.J. Harper (1999). **The effect of ageing on nutrient digestibility by cats fed beef tallow-, sunflower oil- or olive oil-enriched diets.** *Growth Development and Aging* 63(1/2): 49-58. ISSN: 1041-1232.
NAL Call Number: QH511 .G6
Descriptors: saturated fatty acids, polyenoic fatty acids, monoenoic fatty acids.

Petrosyan, T.L. (1998). **Nutrition of cats**. *Krolikovodstvo i Zverovodstvo*(1): 31-32. ISSN: 0023-4885.
NAL Call Number: 40.28 K91
Descriptors: growth, proteins, fats, carbohydrates, minerals, vitamins, lactation, requirements, amino acids, energy intake, carotenes, retinol, cats.
Language of Text: Russian.

Piechota, T.R., Q.R. Rogers, and J.G. Morris (1995). **Nitrogen requirement of cats during gestation and lactation.** *Nutrition Research* 15(10): 1535-1546. ISSN: 0271-5317.
NAL Call Number: QP141.A1N88
Abstract: The nitrogen requirements of cats during gestation and lactation were determined. Purified diets containing 200, 250, or 300 g protein (N X 6.25)/kg diet, calculated ME = 20 kJ/g) and greater than or equal to 1.5 times the minimal essential amino acid requirement of the growing kitten were fed for greater than or equal to one month before mating and through gestation and lactation. Results during gestation showed that there were no significant differences among treatments in number and size of kittens at birth and suggested that 200 g protein/kg diet was adequate. Treatments had little effect on kitten weight gains at week one or two. By the third week, kitten weight gains were significantly higher for the higher levels of dietary protein. Queens fed the 200 g protein/kg diet had a lower PCV at 6 weeks lactation than queens fed the 250 or 300 g protein/kg diet. Essential amino acid concentrations in plasma at 3 week lactation indicated that two to five of the essential amino acids may have been limiting, even though they were all added in the diet at 1.5 times that of the kitten growth requirement. Results suggest that the protein requirement of the queen during gestation is not greater than 200 g protein/kg diet and the requirement during lactation appears to be between 250 and 300 g protein/kg diet containing 250 g fat/kg diet.
Descriptors: cats, pregnancy, lactation, nitrogen, nutrient requirements, protein requirement, experimental diets, body weight, litter size, birth weight, survival, plasma, amino acids, hematocrit, hemoglobin, kittens.

Plantinga, E.A., N. van Dijk, M.H.F. van Niel, and A.C. Beynen (2003). **Relationship between the amount of linoleic acid in the diet and that in the adipose tissue of adult cats living freely in households**. *Veterinary Research Communications* 27(8): 603-610. ISSN: 0165-7380.
NAL Call Number: SF601. V38
Descriptors: adipose tissue, diet, fatty acids, feed intake, linoleic acid, cats.

Polzin, D.J., C.A. Osborne, S. Ross, and F. Jacob (2000). **Dietary management of feline chronic renal failure: where are we now? In what direction are we headed?** *Journal of Feline Medicine and Surgery* 2(2): 75-82. ISSN: 1532-2750.
NAL Call Number: SF985 .J68
Descriptors: kidneys, renal failure, diets, phosphorus, management, reviews, proteins, sodium, potassium, cats.

Pomorski, Z. (1997). **Alergizacja pokarmowa psow i kotow [Food allergies in dogs and cats]**. *Nowa Weterynaria* 2(3): 2-6. ISSN: 1426-7632.
Descriptors: pathology, skin diseases, diagnosis, diets, food allergies, cats.
Language of Text: Polish.

Pond, W.G., D.C. Church and K.R. Pond (1995). ***Basic Animal Nutrition and Feeding***, 4th edition, John Wiley and Sons Inc.: New York, 615 p. ISBN: 0471308641.
NAL Call Number: SF95.C47 1995
Descriptors: feed preparation, diet formulation, conversion tables, nutrient, poultry, cows, beef cattle, dairy cattle, wild animals, nutrient requirements, nutrition, animal nutrition, goats, dogs, cats, fishes, rabbits, horses.

Pottenger, F.M. (1995). ***Pottenger's Cats: A Study in Nutrition***, 2nd edition, Price-Pottenger Nutrition Foundation: La Mesa, California, USA, 123 p.
NAL Call Number: TX537 .P67
Descriptors: nutrition research, cats, nutrition.
Notes: "The professional papers of Francis M. Pottenger, Jr., M.D.": p. 121-123.

Pross, S.C., E.A. Plantinga, A.G. Lemmens, and A.C. Beynen (2004). **Dietary fish oil lowers plasma butyrylcholinesterase activity in healthy cats**. *Journal of Animal and Veterinary Advances* 3(12): 893-894. ISSN: 1680-5593.
Descriptors: cholesteryl esters, cholinesterase, diabetes mellitus, enzyme activity, fish oils, sunflower oil, therapy, cats.

Prymak, C. (1996). **Enteral nutrition - current surgical techniques**. In: *Proceedings and abstracts 21st Congress of the World Small Animal Veterinary Association, October 20, 1996-October 23, 1996, Jerusalem, Israel*, p. 69-70.
Online: www.wsava.org
NAL Call Number: 41.8 J8292
Descriptors: enteral feeding, tube feeding, nutritional support, fluid therapy, surgery, cats.

Pyle, S.C., S.L. Marks, and P.H. Kass (2004). **Evaluation of complications and prognostic factors associated with administration of total parenteral nutrition in cats: 75 cases (1994-2001)**. *Journal of the American Veterinary Medical Association* 225(2): 242-250. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: complications, disease course, hyperglycemia, hypoalbuminaemia, malnutrition, mortality, nutritional support, parenteral feeding, prognosis, renal failure, total parenteral nutrition, weight losses, cats.

Randell, S.C., R.C. Hill, K.C. Scott, M. Omori, and C.F. Burrows (2001). **Intestinal permeability testing using lactulose and rhamnose: a comparison between clinically normal cats and dogs and between dogs of different breeds.** *Research in Veterinary Science* 71(1): 45-49. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Abstract: In the experiment reported here, the lactulose/rhamnose urinary excretion test was used to compare intestinal permeability between four breeds of healthy adult dogs and a group of healthy adult cats. A significant difference in permeability was found between dogs and cats ($P < 0.001$) and between different breeds of dogs ($P < 0.005$). The range of urinary lactulose/rhamnose ratios in the dogs in this study (0.07-0.61) was wider than previously reported (0.03-0.12). The mean value for dogs was 0.19. The range in cats was 0.41-1.25 and the mean 0.52. The results of this study suggest that breed or some other factor such as environment, diet or sexual status as well as species should be taken into account when assessing intestinal permeability using the lactulose/rhamnose urinary excretion test.
Descriptors: cats, dogs, dog breeds, breed differences, intestines, permeability, lactulose, rhamnose, urine, tests.

Rastall, R.A. (2004). **Bacteria in the gut: friends and foes and how to alter the balance.** *Journal of Nutrition* 134(8S): 2022S-2026S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: gut bacteria, probiotics, cats, microorganisms, Campylobacter, prebiotic.
Notes: In the special issue: Waltham International Science Symposium: Nature, nurture, and the case for nutrition/ edited by D. Finley, J.G. Morris and Q.R. Rogers. Proceedings of the conference held October 28-31, 2003, Bangkok, Thailand.

Rawlings, J.M. (1997). **Dietary management of chronic renal failure**. In: *Veterinarski dani 1997, October 15, 1997-October 18, 1997, Cavtat, Croatia*, Veterinarski dani, Zbornik radova: Zagreb, Croatia, University of Zagreb, Veterinary Faculty., p. 571-572. ISBN: 9536062070.
Descriptors: renal failure, kidney diseases, diets, dietary protein, phosphorus, protein, dogs, cats.

Reginato, C.F., R.C. Backus, and Q.R. Rogers (2002). **Improved growth of lipoprotein lipase deficient kittens by feeding a low-fat, highly digestible diet.** *Journal of Nutritional Biochemistry* 13(3): 149-156. ISSN: 0955-2863.
NAL Call Number: QP141.A1J54
Abstract: Adult domestic cats homozygous with a naturally occurring Gly412Arg LPL gene mutation are good models for the study of LPL deficiency. Previous studies report that homozygous LPL deficient kittens have reduced growth rates and develop subnormal body fat mass. It was hypothesized in the present study that homozygote kittens would have normal growth if provided a standard low fat, highly digestible diet at weaning and that their body fat would be increased by provision of a diet high in protein.
Descriptors: kittens, animal age, genetic disorders, maternal effect, lipoprotein lipase, enzyme activity, enzyme deficiencies, experimental diets, low fat diet, digestibility, dietary protein, food intake, nutrient availability, animal growth, growth promotion, body fat distribution, weight gain.

Reinhart, G.A. and G.D. Sunvold (1995). **New concepts in fiber nutrition and gastrointestinal disease.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 9: 192-193.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, dietary fiber, intestinal health.

Remillard, R.L. (2000). **Parenteral nutrition**. In: S.P. DiBartola (Editor), *Fluid Therapy in Small Animal Practice*, 2nd edition, W.B. Saunders.: Philadelphia, USA, p. 465-482. ISBN: 0721677398.
NAL Call Number: SF991.D53
Descriptors: parenteral feeding, reviews, malnutrition, treatment, cats.

Remillard, R.L. (1998). **Omega 3 fatty acids in canine and feline diets: A clinical success or failure?** *Veterinary Clinical Nutrition* 5(2): 6-11. ISSN: 1076-3872.
NAL Call Number: SF94.5 .V48
Descriptors: diet treatment, fatty acids, pets, diets, diseases, inflammation, cats.

Rennie, M.J. (2001). **The scope and efficacy of anabolic agents for sarcopenia and cachexia in companion animals.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(9A): 11-15. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, dogs, body lean mass, aging, anabolics, insulin, dietary protein, exercise.

Robben, J.H., M.D. Zaal, J.M. Hallebeek, and A.C. Beynen (1999). **Enterale, nutritionele ondersteuning van kritieke patienten. [Enteral nutrition for the critically ill patient]**. *Tijdschrift Voor Diergeneeskunde* 124(16): 468-471. ISSN: 0040-7453.
NAL Call Number: 41.8 T431
Descriptors: nutrition, intensive care, enteral feeding, nutritional support, feeding, tube feeding, diets, cats.
Language of Text: Dutch with a summary in English.

Robertson, J.E., M.M. Christopher, and Q.R. Rogers (1998). **Heinz body formation in cats fed baby food containing onion powder**. *Journal of the American Veterinary Medical Association* 212(8): 1260-1266. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: pet foods, onions, Heinz bodies, erythrocytes, erythrocyte count, reticulocytes, turbidity, glutathione, diets, poisoning, hematology, disorders, methaemoglobin, cats, Allium.

Robinson, N. (2004). **Raw meat diets risky for pets, families: uncooked foods may pose zoonotic risk**. *Veterinary Practice News* 16(3): 30-31. ISSN: 1528-6398.
Descriptors: diets, food contamination, food safety, meat, nutrient balance, pets, zoonoses, cats, Salmonella.

Rogers, Q.R., A.R. Wigle, A. Laufer, V.H. Castellanos, and J.G. Morris (2004). **Cats select for adequate methionine but not threonine.** *Journal of Nutrition* 134(8S): 2046S-2049S.

ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cats, methionine, threonine, amino acids, diet .

Rosser, E.J.J. (1998). **Food allergy in dogs and cats: a review** . *Journal of Allergy and Clinical Immunology* 6(1): 21-24. ISSN: 0091-6749.
Online: http://www.medvet.umontreal.ca/biblio/gopher/ vetjr/jall.htm
NAL Call Number: 448.8 J8236
Descriptors: reviews, pets, food allergies, allergies, diagnosis, management, skin diseases, cats.

Rosser, E.J.J. and S.D. White (1998). **Diet and the skin in companion animals**. In: *Proceedings of the Third World Congress of Veterinary Dermatology: Advances in veterinary dermatology, September 11, 1996-September 14, 1996, Edinburgh, Scotland,* Butterworth-Heinemann Ltd.: Oxford, UK, Vol. 3, p. 401-405. 440 p. ISBN: 075063443X.
Descriptors: skin, food allergies, skin diseases, pets, nutritional disorders, cats.

Roudebush, P. (2000). **Hypoallergenic diets for dogs and cats**. In: J.D. Bonagura (Editor), *Kirk' s Current Veterinary Therapy XIII: Small Animal Practice,* W.B. Saunders.: Philadelphia, USA, p. 530-536. ISBN: 0721655238.
Descriptors: allergens, food allergies, allergic reactions, elimination diets, pruritus, dermatitis, dogs, cats.

Roudebush, P., T.A. Allen, C.E. Dodd, and B.J. Novotny (2004). **Timely topics in nutrition: application of evidence-based medicine to veterinary clinical nutrition**. *Journal of the American Veterinary Medical Association* 224(11): 1766-1771. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: animal diseases, animal nutrition, decision making, nutritional support, pets, therapeutic diets, therapy, medicine, cats, dogs.

Russel, K., G.E. Lobley, J. Rawlings, D.J. Millward, and E.J. Harper (2000). **Urea kinetics of a carnivore, *Felis silvestris catus***. *British Journal of Nutrition* 84(5): 597-604. ISSN: 0007-1145.
NAL Call Number: 389.8 B773
Descriptors: cats, urea, kinetics, dietary protein, protein intake, nutrient intake, urine, feces, nitrogen, nitrogen balance, diet, experimental diets, protein, dosage effects, biochemical pathways, mathematical models, nitrogen, excretion, nutrient retention, nutrition.

Russell, K., P.R. Murgatroyd, and R.M. Batt (2002). **Net protein oxidation is adapted to dietary protein intake in domestic cats (*Felis silvestris catus*)**. *Journal of Nutrition* 132(3): 456-460. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: energy, nutrition, cats, indirect calorimitry, protein oxidation .

Rutgers, H.C. (2003). **Waltham viewpoint: How to feed vomiting cats and dogs**. *Waltham Focus* 13(1): 32-33. ISSN: 1354-0157.

Descriptors: animal feeding, carbohydrates, diet, dog feeding, gastrointestinal diseases, protein sources, vomiting, cats, dogs.

Sagawa, M., T. Kaneko, S. Akagawa, and K. Ono (1995). **Plasma creatinine levels and food creatinine contents in cats**. *Journal of the Japan Veterinary Medical Association* 48(11): 871-874. ISSN: 0446-6454.
NAL Call Number: 41.9J275
Descriptors: blood composition, feeding, creatinine, diets, cats.
Language of Text: Japanese; Summary in English.

Sako, T. (2002). **Methods of utilizing the energy characteristics of fatty acids in nutrition of small animals**. *Journal of Veterinary Medicine, Japan* 55(1): 70-73. ISSN: 0447-0192.
Descriptors: fatty acids, nutrition, cats.
Language of Text: Japanese.

Sako, T. (1999). **Therapeutic diets for small animals in the field of internal medicine**. *Journal of Veterinary Medicine, Japan* 52(2): 135-139. ISSN: 0447-0192.
Descriptors: diets, nutrition, cats.
Language of Text: Japanese.

Sato, Y. (1999). **Therapeutic diets for small animals in the surgical field: two case reports**. *Journal of Veterinary Medicine, Japan* 52(2): 130-134. ISSN: 0447-0192.
Descriptors: diets, surgery, case reports, cats.
Language of Text: Japanese.

Sawashima, K., Y. Sawashima, H. Shitaka, T. Kudo, and T. Kurosawa (2002). **Inhibition of naturally occurring feline chronic renal failure by dietary-protein restriction**. *Journal of the Japan Veterinary Medical Association* 55(9): 591-595. ISSN: 0446-6454.
NAL Call Number: 41.9J275
Descriptors: dietary protein, disease control, disease course, kidney diseases, kidneys, protein modified diets, renal failure, therapeutic diets, cats.
Language of Text: Japanese with a summary in English.

Scarlett, J.M., S. Donoghue, J. Saidla, and J. Wills (1994). **Overweight cats: prevalence and risk factors.** *International Journal of Obesity Related Metabolic Disorders* 18(suppl.1): S22-S28. ISSN: 0307-0565.
NAL Call Number: RC628.A1O2
Descriptors: diet, obesity, incidence, risk, surveys, age differences, physical activity, cats.

Schultze, K.R. (1999). ***Natural Nutrition for Dogs and Cats: The Ultimate Diet.***, Hay House: Carlsbad, California, 135 p. ISBN: 1561706361 .
NAL Call Number: SF427.4 .S3
Descriptors: diets, foodstuffs, dogs, cats, nutrition, diseases, cat food, dog food.

Shibanai, H. (2001). **Management and supervision of nutrition in animal hospitals**. *Journal of Veterinary Medicine, Japan* 54(1): 43-46. ISSN: 0447-0192.

Descriptors: animal hospitals, nutrition, pets, cats.
Language of Text: Japanese.

Sifrim, D., B. Coulie, J. Tack, A. Andrioli, and J. Janssens (1996). **Cholinergic control of the gastric fundus tone a barostat study in lightly anesthetized cats**. *Gastroenterology* 110(4 SUPPL.): A758. ISSN: 0016-5085.
NAL Call Number: RC799. G37
Descriptors: digestive system, ingestion and assimilation, morphology, aneathetized cats, muscular system, nervous system, nutrition, fasting .

Silver, R.J. (2004). **Home-prepared diets versus commercial pet foods: diverse views of pet nutrition**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 18: 678-679.
Descriptors: body weight, bone meal, calcium, carbohydrates, dietary protein, diets, energy content, fats, feed grains, fish oils, linseed oil, meat meal, nutrient requirements, nutritive value, pet foods, pets, phosphorus, protein, vegetables, cats.
Notes: Meeting held January 17-21, 2004 in Orlando, Florida. Small animal and exotics Book one: Alternative medicine orthopedics.

Simpson, K.W. (2001). **Diet and pancreatic disease.** *Proceedings of the North American Veterinary Conference* 15: 187.
NAL Call Number: SF605 .N672
Descriptors: dogs, cats, pancreatic diseases, diet.

Sinovec, Z., M. Antic, and D. Trailovic (1995). **Taurine deficiency syndrome in cats**. *Veterinarski Glasnik* 49(9-10): 561-567. ISSN: 0350-2457.
NAL Call Number: 41.8 J93
Descriptors: cardiovascular system, nutrition, cats, clinical taurine deficiency, cardiomyopathy, retinopathy, backbone deformation, immunological disorders, cystionase.
Language of Text: Serbo-Croatian.

Slater, M.R. and J.M. Scarlett (1995). **Nutritional epidemiology in small animal practice.** *Journal of the American Veterinary Medical Association* 207(5): 571-575. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: dogs, cats, animal nutrition, epidemiology, diet, therapeutic diets, pet foods, animal feeding, animal health.

Smet, B. and P. Poels (1995). **Enquete bij de Belgische dierenartsen over dieetvoeding voor honden en katten [Enquiry: Dietary nutrition of dogs and cats in Belgium]**. *Vlaams Diergeneeskundig Tijdschrift* 64(3): 107-112. ISSN: 0303-9021.
NAL Call Number: 41.8 V84
Descriptors: nutrition, diet, pet foods, cats.
Language of Text: Dutch with a summary in English.

Smith, C.M. and W.O. Song (1996). **Comparative nutrition of pantothenic acid.** *Journal of Nutrition Biochemistry* 7(6): 312-321. ISSN: 0955-2863.

NAL Call Number: QP141 .A1J54
Abstract: Pantothenic acid, a B-vitamin, is essential for all mammalian species that have been studied: humans, calves, pigs, dogs, rodents, and cats, as well as for poultry and fish. The different species develop various deficiency signs such us growth retardation; anorexia: changes in hair, feather, or skin; locomotor abnormalities; gastrointestinal problems; compromised immunofunctions; impaired adrenal functions; altered lipid and carbohydrate metabolism; and adverse breeding outcome. Because there are no reliable and sensitive criteria for assessing pantothenate status, the dietary requirements of different species are most frequently set at the level that results in maximum growth. The pantothenate requirement varies widely among different species and strains, and depends on the age, growth rate, and breeding stages of the animals. This review summarizes the deficiency signs and the requirements for pantothenate of different species, and discusses various factors that affect pantothenate requirements of the animals.
Descriptors: pantothenic acid, species differences, nutrient deficiencies, symptoms, diet, nutritional state, growth, nutrient requirements, biochemical pathways, nutrition, aging, food analysis, analytical, antibiotics, nutrient intake, animal tissues, coenzyme A, literature reviews.

Sparkes, A.H., K. Papasouliotis, G. Sunvold, G. Werrett, C. Clarke, M. Jones, T.J. Gruffydd Jones, and G. Reinhart (1998). **Bacterial flora in the duodenum of healthy cats, and effect of dietary supplementation with fructo-oligosaccharides.** *American Journal of Veterinary Research* 59(4): 431-435. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, intestinal microorganisms, duodenum, oligosaccharides, supplementary feeding.

Sparkes, A.H., K. Papasouliotis, G. Sunvold, G. Werrett, E.A. Gruffydd Jones, K. Egan, T.J. Gruffydd Jones, and G. Reinhart (1998). **Effect of dietary supplementation with fructo-oligosaccharides on fecal flora of healthy cats.** *American Journal of Veterinary Research* 59(4): 436-440. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, oligosaccharides, supplementary feeding, fecal flora.

Spitze, A.R., D.L. Wong, Q.R. Rogers, and A.J. Fascetti (2003). **Taurine concentrations in animal feed ingredients; cooking influences taurine content**. *Journal of Animal Physiology and Animal Nutrition* 87(7/8): 251-262. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: cooking, feeds, nutrition, nutritive value, taurine, zoo animals, cats, dogs.

Stanley, B.J. (2002). **[Dieetbehandeling van chronische diarree] Dietary treatment of chronic diarrhoea in dogs and cats** . *Dier En Arts* 17(1/2): 5-13. ISSN: 0920-2412.
Descriptors: diarrhea, diets, treatment, cats.
Language of Text: Dutch.

Stasiak, M. (2001). **The effect of early specific feeding on food conditioning in cats**. *Developmental Psychobiology* 39(3): 207-215. ISSN: 0012-1630.
Descriptors: conditioning, feeding habits, feeding preferences, cats.

Stogdale, L. (2004). **Sources of information on canine and feline nutrition**. *Canadian Veterinary Journal* 45(1): 8. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: animal nutrition, nutrition information, cats.

Stratton Phelps, M., R.C. Backus, Q.R. Rogers, and A.J. Fascetti (2002). **Dietary rice bran decreases plasma and whole-blood taurine in cats**. *Journal of Nutrition* 132(6): 1745S-1747S. ISSN: 0022-3166.
Online: http://www.nutrition.org/cgi/content/abstract/132/6/1745S
NAL Call Number: 389.8 J82
Descriptors: blood plasma, diets, nutrition, rice bran, taurine, cats.

Strieker, M.J., J.G. Morris, B.F. Feldman, and Q.R. Rogers (1996). **Vitamin K deficiency in cats fed commercial fish-based diets**. *Journal of Small Animal Practice* 37(7): 322-326. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: diets, fish, composition, nutritional disorders, vitamins, vitamin deficiencies, requirements, vitamin K, deficiency, deficiency diseases, cats.

Sturman, J.A. and P. Lu (1997). **Role of feline maternal taurine nutrition in fetal cerebellar development: an immunohistochemical study.** *Amino Acids* 13(3/4): 369-377. ISSN: 0939-4451.
NAL Call Number: QD431.A1A45
Descriptors: cats, maternal nutrition, fetal development, immunohistochemistry, cerebellum.

Sturman, J.A., P. Lu, J.M. Messing and H. Imaki (1996). **Depletion of feline taurine levels by beta-alanine and dietary taurine restriction.** In: R.J. Huxtable (Editor), *Taurine 2: Basic and Clinical Aspects*, Advances in Experimental Medicine and Biology, V. 403, Plenum Press: New York, p. 19-36. ISBN: 0306453851.
NAL Call Number: QP901.A33 v.403
Descriptors: amino acids, taurine, alanine, cats, diet.
Notes: Proceedings of the International Taurine Symposium '95, an official Satellite Symposium of the 15th Biennial Meeting of the International Society of Neurochemistry, held June 27-July 1, 1995, Osaka, Japan.

Sturman, J.A. and J.M. Messing (1996). **Depletion of feline taurine levels by beta-alanine and dietary taurine restriction**. *Nutrition Research* 16(5): 789-795. ISSN: 0271-5317.
NAL Call Number: QP141.A1N88
Descriptors: metabolism, nutrition, beta alanine, competitive inhibitor, deficiency, bile acid conjugation, tissue taurine, dietary protein.

Sunvold, G.D., R. Vickers, and G.A. Reinhart (2000). **Nitrogen repartitioning in the feline renal patient: Does it work.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 14: 435-436.
NAL Call Number: SF605.N672
Descriptors: cats, renal failure, nitrogen balance, protein modified diets.

Sunvold, G.D. (1996). **Dietary fiber for dogs and cats: An historical perspective**. In: *Recent Advances in Canine and Feline Nutritional Research*, Vol. XV, Orange Frazer Press : Wilmington, Ohio, USA, p. 3-14. ISBN: 1882203097.
NAL Call Number: SF427.4.I26
Descriptors: animal nutrition, digestive system, meeting paper, dietary fiber, companion animal diets.
Notes: Meeting Information: Iams International Symposium; 1996.

Szabo, J., W.H. Ibrahim, G.D. Sunvold, and G.G. Bruckner (2003). **Effect of dietary protein quality and essential fatty acids on fatty acid composition in the liver and adipose tissue after rapid weight loss in overweight cats.** *American Journal of Veterinary Research* 64(3): 310-315. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: dietary protein, essential fatty acids, liver, adipose tissue, composition, cats.

Szabo, J., W.H. Ibrahim, G.D. Sunvold, K.M. Dickey, J.B. Rodgers, I.E. Toth, G.A. Boissonneault, and G.G. Bruckner (2000). **Influence of dietary protein and lipid on weight loss in obese ovariohysterectomized cats**. *American Journal of Veterinary Research* 61(5): 559-565. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: dietary protein, obesity, weight losses, diabetes, diabetes mellitus, diets, energy requirements, essential fatty acids, fatty acids, insulin, lipidosis, liver, risk factors, liver diseases, dietary fat, cats.

Taylor, E.J., C. Adams, and R. Neville (1995). **Some nutritional aspects of ageing in dogs and cats.** *Proceedings of the Nutrition Society* 54(3): 645-656. ISSN: 0029-6651.
NAL Call Number: 389.9 N953
Descriptors: aging, diet, nutrient requirements, energy intake, nutrient intake, digestibility.

Taylor, T.P., J.G. Morris, P.H. Kass, and Q.R. Rogers (1998). **Maximal growth occurs at a broad range of essential amino acids to total nitrogen ratios in kittens**. *Amino Acids* 15(3): 221-234. ISSN: 0939-4451.
NAL Call Number: QD431.A1A45
Descriptors: development, maximal growth rate, kittens, essential amino acids, total nitrogen, nutrition, control diet.

Taylor, T.P., J.G. Morris, N.H. Willits, and Q.R. Rogers (1996). **Optimizing the pattern of essential amino acids as the sole source of dietary nitrogen supports near-maximal growth in kittens**. *Journal of Nutrition* 126(9): 2243-2252. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: proline, asparagine, arginine, amino acids, nitrogen, nonessential amino acids, body weight, weight losses, synthesis, methionine, kittens, liveweight gain, nitrogen balance, essential amino acids, intake, cats.

Thatcher, C.D. (1996). **Enteral nutrition products: what's available.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 10: 329-330.

NAL Call Number: SF605.N672
Descriptors: dogs, cats, enteral feeding, diets.

Thatcher, C.D. (1996). **Clinical nutrition in practice: case presentations.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 10: 327-328.
NAL Call Number: SF605.N672
Descriptors: dogs, cats, nutritional intervention.

Thorne, C.J. (1995). **Sensory and experiential factors in the design of foods for domestic dogs and cats.** *Proceedings of the 29th University of Nottingham Feed Manufacturers Conference, January 4, 1995-January 6, 1995, Nottingham, England.*, p. 151-167.
NAL Call Number: SF95.R47
Descriptors: pet foods, dogs, cats, feeding preferences, smell, taste, texture, literature reviews.

Tillson, D.M. (2002). **Surgical techniques for enteral nutrition.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 16: 794-6.
NAL Call Number: SF605 .N672
Descriptors: dogs, cats, enteral feeding.

Timmins, R. (1994). **Nutricion felina. [Nutrition of cats]**. *Revista De Medicina Veterinaria Buenos Aires* 75(6): 462-467. ISSN: 0325-6391.
Descriptors: nutritional disorders, nutrient requirements, cats.
Language of Text: Spanish.

Tuffli, S.P., F. Gaschen, and R. Neiger (2001). **Effect of dietary factors on the detection of fecal occult blood in cats.** *Journal of Veterinary Diagnostic Investigation* 13(2): 177-179. ISSN: 1040-6387.
NAL Call Number: SF774 .J68
Descriptors: cats, feces, tests, detection, diet.

Twedt, D.C. (2001). **Diet and hepatic disease.** *Proceedings of the North American Veterinary Conference Eastern States Veterinary Association* 15: 192-194.
NAL Call Number: SF605 .N672
Descriptors: dogs, cats, liver diseases, diet.

Ugarte, C., W.G. Guilford, P. Markwell, and E. Lupton (2004). **Carbohydrate malabsorption is a feature of feline inflammatory bowel disease but does not increase clinical gastrointestinal signs.** *Journal of Nutrition* 134(8S): 2068S-2071S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Descriptors: cats, malabsorption, inflamatory bowel diseasee, carbohydrate.

UK Waltham Centre For Pet Nutrition and France Royal Canin Research Centre (2003). ***Latest Innovations in Clinical Nutrition.*** Melton Mowbray: UK Waltham Centre For Pet Nutrition, 76 p.
Descriptors: animal nutrition, antioxidants, immune response, obesity, arthritis,

diabetes, diet, heart diseases, immunity, intestinal diseases, kidney diseases, liver diseases, pets, skin diseases, urinary tract diseases, cats.

Vajc, J. (1998). **Dietoterapie - vyznamna soucast medikamentozni lecby [Diet as a significant component of drug therapy in small animals]**. *Veterinarstvi* 48(1): 11-14. ISSN: 0506-8231.
NAL Call Number: 41.8 V6439
Descriptors: therapeutic diets, diet treatment, pets, kidney diseases, heart diseases, neoplasms, pancreatic diseases, constipation, surgery, urolithiasis, obesity, malnutrition, cats.
Language of Text: Czech with a summary in English.

VanSteenhouse, J.L., D.S. Dimski, H.W. Taylor, D.H. Swenson, J. Taboada, and G. Hosgood (1999). **Effects of oral administration of orotic acid on hepatic morphologic characteristics and serum biochemical variables in cats.** *American Journal of Veterinary Research* 60(6): 749-752. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, orotic acid, drug formulations, oral administration, liver, lipidosis, adenine, urine, kidney diseases, pathogenesis, creatinine, diet.

Vitale, C.B., P.J. Ihrke, and T.L. Gross (1998). **Diet-induced alterations in lipid metabolism and associated cutaneous xanthoma formation in 5 cats**. In: *Proceedings of the Third World Congress of Veterinary Dermatology: Advances in veterinary dermatology: volume 3, September 11, 1996-September 14, 1996, Edinburgh, Scotland*, Butterworth-Heinemann Ltd.: Oxford, UK, Vol. 3, p. 243-249. ISBN: 075063443X.
Descriptors: hyperlipoproteinaemia, metabolic disorders, eyelids, eyelid diseases, lipid, electropHoresis, histopathology, pruritus, diets, skin diseases, ear diseases, nutritional disorders, cats.

Vroom, M.W. (1994). **Voedselallergie bij de hond en kat. [Food allergy in dogs and cats]**. *Tijdschrift Voor Diergeneeskunde* 119(20): 599-601. ISSN: 0040-7453.
NAL Call Number: 41.8 T431
Descriptors: allergic reactions, hypersensitivity, food allergies, cats.
Language of Text: Dutch with a summary in English.

Wada, H. and Y. Hara (2002). **Adaptation of nutrition of small animals to surgical conditions**. *Journal of Veterinary Medicine, Japan* 55(1): 49-53. ISSN: 0447-0192.
Descriptors: bone diseases, feed supplements, joint diseases, nutrition, orthopedics, cats.
Language of Text: Japanese.

Wagner, E., I. Schwendenwein, and J. Zentek (2004). **Effects of a dietary chitosan and calcium supplement on Ca and P metabolism in cats**. *Berliner Und Munchener Tierarztliche Wochenschrift* 117(7/8): 310-315. ISSN: 0005-9366.
NAL Call Number: 41.8 B45
Descriptors: ash, calcium, calcium carbonate, chitosan, crude fibre, crude protein, diets, digestibility, dry matter, feed intake, feed supplements, inorganic phosphorus, kidney

diseases, mineral deficiencies, mineral, nitrogen, nutrient balance, phosphorus, renal failure, urine, cats.
Language of Text: English with a summary in German.

Waly, N., T.J. Gruffyddjones, C.R. Stokes, and M.J. Day (2000). **Induction of mhc-ii in the feline small intestine after introducing a novel dietary antigen**. *Scandinavian Journal of Immunology* 52(4): 449. ISSN: 0300-9475.
NAL Call Number: QR180 .S3
Descriptors: immune system, chemical coordination and homeostasis, ingestion and assimilation, dietary antigen .

Watson, A.D.J. (1998). **Diet and periodontal disease in dogs and cats. 2.** *Veterinary Clinical Nutrition* 5(1): 11-13. ISSN: 1076-3872.
NAL Call Number: SF94.5 .V48
Descriptors: dental plaque, teeth, literature reviews, rawhide .

Watson, A.D.J. (1997). **Diet and periodontal disease in dogs and cats**. *Veterinary Clinical Nutrition* 4(4): 135-137. ISSN: 1076-3872.
NAL Call Number: SF94.5 .V48
Descriptors: nutrition, literature reviews, tooth diseases, diets, periodontal diseases, gingivitis, periodontitis, mouth diseases, cats.

Watson, A.D.J. and D.B. Church (1995). **Preferences of veterinarians for drugs to treat heart disease in dogs and cats.** *Australian Veterinary Journal* 72(11): 401-403. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: dogs, cats, heart diseases, drugs, medical treatment, diuretics, vasodilator agents, sodium restricted diets, veterinarians, Australia, inotropic drugs.

Weber, J.M. and L. Dailly (1998). **Food habits and ranging behaviour of a group of farm cats (*Felis catus*) in a Swiss mountainous area**. *Journal of Zoology* 245(2): 234-237. ISSN: 0952-8369.
NAL Call Number: QL1.J68
Descriptors: feeding behavior, behavior, cats, free ranging cats.

White, H.L., L.M. Freeman, O. Mahony, P.A. Graham, Q. Hao, and M.H. Court (2004). **Effect of dietary soya on serum thyroid hormone concentrations in healthy adult cats**. *American Journal of Veterinary Research* 65(5): 586-591. ISSN: 0002-9645.
Online: Objective - To compare effects of short-term administration of a soy diet with those of a soy-free diet on serum thyroid hormone concentrations in healthy adult cats. Animals - 18 healthy adult cats. Procedure - Cats were randomly assigned to receive either a soy or soy-free diet for 3 months each in a crossover design. Assays included CBC, serum biochemical profile, thyroid hormone analysis, and measurement of urinary isoflavone concentrations. Results - Genistein, a major soy isoflavone, was identified in the urine of 10 of 18 cats prior to dietary intervention. Compared with the soy-free diet, cats that received the soy diet had significantly higher total thyroxine (T4) and free T4 (fT4) concentrations, but unchanged total triiodothyronine (T3) concentrations. The T3/fT4 ratio was also significantly lower in cats that received the soy diet. Although the

magnitudes of the increases were small (8% for T4 and 14% for fT4), these changes resulted in an increased proportion of cats (from 1/18 to 4/18) that had fT4 values greater than the upper limit of the laboratory reference range. There was no significant effect of diet on any other measured parameter. Conclusions and Clinical Relevance - Short-term administration of dietary soy has a measurable although modest effect on thyroid hormone homeostasis in cats. Increase in T4 concentration relative to T3 concentration may result from inhibition of 5'-iodothyronine deiodinase or enhanced T3 clearance. Soy is a common dietary component that increases serum T4 concentration in cats.
NAL Call Number: 41.8 Am3A
Descriptors: disease prevention, genistein, hormone secretion, hyperthyroidism, isoflavones, soyabeans, thyroid diseases, thyroid function, thyroid hormones, thyroxine, triiodothyronine, cats, Glycine Fabaceae.

White, M.E., M.R. Hathway, W.R. Dayton and A.J. Lepine (1996). **The role of growth factors in canine and feline milk**. In: *Recent Advances in Canine and Feline Nutritional Research,* Orange Frazer Press : Wilmington, Ohio 45177, USA, p. 89-98. ISBN: 1882203097.
Descriptors: molecular biophysics, endocrine system, nutrition, feline milk, reproductive system, medicine, colostrum .
Notes: Meeting Information: Iams International Symposium; 1996.

White, S.D. (2000). **Food hypersensitivity**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice,* 2nd edition, W.B. Saunders.: Philadelphia, USA, p. 347-349. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: etiology, allergies, food allergies, clinical aspects, diagnosis, treatment, cats.

Wills, J. and R. Harvey (1994). **Diagnosis and management of food allergy and intolerance in dogs and cats.** *Australian Veterinary Journal* 71(10): 322-326. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: cats, food allergies, food intolerance, clinical nutrition, elimination diets, pruritus, animal proteins, plant proteins, allergens, differential diagnosis, diet treatment, allergenic foods.

Wills, J.M. (1994). **Obesity in cats and dogs: An International Symposium**. *International Journal of Obesity* 18(Supl 1): S1-S7. ISSN: 0307-0565.
NAL Call Number: RC628.A102
Descriptors: cats, obesity, nutrition, diabetes.

Wolter, R. (1998). **Diets and feline urolithiasis [Alimentation minerale et urolithiases felines]**. *Bulletin De L' Academie Veterinaire De France* 71(1): 97-104. ISSN: 0001-4192.
NAL Call Number: 41.9 R24
Descriptors: urolithiasis, diets, concretions, oxalates, calcium, cats.
Language of Text: French.

Yam, P. and C. Cave (2003). **Enternal nutrition: options and feeding protocols.** *In Practice* 25(3): 118-129. ISSN: 0263-841X.

NAL Call Number: SF601.I4
Descriptors: cats, dogs, enteral feeding, intragastric administration, body weight, body condition, voluntary intake, appetite, tube feeding, tubes, small animal practice, surgical equipment, surgery, postoperative care, energy requirements, nasesophageal tube feeding, esophagostomy tube feeding, gastrostomy tube feeding.

Yu, S., K.A. Howard, K.J. Wedekind, J.G. Morris, and Q.R. Rogers (2002). **A low-selenium diet increases thyroxine and decreases 3,5,3'triiodothyronine in the plasma of kittens**. *Journal of Animal Physiology and Animal Nutrition* 86(1/2): 36-41. ISSN: 0931-2439.
NAL Call Number: 389.78
Abstract: .
Descriptors: blood plasma, glutathione peroxidase, kittens, selenium, thyroxine, triiodothyronine, cats.

Yu, S. and J.G. Morris (1999). **Chloride requirement of kittens for growth is less than current recommendations.** *Journal of Nutrition* 129(10): 1909-1914. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: The minimal chlorine (chloride) requirement of kittens for growth was determined in a study in which kittens were given purified diets containing 0.1, 0.4, 0.7, 1.0 or 1.3 g of chloride (Cl) as KCl/kg diet. Each dietary group contained six (three males and three females) specific-pathogen-free kittens; the diets were fed for 30 d. Kittens receiving diets with <0.7 g Cl/kg became alkalotic as evidenced by an increase in blood pH, blood bicarbonate, standard bicarbonate, actual base excess, standard base excess, partial pressure of carbon dioxide (pCO(2)) and total CO(2). In addition, kittens were hypochloremic and hypokalemic; they had decreased serum ionized calcium and a negative chloride balance. On the basis of the chloride balance measurements, a broken-line nonlinear least-square analysis predicted a Cl requirement as 0.89 g Cl/kg diet (22 kJ/g diet). Because the dietary Cl concentration closest to 0.89 g/kg that we tested was 1.0 g Cl/kg, we recommend a minimum chloride requirement of 1.0 g Cl/kg diet for growing kittens. This value is considerably less than the recommended chloride requirement of the National Research Council of 1.9 g Cl/kg diet, or the allowance of the Association of American Feed Control Officials of 3.0 g Cl/kg diet. Because the bioavailability of chloride is high, the previous estimates appear excessive.
Descriptors: cats, kittens, chloride, nutrient requirements, growth, dosage effects, potassium chloride, diet, experimental diets, male animals, female animals, acid base equilibrium, gases, hypokalemia, nutritional adequacy, food intake, body weight, weight gain, serum, sodium, potassium, calcium, magnesium, dietary minerals, composition, hypochloremia .

Yu, S. and J.G. Morris (1999). **Sodium requirement of adult cats for maintenance based on plasma aldosterone concentration.** *Journal of Nutrition* 129(2): 419-423. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: The sodium requirement of adult cats for maintenance was determined using a randomized block design of eight dietary sodium treatments (0.1, 0.4, 0.5, 0.66, 0.8, 1.2, 1.6 or 2.0 g Na/kg in a casein-lactalbumin-based purified diet) administered for periods of 4 wk. A total of 35 adult specific-pathogen-free domestic shorthaired cats (26 males

and 9 females, 1.5-3 y of age) was given an equilibration diet (2 g Na/kg) for 14 d before assignment (or reassignment) to the treatments. A total of 12 cats (8 males, 4 females) was randomly assigned to the lowest six levels of sodium, and four cats to the highest two sodium levels. Cats consuming the diet containing 0.1 g Na/kg had significantly elevated aldosterone concentration in plasma, and packed cell volume. In addition, these cats exhibited anorexia, body weight loss, reduced urinary specific gravity and sodium excretion, and had a negative sodium balance. However, adult cats did not develop polydypsia and polyuria reported in sodium-deficient kittens. Cats given the diet containing 0.66 g Na/kg did not have an increased packed cell volume, but aldosterone concentration in the plasma was significantly elevated. However, cats given diets containing >(or)= 0.8 g Na/kg had plasma aldosterone concentrations <(or)= 0.7 nmol/L (reference value for sodium-replete cats) and normal packed-cell volumes. A minimal sodium requirement of adult cats for maintenance of 0.8 g Na/kg diet (energy density = 22 kJ/g diet) or 0.4 mmol Na(.)kg body weight-1(.)d-1 is proposed.
Descriptors: cats, sodium, nutrient requirements, plasma, aldosterone, dosage effects, diet, experimental diets, body weight, food intake, water intake, urine, specific gravity, nutrient balance.

Yu, S. and J.G. Morris (1998). **Plasma aldosterone concentration of cats.** *Veterinary Journal* 155(1): 63-68. ISSN: 1090-0233.
NAL Call Number: SF601.V484
Abstract: Aldosterone concentration in the plasma of specific-pathogen-free, domestic, short-hair cats given sodium replete diets were measured by a radio-immunoassay. Plasma samples assayed were taken from male and female cats of 8, 12, 17, 20, 26, 29, 40, and >52 weeks of age, from adult non-pregnant queens, and from queens in the ninth weeks of pregnancy and in the second and fifth week of lactation. Plasma aldosterone concentration was also measured in samples taken four times over a 24 h period (06:00-06:30, 11:00-11:30, 17:00-17:30 and 23:00-23:30) in a group of seven adult male cats. Nether age nor sex had a significant effect on the plasma aldosterone concentration. Also, queens had similar aldosterone concentrations in plasma whether they were non-pregnant, pregnant, or lactating. No circadian rhythm was observed in plasma aldosterone concentrations in adult male cats. The plasma aldosterone concentrations of 148 cats (87 males and 61 females, ranging in ages from 8 to >52 weeks) had a positive skew distribution with a median of 161 pmol l-1. The upper value for plasma aldosterone concentration in healthy domestic cats as defined by the 95 percentile was 700 pmol l-1.
Descriptors: cats, aldosterone, plasma, gender differences, pregnancy, lactation, circadian rhythm, age differences.

Yu, S. and J.G. Morris (1997). **The minimum sodium requirement of growing kittens defined on the basis of plasma aldosterone concentration.** *Journal of Nutrition* 127(3): 494-501. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: The minimum sodium requirement of growing kittens was measured using a 6 x 6 Latin square design. Twelve specific-pathogen-free short-hair growing kittens (six males, six females) were fed casein and lactalbumin-based purified diets supplemented with various levels of sodium (NaCl). Using six growing kittens (four males, two

females), a sodium depletion and repletion study was conducted to define the variables associated with sodium deficiency. Sodium-deficient kittens exhibited anorexia, impaired growth, polydypsia, polyuria, hemoconcentration, reduced urinary sodium output and specific gravity, and elevated aldosterone concentration in plasma and output in urine. Plasma sodium concentration was not affected by dietary sodium intake. Urinary sodium output was positively related to (r = 0.818, P <0.001), but fecal sodium loss was independent of sodium intake. These results suggest that sodium balance in kittens is essentially regulated by renal excretion. The recommended minimum sodium requirement of kittens for growth is 1.6 g Na/kg diet (energy density, 22 kJ ME/g diet), or 0.07 mg Na/kJ ME, or 34 mg Na.kg body wt-1. d-1. A sodium requirement of adult cats for maintenance was estimated to be 21 mg Na.kg body-1 d-1. These requirements are considerably greater than those recommended by the National Research Council in 1986.
Descriptors: kittens, nutrient requirements, growth, plasma, aldosterone, depletion, refeeding, mineral deficiencies, symptoms, anorexia, polyuria, urine, excretion, specific gravity, polydipsia, hematocrit, nutrient intake, diet, experimental diets, body weight, food intake, water intake, dosage effects, nutrient balance, female animals, male animals, sex differences.

Yu, S., Q.R. Rogers, and J.G. Morris (2001). **Effect of low levels of dietary tyrosine on the hair colour of cats**. *Journal of Small Animal Practice* 42(4): 176-180. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: amino acids, casein, colour, hair, kittens, lactalbumin, melanins, phenylalanine, pregnancy, protein sources, tyrosine, cats.

Zentek, J. (2002). **Sinnvolle diatetische Massnahmen bei Magen-/Darmerkrankungen der Katze [Valuable dietetic measures for cats with gastro-intestinal disorders]**. *Praktische Tierarzt* 83(1): 38-42. ISSN: 0032-681X.
NAL Call Number: 41.8 P882
Descriptors: diets, gastrointestinal diseases, treatment, cats.
Language of Text: German.

Zentek, J. (2001). **Neue Erkenntnisse zur Diatetik bei Hunden und Katzen mit Tumorerkrankungen [New aspects of dietetic treatment of neoplasms in cats and dogs]**. *Tierarztliche Praxis* 29(1): 25-31. ISSN: 1434-1239.
NAL Call Number: SF603 .V433
Descriptors: diet, treatment, neoplasms, cats, diabetes, dogs.
Language of Text: German with a summary in English.

Zentek, J. (1996). **Entwicklungen und Perspektiven der Diatetik bei Tumorerkrankungen [Developments and perspectives in the dietetic treatment of cancer]**. *Ubersichten Zur Tierernahrung* 24(2): 229-253. ISSN: 0303-6340.
NAL Call Number: SF95.A1U2
Descriptors: metabolism, treatment, diet treatment, cachexia, neoplasms, reviews, nutritional support, diets, man, cats.
Language of Text: German wth a summary in English.

Zentek, J., A. Dekeyzer, and R. Mischke (1998). **Influence of dietary protein quality on nitrogen balance and some blood parameters in cats**. *Journal of Animal Physiology and Animal Nutrition* 80(2/5): 63-66. ISSN: 0931-2439.
NAL Call Number: 389.78
Descriptors: protein sources, meat byproducts, poultry offal meal, meat, heart as food, intake, protein requirement, protein digestibility, nitrogen balance, cats.

Zentek, J.S.A. (2004). **Urinary composition of cats is affected by the source of dietary protein.** *Journal of Nutrition* 134(8S): 2162S-2165S. ISSN: 0022-3166.
NAL Call Number: 389.8 J82

Zoran, D. (2003). **Nutritional mangement of gastrointestinal disease.** *Clinical Techniques in Small Animal Practice* 18(4): 211-217. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: dogs, cats, digestive system diseases, diet therapy, nutritive value, dietary protein, dietary fat, dietary fiber.

Zoran, D.L. (2002). **The carnivore connection to nutrition in cats**. *Journal of the American Veterinary Medical Association* 221(11): 1559-1566 . ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: diabetes mellitus, lipidosis, metabolic disorders, nutrition, obesity, carnivores, cats.

Zoran, D.L. (2002). **Dieta e farmaci: la chiave per il trattamento delle colopatie nel gatto [Diet and drugs: The keys to managing feline colonic disease]**. *Veterinaria Cremona* 16(Supplemento): 65-78. ISSN: 0391-3151.
Descriptors: etiology, colon, diagnosis, diarrhea, intestinal diseases, therapeutic diets, cats.
Language of Text: Italian with a summary in English.

Zoran, D.L. (1999). **Diet and drugs: the keys to managing feline colonic disease**. *Compendium on Continuing Education for the Practicing Veterinarian* 21(8): 731-748. ISSN: 0193-1903.
NAL Call Number: SF601. C66
Descriptors: drug therapy, diets, colon, intestinal diseases, treatment, reviews, cats.

Pharmacology

Anonymous (2003). *Der chirurgische Notfallpatient: Erstversorgung, Stabilisierung, Triage, chirurgische Therapie [The surgical emergency patient. First aid; stabilization; triage; surgical treatment], May 22, 2003-May 29, 2003, Lugano,Switzerland,* Schweizerische Vereinigung fur Kleintiermedizin: Zurich, Switzerland, 177 p.
Descriptors: radiography, emergencies, ultrasound, fluid therapy, analgesia, anesthesia, shock, thoracocentesis, catheters, oxygen administration, venous cutdown, soft tissue trauma, opHthalamic emergencies, abdominal surgery.
Language of Text: German and English.

Abeynayake, P. (1997). **Management of pain in dogs and cats using nonsteroidal anti-inflammatory analgesics**. *Australian Veterinary Journal* 75(5): 353. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: management, non steroidal anti-inflammatory agents, pain, analgesics, cats.
Notes: Interpretive summary of Matthews, K. A. Nonsteroidal anti-inflamatory analgesics in pain management in dogs and cats. Canadian Veterinary Journal (1996) 37, 539-545.

Aitkin, L., L. Tran, and J. Syka (1994). **The responses of neurons in subdivisions of the inferior colliculus of cats to tonal, noise and vocal stimuli.** *Experimental Brain Research* 98(1): 53-64. ISSN: 0014-4819.
Abstract: The aim of this study was to gain information from anesthetized cats about the differential coding properties of neurons in the three major subdivisions of the inferior colliculus: the central (CNIC) and external (EN) nuclei and dorsal cortex (DC). Stimuli were presented in the free field from a speaker facing the contralateral pinna. For each unit, the characteristic frequency (CF, where threshold was lowest) was determined, and impulse rates to CF tone bursts, noise bursts and four feline vocal stimuli were measured as a function of increasing sound pressure level (rate/level functions). Peristimulus-time histograms were computed for responses to all stimuli. Sustained firing patterns to CF stimuli were observed for 81% of units in CNIC, for 50% of units in EN and 27% of units in DC. Sustained discharges were evoked by noise in 78-100% of units in all regions, and by at least one vocal stimulus in 86% of units in CNIC, 82% in EN and 55% in DC. In the CNIC, non-monotonic rate/level functions to CF stimuli were more common (41%) than either monotonic or plateau functions, whereas the reverse was the case with noise and vocal stimuli. Non-monotonic functions were uncommon to any stimulus in EN and DC (21-24%). Vocal stimuli were more effective in terms of higher firing rates than noise or CF stimuli in 27% of units in CNIC, 82% in EN and 72% in DC. There were no units that responded exclusively to one vocal stimulus, but a high proportion of units in EN responded strongly to broad band stimuli, and some of these showed clear preferences for one vocal stimulus over others.
Descriptors: acoustic stimulation, inferior colliculus, neurons, anesthesia, cats, histocytochemistry, inferior colliculus, microelectrodes, noise, vocalization, animal.

Algate, D.R., J. Augustin, P.R. Atterson, D.J. Beard, C.M. Jobling, S. Laufer, P.L. Munt, and S. Tries (1995). **General pharmacology of [2,2-dimethyl-6-(4-chlorophenyl)-7-phenyl-2,3- dihydro-1H-pyrrolizine-5-yl]-acetic acid in experimental animals.** *Arzneimittel-Forschung* 45(2): 159-165. ISSN: 0004-4172.

Abstract: [2,2-Dimethyl-6-(4-chlorophenyl)-7-phenyl-2,3-dihydro-1H-pyrrolizine-5- yl]-acetic acid (ML 3000) is a newly synthesized compound with analgesic, antipyretic and anti-inflammatory activity. The general pharmacological effects of ML 3000 following oral administration were investigated in experimental animals. The results showed that with regard to the CNS, ML 3000 did not affect behaviour in the Irwin test, locomotor activity or hexobarbital-induced sleep at doses of 30, 100 and 300 mg/kg. ML 3000, at a single dose of 100 mg/kg administered intraduodenally, had no notable effect on the cardiovascular system or respiration in anaesthestised rats and dogs nor on neuromuscular function in anaesthetised cats. No evidence of gastric damage or disturbance of peristalsis was observed following oral administration of ML 3000. In vitro, ML 3000 evoked a weak spasmogenic response in the guinea-pig ileum with a dose-related inhibition of acetylcholine, histamine and barium chloride-induced responses. A small transient reduction in urine volume was observed after the highest dose accompanied by decreases in electrolyte excretion at doses of 100 and 300 mg/kg in rats. The results demonstrate that ML 3000 has no notable general pharmacological effects under the experimental conditions reported.

Descriptors: acetic acids, lipoxygenase inhibitors, pyrroles, animal behavior, cats, central nervous system, digestive system, dogs, guinea pigs, hemodynamic processes, kidney, mice, mice, inbred icr, muscle contraction, muscle, skeletal, muscle, smooth, rats, rats, wistar, respiratory system.

Allen, S.L. and P.W. Hellyer (2000). **An overview of common anesthetic monitoring devices**. *Veterinary Medicine* 95(Suppl.): 10-17. ISSN: 8750-7943.

NAL Call Number: 41.8 M69

Descriptors: anesthesia, pressure, surgical equipment, cats.

Ally, A., A.F. Meintjes, J.H. Mitchell, and L.B. Wilson (1994). **Central cholinergic modulation of the exercise pressor reflex in anesthetized cats.** *American Journal of Physiology* 267(1 Pt 2): H109-H117. ISSN: 0002-9513.

NAL Call Number: 447.8 AM3

Abstract: Effects of central administration of a cholinesterase inhibitor, physostigmine, on cardiovascular responses to static contraction and passive stretch of the triceps surae were studied using anesthetized cats. Contraction increased mean arterial pressure (MAP), heart rate (HR), and renal sympathetic nerve activity (RSNA) by 44 +/- 5 mmHg, 18 +/- 1 beats/min, and 86 +/- 6%, respectively. MAP, HR, and RSNA increased during stretch by 44 +/- 5 mmHg, 15 +/- 1 beats/min, and 61 +/- 4%, respectively. Administration of physostigmine (100 micrograms; 5 microliters) into the third ventricle decreased resting MAP by 22 +/- 3 mmHg and RSNA by 32 +/- 4%, with no effect on HR. Physostigmine attenuated the contraction-evoked responses as MAP, HR, and RSNA increased by 17 +/- 2 mmHg, 3 +/- 1 beats/min, and 31 +/- 6%, respectively. Also, physostigmine blunted MAP, HR, and RSNA responses to stretch (16 +/- 2 mmHg, 4 +/- 1 beats/min, and 9 +/- 6%, respectively). Posterior hypothalamic

stimulation increased MAP by 39 +/- 3 mmHg, which was unaffected by physostigmine, despite a lower baseline. Cardiovascular and RSNA responses to contraction and stretch returned to control 90-120 min after physostigmine. Preadministration of the muscarinic antagonist, atropine sulfate (100 micrograms; 5 microliters), blocked the effects of physostigmine. Results suggest central cholinergic stimulation can inhibit the exercise pressor reflex in anesthetized cats.
Descriptors: blood pressure, brain stem, motor activity, parasympathetic nervous system, reflex, anesthesia, atropine, cats, electric stimulation, hypothalamus, posterior, injections, intraventricular, muscle contraction, pHysostigmine.

Ally, A., L.B. Wilson, A.C. Nobrega, and J.H. Mitchell (1995). **Cardiovascular effects elicited by central administration of physostigmine via M2 muscarinic receptors in conscious cats.** *Brain Research* 677(2): 268-276. ISSN: 0006-8993.
Abstract: The cardiovascular effects of an intracerebroventricular (i.c.v.) injection of physostigmine were studied using conscious cats. Physostigmine (5-25 micrograms: 5 microliters) caused a dose-dependent increase in mean arterial pressure (MAP) and heart rate (HR). The highest dose (25 micrograms) increased MAP and HR by 32 +/- 3 mmHg and 45 +/- 5 beats/min, respectively (n = 5). Pre-administration of the muscarinic receptor antagonist, atropine (25 micrograms; i.c.v.) blocked the effects of physostigmine (25 micrograms; i.c.v.). Also, the pre-administration of the M2 muscarinic antagonist, methoctramine (25 micrograms; i.c.v.), antagonized the cardiovascular effects of physostigmine without altering the baseline variables. However, the M1 muscarinic antagonist, pirenzepine (100 micrograms; i.c.v.) did not alter baseline MAP or HR, and also failed to inhibit the cardiovascular responses to physostigmine. Similarly, the M3 muscarinic blocker, 4-diphenyl-acetoxy-N-methylpiperidine methiodide (50 micrograms; i.c.v.), neither changed baseline cardiovascular variables nor blocked the effects of physostigmine. When the same cats were anesthetized with intravenous injection of sodium pentobarbital (25-30 mg/kg), physostigmine (25 micrograms; i.c.v.) evoked a decrease in MAP and HR of 13 +/- 6 mmHg and 15 +/- 6 bpm, respectively (n = 5). These results demonstrate that the increases in MAP and HR to the i.c.v. administration of physostigmine in conscious cats are possibly mediated through stimulation of central M2 muscarinic receptors. In addition, anesthesia reverses the effects elicited by the central administration of physostigmine to a decrease in MAP and HR.
Descriptors: cardiovascular system, pHysostigmine, receptors, muscarinic, atropine, animal behavior, pressure, cardiovascular, cats, consciousness, dose response relationship, drug, evans blue, heart rate, injections, intraventricular, pentobarbital.

Amzica, F. and M. Steriade (1995). **Short- and long-range neuronal synchronization of the slow (< 1 Hz) cortical oscillation.** *Journal of Neurophysiology* 73(1): 20-38. ISSN: 0022-3077.
Abstract: 1. Multisite, extra- and intracellular recordings were carried out in cats under ketamine and xylazine anesthesia to assess the degree of synchrony and time relations among cellular activities in various neocortical fields during a slow (< 1 Hz) oscillation consisting of long-lasting depolarizing and hyperpolarizing phases. 2. Recordings were performed from visual areas 17, 18, 19, and 21, association suprasylvian areas 5 and 7, motor pericruciate areas 4 and 6, as well as some related thalamic territories, such as the

lateral geniculate (LG), perigeniculate (PG), and rostral intralaminar nuclei. We used spike analyses (auto- and cross-correlograms) to reveal rhythmicities, time relations and coherence properties, analyses of field potentials recorded through the same microelectrodes as used for unit discharges (auto-and cross-correlation functions and their spectral equivalents), and spike-triggered averages. The results are based on 194 groups of neurons with a total of 591 neurons. Seventeen groups included intracellular recordings of cortical neurons with membrane potentials more negative than -60 mV and overshooting action potentials. 3. The most obvious and frequent signs of neuronal synchrony were found within and between association areas 5 and 7 and 18/19 and 21. Closely located cells or neuronal pools were also "closer" in time. The shortest mean time lag was found between cells within adjacent foci (1-2 mm) of areas 5 and 7 and was 12 +/- 11.2 (SE) ms, with more caudal neurons preceding the rostral ones in 70% of cases. In visual cortical fields, the time lag between areas 18/19 and 21 neurons was 27.6 +/- 36 ms, between areas 17 and 21 was 36.2 +/- 47.8 ms, and between areas 18/19 and 17 was 40 +/- 73 ms. In the majority of cases, neuronal firing in area 21 preceded that in areas 18/19. The longest time lags were found in distant recordings from visual and motor areas, with a mean of 124 +/- 86.8 ms, although in some cell groups the time intervals between neuronal firing in areas 18/19 or 21 and areas 4 or 6 were as short as approximately 20 ms. 4. Similar time relations were found in those instances in which the unit firing of the same cortical neuron was used as reference in spike triggered averages and was related to the field potential recorded from an adjacent area before impaling a neuron and, thereafter, to membrane potential fluctuations after impaling the cell. 5. The PG reticular thalamic neurons reflected the slow cortical oscillation in 75% of multisite recordings.

Descriptors: electroencephalography, motor cortex, neurons, visual cortex, automatic data processing, cats, oscillometry.

Anderson, I.K., G.R. Martin, and A.G. Ramage (1995). **Evidence that activation of 5-HT2 receptors in the forebrain of anaesthetized cats causes sympathoexcitation.** *British Journal of Pharmacology* 116(2): 1751-1756. ISSN: 0007-1188.

Abstract: 1. The aim of the present experiments was to determine whether the effects of lateral ventricular application of 5-HT on cardiovascular and respiratory variables in anaesthetized cats are mediated by forebrain 5-HT2 receptors. This was carried out by determining whether the effects of 5-HT are blocked by the 5-HT2 antagonist, cinanserin and if they are mimicked by the selective 5-HT2 agonist, 1-(2,5-dimethoxy-4-iodophenyl)-2-aminopropane (DOI). 2. Cats were anaesthetized with a mixture of alpha-chloralose and pentobarbitone sodium, neuromuscularly blocked and artifically ventilated. The following cardiovascular and respiratory variables were recorded: renal, splanchnic and cardiac sympathetic nerve activities, phrenic nerve activity, heart rate, arterial blood pressure, femoral arterial conductance and tracheal pressure. All drugs were administered via the lateral ventricle and the action of these agonists was restricted to forebrain sites by a cannula placed in the Aqueduct of Sylvius. 3. Cumulative doses of 5-HT (10-160 nmol kg-1) and DOI (80-320 nmol kg-1) injected into the lateral ventricle caused significant increases in blood pressure, heart rate, cardiac and splanchnic sympathetic nerve activity and a decrease in femoral arterial conductance. DOI and 5-HT caused a greater increase in cardiac compared with splanchnic nerve activity and failed to

change renal nerve activity. 5-HT but not DOI significantly increased the magnitude and the number of phrenic bursts as well as significantly increasing tracheal pressure.(ABSTRACT TRUNCATED AT 250 WORDS)
Descriptors: blood pressure, prosencepHalon, receptors, serotonin, serotonin, sympathetic nervous system, anesthesia, cats, cinanserin, dose response relationship, drug, heart rate, time factors.

Andersson, G. (1995). **Cortico-cortical mediation of short-latency (lemniscal) sensory input to the motor cortex in deeply pentobarbitone anaesthetized cats.** *Acta Physiologica Scandinavica* 153(4): 381-392. ISSN: 1748-1708.
NAL Call Number: QP1.A2
Abstract: In pentobarbitone-anaesthetized cats, responses were recorded as surface positive potentials in the motor cortex on forelimb and brachium conjunctivum stimulation. In such a preparation, the forelimb nerve responses are mediated via the spino-cervical tract and the dorsal column-lemniscal pathway. Lesions of the sensory cortex (sparing only the depth of the coronary sulcus) abolished or reduced short-latency peripheral responses, in the motor cortex, on both skin and muscle nerve stimulation to less than 10% of control, while brachium conjunctivum responses were unchanged. Lesions of the second somatosensory area alone reduced the motor cortex responses on peripheral nerve stimulation by 10-20%. When the sensory cortex was inactivated by spreading depression, peripheral responses in the motor cortex were abolished before the spreading depression reached the recording point, as judged from the brachium conjunctivum response. The depth distribution of positive and negative field potentials, constituting the early components of a peripheral response in the motor cortex, closely resembled that of a cortico-cortical response evoked on stimulation in area 3. It differed from that of thalamo-cortical response evoked on brachium conjunctivum stimulation. These data suggest that most, if not all, sensory input through the dorsal column and spino-cervical tract to the motor cortex is mediated via the sensory cortex.
Descriptors: anesthesia, motor cortex, neurons, afferent, pentobarbital, cats, electrophysiology, microelectrodes, radial nerve, somatosensory cortex, spinal cord, spreading cortical depression, ulnar nerve.

Angyan, L. (1996). **Cardiorespiratory effects of electrical stimulation of the globus pallidus in cats.** *Physiology and Behavior* 59(3): 455-459. ISSN: 0031-9384.
NAL Call Number: QP1.P4
Abstract: Increase in the arterial blood pressure (BP), heart rate (HR), and respiratory rate (RR) was regularly evoked by electrical stimulation of the globus pallidus (GP) in awake, freely moving cats. The somatomotor responses to GP stimulations consisted of either slow movements, localized mainly on the head, or contraversive circling. Both the peak and the shape of the BP curve were related to the stimulus intensity. Stimulations repeated under blockade of the adrenergic alpha-receptors failed to increase BP whereas the somatomotor responses occurred as in drug-free animals. Intra-arterious injection of procaine did not interfere with the electrically elicited elevation of BP. GP stimulations also caused arterial blood pressure changes under chloralose anesthesia. It is concluded that the globus pallidus has a role in connecting somatomotor activities with the appropriate cardiorespiratory changes.

Descriptors: globus pallidus, hemodynamic processes, respiratory mechanics, adrenergic alpha antagonists, anesthesia, pressure, cats, chloralose, electric stimulation, heart rate, movement, phentolamine, pressoreceptors, procaine.

Anonymous (2004). **Perioperative deaths in small animals: Findings so far.** *Veterinary Record* 154(17): 516-517. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: anesthesia, cause of death, intraoperative, anesthesia, anesthesia mortality, cats, dogs, intraoperative, intraoperative mortality, rabbits.

Ansah, O.B., M. Raekallio, and O. Vainio (2000). **Correlation between serum concentrations following continuous intravenous infusion of dexmedetomidine or medetomidine in cats and their sedative analgesic effects.** *Journal Veterinary Pharmacology and Therapy* 23(1): 1-8. ISSN: 0140-7783.
NAL Call Number: SF915. J63
Abstract: Dexmedetomidine (DEX) may have some therapeutic advantages over the racemate medetomidine (MED). Here we have examined how serum concentrations of DEX correlate with some of its anaesthetic effects. Cats (n = 6) were administered with a continuous stepwise intravenous (i.v.) infusion of DEX or MED on different occasions in a cross-over design. Maintenance infusion rates (mg/kg/min) used were: DEX = 0.25 (MED = 0.50); DEX = 1 (MED = 2) and DEX = 4 (MED = 8) for infusion steps 1, 2 and 3, respectively. Each maintenance infusion lasted at least 50 min and was preceded with a loading dose. There was no significant difference between serum DEX and 0.5 serum MED concentrations at any dose level nor was there a significant difference between serum DEX and the (entire) serum MED concentrations. There was no significant difference between DEX and MED for sedation, analgesia, muscular relaxation and heart and respiratory rates. For both DEX and MED, serum drug concentration and analgesia were dose-dependent and sedation increased until the end of infusion step 2 (dose level 2) and decreased at the end of step 3 (dose level 3. Muscular relaxation was not dose-dependent. We conclude that increasing the blood concentration of DEX or MED beyond a certain level decreases the level of sedation instead of increasing it even though analgesia increases. The rate at which DEX and MED are metabolized in cats may not be the same.
Descriptors: cats, medetomidine, isomers, intravenous injection, serum, anesthesia, heart rate, respiration rate, drug.

Ansah, O.B., M. Raekallio, and O. Vainio (1998). **Comparison of three doses of dexmedetomidine with medetomidine in cats following intramuscular administration.** *Journal Veterinary Pharmacology and Therapy* 21(5): 380-387. ISSN: 0140-7783.
NAL Call Number: SF915. J63
Descriptors: cats, medetomidine, isomers, dosage, anesthesia, intramuscular injection.

Ansah, O.B., O. Vainio, C. Hellsten, and M. Raekallio (2002). **Postoperative pain control in cats: clinical trials with medetomidine and butorphanol.** *Veterinary Surgery* 31(2): 99-103. ISSN: 0161-3499.
NAL Call Number: SF911. V43

Descriptors: analgesics, analgesics, butorphanol, cats, hysterectomy, medetomidine, postoperative pain, analgesics, analgesics, butorphanol, cats surgery, injections, intramuscular, medetomidine, pain measurement, single blind method, time factors.

Aramaki, Y., M. Uechi, and K. Takase (2002). **Comparison of the cardiovascular effects of intracellular cyclic adenosine 3',5'-monophosphate (cAMP)-modulating agents in isoflurane-anesthetized cats.** *Journal of Veterinary Medical Science* 64(11): 981-96. ISSN: 0916-7250.

NAL Call Number: SF604 .J342

Abstract: The inotropic, chronotropic, and vasodilatory effects of five commonly used cyclic adenosine 3',5'-monophosphate (cAMP)-modulating agents were evaluated. Hemodynamic functions were measured continuously in isoflurane-anesthetized cats during infusion of the following: dobutamine (DOB; 2.5, 5 and 10 microg/kg/min; n=8), dopamine (DOP; 1.25, 2.5, 5 and 10 microg/kg/min; n=5), milrinone (MIL; 2.5, 5 and 10 microg/kg/min; n=8), 6-(3-dimethyl-aminopropionyl) forskolin hydrochloride (COL; 0.2, 0.4, 0.8, and 1.6 microg/kg/min; n=7), and bucladesine sodium (BUC; 10, 20, and 40 microg/kg/min; n=9). At the highest infusion rate, DOB and DOP produced the greatest positive inotropic (increase in left ventricular (LV) dP/dt = 89 +/- 4% and 75 +/- 6%, respectively) and chronotropic (increase in heart rate (HR) = 42 +/- 4% and 22 +/- 6%, respectively) effects. MIL and COL produced similar albeit less pronounced positive inotropic (increase in LV dP/dt = 18 +/- 3% and 22 +/- 6%, respectively) and chronotropic (increase in HR = 13 +/- 4% and 21 +/- 4%, respectively) effects. Both also had significant vasodilatory effects (decrease in peripheral resistance (PR) = -30 +/- 2% and -35 +/- 7%, respectively). In contrast, BUC produced only vasodilatation (decrease in PR = -33 +/- 6%). Hence, MIL, COL, and BUC had significant vasodilatory effects and less-pronounced inotropic effects than the catecholamines DOB and DOP. The vasodilatory effects of non-catecholamine drugs for treatment of congestive heart failure should translate into beneficial decreases in both pre-load and after-load. In contrast, the strong inotropic effects of DOB and DOP should be beneficial in the treatment of acute heart failure and anesthetic crisis.

Descriptors: anesthetics, cardiotonic agents, cardiovascular system, cyclic amp, hemodynamic processes, isoflurane, pressure, bucladesine, cardiovascular system, cats, dobutamine, dopamine, heart rate, milrinone, regional flow, vasodilation.

Arisawa, H., K. Fukui, N. Fujise, and H. Masunaga (2002). **General pharmacological profile of the novel muscarinic receptor agonist SNI-2011, a drug for xerostomia in Sjogren's syndrome. 2nd communication: effects on somatic nervous system and on autonomic nervous system and smooth muscle.** *Arzneimittel Forschung* 52(2): 81-88. ISSN: 0004-4172.

Abstract: A novel muscarinic receptor agonist SNI-2011 ((+/-)-cis-2-methylspirol[1,3-oxathiolane-5,3'-quinuclidine] monohydrochloride hemihydrate, cevimeline, CAS 153504-70-2), is a candidate therapeutic drug for xerostomia in Sjogren's syndrome. The general pharmacological properties of this drug on the somatic nervous system and on the autonomic nervous system and smooth muscle were investigated in mice, rats, guinea pigs, rabbits and cats. 1. Somatic nervous system: SNI-2011 had no effect on the neuromuscular junction in rats and no muscle relaxant effect in mice. No surface

anesthetic effect was observed in guinea pigs, but infiltration anesthetic effect was found after intracutaneous injection of solution (1% or higher). 2. Autonomic nervous system and smooth muscle: SNI-2011 tended to cause mydriasis at 3 mg/kg i.v. or higher in rabbits and dose-dependently caused mydriasis at 10 mg/kg p.o. or higher in rats. Mydriasis in rats was also observed by ophthalmic instillation, caused via the peripheral muscarinic acetylcholine receptors. SNI-2011 elevated the base line tension of nictitating membrane in cats when it was injected intravenously at 3 mg/kg or higher. In the smooth muscle, SNI-2011 increased the spontaneous movement of isolated rabbit ileum (1 x 10(-6) mol/l or higher), contractions of isolated guinea pig ileum (1 x 10(-6) mol/l or higher) and isolated guinea pig trachea (3 x 10(-6) mol/l or higher). SNI-2011 relaxed the histamine- and noradrenaline-induced contractions of isolated guinea pig aorta and augmented noradrenaline- and phenylephrine-induced contractions of isolated rat vas deferens. These effects were induced by relatively higher concentrations only i.e. 1 x 10(-5) mol/l or higher. From these results, SNI-2011 has muscarinic side effects on the somatic nervous system and on the autonomic nervous system and smooth muscle, however, in the case of oral administration, that is clinical administration route, SNI-2011 caused no muscarinic side effect at the effective doses needed for saliva secretion.
Descriptors: autonomic nervous system, muscarinic agonists, muscle, smooth, peripheral nervous system, quinuclidines, sjogren's syndrome, thiopHenes, xerostomia, anesthetics, catecholamines, catecholamines, cats, guinea pigs, histamine antagonists, mice, mice, inbred icr, muscle contraction, muscle relaxants, central, muscle, smooth, vascular, neuromuscular junction, nictitating membrane, pupil, rabbits, rats, rats, inbred f344, rats, wistar, sjogren's syndrome, xerostomia.

Arisawa, H., E. Imai, N. Fujise, K. Fukui, and H. Masunaga (2002). **General pharmacological profile of the novel muscarinic receptor agonist SNI-2011, a drug for xerostomia in Sjogren's syndrome. 1st communication: effects on general behavior and central nervous system.** *Arzneimittel-Forschung* 52(1): 14-20. ISSN: 0004-4172.
Abstract: A novel muscarinic receptor agonist, SNI-2011 ((+/-)-cis-2-methylspiro[1,3-oxathiolane-5,3'-quinuclidine] monohydrochloride hemihydrate, cevimeline, CAS 153504-70-2), is a candidate therapeutic drug for xerostomia in Sjogren's syndrome. The general pharmacological properties of this drug on general behavior and the central nervous system were investigated in mice, rats and cats. 1. General behavior: When SNI-2011 was administered orally to mice at 100 mg/kg, mydriasis, a decrease of spontaneous motor activity, tremor, convulsions, salivation, abnormal posture, abnormal gait, reduced grip strength and reduced response against external stimulating were observed, and 2 out of 6 animals died. At 10 mg/kg or lower, no particular sign was observed except mydriasis, which appeared to be caused via the peripheral muscarinic acetylcholine receptors. 2. Central nervous system: SNI-2011 had no effect on the motor coordination in mice. Hypothermia was observed in rats and reduced spontaneous motor activity, analgesia and enhanced maximum electroshock-induced convulsions were observed in mice after oral administration of 30 mg/kg SNI-2011. Slight increase in the rate of theta-wave band in the hippocampal EEG of rats and spinal multisynaptic reflexes in cats were observed after intravenous injection of 10 mg/kg SNI-2011. At an oral dose of 10 mg/kg, prolongation of thiopental-induced sleeping time in mice was observed. The prolongation of sleeping time was inhibited by a peripheral muscarinic antagonist. These

results suggest that SNI-2011 has muscarinic effects on general behavior and the central nervous system at the doses approximately 10-fold higher than the effective doses needed for saliva secretion.
Descriptors: muscarinic agonists, quinuclidines, sjogren's syndrome, thiopHenes, xerostomia, anesthetics, intravenous, anticonvulsants, animal behavior, body temperature, cats, central nervous system, electroencephalography, electroshock, mice, mice, inbred icr, motor activity, muscarinic agonists, pain measurement, psychomotor performance, quinuclidines, rats, rats, wistar, reflex, thiopental.

Baik, E.J., Y. Jeong, T.S. Nam, W.K. Kim, and K.S. Paik (1995). **Mechanism of transmission and modulation of renal pain in cats; effect of nucleus raphe magnus stimulation on renal pain.** *Yonsei Medical Journal* 36(4): 348-360. ISSN: 0513-5796.
Abstract: Initially, when periaqueductal gray (PAG) is electrically stimulated, analgesia is induced, and this phenomenon is called stimulation-produced analgesia. Nucleus raphe magnus (NRM) as well as PAG are known to be the potent analgesic centers. NRM could modulate the nociceptive response of spinal cord neurons through spinally projecting fibers. However, as well as the above analgesic effects have been confined to the somatic pain, it was variable according to species, and the analgesic effect by NRM stimulation on the visceral pain was not yet clarified. In this study the analgesic effect by NRM stimulation on the visceral pain was examined through recording the activities of the dorsal horn neurons with renal input and renal pain, as a type of visceral pain. The renal pain was induced by ureteral occlusion or renal arterial occlusion, which in turn activated the renal mechanoreceptor or chemoreceptor. These cells had concomitant somatic input. In order to compare the effects of NRM stimulation on the renal pain with somatic pain, the somatic stimulation such as squeezing was conducted on the peripheral receptive field. The main results are summarized as follows: 1) After an electrical stimulation of NRM, spontaneous activities of dorsal horn neurons with renal input were reduced to 73.3 +/- 9.7% of the control value. 2) After an electrical stimulation of NRM, activities of dorsal horn neurons with renal input evoked by a brush, a type of non-noxious stimuli, did not change significantly. But the activities by a squeeze, a type of noxious stimuli, the activities were reduced to 63.2 +/- 7.2% of the control value. 3) After an electrical stimulation of NRM, activities of dorsal horn neurons with renal input evoked by occlusion of ureter or renal artery were reduced to 46.7 +/- 8.8% and 49.0 +/- 8.0% of the control value respectively. 4) The inhibitory effect of NRM on the dorsal horn neurons with renal input did not show any difference between renal A delta fiber and C fiber group. 5) By the electrical stimulation of NRM, the activities evoked by ureteral occlusion showed more reduction in the high threshold cell group than in the wide dynamic range cell group. These results suggest that activation of NRM can alleviate the renal pain as well as the somatic pain by modulating the dorsal horn neurons activities.
Descriptors: kidney, pain threshold, raphe nuclei, afferent pathways, cats, electric stimulation, kidney innervation, nervous system, neurons, spinal cord.

Barter, L.S., J.E. Ilkiw, B.H. Pypendop, and E.P. Steffey (2004). **Evaluation of the induction and recovery characteristics of anesthesia with desflurane in cats.** *American Journal of Veterinary Research* 65(6): 748-51. ISSN: 0002-9645.

NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To qualitatively and quantitatively evaluate the characteristics of desflurane with regard to the induction of and recovery from anesthesia in cats. ANIMALS: 6 cats. PROCEDURE: Anesthesia was induced and maintained with desflurane in oxygen. Individual minimum alveolar concentration (MAC) values were determined; anesthesia was maintained at 1.25 x MAC for a total anesthesia time (including MAC determination) of 5 hours. Cats were allowed to recover from anesthesia. Induction and recovery periods were video recorded and later scored by use of a grading scale from 0 to 100 (100 being the best outcome). Timing of events was recorded. RESULTS: The MAC of desflurane was 10.27 +/- 1.06%, and mean dose was 5.6 +/- 0.2 MAC-hours. Times to loss of coordination, recumbency, and endotracheal intubation were 1.3 +/- 0.4, 2.3 +/- 0.3, and 6.4 +/- 1.1 minutes, respectively. Median score for quality of anesthetic induction was 93 (range, 91 to 94). Times to first movement, extubation, standing, and ability to jump and land with coordination were 2.8 +/- 1.0, 3.8 +/- 0.5, 14.3 +/- 3.9, and 26.4 +/- 5.1 minutes, respectively. Alveolar washout of desflurane was rapid. Median score for quality of anesthetic recovery was 94 (range, 86 to 96). CONCLUSIONS AND CLINICAL RELEVANCE: Desflurane was associated with rapid induction of and recovery from anesthesia in cats; assessors rated the overall quality of induction and recovery as excellent. Results appear to support the use of desflurane for induction and maintenance of anesthesia in healthy cats.
Descriptors: anesthesia recovery period, inhalation anesthesia, anesthetics, cats, isoflurane, isoflurane, drug evaluation, time factors, video recording.

Bartlett, D.Jr. and S.L. Knuth (1994). **Influence of hypoxia on ventilatory responses to intralaryngeal CO2 in cats.** *Respiration Physiology* 96(1): 61-9. ISSN: 0034-5687.
NAL Call Number: QP121. A1R4
Abstract: In decerebrate, vagotomized cats, introduction of CO2 into the isolated laryngeal airway while systemic PCO2 is held constant evokes dose-related reflex changes in ventilatory activity. Because systemic hypoxia is known to exaggerate ventilatory responses to other types of laryngeal chemostimulation in neonates, we have compared the responses of phrenic and hypoglossal nerve activities to ventilation of the larynx with 10% CO2 during systemic hyperoxia (FIO2 = 1.00) to those during hypoxia (FIO2 = 0.12). Compared with the hyperoxic baseline condition, hypoxia stimulated phrenic activity but attenuated the reduction in phrenic activity evoked by intralaryngeal CO2. Hypoglossal activity was increased by intralaryngeal CO2 and this response appeared to be reduced by hypoxia, but neither of these findings was statistically significant. The response of phrenic activity to intralaryngeal CO2 during systemic hypercapnia was similar to that during hypoxia. The increase of phrenic activity in response to hypoxia was prevented by carotid body resection. Similarly, the hypoxic attenuation of the phrenic response to intralaryngeal CO2 appeared to be absent after carotid body resection, although this finding was not established statistically. These results differ from previous reports of exaggerated laryngeal chemoreflex responses during hypoxia. The difference may reflect differences in the receptors and synaptic mechanisms of the reflexes, the severity and time course of hypoxia or the presence or depth of general anesthesia or sleep.
Descriptors: anoxia, carbon dioxide, larynx, respiration, carbon dioxide analysis, cats,

dose response relationship, drug, hypoglossal nerve, larynx, phrenic nerve, respiration, time factors.

Beal, M.W., D.C. Brown, and F.S. Shofer (2000). **The effects of perioperative hypothermia and the duration of anesthesia on postoperative wound infection rate in clean wounds: a retrospective study.** *Veterinary Surgery* 29(2): 123-127. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: dogs, cats, surgical operations, wounds, healing, infections, anesthesia, duration, hypothermia, incidence, body temperature, risk factors, risk assessment, postoperative.

Berkenbosch, A., C.N. Olievier, J.G. Wolsink, J. DeGoede, and J. Rupreht (1994). **Effects of morphine and physostigmine on the ventilatory response to carbon dioxide.** *Anesthesiology* 80(6): 1303-10. ISSN: 0003-3022.
Abstract: BACKGROUND: It has been reported that physostigmine antagonizes morphine-induced respiratory depression, but it is not known whether this is due to a central chemoreceptor effect, an effect on the peripheral chemoreflex loop, or both. We therefore assessed the effect of morphine and physostigmine on the normoxic hypercapnic ventilatory response mediated by the central and peripheral chemoreceptors in ten alpha-chloralose-urethan-anesthetized cats. METHODS: The breath-by-breath ventilatory responses to stepwise changes in end-tidal CO2 tension were determined before (control), after administration of morphine hydrochloride (0.15 mg.kg-1) and during intravenous infusion of physostigmine salicylate (bolus of 0.05 mg.kg-1 followed by 0.025 mg.kg-1.h-1). Each response was separated into a central and a peripheral chemoreflex characterized by CO2 sensitivity (Sc and Sp), time constant, time delay, and apneic threshold (a single off-set B). RESULTS: Morphine increased B and decreased Sc and Sp ($P < 0.01$), but not the ratio Sp/Sc. Subsequent infusion of physostigmine decreased B ($P < 0.01$), without further change of Sp and Sc. Premedication with physostigmine decreased B, Sp and Sc ($P < 0.01$) vs. control, but not Sp/Sc. Subsequent administration of morphine decreased Sp and Sc further but increased B ($P < 0.01$), while Sp/Sc remained constant. CONCLUSIONS: Because morphine diminishes the Sc and Sp of the chemoreflex loop to the same extent this depressant effect is presumably due to an action on the respiratory integrating centers rather than on the peripheral and central chemoreceptors as such and is not antagonized by physostigmine. We argue that the increase in B may be due to changes in the amount of acetylcholine available in the brain and can be antagonized by physostigmine.
Descriptors: anesthesia, carbon dioxide, chemoreceptors, morphine, pHysostigmine, respiration, carbon dioxide, cats, naloxone.

Besancon, M., M. Buttrick, and C. Baldwin (1998). **Considerations in general anesthesia for cesarean section in small animals.** *Iowa State University Veterinarian* 60(1): 28-34. ISSN: 0099-5851.
NAL Call Number: 41.8 V6425
Descriptors: dogs, cats, placenta.

Bhunia, S., N. Bhattacharya, and M. Fahim (1995). **Effect of acute haemodilution on right atrial type-B receptor activity in anaesthetized cats.** *Indian Journal of Physiology and*

Pharmacology 39(3): 216-22. ISSN: 0019-5499.
NAL Call Number: QP1. I54
Abstract: In order to investigate whether the sensitivity of atrial type-B receptors to its natural stimulus is altered during acute haemodilution, experiments were conducted in nine anaesthetized, artificially ventilated and thoracotomized cats. Haemodilution was achieved by replacement of blood by the same volume of dextran (MW 150000). Atrial receptor activity, arterial blood pressure, right atrial pressure and ECG were recorded. Heart rate was calculated from ECG records. Arterial blood hematocrit was measured. Mean arterial blood pressure and heart rate were not altered by haemodilution even at a hematocrit level of 12.17 +/- 0.93 percent. Average activity of type-B atrial receptors, mean right atrial pressure, right atrial peak 'v' pressure, right atrial initial 'v' pressure and right atrial 'v' wave amplitude were changed significantly (P < 0.05) during acute haemodilution when the hematocrit was 12.17 +/- 0.93 percent but the atrial type-B receptor activity per cycle did not show any significant change. Average activity of type-B receptors increased from 8.56 +/- 1.02 spikes/sec to 9.56 +/- 1.11 spikes/sec. Mean right atrial pressure, right atrial 'v' wave amplitude, right atrial peak 'v' pressure increased significantly (P < 0.05) from respective control values. Right atrial initial 'v' wave pressure decreased significantly. Heart rate changed from 168.11 +/- 5.42 beats/min to 170.89 +/- 5.65 beats/min. Mean arterial pressure changed from 134.33 +/- 0.89 mmHg to 135.67 +/- 1.46 mmHg.
Descriptors: heart, hemodilution, pressoreceptors, anesthesia, atrial function, pressure, cats, heart rate, hematocrit, muscle fibers.

Bilbrough, G. (2002). **Opioids as analgesics and sedatives in cats**. *Veterinary Times* 32(44): 12-13. ISSN: 1352-9374.
Descriptors: analgesics, butorphanol, drug delivery systems, drug toxicity, neuroleptics, opioids, cats.

Birt, D., S. Aou, and C.D. Woody (2003). **Intracellularly recorded responses of neurons of the motor cortex of awake cats to presentations of Pavlovian conditioned and unconditioned stimuli.** *Brain Research* 969(1-2): 205-16. ISSN: 0926-6410.
Abstract: The electrical responses to a conditioned stimulus (click CS) and an unconditioned stimulus (glabella tap US) were studied in single units of the pericruciate cortex of awake cats. There has been no previous direct, in vivo characterization of the intracellular effects in cortical neurons of a CS and US used for associative Pavlovian conditioning. Earlier studies showed that ablation of the pericruciate cortex prevented the development of short latency blink CRs produced by associative pairing of these stimuli. Both the CS and the US produced depolarizing EPSPs and increases in spike discharge in intracellularly recorded units. The magnitude of the EPSPs was greater in response to the tap US than to the click CS, and the degree of unit discharge in response to the tap US was greater than that to the click CS. The onset latencies of the spike responses were distributed in three ranges. For click CS the ranges were 6-15, 20-35 and 40-85 ms. For tap US the ranges were 6-25, 30-45 and 50-85 ms. An additional response was observed in the period 0.5-6.0 ms after tap onset. It was thought to be elicited mechanically by vibration of the electrode tip following tap delivery. Pentobarbital anesthesia abolished the unconditioned motor response to tap, but failed to abolish the

neuronal responses in any of the latency ranges, suggesting that the responses were not produced by feedback from the movement. Both the CS and the US are needed for the development of blink conditioning, and are distinguished behaviorally by the US producing an unconditioned motor response whose form resembles that of the conditioned response which develops after the stimuli are paired. Both the click CS and the tap US also produced hyperpolarizing IPSPs. Injection of steady, hyperpolarizing current disclosed two types of IPSPs in response to the tap US. One reversed with hyperpolarization; the other increased in magnitude with hyperpolarization. The magnitude of inhibition, measured by reduced discharge, was greater in response to the click CS than to the tap US. We conclude that the major differences between effects of this CS and US on cells of the motor cortex of cats are that the CS elicits less activity than the US and has a larger inhibiting effect. The US elicits greater depolarization than does the CS, as well as an initial discharge component of greater magnitude and longer duration.
Descriptors: conditioning, classical, membrane potentials, neurons, blinking, cats, consciousness, electromyogrphy, excitatory postsynaptic potentials, microelectrodes, motor cortex.

Bjorling, D.E. (1998). **Analgesia for onychectomy in cats.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 12: 570.
NAL Call Number: SF605.N672
Descriptors: analgesics, claws, surgical operations, onychectomy, cats.

Bocian, R. and J. Konopacki (2001). **Effect of posterior hypothalamic injection of procaine on the hippocampal theta rhythm in freely moving cats.** *Acta Neurobiologiae Experimentalis* 61(2): 125-34. ISSN: 0065-1400.
Abstract: Earlier in vivo studies conducted on freely moving and anesthetized rats demonstrated that the posterior hypothalamus (PH) comprises pathways critical for producing the synchronous hippocampal formation (HPC) theta rhythm. In addition, these findings suggested that the frequency of the HPC theta was encoded in the PH and then was fed via the medial forebrain bundle to the medial septum and HPC. In the present study we attempted to verify this hypothesis with use of a different in vivo model--freely moving cats. The microinjection of the local anaesthetic, procaine, into the PH region reversibly suppressed the spontaneous as well as sensory and electrically induced HPC theta. However, in contrast to rats, in freely moving cats microinjection of procaine into the PH reduced the amplitude of the HPC theta but had no effect on theta frequency. We conclude that in freely moving cats the PH region comprises a critical part of the ascending brainstem pathway, for production of the HPC theta rhythm. In contrast to rats, in freely moving cats ascending inputs from the brainstem to the PH contribute mainly to the amplitude of the HPC theta rhythm.
Descriptors: local anesthetics, hippocampus, hypothalamus, posterior, procaine, theta rhythm, cats, hippocampus, hypothalamus, posterior, hypothalamus, posterior, motor activity, neural pathways.

Bonora, M. and M. Vizek (1995). **Changes in end-expiratory lung volume and diaphragmatic activity during hypoxia and hypercapnia in cats.** *Journal of Applied Physiology* 79(6): 1900-7. ISSN: 8750-7587.

NAL Call Number: 447.8 J825
Abstract: To assess the role of diaphragmatic activity at the end of expiration (DE) in the control of end-expiratory lung volume (EELV), 1) these two parameters were correlated in anesthetized cats breathing different gas mixtures; and 2) expiratory flow volume curves in normoxia and hypoxia together with changes in esophageal pressure were measured. The influence of volume feedback on DE control was tested by applying positive end-expiratory pressure (PEEP). The effect of anesthesia was determined by measuring DE in unanesthetized cats. In hyperoxia, DE (but not EELV) decreased. In hypocapnic hypoxia (12, 10, and 8% O2), both DE and EELV gradually increased, and these changes were significantly correlated. When normocapnia was restored in 8% O2, DE and EELV decreased but remained higher than in air. Hypercapnia affected neither DE nor EELV. PEEP blocked the hypoxia-induced increase in DE. Hypoxia decreased expiratory flow and esophageal pressure. Finally, the increases in DE at 12 and 10% O2 were more pronounced when the cats were unanesthetized. These results suggest that the increase in diaphragmatic activity induced by hypocapnic hypoxia during expiration affects expiratory flow and thoracic volume and, therefore, plays a major role in increasing EELV. This phenomenon may also be controlled by volume feedback.
Descriptors: anoxia, diaphragm, hypercapnia, lung, cats, electromyogrphy, kinetics, oxygen, pulmonary gas exchange, respiration.

Boothe, D.M. (2001). **The analgesic, antipyretic, anti-inflammatory drugs**. *Veterinary Pharmacology and Therapeutics* 8: 433-451. ISSN: 0140-7783.
NAL Call Number: SF915. J63
Descriptors: antipyretics, anti-inflammatory agents, non steroidal anti-inflammatory agents, inflammation, osteoarthritis, treatment, livestock, pets, cats.

Bootle, D.J., J.J. Adcock, and A.G. Ramage (1996). **Involvement of central 5-HT1A receptors in the reflex activation of pulmonary vagal motoneurones by inhaled capsaicin in anaesthetized cats.** *British Journal of Pharmacology* 117(4): 724-8. ISSN: 0007-1188.
Abstract: 1. The aim of the present experiments was to determine whether 5-HT1A receptors play a role in the control of the reflex activation of pulmonary vagal motoneurones. This was carried out by investigating the effects of intracisternal injections (i.c.) of the 5-HT1A receptor ligands, 8-OH-DPAT (50 micrograms kg-1), buspirone (200 micrograms kg-1), WAY-100635 (100 micrograms kg-1), methiothepin (200 micrograms kg-1) and (-)-pindolol (100 micrograms kg-1) and the 5-HT2 receptor antagonist, cinanserin (200 micrograms kg-1), on the reflex bronchoconstriction evoked by inhaled capsaicin aerosol in alpha-chloralose anaesthetized, neuromuscularly blocked and artificially ventilated cats. Recordings were made of heart rate, blood pressure and upper tracheal pressure. 2. Central application of all the 5-HT1A receptor antagonists (methiothepin, WAY-100635 and (-)-pindolol) attenuated the reflex bronchoconstriction in the upper trachea. However, the same dose of WAY-100635 given i.v. had no effect on this reflex bronchoconstriction. The 5-HT1A receptor agonist, 8-OH-DPAT (50 micrograms kg-1) given i.c., potentiated the capsaicin-evoked reflex bronchoconstriction, whereas buspirone (200 micrograms kg-1) i.c. had no effect. The 5-HT2 receptor antagonist, cinanserin (200 micrograms kg-1) also had no effect. 3. It is concluded that the reflex excitation of pulmonary vagal motoneurones by inhaled capsaicin in alpha-

chloralose anaesthetized cats involves the activation of central 5-HT1A receptors.
Descriptors: capsaicin, lung innervation, motor neurons, inhalation anesthesia, cats, motor neurons, serotonin agonists, serotonin antagonists, vagus nerve.

Boudinot, E., M. Morin Surun, A.S. Foutz, M. Fournie Zaluski, B.P. Roques, and M. Denavit Saubie (2001). **Effects of the potent analgesic enkephalin-catabolizing enzyme inhibitors RB101 and kelatorphan on respiration.** *Pain* 90(1-2): 7-13. ISSN: 1083-0707.
Online: http://www.iasp-pain.org
Abstract: We investigated whether the enkephalin-catabolizing enzyme inhibitors RB101 and kelatorphan, which have been shown to be potent analgesics, depress respiration as do opioid analgesics. Ventilation was measured in cats and rodents by the barometric method, in the awake state and during anesthesia. Tissue distribution of the inhibitors was either generalized (RB101, 40-160 mg/kg i.p.), largely restricted by the blood-brain barrier to the periphery (kelatorphan, 0.7-20 mg/kg i.v.), or restricted to the brainstem (i.c.v. injection of RB101 in the fourth ventricle). RB101 did not affect ventilation in any condition tested, and large doses of kelatorphan produced a naloxone-reversible increase in ventilation and breathing frequency. Thus endogenous opioids released during conditions of normal ventilation do not exert any depressant neuromodulatory effect on this function, even when their extracellular concentrations are increased by peptidase inhibitors. The differential effect of these inhibitors on ventilation and nociception is discussed. We conclude that kelatorphan and RB101 are devoid of respiratory-depressant effects and might be interesting pharmacological alternatives to morphine and other opioid agonists.
Descriptors: analgesics, dipeptides, disulfides, enkephalins, enzyme inhibitors, phenylalanine, respiration, cats, enkephalins, mice, naloxone, narcotic antagonists, sprague dawley rats, opioid receptors.

Boydell, P. (2000). **Iatrogenic pupillary dilation resembling Pourfour du Petit syndrome in three cats.** *Journal of Small Animal Practice* 41(5): 202-203. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: cats, case reports, eye diseases, trauma, ears, age, symptoms, diagnosis, treatment, prognosis, anesthesia, benign course.

Branson, K.R., C.C. Wagner Mann, and F.A. Mann (1997). **Evaluation of an oscillometric blood pressure monitor on anesthetized cats and the effect of cuff placement and fur on accuracy.** *Veterinary Surgery* 26(4): 347-353. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: cats, pressure, monitors, fur, clipping, measurement, accuracy, anesthesia, position, limbs.

Brizzi, L., L.H. Ting, and D. Zytnicki (2002). **Positive proprioceptive feedback elicited by isometric contractions of ankle flexors on pretibial motoneurons in cats.** *Journal of Neurophysiology* 88(5): 2207-14. ISSN: 0022-3077.
Abstract: Pretibial flexor motoneurons were recorded intracellularly in anesthetized cats during unfused isometric contractions of a subpopulation of motor units from either tibialis anterior (TA) or extensor digitorum longus (EDL) muscles. The contractions

elicited excitatory postsynaptic potentials in 23 of 28 pretibial flexor motoneurons. No effect was observed in the remaining motoneurons. In control experiments, the effects of electrical stimulation of afferents within the TA nerve were investigated to help identify afferents responsible for the contraction-induced positive feedback. This feedback was ascribed to actions of Ia fibers because the pattern of the contraction-induced excitatory potentials was consistent with the known pattern of Ia discharge; in control experiments, electrical stimulation of group I fibers elicited only monosynaptic excitatory potentials; and the distribution of both the contraction-induced positive feedback among motor nuclei as well as the electrically evoked Ia excitatory monosynaptic potentials were restricted to homonymous and synergic motoneurons. Observation of the Ia contraction-induced positive feedback was facilitated by the absence of Ib autogenic inhibition. This contraction-induced Ia excitatory feedback in ankle flexors might either reinforce Ia-induced reflexes when these muscles are lengthened or help to lift the leg over an obstacle.
Descriptors: feedback, isometric contraction, joints, motor neurons, muscle, skeletal innervation, muscle, skeletal, proprioception, anesthesia, cats, decerebrate state, electric stimulation, electrophysiology, excitatory postsynaptic potentials, membrane potentials, muscle spindles, nerve endings, neurons, afferent, paralysis, spinal cord.

Broadstone, R.V. (1999). **Prolonged anesthetic recovery**. *Clinical Techniques in Small Animal Practice* 14(1): 56-64. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: anesthesia, small animal practice, recovery, drug, cats.

Brock, N. (1996). **Feline anesthesia.** *The Canadian Veterinary Journal* 37(12): 751-2. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: anesthesia, cats, intravenous anesthesia, intubation, intratracheal, masks, safety.

Brock, N. (1995). **Low flow anesthesia revisited.** *The Canadian Veterinary Journal* 36(6): 366-7. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: inhalation anesthesia, inhalation anesthesia, cats, dogs.

Brock, N. (1995). **Treating moderate and severe pain in small animals.** *Canadian Veterinary Journal* 36(10): 658-660. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: dogs, cats, pain, treatment, analgesics, opioids.

Brock, N. (1996). **Most commonly asked questions about anesthetic equipment**. *Canadian Veterinary Journal* 37(6): 373-374. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: equipment, small, methoxyflurane, isoflurane, halothane, cleaning, anesthesia, surgical equipment, cats.

Bromberg, N.M. (2002). **Cyanoacrylate tissue adhesive for treatment of refractory corneal ulceration.** *Veterinary Ophthlmology* 5(1): 55-60. ISSN: 1463-5216.
NAL Call Number: SF891 .V47
Descriptors: dogs, cats, rabbits, cornea, ulcers, adhesives, treatment, evaluation, anesthesia, healing, vessels, corticoids.

Brondani, J.T., C.C. Natalini, J.E.W. Schossler, S.T.L. Pinto Filho, and A.P. Bertin (2003). **Cardiovascular changes in cats submitted to intercostal thoracotomy, premedication with association tramadol, butorphanol, atropine, anesthetised with propofol and halothane [Alteracoes cardiovasculares de gatos submetidos a toracotomia intercostal, pre-medicados com associacao de tramadol, butorfanol e atropina e anestesiados com propofol e halotano]**. *Ciencia Rural* 33(5): 869-873. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: anesthesia, anesthetics, atropine, butorphanol, dissolved oxygen, hemoglobin, halothane, heart rate, pharmacodynamics, preanesthetic medication, propofol, veterinary surgery, cats.
Language of Text: Portuguese; Summary in English.

Browning, J.L., M.L. Heizer, M.A. Widmayer, and D.S. Baskin (1997). **Effects of halothane, alpha-chloralose, and pCO2 on injury volume and CSF beta-endorphin levels in focal cerebral ischemia.** *Molecular and Chemical Neuropathology* 31(1): 29-42. ISSN: 1044-7393.
Abstract: Anesthetic agent, arterial pCO2 level, and opioid peptides have all been implicated in the pathophysiology of experimental stroke models. The effects of halothane, alpha-chloralose, and differing concentrations of arterial pCO2 on injury volume and CSF beta-endorphin levels were studied in a feline model of experimental focal cerebral ischemia. The type of anesthetic agent used had no effect on injury volume following 6 h of focal cerebral ischemia. Over a 6-h period, beta-endorphin levels significantly increased from 10.1 +/- 5.0 fmol/mL at zero time to 14.4 +/- 7.2 fmol/mL at 6 h under halothane anesthesia ($p < 0.05$), whereas they did not significantly change (10.1 +/- 6.7 to 7.8 +/- 4.7 fmol/mL) under alpha-chloralose anesthesia. In contrast, hypercapnia had no effect on beta-endorphin levels, but significantly increased injury volume from 30.6 +/- 5.7% of the ipsilateral hemisphere under normocapnic conditions to 37.1 +/- 5.9% under hypercapnic conditions ($p < 0.05$). These results suggest that hypercapnia increases injury volume in a feline model of focal cerebral ischemia, and pCO2 should be controlled in experimental focal cerebral ischemia models.
Descriptors: inhalation anesthetics, intravenous anesthetics, carbon dioxide, chloralose, halothane, ischemic attack, transient cerebrospinal fluid, beta endorphin cerebrospinal fluid, brain, brain, cats, ischemic attack, transient.

Burzaco, O.H., J.I. Cruz, and M.T. Tejedor (1998). **Estimacion del riesgo anestesico en la clinica de pequenos animales por medio del analisis de regresion logistica. [Estimation of the anaesthetic risk in small animal medicine using logistic regression analysis]**. *Medicina Veterinaria* 15(3): 169-179. ISSN: 0212-8292.
Descriptors: anesthesia, risk factors, sex, pain, cats, dogs.
Language of Text: Spanish; Summary in English.

Canpolat, I. and M. Dinc (1995). **Kedi ve kopeklerde analjezi. [Analgesia in dogs and cats]**. *Veteriner Cerrahi Dergisi* 1(1): 43-46. ISSN: 1300-7106.
Descriptors: anesthesia, analgesics, cats.
Language of Text: Turkish with a summary in English.

Carroll, G.L. (1996). **How to manage perioperative pain.** *Veterinary Medicine* 91(4): 353-357. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, analgesics, pain, preoperative care, postoperative care, dosage, duration, anesthesia.

Carroll, G.L. (1999). **Analgesics and pain**. *Veterinary Clinics of North America, Small Animal Practice* 29(3): 701-717. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: analgesics, pain, monitoring, opioids, local anaesthetics, non steroidal anti-inflammatory agents, cats.

Cervantes, M., A. Antonio Ocampo, R. Ruelas, A. Contreras Gomez, and I. Chavez Carrillo (1996). **Effects of diazepam on fentanyl-induced epileptoid EEG activity and increase of multineuronal firing in limbic and mesencephalic brain structures.** *Archives of Medical Research* 27(4): 495-502. ISSN: 0188-4409.
Abstract: Electroencephalographic and clinical signs of epileptoid activity have been associated with the administration of fentanyl during surgery in patients. These phenomena have been in turn related to changes in metabolic rate, oxygen consumption, and blood flow in specific brain structures both in humans and experimental animals. However, direct evidence showing changes in neuronal firing in specific brain regions during fentanyl-induced epileptoid activity has not been reported. Eight adult male cats with chronically implanted bipolar electrodes in the mesencephalic reticular formation, hippocampus, amygdala, and parieto-occipital cortex were included in the study. Different treatments, i.e., vehicle-fentanyl or diazepam-fentanyl, were administered to the experimental animals at 7-day intervals under neuromuscular blockade and assisted ventilation. Electroencephalographic (EEG) seizures, grouped and isolated spikes, and significant increases of multineuronal activity (MUA) were elicited by fentanyl, 50 micrograms/kg iv, in these brain structures. Both EEG and MUA changes reached their maximal values within 6 min of fentanyl administration, and then diminished as time elapsed. Diazepam, 100, 200, or 400 micrograms/kg, but not 50 micrograms/kg iv, significantly reduced or prevented the fentanyl-induced epileptoid EEG activity and MUA increases. The present results show that both fentanyl-induced epileptoid EEG activity as well as the concomitant increase in MUA of brain subcortical structures are part of the same epileptogenic phenomenon, mainly generated at limbic structures. In addition, the effects of diazepam against both epileptoid EEG activity and increase of MUA of brain subcortical structures support the use of benzodiazepines as premedicants for fentanyl anesthesia in order to prevent or to reduce epileptoid phenomena that can result from opioid administration during the anesthetic procedures.
Descriptors: diazepam, electroencephalography, epilepsy, limbic system, mesencephalon, neurons, cats, epilepsy, fentanyl, limbic system, mesencephalon, seizures, seizures, seizures.

Chai, C.Y., S.Y. Chen, S.D. Wang, J.C. Liu, and J.S. Kuo (1996). **Effects of precollicular decerebration on the vasomotor and sympathetic nerve responses to locus coeruleus stimulation.** *The Chinese Journal of Physiology* 39(2): 95-104. ISSN: 0304-4920.
Abstract: In 25 cats under intraperitoneal alpha-chloralose (40 mg/kg) and urethane (400 mg/kg) anesthesia, cardiovascular reactive sites of locus coeruleus (L.C) were stimulated by rectangular pulses (0.5 ms, 80 Hz, 100 to 200 microA) and/or by microinjection of sodium glutamate (Glu, 0.25 M, 70-150 nl). Changes of systemic arterial blood pressure (SAP) and sympathetic vertebral (VNA) and renal (RNA) nerve activities following stimulations were analyzed and, furthermore, SAP responses were compared before and after precollicular decerebration (PD). Microinjection of Glu in this region often produced a moderate increase and less often decrease in SAP. Depressor points were located dorsal to the sites eliciting pressor responses. In the majority of LC stimulations (69%) VNA increased along with the increase of SAP, while the RNA decreased. In a few stimulations marked increase in VNA and decrease in RNA occurred with little change in SAP. PD itself produced various degrees of a temporary (lasted for 5 to 15 min) decrease in SAP from 40 to 100 mmHg. Following PD, three types of change in the LC induced SAP responses were observed in a decreasing order, i.e., the responses were slightly reduced or slightly augmented, or the LC induced depressor responses were converted to a pressor one. Findings of the present study showed that neural mechanism in LC responsible for the changes of SAP and sympathetic nerve activities may exist in a topographic organization. LC is different from the gigantocellular tegmental field (FTG) located in the same rostral pons. The marked pressor responses elicited by activation of the FTG depend entirely on the rostral brain structure, while LC is not. Some brain structures rostral to superior colliculi may exert both inhibitory and excitatory influences over LC in cardiovascular integration.
Descriptors: decerebrate state, locus coeruleus, muscle, smooth, vascular, superior colliculus, sympathetic nervous system, pressure, pressure, cats, electric stimulation, glutamic acid, heart rate, heart rate, muscle, smooth, vascular, muscle, smooth, vascular innervation, stimulation, chemical.

Chai, C.Y., S.Y. Chen, S.D. Wang, C.J. Tseng, R.H. Lin, S.P. Mao, H.T. Horng, J.C. Liu, and J.S. Kuo (1994). **Precollicular decerebration reduces the pressor responses evoked by stimulation of rostral pons but not medulla in cats.** *Journal of the Autonomic Nervous System* 46(1-2): 147-59. ISSN: 0165-1838.
Abstract: In 30 cats under chloralose (40 mg/kg) and urethane (400 mg/kg) anesthesia, the ponto-medullary region involved in cardiovascular integration were stimulated by rectangular pulses (0.5 ms, 80 or 5 Hz, 100 to 200 microA) and/or by microinjection of sodium glutamate (Glu, 0.25-0.5 M, 70-200 nl). Changes of systemic arterial blood pressure (SAP) and renal sympathetic nerve activity (RNA) following stimulation were compared before and after precollicular decerebration. Precollicular decerebration itself resulted in an immediate but brief (5 to 15 min) hypotension with a decrease in SAP ranging from 40 to 100 mmHg. Stimulation of the lateral tegmental field (FTL) produced depressor responses. After precollicular decerebration, the stimulation induced depressor responses were either abolished or converted to mild pressor responses. Stimulation of the dorsal gigantocellular tegmental field-periventricular grey (dFTG-PVG) produced pressor responses. These responses were abolished after precollicular decerebration

without exception. On the other hand, precollicular decerebration did not reduce pressor responses produced by stimulation of the ventrolateral medulla (VLM) and the dorsal medulla (DM). In 7 additional cats killed with an overdose of pentobarbital, the brain stem were processed for dopamine beta-hydroxylase (DBH). The pressor areas of the VLM and DM were DBH positive, indicating the presence of norepinephrine, while the dFTG-PVG and FTL were not. These findings suggest that the depressor mechanism of the FTL and the pressor mechanism of the dFTG, but not of the VLM or DM depend on actions of the brain structures rostral to superior colliculi.
Descriptors: blood pressure, decerebrate state, medulla oblongata, pons, superior colliculus, cats, dopamine beta hydroxylase, electric stimulation, glutamates, glutamic acid, heart rate, immunohistochemistry, kidney innervation, periaqueductal gray, pressoreceptors, stereotaxic techniques, sympathetic nervous system, tegmentum mesencephali.

Chai, C.Y., C.M. Luo, H.C. Fung, C.J. Wang, J.J. Hwang, and W.C. Wu (1995). **Carbachol, glycine and gamma aminobutyric acid also activate cardiovascular neurons of pontomedulla responsive to glutamate.** *The Chinese Journal of Physiology* 38(2): 49-56. ISSN: 0304-4920.
Abstract: Thirty-three cats under intraperitoneal chloralose (40 mg/kg) and urethane (400 mg/kg) anesthesia were used to explore the effect of microinjections (100 nl) of carbachol (CCh, 0.5 M), a cholinergic analogue, glycine (Gly, 1 M) and gamma aminobutyric acid (GABA, 0.4 M) on the cardiovascular-reactive sites in the pontomedulla that responded to microinjection of monosodium glutamate (Glu, 0.25 M, 100 nl) resulting in changes of systemic arterial pressure (SAP). Brain sites under exploration included gigantocellular tegmental field and lateral tegmental field (FTG-FTL), the dorsomedial (DM) and ventrolateral (VLM) medulla which produced pressor responses; caudal VLM (CVLM) and paramedian reticular nucleus (PRN) which produced depressor responses. It was found that CCh produced significant fall of SAP in DM and VLM while the rise of SAP in the same site by Glu. CCh produced SAP decrease in CVLM similar to Glu. GABA significantly caused a slight to moderate increase of SAP in FTG-FTL, DM and VLM, and decrease of SAP in CVLM, all in direction similar to that of Glu. Gly produced significant and marked increase of SAP in DM and VLM similar to Glu both in magnitude and duration. Gly produced increase of SAP in CVLM but the fall of SAP by Glu. PRN was relatively non-reactive except a few microinjections of CCh which produced hypotension. In conclusion, the cardiovascular-reactive sites in the pontomedulla that respond to Glu may also react to other chemicals or neurotransmitters. It is highly possible that multiple receptors of different nature co-exist in neurons of some cardiovascular regions in the pontomedulla.
Descriptors: blood pressure, carbachol, glycine, heart rate, medulla oblongata, gamma aminobutyric acid, cats, glutamic acid, heart, microinjections.

Chen, S.Y., S.P. Mao, and C.Y. Chai (2001). **Role of nitric oxide on pressor mechanisms within the dorsomedial and rostral ventrolateral medulla in anaesthetized cats.** *Clinical and Experimental Pharmacology and Physiology* 28(3): 155-63. ISSN: 0305-1870.
Abstract: 1. The role of nitric oxide (NO) in central cardiovascular regulation and the correlation between NO and glutamate-induced mechanisms is not clear. Microinjection

of glutamate (3 nmol/30 nL) into dorsomedial medulla (DM) and rostral ventrolateral medulla (RVLM) increased arterial blood pressure (BP) and sympathetic vertebral nerve activity (VNA). Thus, in the present study, we examined the modulation by NO of glutamate-induced pressor responses in the DM and RVLM of cats. 2. Histochemical methods using nicotinamide adenine dinucleotide phosphate diaphorase (NADPHd) as a marker to stain neurons containing NO synthase (NOS), showed positive findings of NOS in both the DM and RVLM. 3. Microinjection of N(G)-nitro-L-arginine methyl ester (L-NAME), a NOS inhibitor, into the DM or RVLM did not alter resting BP and VNA, but it did cause a dose-dependent attenuation of glutamate-induced pressor responses. Interestingly, the increase in NO levels that resulted from pretreatment with L-arginine (L-Arg) or sodium nitroprusside (SNP) did not alter resting BP and VNA, but still inhibited glutamate-induced pressor responses in the DM and RVLM in a dose-dependent manner. 4. We also examined whether NO modulated the pressor responses induced by activation of different excitatory amino acid receptors. N-Methyl-D-aspartate (NMDA) and alpha-amino-3-hydroxy-5-methyl-4-isoxazole proprionic acid (AMPA) were used. Consistent with the results from the initial glutamate studies, we observed that not only L-NAME, but also L-Arg and SNP attenuated pressor responses induced by NMDA and AMPA. No difference was found between the effects of NO on NMDA- and AMPA-induced pressor responses. 5. To investigate the possibility of a loss of agonist selectivity, the effects of D-2-amino-5-phosphonovalerate (D-AP5) and 6-cyano-7-nitroquinoxaline-2,3-dione (CNQX) on AMPA and NMDA responses in the DM were examined. The results showed that CNQX did not alter NMDA-induced pressor responses, while D-AP5 failed to alter AMPA-induced responses. 6. Our results suggest that activation of the glutamate-induced pressor mechanism is regulated by changes in NO levels in the DM and RVLM. This implies that NO may play a permissive role to allow operation of the glutamate-activation mechanism.

Descriptors: blood pressure, medulla oblongata, nitric oxide, 6 cyano 7 nitroquinoxaline 2,3 dione, anesthesia, arginine, pressure, cats, electric stimulation, enzyme inhibitors, excitatory amino acid antagonists, immunohistochemistry, medulla oblongata, nadpH dehydrogenase, ng nitroarginine methyl ester, nitric oxide donors, nitric oxide synthase, nitric oxide synthase, nitroprusside, receptors, glutamate, sympathetic nervous system, sympathetic nervous system.

Chen, X., J. Gallar, and C. Belmonte (1997). **Reduction by antiinflammatory drugs of the response of corneal sensory nerve fibers to chemical irritation.** *Investigative Ophthalmology and Visual Science* 38(10): 1944-53. ISSN: 0146-0404.

Abstract: PURPOSE: Nonsteroidal antiinflammatory drugs (NSAIDs) have been applied topically to reduce ocular pain caused by corneal injury or anterior segment surgery. The authors investigated whether the analgesic effects of the NSAIDs diclofenac, indomethacin, and flurbiprofen and of the calcium channel antagonist diltiazem on corneal pain are mediated by a reduction of nerve activity in corneal polymodal nociceptive fibers. METHODS: Impulse activity of single A-delta and C corneal nerve fibers was recorded from the ciliary nerves of anesthetized cats. Polymodal units were identified by their response to both touching with the Cochet-Bonnet esthesiometer and to acidic stimulation with 30-second pulses of 80% or 98.5% CO2 or 60 microl of 10 mM acetic acid, applied to the corneal receptive area. Ongoing impulse

activity, firing responses to CO2 or acetic acid, and mechanical threshold of single fibers were recorded before and at various times (5 to 90 minutes) after topical application of 0.1% sodium diclofenac, 0.03% sodium flurbiprofen, 0.1% indomethacin, and 0.045% diltiazem hydrochloride or of their vehicles. RESULTS: Indomethacin, diclofenac, and flurbiprofen, in decreasing order of potency, gradually reduced the mean frequency of the impulse response of corneal polymodal nerve fibers evoked by CO2 stimuli. The progressive increase of ongoing activity, observed in vehicle-treated eyes after repeated CO2 stimulation was also prevented by NSAIDs. Diltiazem also attenuated the response to CO2 for a shorter period of time and with a faster time course. The mechanical threshold of corneal polymodal fibers was not affected by treatment with any of these drugs. CONCLUSIONS: Indomethacin, diclofenac, and flurbiprofen, as well as the calcium antagonist diltiazem, diminish the responsiveness of corneal polymodal nociceptors to chemical stimuli. This appears to be caused, in part, by a direct effect of these drugs on the excitability of polymodal nerve endings, but also by an inhibition by NSAIDs of the formation of cyclooxygenase products such as prostaglandins, thus reducing the enhanced responsiveness of nociceptors caused by local release of arachidonic acid metabolites from injured cells.
Descriptors: anti inflammatory agents, non steroidal, cornea innervation, nerve fibers, nociceptors, pain, trigeminal nerve, acetic acid, analgesia, calcium channel blockers, carbon dioxide, cats, cornea, cyclooxygenase inhibitors, diclofenac, diltiazem, electrophysiology, flurbiprofen, indomethacin, nerve fibers, pain, trigeminal nerve.

Chen, Z., D.L. Anderson, W.L. Faison, and P.G. Baer (2001). **Biphasic urethral sphincter responses to acetic acid infusion into the lower urinary tract in anesthetized cats.** *The Journal of Urology* 166(4): 1539-48. ISSN: 0022-5347.

Abstract: PURPOSE: Varying the concentration of infused acetic acid produced bladder irritation and dose dependent increases in external urethral sphincter electromyography activity in cats. We further characterized acetic acid induced external urethral sphincter electromyography activity in intact and acute spinal cord injured animals. MATERIALS AND METHODS: Bladder cystometrography and external urethral sphincter electromyography were continuously recorded in chloralose anesthetized cats. Dilute 0.05% to 0.8% acetic acid was infused into the lower urinary tract through the bladder dome. Intravesical or intraurethral infusion was performed separately in bladder neck ligated preparations. In some animals the spinal cord was transected at L1 to L2 2 to 8 hours before the study. RESULTS: Acetic acid infusion into the lower urinary tract elicited dose dependent increases in tonic external urethral sphincter activity. However, a prolonged infusion of 0.7% to 0.8% acetic acid usually inhibited external urethral sphincter activity. The excitatory external urethral sphincter response was elicited by intraurethral but not by intravesical infusion. This response remained in acute spinal cord injured animals. The inhibition of tonic external urethral sphincter activity during 0.7% to 0.8% acetic acid infusion was observed when there was extreme bladder irritation characterized by continual contractions. Induced tonic external urethral sphincter activity was attenuated by intrathecal administration of prazosin or scopolamine and abolished by hexamethonium. CONCLUSIONS: Acetic acid infusion into the lower urinary tract elicits biphasic external urethral sphincter responses. The early excitatory response is a spinal urethrourethral reflex and the late inhibitory phase

results from negative vesicourethral feedback control. Spinal muscarinic cholinergic and alpha-adrenergic receptors are involved in acetic acid induced excitatory external urethral sphincter responses.
Descriptors: acetic acid, urethra, urethra, intravesical administration, anesthesia, cats, dose response relationship, drug, electromyogrphy, spinal cord injuries.

Cheng, H. and A. Kawai (2003). **Acetylene derivatives as anti-inflammatory/analgesic agents**. *Official Gazette of the United States Patent and Trademark Office Patents* 1266(2) ISSN: 0098-1133.
Online: http://www.uspto.gov/web/menu/patdata.html
NAL Call Number: T223. A21
Descriptors: pharmacology, treatment, Alzheimer's disease, nervous system disease, arthritis, joint disease, colon cancer, digestive system disease, inflammation, immune system disease, cats, acetylene derivatives.

Cheung, S.W., S.S. Nagarajan, P.H. Bedenbaugh, C.E. Schreiner, X. Wang, and A. Wong (2001). **Auditory cortical neuron response differences under isoflurane versus pentobarbital anesthesia.** *Hearing Research* 156(1-2): 115-27. ISSN: 0378-5955.
Abstract: Response properties of the middle layers of feline primary auditory cortex neurons to simple sounds were compared for isoflurane versus pentobarbital anesthesia in a within subject study control design. Initial microelectrode recordings were made under isoflurane anesthesia. After a several hour washout period, recordings were repeated at spatially matched locations in the same animal under pentobarbital. The median spatial separation between matched recording locations was 50 microns. Excitatory frequency tuning curves (n=71 pairs) to tone bursts and entrainment to click train sequences (n=64 pairs) ranging from 2 to 38 Hz were measured. Characteristic frequency and BW10 and BW30 were not different under either anesthetic. The spontaneous rate was slightly decreased ($P<0.05$) for isoflurane (median 4.2 spikes/s) compared to pentobarbital (median 5.8 spikes/s). Minimum median threshold and latency were elevated by 12 dB and 2 ms, respectively, under isoflurane. Entrainment to click sequences assumed a lowpass filter profile under both anesthetics, but was markedly impoverished under isoflurane. Responses to click sequences under isoflurane were phasic to the first click but had very poor following to subsequent elements. Compared to pentobarbital, isoflurane appears to have a profound impact on response sensitivity and temporal response properties of auditory cortical neurons.
Descriptors: anesthesia, inhalation anesthetics, auditory cortex, hypnotics and sedatives, isoflurane, neurons, afferent, pentobarbital, acoustic stimulation, auditory cortex, auditory threshold, cats, electrophysiology, reaction time.

Churiukanov, V.V. (2003). **[Neirokhimicheskii analiz i farmakologicheskaia reguliatsiia kortikofugal'nykh mekhanizmov kontrolia notsitseptivnykh signalov v afferentnykh putiakh.] Neurochemical analysis and pharmacological regulation of the corticofugal control of the nociceptive signals in the afferent pathways**. *Eksperimental'Naia i Klinicheskaia Farmakologiia* 66(2): 24-31. ISSN: 0869-2092.
Abstract: Experimental and clinical data indicate that the cerebral cortex plays an important role in pain perception and endogenous antinociceptive system function. Moreover, the enhancement of descending inhibitory cortical control may be involved in

the mechanisms of analgesic effect of some agents. The present study was designed to investigate the effect of cortical electrical stimulation (as a model of descending inhibitory control) on the behavioral and electrophysiological signs of nociceptive response, elucidate the mechanisms involved therein and evaluate the action of central analgesics (both opioid and non-opioid) on descending cortical control. In acute experiments on cats, the inhibitor y cortical influence upon neuronal activity produced by nociceptive stimuli (electrical stimulation of tooth pulp, C-fibers of afferent somatic nerves, afferent cardiac structures) was most marked after stimulation of the first and second sensory and fron-to-orbital areas. In chronic experiments on rats, cortical stimulation reduced behavioral signs of visceral pain (writhing test) and also delayed the development of neuropathic pain syndrome along with lowering its intensity. mu-Opioid receptor agonists (morphine, fentanyl) potentiated the inhibitory cortical effect on the evoked neuronal activity. Pentazocine, which has pronounced kappa-receptor agonist activity, was less effective. Naloxone eliminated the effects of both cortical stimulation and opioid analgesics. Serotonin receptor antagonist methysergide, as well as p-chlorophenylalanine significantly decreased inhibitory cortical control and the effect of opioids. Monoamine re-uptake inhibitors with analgesic properties (imipramine, fluoxetine) potentiated the inhibitory effect of cortical stimulation. Adreno-, dopamine-, acetylcholine-, GABA-receptor agents and antagonists of NMDA receptors had minor or no effect. Among non-narcotic analgesics, the cyclooxygenase inhibitors metamysole and ketorolak increased only moderately the descending cortical control of nociception. Thus, the cerebral cortex is able to control the nociceptive processing in different pain syndromes (somatic, visceral or neuropathic pain). Opioidergic and serotonergic systems play the key role in this control. Action through the cortical descending control is likely to be one of the components of the analgesic effect exerted by opioids and some other central analgesics.

Descriptors: analgesics, cerebral cortex, nociceptors, action potentials, afferent pathways, analgesics, animal behavior, cats, cerebral cortex, animal disease models, electric stimulation, nociceptors, pain, rats, receptors, biogenic amine, receptors, biogenic amine, receptors, glutamate, receptors, glutamate, receptors, opioid, receptors, opioid.

Language of Text: Russian.

Cistola, A.M., F.J. Golder, L.A. Centonze, L.W. McKay, and J.K. Levy (2004). **Anesthetic and physiologic effects of tiletamine, zolazepam, ketamine, and xylazine combination (TKX) in feral cats undergoing surgical sterilization.** *Journal of Feline Medicine and Surgery* 6(5): 297-303. ISSN: 1098-612X.

NAL Call Number: SF985 .J68

Abstract: Tiletamine (12.5 mg), zolazepam (12.5 mg), ketamine (20 mg), and xylazine (5 mg) (TKX; 0.25 ml, IM) combination was evaluated as an anesthetic in 22 male and 67 female adult feral cats undergoing sterilization at high-volume sterilization clinics. Cats were not intubated and breathed room air. Oxygen saturation (SpO(2)), mean blood pressure (MBP), heart rate (HR), respiration rate (RR), and core body temperature were recorded. Yohimbine (0.25 ml, 0.5 mg, IV) was administered at the completion of surgery. TKX produced rapid onset of lateral recumbency (4+/-1 min) and surgical anesthesia of sufficient duration to complete surgical procedures in 92% of cats. SpO(2) measured via a lingual pulse oximeter probe averaged 92+/-3% in male cats and 90+/-

4% in females. SpO(2) fell below 90% at least once in most cats. MBP measured by oscillometry averaged 136+/-30 mm Hg in males and 113+/-29 mm Hg in females. MBP increased at the onset of surgical stimulation suggesting incomplete anti-nociceptive properties. HR averaged 156+/-19 bpm, and RR averaged 18+/-8 bpm. Neither parameter varied between males and females or over time. Body temperature decreased significantly over time, declining to 38.0+/-0.8 degrees C at the time of reversal in males and 36.6+/-0.8 degrees C at the time of reversal in females. Time from anesthetic reversal to sternal recumbency was prolonged (72+/-42 min). Seven cats (8%) required an additional dose of TKX to maintain an adequate plane of anesthesia at the onset of surgery, and this was associated with significantly longer recovery times (108+/-24 min).
Descriptors: anesthesia, anesthetics, combined, castration, cats, animals, wild, castration, castration statistics and numerical data, cats surgery, florida epidemiology, ketamine, tiletamine, treatment outcome, xylazine, zolazepam.

Clark, G.N. (1994). **Gastric surgery with surgical stapling instruments**. *Veterinary Clinics of North America, Small Animal Practice* 24(2): 279-303. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Abstract: The use of stapling instruments to perform gastric surgery in small animal patients provides alternative techniques that are often more reliable and are usually performed more quickly than conventional techniques with manual sutures. In addition to reducing anesthetic and operating times, the risk of contamination of the abdominal cavity may be decreased significantly.
Descriptors: cats, dogs, stomach surgery, surgical staplers, duodenum surgery, gastrectomy, gastrostomy, jejunum surgery.

Clarke, K.W. (1999). **Desflurane and sevoflurane: new volatile anesthetic agents**. *Veterinary Clinics of North America, Small Animal Practice* 29(3): 793-810. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: anesthetics, reviews, anesthesia, inhaled anesthetics, cats.

Clavier, N., J.R. Kirsch, P.D. Hurn, and R.J. Traystman (1994). **Cerebral blood flow is reduced by N omega-nitro-L-arginine methyl ester during delayed hypoperfusion in cats.** *American Journal of Physiology* 267(1 Pt 2): H174-81. ISSN: 0002-9513.
NAL Call Number: 447.8 AM3
Abstract: We tested the hypothesis that decreased tonic release of nitric oxide (NO) or a NO-containing compound, during postischemic delayed hypoperfusion, would result in an impaired response of cerebral blood flow (CBF) to NO synthase inhibition. We measured CBF (microspheres), cerebral oxygen consumption, and physiological variables in 30 halothane-anesthetized cats. In 12 animals, complete cerebral ischemia (verified by midischemic CBF measurement) was produced for 12 min by brachiocephalic and left subclavian artery occlusion with hemorrhagic hypotension (mean arterial blood pressure = 40 mmHg). Steady-state hypoperfusion was present by 120 min of reperfusion (30 +/-4% of baseline). Nonischemic animals (n = 12) were submitted to the same surgical procedures and anesthetic duration. N omega-nitro-L-arginine methyl ester (L-NAME, 10 mg/kg iv) or saline was administered 160 min after baseline measurements, equivalent to 140 min of reperfusion for animals treated with ischemia (n = 6 in each group). Blood pressure was controlled (aortic ligature) so that there was no change following L-NAME

administration both in the ischemic and nonischemic groups. L-NAME reduced CBF during reperfusion in ischemic animals (from 37 +/- 2 to 24 +/- 2 ml.min-1 x 100 g-1) and in nonischemic animals (from 122 +/- 15 to 68 +/- 8 ml.min-1 x 100 g-1) with no change in cerebral oxygen consumption. In six additional cats, administration of L-arginine (250 mg/kg iv) reversed the effect of L-NAME. We conclude that tonic NO-mediated cerebral vasodilation occurs following transient global ischemia despite delayed hypoperfusion.
Descriptors: arginine, brain ischemia, cerebrovascular circulation, arginine, brain, brain ischemia, cats, evoked potentials, somatosensory, ng nitroarginine methyl ester, nitric oxide, oxygen consumption, perfusion, time factors, vascular resistance.

Clutton, E. (1995). **The right anaesthetic breathing system for you?** *In Practice* 17(5): 229-237. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: respiration, young animals, anesthesia, equipment, apparatus, cats, horses, cattle, pigs, sheep, goats.

Connolly, G. (2000). **Companion animal analgesics: assessment of pain**. *U.S. Food and Drug Administration Veterinarian* 15(5): 4-7. ISSN: 1057-6223.
NAL Call Number: SF917.F42
Descriptors: pain, pets, analgesics, horses, dogs, cats.

Contreras, D., A. Destexhe, T.J. Sejnowski, and M. Steriade (1996). **Control of spatiotemporal coherence of a thalamic oscillation by corticothalamic feedback.** *Science* 274(5288): 771-4. ISSN: 0036-8075.
NAL Call Number: 470 Sci2
Abstract: The mammalian thalamus is the gateway to the cortex for most sensory modalities. Nearly all thalamic nuclei also receive massive feedback projections from the cortical region to which they project. In this study, the spatiotemporal properties of synchronized thalamic spindle oscillations (7 to 14 hertz) were investigated in barbiturate-anesthetized cats, before and after removal of the cortex. After complete ipsilateral decortication, the long-range synchronization of thalamic spindles in the intact cortex hemisphere changed into disorganized patterns with low spatiotemporal coherence. Local thalamic synchrony was still present, as demonstrated by dual intracellular recordings from nearby neurons. In the cortex, synchrony was insensitive to the disruption of horizontal intracortical connections. These results indicate that the global coherence of thalamic oscillations is determined by corticothalamic projections.
Descriptors: cerebral cortex, thalamus, anesthesia, cats, cerebral cortex surgery, cortical synchronization, electrophysiology, feedback, neural pathways, sleep, synaptic transmission.

Cornick-Seaborn, J.L. (1998). **Veterinary Anesthesia**. In: D.M. McCurnin (Editor), *Clinical Textbook for Veterinary Technicians*, 5th edition, W.B. Saunders: Philadelphia, PA, USA, p. 357-383. ISBN: 0721691641.
NAL Call Number: SF745.C625
Descriptors: anesthesia, neuroleptics, opioids, drugs, acepromazine, diazepam, xylazine,

detomidine, medetomidine, barbiturates, ketamine, propofol, guaifenesin, preanaesthetic medication, dogs, cats, horses, cattle, goats, sheep, pigs.

Cornick-Seahom, J. (2000). **Choosing the "right" anesthetic protocol for your patients.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 14: 15-17.
NAL Call Number: SF605.N672
Descriptors: anesthetics, anesthesia, dogs, cats, dosage, costs.

Cote, E. (1998). **Over-the-counter human medications in small animals. II. Analgesic, respiratory, and dermatologic drugs.** *Compendium on Continuing Education for the Practicing Veterinarian* 20(7): 791-808, 829. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, analgesics, side effects, salicylic acids, disinfectants, antihistaminics, drugs, respiratory system agents, topical application, bactericides, fungicides, haproxen, ibuprofen, decongestants, aspirin, ketoprofen, half life, dermatological agents.

Cross, B.A., R.P. Stidwill, K.R. Hughes, R. Peppin, and S.J.G. Semple (1995). **Aortic pH oscillations in conscious humans and anaesthetised cats and rabbits**. *Respiration Physiology* 102(1): 51-62. ISSN: 0034-5687.
NAL Call Number: QP121. A1R4
Descriptors: cardiovascular system, circulation, hematology, neurology, pulmonary medicine, acid base balance, anesthesia, cats, humans, rabbits, tridodecylamine, arterial gas exchange, breathing control, pulmonary ventilation, respiration, tidal volume.

Csepe, V. (1995). **On the origin and development of the mismatch negativity.** *Ear and Hearing* 16(1): 91-104. ISSN: 0196-0202.
Abstract: This review summarizes a number of findings related to the generation, development, and diagnostic value of mismatch negativity (MMN). The animal analogue of MMN to frequency contrast can be observed in the primary and secondary auditory cortical and also in the association cortical recordings. It is shown that subcortical sensory specific and archicortical structures may also contribute to the processes involved. The results are more complex than would be predicted by the notion that only the primary system plays an active role in the comparison processes reflected by the MMN that and the nonprimary pathway acts only as a modulating influence. The fundamental nature of the brain functions reflected by MMN is suggested by the demonstration of MMN in sleep and anesthesia, though in limited conditions. The postnatal development of automatic stimulus comparison, as indexed by MMN, presents an isochronicity, contrary to other evoked potential components whose development is not complete until puberty. Thus, the MMN provides a stable measure for electrophysiological assessment of auditory perception. This possible diagnostic value of the MMN is shown in studies of aphasics which emphasize the nature of perceptual deficits in the processing various speech and nonspeech stimuli.
Descriptors: auditory perception, anesthesia, auditory cortex, brain, cats, evoked potentials, auditory, sleep.

Cullen, L.K. (1996). **Medetomidine sedation in dogs and cats: a review of its pharmacology, antagonism and dose.** *The British Veterinary Journal* 152(5): 519-35. ISSN: 0007-1935.
NAL Call Number: 41.8 V643
Abstract: Medetomidine is a relatively new sedative analgesic in dogs and cats but some precautions are required when using it. It is a potent alpha 2-adrenoceptor agonist and stimulates receptors centrally to produce dose-dependent sedation and analgesia and receptors centrally and peripherally to cause marked bradycardia and decrease the cardiac output. While hypotension occurs frequently, higher doses of the sedative can raise the blood pressure due to an affect on peripheral receptors. Slowing of the respiratory rate is a frequent effect of medetomidine with some dogs showing signs of cyanosis. Other actions that follow medetomidine use are slowing of gastrointestinal motility, hypothermia, changes to endocrine function and, occasionally, vomiting and muscle twitching. The clinical use of medetomidine in dogs and cats is discussed. Recommended dose rates are presented along with precautions that should be taken when it is used alone for sedation, as an anaesthetic premedicant or in combination with ketamine, propofol or opioids. Hypoxaemia occurs frequently in dogs given medetomidine and propofol. The actions of medetomidine can be rapidly reversed with the specific alpha 2-adrenoceptor antagonist, atipamezole, which is an advantage because undesirable and sedative actions of medetomidine can be terminated.
Descriptors: adrenergic alpha agonists, imidazoles, adrenergic alpha agonists, adrenergic alpha agonists, adrenergic alpha antagonists, analgesia, cats, dogs, imidazoles, imidazoles, imidazoles, medetomidine.

Cunha, J.M., S.R.G. Cortopassi, and A. Machado (2002). **Transoperative analgesia induced by morphine or meperedine in cats submitted to osteosynthesis [Analgesia transoperatoria induzida pela morfina ou meperidina em gatos submetidos a osteossintese]**. *Ciencia Rural* 32(1): 67-72. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: cats, bone diseases, surgical operations, morphine, anesthesia, sao paulo, alkaloids, america, brazil, musculoskeletal diseases, organic diseases, south america, gato, osteossOntese, anesthesia, sCo paulo.
Language of Text: Portuguese.

Daude Lagrave, A., C. Carozzo, P. Fayolle, E. Viguier, V. Viateau, and P. Moissonnier (2001). **Infection rates in surgical procedures: a comparison of cefalexin vs. a placebo**. *Veterinary and Comparative Orthopaedics and Traumatology* 14(3): 146-150. ISSN: 0932-0814.
NAL Call Number: SF910.5 V4
Abstract: .
Descriptors: antibiotics, chemoprophylaxis, contamination, infection, placebos, potency, surgery, surgical operations, wounds, randomized controlled trials, cats.

Davidson, C.D., G.R. Pettifer, and J.D.Jr. Henry (2004). **Plasma fentanyl concentrations and analgesic effects during full or partial exposure to transdermal fentanyl patches in cats.** *Journal of the American Veterinary Medical Association* 224(5): 700-5. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Abstract: OBJECTIVE: To compare plasma fentanyl concentrations and analgesic

efficacy during full or partial exposure to 25-microg/h transdermal fentanyl patches (TFPs) in cats undergoing ovariohysterectomy. DESIGN: Randomized controlled clinical trial. ANIMALS: 16 client-owned cats. PROCEDURE: Cats were randomly assigned to receive full or partial exposure to a TFP; patches were applied approximately 24 hours prior to ovariohysterectomy. Rectal temperature, heart rate, respiratory rate, blood glucose concentration, and blood pressure were measured and pain severity was assessed periodically for 72 hours after patch application. Venous blood samples were collected for determination of plasma fentanyl concentration 0, 6, 12, 18, 24, 36, 48, 60, and 72 hours after patch application. RESULTS: Mean +/- SD steady state plasma fentanyl concentration in cats in the full TFP exposure group (1.78 +/- 0.92 ng/mL) was significantly greater than concentration in cats in the partial exposure group (1.14 +/- 0.86 ng/mL). Steady state plasma fentanyl concentrations were evident between 18 and 72 hours after patch application. Subjective scores used to evaluate analgesic efficacy were not significantly different between treatment groups. CONCLUSIONS AND CLINICAL RELEVANCE: Results suggest that delivery of fentanyl from TFPs can be reduced by decreasing the amount of exposed surface area. In cats weighing < 4 kg (9 lb), exposure to half a 25-microg/h TFP appears to provide adequate analgesia following ovariohysterectomy.

Descriptors: analgesia, analgesics, cats, fentanyl, postoperative pain, cutaneous administration, analgesia, analgesics, cats, cats surgery, dose response relationship, drug, fentanyl, hysterectomy, ovariectomy, pain measurement, postoperative pain, treatment outcome.

Deflandre, C. (2004). **Anaesthetic equipment. 2. Breathing systems and intubation equipment**. *Irish Veterinary Journal* 57(3): 181-183. ISSN: 0368-0762.

NAL Call Number: 41.8 IR4

Descriptors: anesthesia, inhaled anaesthetics, respiration, reviews, small animal practice, surgical equipment, cats.

Dehkordi, O., G.C. Dennis, R.M. Millis, and C.O. Trouth (1996). **Cardiorespiratory effects of cocaine and procaine at the ventral brainstem.** *Neurotoxicology* 17(2): 387-95. ISSN: 0160-2748.

Abstract: The caudal ventrolateral medulla (CVLM) is an area of the brainstem, in the vicinity of the hypoglossal nerve roots, where cholinergic and adrenergic neurons participate in respiratory and vasomotor control. Cardiorespiratory depression has been produced by topical application of cocaine to the CVLM. In the present studies, the effects of topical pretreatments of the CVLM with alpha-adrenergic blockers (prazosin 4.8 mM) and beta-adrenergic blockers (propranolol 11.3 mM) on the cardiorespiratory responses to topically administered cocaine (37 mM) were investigated in urethane anesthetized cats. Both prazosin and propranolol failed to produce ventilatory responses and to counteract cocaine-induced apneustic breathing. However, the cocaine-induced decrement in mean arterial blood pressure (MABP) following pretreatment of the CVLM with propranolol was found to be 11 +/- 5%, compared to the 18 +/- 5% decrement produced by cocaine alone. These differences were not statistically significant. Procaine (37 mM) in equimolar doses to cocaine, produced a small statistically significant decrement in MABP ($P < 0.05$) without ventilatory effects. Topical administration of

procaine (73.3 mM), at approximately twice the equimolar dosage of cocaine, produced apneustic breathing that was indistinguishable from that produced by cocaine. The neurotoxic properties of cocaine that produce apneustic breathing appear to be similar to that produced by the anesthetic agent procaine, and the alpha- and beta-adrenoceptor blockers prazosin and propranolol do not appear to antagonize the vasomotor depression induced by cocaine at the CVLM.
Descriptors: adrenergic alpha antagonists, adrenergic beta antagonists, cocaine toxicity, hemodynamic processes, medulla oblongata, narcotics toxicity, prazosin, procaine toxicity, propranolol, respiration, cats, hemodynamic processes, injections, intraventricular, medulla oblongata, respiration.

Dempsey, R.J., M.K. Baskaya, D.J. Combs, D. Donaldson, A.M. Rao, and M.R. Prasad (1996). **Delayed hyperglycemia and intracellular acidosis during focal cerebral ischemia in cats.** *Acta Neurochirurgica* 138(6): 745-51. ISSN: 0001-6268.
Abstract: The effects of hyperglycemia on permanent focal brain ischemia is controversial; its effects on the size of the infarct are variable according to experimental conditions. In this study, nuclear magnetic resonance (NMR) spectroscopy was used to assess brain pH and high-energy phosphate metabolites after focal middle cerebral artery (MCA) ischemia in hyperglycemic and normoglycemic cats. Sixteen adult cats underwent (MCA) occlusion under general anesthesia and nuclear magnetic resonance 31P spectroscopy to assess intracellular brain pH and energy metabolites throughout permanent ischemia. Animals were treated two hours after the onset of ischemia with either saline or glucose perfusions. Significant hyperglycemia (488 vs 105 mg/100 ml) was achieved in the experimental group. The response to hyperglycemia was dependent on the initial characteristics of the infants. A distinct pattern of phosphocreatine/inorganic phosphate recovery within 20 minutes of ischemia predicted a small infarct size. The addition of hyperglycemia did not affect acidosis, infarct size, or metabolite ratios in these animals. The lack of phosphocreatine/inorganic phosphate recovery within 20 minutes of ischemia was predictive of an eventual large infarct. In these animals, the delayed addition of hyperglycemia significantly lowered intracellular pH during the ischemic period (5.45 vs. 6.25, $p = 0.25$). These data support the theory that the response to hyperglycemia is very dependent on the initial metabolic state of the injured brain. This state can be predicted by early 31P spectroscopy data, which may, in turn, prove to be a useful marker for recoverable ischemic deficit in the cerebral region of interest.
Descriptors: acid base equilibrium, acidosis, brain ischemia, hyperglycemia, glucose, brain, brain edema, cats, cerebral infarction, energy, glucose solution, hypertonic, hydrogen ion concentration, intracellular fluid, magnetic resonance spectroscopy, neurons, phosphates.

Di, X., R. Bullock, J. Watson, P. Fatouros, B. Chenard, F. White, and F. Corwin (1997). **Effect of CP101,606, a novel NR2B subunit antagonist of the N-methyl-D-aspartate receptor, on the volume of ischemic brain damage off cytotoxic brain edema after middle cerebral artery occlusion in the feline brain.** *Stroke* 28(11): 2244-51. ISSN: 0039-2499.
Abstract: BACKGROUND AND PURPOSE: The purpose of this study was to test

the hypothesis that the neuroprotective compound CP101,606 will ameliorate the increase in lactate, retard the development of cytotoxic edema, and decrease the infarct volume after ischemic stroke. METHODS: Seventeen adult cats were allocated to control (n = 7) and CP101,606-treated groups (n = 10). Transorbital middle cerebral artery occlusion was performed under anesthesia. Extracellular fluid lactate by microdialysis as well as infarct volume measurement by triphenyltetrazolium chloride (TTC)-stained section, with and without neuroprotective agents, was used to determine the value of these potential "surrogate markers" of ischemic damage. RESULTS: The control group showed an increased dialysate lactate (15.5% increase) at 30 minutes and a peak (332.0% increase) in dialysate lactate at 1 hour after middle cerebral artery occlusion compared with the drug-treated group. Significant differences between control and drug-treated groups were seen in the rate of fall of the apparent diffusion coefficient at both 1 and 5 hours. A close correlation was seen between the 1- and 5-hour apparent diffusion coefficient maps and the TTC-stained sections. There was a significantly smaller lesion in the CP101,606-treated group (62.9% reduction in infarct size compared with the control group; P < .001). CONCLUSIONS: CP101,606 ranks very highly among the current neuroprotection candidates for clinical trials, and its excellent safety record in both animals and phase II studies in conscious, moderate head injury patients suggests that it will be highly effective in human occlusive stroke.

Descriptors: arterial occlusive diseases, brain edema, brain ischemia, cerebral arteries, excitatory amino acid antagonists, neuroprotective agents, piperidines, brain, brain edema diagnosis, brain ischemia diagnosis, cats, cerebral infarction, dialysis solutions, lactates analysis, magnetic resonance imaging, receptors, n methyl d aspartate, staining and labeling, tetrazolium salts.

Dick, T.E., M.C. Bellingham, and D.W. Richter (1994). **Pontine respiratory neurons in anesthetized cats.** *Brain Research* 636(2): 259-69. ISSN: 0926-6410.

Abstract: The pontine respiratory neurons (PRG) in the 'pneumotaxic centre' have been hypothesized to contribute to phase-switching of neural respiratory activity, especially in terminating inspiration. To define the neural elements involved in phase-switching, we recorded respiratory neurons extra- and intracellularly in anesthetized cats with an intact central nervous system. In total, 54 neurons were recorded: 49 neurons with activity modulated by central respiratory rhythm (20 inspiratory, 17 postinspiratory and 12 expiratory) and 5 neurons with activity correlated to tracheal pressure. The recorded neurons were clustered in dorsolateral pontine tegmentum within the Kolliker-Fuse (KF) subnucleus of the parabrachial nuclei. Stable intracellular membrane potential was recorded in 11 of the 49 respiratory neurons (8 postinspiratory, 1 early inspiratory and 2 inspiratory). During continuous injection of chloride ions (n = 6), synaptic noise increased and IPSPs reversed, including a wave of IPSPs during stage-2 expiration in postinspiratory neurons. Further, relative input resistance varied through the respiratory cycle such that the least input resistance occurred during the neuron's (n = 5) quiescent period. No IPSPs nor EPSPs were evoked in pontine respiratory neurons by vagal stimulation. In conclusion, various types of respiratory neurons were recorded in the KF nucleus. Prominent excitatory and inhibitory postsynaptic activities were similar to those described for medullary neurons. These pontine respiratory neurons do not appear to receive a strong afferent input from the vagus. Rather, vagal afferent inputs seem to be

directed towards non-respiratory neurons that are located more medially in the dorsal pons.
Descriptors: anesthesia, neurons, pons, respiration, cats, electric stimulation, electrodes, membrane potentials, neurons, afferent, phrenic nerve, pons, pons, synapses, vagus nerve.

Dixon, M.J., S.A. Robertson, and P.M. Taylor (2002). **A thermal threshold testing device for evaluation of analgesics in cats.** *Research in Veterinary Science* 72(3): 205-210. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Descriptors: analgesics, cats, heat, pain measurement, pain threshold, drug evaluation, meperidine, meperidine, pain measurement, skin temperature.

Dobbins, S., N.O. Brown, and F.S. Shofer (2002). **Comparison of the effects of buprenorphine, oxymorphone hydrochloride, and ketoprofen for postoperative analgesia after onychectomy or onychectomy and sterilization in cats.** *Journal of the American Animal Hospital Association* 38(6): 507-14. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Abstract: In this prospective, randomized, blinded study, 68 clinically healthy cats that had onychectomy (n = 20), onychectomy and castration (n = 20), or onychectomy and ovariohysterectomy (n = 28) were randomly assigned to one of four postoperative analgesic treatment groups: buprenorphine (0.01 mg/kg body weight, intramuscularly [IM]), oxymorphone hydrochloride (0.05 mg/kg body weight, IM), ketoprofen (2 mg/kg body weight, IM), and placebo (physiological saline). Sedation scores, visual analog pain scores, cumulative pain scores, serum cortisol concentration, and appetite were used to assess postoperative analgesic effect. Buprenorphine demonstrated the highest efficacy with the lowest cumulative pain scores and serum cortisol levels.
Descriptors: analgesics, castration, cats, cats surgery, postoperative pain, buprenophrine, hydrocortisone, injections, intramuscular, ketoprofen, oxymorphone, pain measurement, postoperative pain, prospective studies, single blind method, treatment outcome.

Dohoo, S.E. and I.R. Dohoo (1996). **Postoperative use of analgesics in dogs and cats by Canadian veterinarians**. *Canadian Veterinary Journal* 37(9): 546-551. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: surgery, small animal practice, opioid peptides, butorphanol, education, orthopedics, castration, pain, analgesics, postoperative care, cats.
Language of Text: English; Summary in French.

Dohoo, S.E. and I.R. Dohoo (1996). **Factors influencing the postoperative use of analgesics in dogs and cats by Canadian veterinarians**. *Canadian Veterinary Journal* 37(9): 552-556. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: opioid peptides, surgery, small animal practice, abdomen, statistical analysis, analgesics, postoperative care, dogs, cats.
Language of Text: English; Summary in French.

Duke, T., A.M. Cox, A.M. Remedios, and P.H. Cribb (1994). **The analgesic effects of administering fentanyl or medetomidine in the lumbosacral epidural space of cats.** *Veterinary Surgery* 23(2): 143-8. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Abstract: The analgesic effects of fentanyl (4 micrograms/kg) and medetomidine (10 micrograms/kg) in 1 mL saline injected epidurally were measured in 15 cats. The response to an electrical cutaneous stimulus from a constant current generator was used as the index of analgesia. The stimulus was applied to a forelimb before epidural injection, and at 15, 30, 60, 90, 120, 180, 240, and 300 minutes post-injection (PI). The hindlimb was tested 5 minutes later. One mL saline only was used to control for volume of injection and saline. Medetomidine significantly increased the pain threshold for the hindlimb at 20 to 245 minutes PI compared with the preinjection level. Fentanyl significantly increased the pain threshold at 20 minutes PI only compared with preinjection levels. Medetomidine significantly increased the pain threshold of the forelimb at 15 to 120 minutes PI compared with the preinjection levels. Fentanyl did not significantly increase the pain threshold of the forelimb. Administration of medetomidine produced emesis in 12 of 15 cats in an average of 6.4 minutes PI (range, 3 to 11 minutes) and mild sedation in all cats. Injection of fentanyl produced no visible side effects in any of the cats.
Descriptors: epidural analgesia, analgesics, cats, fentanyl, imidazoles, medetomidine, pain threshold, postoperative pain, postoperative pain, time factors.

Duke, T., A.M. Cox, A.M. Remedios, and P.H. Cribb (1994). **The cardiopulmonary effects of placing fentanyl or medetomidine in the lumbosacral epidural space of isoflurane-anesthetized cats.** *Veterinary Surgery* 23(2): 149-55. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Abstract: The cardiopulmonary effects of fentanyl (4 micrograms/kg) or medetomidine (10 micrograms/kg) in saline injected epidurally were measured for 2 hours in 15 isoflurane (2.4%)-anesthetized cats. One milliliter of saline without drug was used to control for saline and volume of injection. Baseline was taken as preinjection time 0. Medetomidine significantly increased ($P < .05$) mean arterial blood pressure (MAP) 5 to 20 minutes postinjection (PI) compared with baseline. MAP significantly decreased 30 to 120 minutes PI compared with baseline. Fentanyl significantly decreased MAP 5 to 120 minutes PI compared with baseline. Heart rate and respiratory rates significantly decreased in the medetomidine and fentanyl groups 5 to 120 minutes PI compared with baseline. Arterial pCO2 significantly increased while arterial pH significantly decreased 15 to 120 minutes PI in the fentanyl and medetomidine groups compared with baseline. Blood bicarbonate concentration significantly increased 90 to 120 minutes PI in the medetomidine group compared with baseline.
Descriptors: epidural analgesia, analgesics, cats, fentanyl, imidazoles, inhalation anesthesia, pressure, drug synergism, heart rate, isoflurane, medetomidine, respiration.

Dyson, D. and K.A. Mathews (2004). **Managing pain for non-elective procedures: medical, surgical or traumatic**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 801-804.
NAL Call Number:

Descriptors: adverse effects, anesthesia, anesthetics, analgesics, catecholamines, central nervous system, cerebrospinal fluid, diazepam, fentanyl, foreign bodies, isoflurane, ketamine, lidocaine, local anesthesia, morphine, newborn animals, non steroidal anti-inflammatory agents, opioids, oxygen, pain, pancreatitis, pharmacodynamics, propofol, shock, stomach diseases, surgery, trauma, cats.

Dyson, D.H. (2000). **Chemical restraint and analgesia for diagnostic and emergency procedures**. *Veterinary Clinics of North America, Small Animal Practice* 30(4): 885-898. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: analgesics, emergencies, restraint of animals, reviews, diagnosis, dogs, cats.

Dyson, D.H., M.G. Maxie, and D. Schnurr (1998). **Morbidity and mortality associated with anesthetic management in small animal veterinary practice in Ontario.** *Journal of the American Animal Hospital Association* 34(4): 325-335 . ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: dogs, cats, anesthesia, preanesthetic medication, small animal practice, inhaled anesthetics, injectable anesthetics, cardiac output, breed differences, xylazine, surgery, species differences, dosage, ontario, cardiac arrest, intubation .

Edwards A.V., G. Tobin, J. Ekstrom, and S.R. Bloom (1995). **Submandibular responses to stimulation of the parasympathetic innervation in the presence of an inhibitor of nitric oxide (no) synthesis in anaesthetized cats**. *Journal of Physiology* 487P(0): 118P. ISSN: 0022-3751.
NAL Call Number: 447.8 J82
Descriptors: membranes, cell biology, nervous system, anesthesia, meeting abstract, n nitro l arginine methyl ester, synapse, vasoactive intestinal peptide, nutrition.

Eggermont, J.J. and G.M. Smith (1996). **Burst-firing sharpens frequency-tuning in primary auditory cortex.** *Neuroreport* 7(3): 753-7. ISSN: 0959-4965.
Abstract: Frequency-tuning in 46 high-firing single units from primary auditory cortex of ketamine-anaesthetized cats was studied separately for isolated-spike firing and burst spike firing. The tuning curve for burst firing was significantly narrower than for the overall firing rate condition and, consequently, much narrower than for the isolated spikes. The burst firing was found in excess of that predicted from a modulated Poisson process, so the results cannot be explained on basis of a change in firing rate criterion. We propose that burst firing in auditory cortex may selectively enhance frequency tuning dynamically controlled by the behavioural state of the animal as well as its stimulus history. Thus burst firing may have functional implications for cortical processing.
Descriptors: auditory cortex, pitch perception, acoustic stimulation, anesthesia, general, auditory cortex, cats, electrophysiology, evoked potentials, auditory, neurons, afferent, poisson distribution.

Emukhvari, N.M., I.R. Rukhadze, M.M. Mgaloblishvili, E.O. Chijavadze, M.R. Babilodze, L.M. Maisuradze, N.D. Lordkipanidze, M.D. Eliozishvili, N.G. Dabrundashvili, M.V. Gogichadze, and T.G. Basishvili (2005). **The role of opioid system in the regulation of the sleep-wakefulness cycle**. *Zhurnal Vysshei Nervnoi Deyatel'Nosti Imeni I/ P/ Pavlova*

55(1): 100-109. ISSN: 0044-4677.
Descriptors: behavior, nervous system, neural coordination, psychic derangement, behavioral and mental disorders, drug induced, morphine, autonomic disorder, nervous system disease, behavioral and mental disorders, sleep disorder, nervous system disease, drug induced, EEG, electroencephalography, clinical techniques, diagnostic techniques, sleep quality, wakefulness cycle, sleep waking cycle, behavioral waking, somato vegetative parameters.
Language of Text: Russian.

Eremeev, V.S., A.I. Tiukavin, R.S. Khrustaleva, and I.I. Shcherbin (1995). **Sistemnaia gemodinamika bodrstvuiushchikh i narkotizirovannykh kotov pri infuzii noradrenalina [The systemic hemodynamics of waking and anesthetized male cats during noradrenaline infusion]** . *Fiziologicheskii Zhurnal Imeni I/M/ Sechenova Rossiiskaia Akademiia Nauk* 81(7): 57-63. ISSN: 0869-8139.
NAL Call Number: QP1.F58
Abstract: Dynamics of arterial pressure and its hemodynamic components were shown to dramatically differ in conscious and anesthetised animals. The data obtained suggest that conscious male cats, along with a baroreflex mechanism of resistance against involvement of the heart into the pressor response, have another mechanism acting in deficiency of baroreflex effects.
Descriptors: anesthesia, hemodynamic processes, norepinephrine, vasoconstrictor agents, wakefulness, intravenous anesthetics, baroreflex, baroreflex, cats, chloralose, hemodynamic processes, hypnotics and sedatives, infusions, intravenous, norepinephrine, pentobarbital, vasoconstrictor agents, wakefulness.
Language of Text: Russian.

Erhardt, W., J. Henke and C. Lendl (2002). ***Narkosenotfalle [Anesthesia Emergencies]***, XIV edition, Enke Verlag: Stuttgart, Germany,
Descriptors: accidents, anesthesia, aviary birds, emergencies, small animal practice, AmpHibia, birds, cats, reptiles.
Language of Text: German.

Erickson, K.M. and W.L. Lanier (2003). **Anesthetic technique influences brain temperature, independently of core temperature, during craniotomy in cats.** *Anesthesia and Analgesia* 96(5): 1460-6, Table of Contents. ISSN: 0003-2999.
Abstract: Because anesthetic technique has the potential to dramatically affect cerebral blood flow and metabolism (two determinants of brain thermoregulation), we tested the hypothesis that, after craniotomy, anesthetic technique would influence brain temperature independent of core temperature. Twenty-one cats (2.7 +/- 0.4 kg; mean +/- SD) undergoing a uniform right parasagittal craniotomy received 1) halothane 1.5% end-expired and normocapnia (HN), 2) halothane 1.5% and hypocapnia (HH), or 3) large-dose pentobarbital and normocapnia (PN) (n = 7 per group). Heating devices initially maintained core and right subdural normothermia (38.0 degrees C). Thereafter, cranial heating was discontinued. Brain-to-core temperature gradients during the 3 h study were greatest in the right subdural area, averaging -2.5 degrees C +/- 0.9 degrees C in HN, -2.5 degrees C +/- 0.8 degrees C in HH, and -4.1 degrees C +/- 1.1 degrees C in PN. Gradients within the unexposed left subdural area and in the right cortex 0.5 and 1.0

cm below the brain surface were -0.8 degrees C +/- 0.5 degrees C to -1.1 degrees C +/- 0.6 degrees C for both HN and HH but were twice this amount in PN (-1.9 degrees C +/- 0.5 degrees C to -2.1 degrees C +/- 0.7 degrees C) (P < 0.05 for PN versus HN and HH). Deep barbiturate anesthesia can reduce brain temperature independently of core temperature, presumably by reducing the metabolic rate and associated brain heat production. The magnitude is sufficient to augment any direct cerebroprotective properties of the barbiturates. IMPLICATIONS: Deep barbiturate anesthesia reduced brain temperature independently of body temperature in cats and significantly more than the reduction seen with halothane anesthesia. The magnitude of temperature reduction was sufficient to account for cerebral protection by barbiturates independently of any other properties of the drug.
Descriptors: anesthesia, body temperature, brain, craniotomy, anesthetics, inhalation anesthetics, inhalation anesthetics, brain, carbon dioxide, cats, cerebrovascular circulation, electroencephalography, halothane, halothane, pentobarbital.

Fantoni, D.T., J.L.J. Krumenerl, and M.P. Galego (2000). **Utilizacao de analgesicos em pequenos animais [Use of analgesics in small animals]** . *Clinica Veterinaria* 5(28): 23-33. ISSN: 0009-9082.
Descriptors: analgesics, pain, reviews, dogs, cats.
Language of Text: Portuguese; Summary in English.

Farber, N.E., K.A. Poterack, J.P. Kampine, and W.T. Schmeling (1994). **The effects of halothane, isoflurane, and enflurane on thermoregulatory responses in the neuraxis of cats.** *Anesthesiology* 80(4): 879-91. ISSN: 0003-3022.
Abstract: BACKGROUND: Normal thermoregulatory function is believed to be modulated by thermosensitive neurons in the preoptic region of the anterior hypothalamus and other sites within the central nervous system including the spinal cord. Previous evidence has demonstrated modulation of segmental spinal cord thermoregulatory mechanisms from more rostral central nervous system sites. The ability of the volatile anesthetics to disrupt normal thermoregulatory function and produce shivering-like activity during emergence is well documented. The purpose of the current investigation was to examine the action purpose of the current investigation was to examine the action of the volatile anesthetics halothane, isoflurane, and enflurane on thermoregulatory responses produced at the preoptic region and spinal cord. METHODS: Cats were chronically instrumented with bilateral cannulas allowing selective heating and cooling of the preoptic region. Electrodes were implanted in hindlimb and forelimb muscles for electromyographic (EMG) analysis. Animals underwent selective heating and cooling of the preoptic region in the awake state, during volatile agent anesthesia and during emergence. In a separate series of animals, pontine-transected cats with epidural thermodes and a thermocouple underwent alternate heating and cooling of the spinal cord. Heating and alternate heating and cooling of the spinal cord. Heating and cooling was performed in the nonanesthetized state, at graded concentrations of halothane, and during emergence. In all animals deep core peritoneal temperature, epidural spinal cord temperature, forelimb and hindlimb EMG activity were continuously recorded and digitally processed. EMG responses in both experiments were quantitated and analyzed for power spectral density. RESULTS: In the chronically

prepared animals, heating and cooling of the preoptic region in the conscious state resulted in appropriate thermoregulatory responses, including shivering-like activity and increased EMG power with preoptic region cooling. Halothane, isoflurane, and enflurane each abolished these thermoregulatory responses. During emergence from anesthesia, however, the typical spontaneous increases in EMG power observed at normothermia were significantly attenuated by heating of the preoptic region and augmented by cooling of the preoptic region. In the acutely prepared animals, cooling of the spinal cord produced graded increases in EMG activity. Increased concentrations of halothane dose-dependently diminished this response to cooling of the spinal cord. During emergence, cooling of the spinal cord resulted in a shivering response similar to those observed during control conditions. CONCLUSIONS: The ability of preoptic region heating and cooling to modulate postanesthetic shivering implies that while thermoregulatory pathways remain intact, volatile anesthetics produce an imprecision in the control of thermoregulatory responses at the level of the anterior hypothalamus. Attenuation of shivering-like responses generated at spinal cord levels in pontine-transected cats implies a significant blunting action of thermoregulatory response mechanisms at the level of the spinal cord or lower brain stem.
Descriptors: anesthetics, body temperature regulation, central nervous system, body temperature regulation, cats, central nervous system, electrodes, electromyogrphy, enflurane, halothane, heating, hypothermia, induced, isoflurane, preoptic area, preoptic area, preoptic area, spinal cord, tegmentum mesencephali.

Farber, N.E., K.A. Poterack, and W.T. Schmeling (1997). **Dexmedetomidine and halothane produce similar alterations in electroencephalographic and electromyographic activity in cats.** *Brain Research* 774(1-2): 131-41. ISSN: 0006-8993.
Abstract: Dexmedetomidine, an alpha2-adrenergic agonist, produces sedation and reduces volatile anesthetic requirements. This investigation compared the actions of dexmedetomidine and halothane on the processed EEG and on the electromyogram (EMG) which has not been previously described. Chronically instrumented cats were prepared with arterial and venous cannulae, quadriceps EMG electrodes and EEG electrodes in the lateral geniculate nucleus and over the frontal and occipital cortices. Hemodynamics, EEG and EMG were recorded in the conscious state and after randomly administered halothane or intravenous dexmedetomidine (on separate days). Blink and tail-clamp responses also assessed level of consciousness. Halothane resulted in unconsciousness and a lack of response to tail clamping, while dexmedetomidine produced profound sedation, with preservation of tail-clamp responses. Both agents similarly decreased ($P < 0.05$) the median power frequency from 9.5 +/- 0.9 to 5.7 +/- 0.4 Hz (2% halothane) and from 9.6 +/- 0.7 to 5.9 +/- 0.8 Hz (20 microg/kg dexmedetomidine), and 95% power frequency from 23.0 +/- 0.2 to 18.2 +/- 0.6 Hz (2% halothane) and from 23.0 +/- 0.2 to 19.1 +/- 0.8 Hz (20 microg/kg dexmedetomidine). Both agents increased the total spectral power and delta band power of the EEG and reduced integrated EMG activity. Halothane and dexmedetomidine produced differing effects on level of consciousness as assessed by response to tail clamping. The results suggest that conventional processing of EEG and EMG parameters are inadequate to assess anesthetic depth in the presence of alpha2-adrenergic agonists.
Descriptors: adrenergic alpha agonists, inhalation anesthetics, brain, halothane,

imidazoles, muscle, skeletal, brain, cats, electroencephalography, electromyogrphy, medetomidine, muscle, skeletal.

Farber, N.E., E. Samso, J.P. Kampine, and W.T. Schmeling (1995). **The effects of halothane on cardiovascular responses in the neuraxis of cats. Influence of background anesthetic state.** *Anesthesiology* 82(1): 153-65. ISSN: 0003-3022.
Abstract: BACKGROUND: This study examined the effects of halothane on arterial pressure after central nervous system (CNS) pressor site stimulation in anesthetized cats, cats rendered unconscious by midcollicular transection, and conscious cats. METHODS: Two anesthetized groups and two nonanesthetized groups were used. Cats were anesthetized with either alpha-chloralose and urethane or pentobarbital. Nonanesthetized groups were cats with midcollicular transections or conscious cats with chronically implanted electrodes. Stimulating electrodes were placed into vasomotor areas of the hypothalamus (HYP), reticular formation (RF), and medulla, and arterial pressure responses to increasing stimulus currents were examined during different halothane concentrations. Two groups of cats were also anesthetized with either pentobarbital or urethane and underwent bilateral carotid artery occlusion. RESULTS: Stimulation at each CNS site produced increases in arterial pressure and heart rate. Halothane attenuated pressor responses evoked by stimulation of all loci in all groups of cats. The inhibition by halothane on these cardiovascular responses was greatest at HYP and RF sites, while the medulla was more resistant to the effects of halothane in the anesthetized animals. Midcollicular transection decreased this medullary resistance. The inhibition of pressor responses by halothane was also greater in pentobarbital-than chloralose urethane-anesthetized animals. In contrast, pressor responses elicited by bilateral carotid occlusion were attenuated by halothane similarly in both anesthetic groups. Reticular formation stimulation in conscious animals resulted in "altering responses" in addition to pressor effects, both of which were attenuated by halothane. CONCLUSIONS: Modulation of CNS cardiovascular control centers contribute to halothane-induced hemodynamic alterations. Baseline anesthesia, CNS stimulation site, and the suprabulbar system influence the effects of halothane.
Descriptors: anesthesia, brain, cardiovascular system, halothane, carotid stenosis, cats, chloralose, electrodes, hemodynamic processes, pentobarbital, pressoreceptors, urethane.

Farber, N.E., E. Samso, M. Staunton, D. Schwabe, and W.T. Schmeling (1999). **Dexmedetomidine modulates cardiovascular responses to stimulation of central nervous system pressor sites**. *Anesthesia and Analgesia* 88(3): 617-624. ISSN: 0003-2999.
Descriptors: arterial pressure, cardiovascular regulation, heart rate, halothane, central nervous system, dexmedetomidine, cats, anesthesia.

Fedorova, I.M. and A.S. Basile (2001). **Characterization of the cannabimimetic actions of oleamide, an endogenous hypnotic**. *Journal of the Federation of American Societies for Experimental Biology* 15(5): A911. ISSN: 0892-6638.
NAL Call Number: QH301 .F3
Descriptors: oleamide, OA, endogenous fatty-acid amide, behavior, cannabinoid induced behavioral syndrome, hypothermia, analgesia, spontaneous locomotor activity, meeting abstract.
Notes: Meeting Information: Annual Meeting of the Federation of American Societies

for Experimental Biology on Experimental Biology 2001, Orlando, Florida, USA; March 31-April 4, 2001.

Feldman, J.T.E., J. Stutzmann, and P. Bousquet (1994). **Medullary hypotensive effect of endothelin1 in anaesthetized animals.** *Fundamental and Clinical Pharmacology* 8(1): 64-70. ISSN: 0767-3981.

Abstract: In anaesthetized animals, systemic injection of ET1 at doses from 3 to 100 ng.kg-1 provoked only a transient hypotensive effect. At 300 ng.kg-1 we observed the classical biphasic effect, consisting of a transient lowering of the arterial pressure followed by a long-lasting hypertensive effect. Direct injection of the peptide into the vertebral artery of anaesthetized animals only affected arterial pressure (AP) when the blood-brain barrier was permeabilised. Under these conditions, a dose-dependent decrease in AP was observed, which was not associated with a significant effect on the heart rate. Micro-injections of the peptide in the medullary nucleus reticularis lateralis area (NRL), a medullary vasopressive centre, at doses of 30 to 60 ng.kg-1 led to a significant reduction in mean arterial pressure (MAP) (17 +/- 4% and 36.5 +/- 6%) respectively without a significant change in heart rate. These effects lasted less than 2 hours. These results suggest a possible role of ET1 as a neuromodulator involved in the central regulation of vasomotor tone, in the NRL region.

Descriptors: anesthesia, pressure, endothelins, medulla oblongata, pentobarbital, brain barrier, cats, dose response relationship, drug, endothelins, heart rate, injections, intra arterial, injections, intravenous, microinjections, rabbits.

Fields, A.M., T.A. Richards, I. Ibrahim, B. Dewitt, R. Hofbauer, and A.D. Kaye (2002). **A proposed mechanism of action for the treatment of pulmonary hypertension using the opioid remifentanil: a study in the feline pulmonary vascular bed**. *Anesthesia and Analgesia* 94(2S Supplement): S.24. ISSN: 0003-2999.

Descriptors: pharmacology, remifentanil, respiration, pulmonary hypertension, vascular disease, therapy, feline pulmonary vascular bed.

Notes: Meeting Information: International Anesthesia Research Society 76th Clinical and Scientific Congress, San Diego, California, USA; March 16-20, 2002.

Fisenko, V.P. (2001). **Neurochemical relationships in the action of opioid analgesics on cerebral cortex.** *Bulletin of Experimental Biology and Medicine* 132(1): 613-9. ISSN: 0007-4888.

NAL Call Number: 442.8 B87AE

Abstract: The experiments with unrestrained cats showed that opioid analgesics in near-analgesic doses decreased the amplitude of the primary test response recorded in the second sensorimotor zone of the cerebral cortex in 20-150-msec interval between the stimuli applied to thalamocortical fibers radiating from thalamic n. VPL. Application of test substances affecting certain neurotransmitter processes and microionophoretic application of drugs and neurotransmitters to cortical neurons showed that the inhibitory effect of opioid analgesics on cerebral cortex is probably realized through GABA-, serotonin-, beta-adreno-, and cholinergic structures. The excitatory amino acids are also involved into this process.

Descriptors: analgesics, cerebral cortex, neurons, afferent pathways, cats, cerebral

cortex, cerebral cortex, electric stimulation, iontophoresis, levodopa, neurons, pain, thalamus, thalamus, gamma aminobutyric acid.

Fodor, G., B. Kaser Hotz, and D. Kuhn (1996). **Erfahrungen mit Propofol als Injektions-narkotikum bei der Strahlentherapie von Hunden und Katzen. [Experiences with propofol as an injection narcotic for radiotherapy of cats and dogs]**. *Tierarztliche Praxis* 24(1): 62-67. ISSN: 1434-1239.
NAL Call Number: SF603 .V433
Abstract: In a clinical study propofol has been used intravenously for multiple anesthesias. The results show that repeated anesthesias are possible, even in geriatric patients; patients need no premedication; maintenance of desired anesthetic depth is easily achievable by titrating the propofol dose; quality of anesthesia has been entirely satisfactory for our purposes; recovery is rapid, free from agitation and complete. However, propofol is rather expensive and any unused propofol must be discarded immediately after the anesthesia due to the danger of microbial contamination.
Descriptors: intravenous anesthetics, cats, dogs, radiotherapy, drug contamination, premedication, propofol.
Language of Text: German.

Fodor, G., B. Kaser Hotz, and D. Kuhn (1996). **Erfahrungen mit Propofol als Injektionsnarkotikum bei der Strahlentherapie von Hunde und Katzen [Experience with propofol as a injectable anaesthetic for dogs and cats during radiotherapy]**. *Tierarztliche Praxis* 24(1): 62-67. ISSN: 0303-6286.
NAL Call Number: SF603 .V4
Descriptors: anesthesia, injectable anaesthetics, radiotherapy, propofol, cats, dogs.
Language of Text: German with a summary in English.

Franks, J.N., H.W. Boothe, L. Taylor, S. Geller, G.L. Carroll, V. Cracas, and D.M. Boothe (2000). **Evaluation of transdermal fentanyl patches for analgesia in cats undergoing onychectomy.** *Journal of the American Veterinary Medical Association* 217(7): 1013-1020. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, fentanyl, transdermal application, surgical operations, efficacy, pain, safety, recovery.

Furukawa, T., R.J. Myerburg, N. Furukawa, S. Kimura, and A.L. Bassett (1994). **Metabolic inhibition of ICa,L and IK differs in feline left ventricular hypertrophy.** *American Journal of Physiology* 266(3 Pt 2): H1121-31. ISSN: 0002-9513.
NAL Call Number: 447.8 AM3
Abstract: To determine the intrinsic responsiveness of hypertrophied myocardium, electrophysiological properties of endocardial myocytes enzymatically dissociated from normal and hypertrophied feline left ventricle (LV) were compared during metabolic inhibition by 1 mM CN-. Chronic pressure overload was induced under surgical anesthesia. A single-pipette, whole cell clamp method was used to record action potential and membrane currents. Before CN-, action potential duration (APD) values at 90% repolarization (APD90) and at 0 mV (APD0mV) were significantly longer in hypertrophied cells. The current density of L-type Ca2+ currents (ICa,L) was not

significantly different, whereas the time constant of the slow component (tau s) of ICa,L inactivation was significantly longer in hypertrophied cells. The current density of delayed rectifier K+ current (IK) was significantly smaller, the fast component (tau f) and tau s of IK activation were delayed, and those of IK deactivation were enhanced in hypertrophied cells. During exposure to CN-, APD shortened significantly more in hypertrophied cells; amplitude of ICa,L decreased, and the tau f and tau s of ICa,L inactivation shortened only in hypertrophied cells. However, IK showed no significant differences in changes in amplitude or kinetics during CN- exposure between normal and hypertrophied cells. Thus enhanced APD responsiveness to CN- is an intrinsic property of hypertrophied LV cells and ICa,L appears to be particularly affected by metabolic perturbation in such cells.
Descriptors: calcium, hypertropHy, left ventricular, potassium, cats, electrophysiology, hypertropHy, left ventricular, kinetics.

Galatos, A.D., T. Rallis, and D. Raptopoulos (1994). **Post anaesthetic oesophageal stricture formation in three cats.** *Journal of Small Animal Practice* 35(12): 638-642. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: cats, anesthesia, postoperative, esophgus, predisposition, diagnostic techniques, treatment, atropine, xylazine, ketamine, esophagoscopy .

Garcia Ramos, J. and A. Cobian Solorio (1995). **On the glottal activity of experimental hiccup.** *Archives of Medical Research* 26(2): 155-61. ISSN: 0188-0128.
Abstract: In cats, rats and rabbits under light barbiturate anesthesia, glottal activity during spontaneous or evoked hiccups was studied. By measuring laryngeal pressure or resistance to flow to a constant current of air, and controlling several sources of error, it was found that glottal closure is an important component of this complex phenomenon. Adductor activity of the vocal cords seemed more labile to the anesthetic action and, under this condition, showed a weaker force of contraction than the abductor one. It is suggested that this can be due to the correlation of glottal adduction with expiratory premotoneurons that are more depressed by anesthesia than the inspiratory ones. In hiccup, both adductor and abductor muscles would act simultaneously but in different proportions. The results add evidence to the idea of considering hiccup as due to a specific complex mechanism integrated at specific networks of the breathing generator.
Descriptors: glottis, hiccup, airway resistance, cats, esophgus, laryngeal nerves, larynx, manometry, neck muscles, rabbits, rats.

Garrod, L.A. and L. Wetmore (1999). **Anesthetic agents in trauma patients**. *Compendium on Continuing Education for the Practicing Veterinarian* 21(9): 800-811. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: trauma, anesthesia, anesthetics, reviews, dosage, dogs, cats.

Gaynor, J.S., C.I. Dunlop, A.E. Wagner, E.M. Wertz, A.E. Golden, and W.C. Demme (1999). **Complications and mortality associated with anesthesia in dogs and cats.** *Journal of the American Animal Hospital Association* 35(1): 13-17. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: dogs, cats, mortality, anesthesia, hypotension, pressure, hemorrhage, hematocrit, hypercapnia, hypoxia, gases, resuscitation, arrhythmia, causes of death.

Gebber, G.L., S. Zhong, and S.M. Barman (1995). **Synchronization of cardiac-related discharges of sympathetic nerves with inputs from widely separated spinal segments.** *American Journal of Physiology* 268(6 Pt 2): R1472-83. ISSN: 0002-9513.
NAL Call Number: 447.8 AM3
Abstract: We used phase spectral analysis to study the relationships between the cardiac-related discharges of pairs of postganglionic sympathetic nerves in urethan-anesthetized or decerebrate cats. Phase angle when converted to a time interval should equal the difference in conduction times from the brain to the nerves (i.e., transportation lag) if their cardiac-related discharges have a common central source. Transportation lag was estimated as the difference in the onset latencies of activation of the nerves by electrical stimulation of the medulla or cervical spinal cord. The phase angle for the cardiac-related discharges of two nerves was not always equivalent in time to the transportation lag. For example, in some cases the cardiac-related discharges of the renal nerve were coincident with or led those of the inferior cardiac nerve. In contrast, the electrically evoked responses of the renal nerve lagged those of the inferior cardiac nerve by > or = 32 ms. These observations are consistent with a model of multiple and dynamically coupled brain stem generators of the cardiac-related rhythm, each controlling a different sympathetic nerve or exerting nonuniform influences on different portions of the spinal sympathetic outflow.
Descriptors: blood pressure, brain, heart, heart rate, neural conduction, spinal cord, sympathetic nervous system, anesthesia, general, cats, cerebellum, decerebrate state, heart innervation, kidney innervation, laminectomy, laterality, medulla oblongata.

Gee, B.Y., Tjen A., S.C. Looi, J.M. Hill, P.S. Chahal, and J.C. Longhurst (2002). **Role of spinal NMDA and non-NMDA receptors in the pressor reflex response to abdominal ischemia.** *American Journal of Physiology* 282(3): R850-7. ISSN: 0002-9513.
NAL Call Number: 447.8 AM3
Abstract: Abdominal ischemia induces a pressor reflex caused mainly by C-fiber afferent stimulation. Because excitatory amino acids, such as glutamate, bind to N-methyl-D-aspartate (NMDA) and non-NMDA [dl-alpha-amino-3-hydroxy-5-methylisoxazole-4-propionate (AMPA)] receptors and serve as important spinal neurotransmitters, we hypothesized that both receptors play a role in the abdominal ischemia pressor reflex. In chloralose-anesthetized cats, NMDA receptor blockade with 25.0 mM dl-2-amino-5-phosphonopentanoate did not alter the pressor reflex (33 +/- 9 to 33 +/- 7 mmHg, P > 0.05, n = 4), whereas AMPA receptor blockade with 4.0 mM 6-nitro-7-sulfamylbenzo(f)quinoxaline-2,3-dione significantly attenuated the reflex (29 +/- 5 to 16 +/- 4 mmHg, P < 0.05, n = 6). Because several studies suggest that anesthesia masks the effects of glutamatergic receptors, this experiment was repeated on decerebrate cats, and in this group, NMDA receptor blockade with 25.0 mM dl-2-amino-5-phosphonopentanoate significantly altered the pressor reflex (36 +/- 3 to 25 +/- 4 mmHg, P < 0.05, n = 5). Our combined data suggest that spinal NMDA and AMPA receptors play a role in the abdominal ischemia pressor reflex.
Descriptors: baroreflex, receptors, ampa, spinal cord, 2 amino 5 phosphonovalerate, abdomen supply, baroreflex, cats, decerebrate state, excitatory amino acid antagonists, ischemia, quinoxalines, quinoxalines, receptors, n methyl d aspartate.

Gellasch, K.L., K.T. Kruse Elliott, C.S. Osmond, A.N. Shih, and D.E. Bjorling (2002). **Comparison of transdermal administration of fentanyl versus intramuscular administration of butorphanol for analgesia after onychectomy in cats.** *Journal of the American Veterinary Medical Association* 220(7): 1020-1024. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Abstract: OBJECTIVE: To compare postoperative discomfort assessed by subjective pain score and plasma cortisol concentrations in cats undergoing onychectomy that received analgesia by use of transdermal fentanyl (TDF) patches or an i.m. injection of butorphanol. DESIGN: Randomized prospective clinical trial. ANIMALS: 22 client-owned cats weighing 2.2 to 5 kg (4.84 to 11 lb) undergoing onychectomy. PROCEDURE: Researchers were blinded to which cats received a TDF patch (25 microg/h) 18 to 24 hours prior to surgery or an i.m. injection of butorphanol (0.2 mg/kg (0.09 mg/lb]) at the time of sedation, immediately following extubation, and at 4-hour intervals thereafter for 12 hours. Clinical variables, plasma cortisol concentration, and pain scores were evaluated and recorded 24 hours prior to surgery, at extubation, and 2, 4, 8, 12, 24, 36, and 48 hours after surgery. RESULTS: The TDF group had a lower pain score than the butorphanol group only at 8 hours after surgery. Both groups had significantly lower mean plasma cortisol concentrations 0, 24, 36, and 48 hours after surgery, compared with mean plasma cortisol concentrations prior to surgery. No significant differences in appetite or response to handling the feet were observed between the 2 groups. CONCLUSIONS AND CLINICAL RELEVANCE: Our data did not reveal a difference in pain relief between administration of TDF and butorphanol. Plasma cortisol concentrations were not different between groups. Fentanyl appeared to provide equivalent analgesia to butorphanol in cats undergoing onychectomy. The primary advantage of using a TDF patch is that repeated injections are not required.
Descriptors: analgesics, butorphanol, cats, fentanyl, hoof and claw surgery, postoperative pain, cutaneous administration, analgesia instrumentation, analgesia, analgesia, cats surgery, hydrocortisone, injections, intramuscular, pain measurement, postoperative pain, prospective studies, treatment outcome.
Notes: Comment In: J Am Vet Med Assoc. 2002 Jul 1;221(1):31; author reply 31-2.

Gilbert, K.A. and R. Lydic (1994). **Pontine cholinergic reticular mechanisms cause state-dependent changes in the discharge of parabrachial neurons.** *American Journal of Physiology* 266(1 Pt 2): R136-50. ISSN: 0002-9513.
NAL Call Number: 447.8 AM3
Abstract: The present study examined the hypothesis that cholinoceptive reticular mechanisms in the gigantocellular tegmental field (FTG) of the medial pontine reticular formation cause state-dependent changes in the discharge of parabrachial neurons. In chronically implanted, unanesthetized cats, extracellular recordings were made from nonrespiratory and respiratory neurons in the parabrachial nuclear complex (PBNC) during the natural sleep-wake cycle and during the rapid eye movement (REM) sleeplike state caused by FTG microinjection of carbachol or neostigmine. PBNC cells that increased discharge during natural REM sleep (REM-on cells) revealed similar increased discharge during the carbachol-induced REM sleeplike state (DCarb). Cells that decreased discharge in natural REM sleep (REM-off cells) displayed decreased discharge during both DCarb and the neostigmine-induced REM sleeplike states. The limited

sample of parabrachial respiratory neurons revealed significantly diminished discharge during the cholinergically induced REM sleeplike state. Thus cholinoceptive mechanisms localized to specific regions of the pontine reticular formation can cause state-dependent changes in the firing rates of respiratory and nonrespiratory neurons in the PBNC.
Descriptors: parasympathetic nervous system, pons, reticular formation, carbachol, cats, electrophysiology, neostigmine, neurons, pons, respiratory center, respiratory system innervation, sleep stages, sleep stages, sleep, rem, wakefulness.

Gladden, M.H. and H. Matsuzaki (2002). **Static gamma-motoneurones couple group Ia and II afferents of single muscle spindles in anaesthetised and decerebrate cats.** *The Journal of Physiology* 543(Pt 1): 273-88. ISSN: 0022-3751.
NAL Call Number: 447.8 J82
Abstract: Ideas about the functions of static gamma-motoneurones are based on the responses of primary and secondary endings to electrical stimulation of single static gamma-axons, usually at high frequencies. We compared these effects with the actions of spontaneously active gamma-motoneurones. In anaesthetised cats, afferents and efferents were recorded in intramuscular nerve branches to single muscle spindles. The occurrence of gamma-spikes, identified by a spike shape recognition system, was linked to video-taped contractions of type-identified intrafusal fibres in the dissected muscle spindles. When some static gamma-motoneurones were active at low frequency (< 15 Hz) they coupled the firing of group Ia and II afferents. Activity of other static gamma-motoneurones which tensed the intrafusal fibres appeared to enhance this effect. Under these conditions the secondary ending responded at shorter latency than the primary ending. In another series of experiments on decerebrate cats, responses of primary and secondary endings of single muscle spindles to activation of gamma-motoneurones by natural stimuli were compared with their responses to electrical stimulation of single gamma-axons supplying the same spindle. Electrical stimulation mimicked the natural actions of gamma-motoneurones on either the primary or the secondary ending, but not on both together. However, gamma-activity evoked by natural stimuli coupled the firing of afferents with the muscle at constant length, and also when it was stretched. Analysis showed that the timing and tightness of this coupling determined the degree of summation of excitatory postsynaptic potentials (EPSPs) evoked by each afferent in alpha-motoneurones and interneurones contacted by terminals of both endings, and thus the degree of facilitation of reflex actions of group II afferents.
Descriptors: motor neurons, gamma, muscle spindles, neurons, afferent, action potentials, anesthesia, cats, decerebrate state, excitatory postsynaptic potentials, muscle, skeletal innervation, muscle, skeletal, reflex, stretch.

Gleed, R.D. (1994). **Anesthesia of the very old and very young: Is age a disease.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 8: 68.
NAL Call Number: SF605.N672
Descriptors: anesthesia, dogs, cats, age differences.

Glerum, L.E., C.M. Egger, S.W. Allen, and M. Haag (2001). **Analgesic effect of the transdermal fentanyl patch during and after feline ovariohysterectomy.** *Veterinary Surgery* 30(4): 351-358. ISSN: 0161-3499.
NAL Call Number: SF911. V43

Descriptors: cats, fentanyl, transdermal application, ovariectomy, hysterectomy, pain, efficacy, stress, hydrocortisone, sugar, body temperature.

Glowaski, M.M. and L.A. Wetmore (1999). **Application in veterinary sedation and anesthesia.** *Clinical Techniques in Small Animal Practice* 14(1): 1-9. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: propofol, anesthesia, dogs, cats, literature reviews.

Glowaski, M.M. and L.A. Wetmore (1999). **Propofol: application in veterinary sedation and anesthesia**. *Clinical Techniques in Small Animal Practice* 14(1): 1-9. ISSN: 1096-2867.
NAL Call Number: SF911.S45
Descriptors: small animal practice, propofol, anesthesia, injectable anaesthetics, usage, cats.

Goldstein, I.M., P. Ostwald, and S. Roth (1996). **Nitric oxide: a review of its role in retinal function and disease.** *Vision Research* 36(18): 2979-2994. ISSN: 0042-6989.
NAL Call Number: QP474 .I5
Abstract: Nitric oxide synthase (NOS), the enzyme that catalyzes the formation of nitric oxide from L-arginine, exists in three major isoforms, neuronal, endothelial, and immunologic. Neuronal and endothelial isoforms are constitutively expressed, and require calcium for activation. Both of these isoforms can be induced (i.e., new protein synthesis occurs) under appropriate conditions. The immunologic isoform is not constitutively expressed, and requires induction usually by immunologic activation; calcium is not necessary for its activation. Neuronal and immunologic NOS have been detected in the retina. Neuronal NOS may be responsible for producing nitric oxide in photoreceptors and bipolar cells. Nitric oxide stimulates guanylate cyclase of photoreceptor rod cells and increases calcium channel currents. In the retina of cats, NOS inhibition impairs phototransduction as assessed by the electroretinogram. Inducible nitric oxide synthase, found in Muller cells and in retinal pigment epithelium, may be involved in normal phagocytosis of the retinal outer segment, in infectious and ischemic processes, and in the pathogenesis of diabetic retinopathy. Nitric oxide contributes to basal tone in the retinal circulation. To date, findings are conflicting with respect to its role in retinal autoregulation. During glucose and oxygen deprivation, nitric oxide may increase blood flow and prevent platelet aggregation, but it may also mediate the toxic effects of excitatory amino acid release. This reactive, short-lived gas is involved in diverse processes within the retina, and its significance continues to be actively studied.
Descriptors: nitric oxide, retina, choroid supply, cyclic gmp, cytokines, hyperemia, ischemia, nitric oxide synthase, photoreceptors, pigment epithelium of eye, rabbits, rats, retinal diseases, vision.

Gozal, D., X.W. Dong, D.M. Rector, and R.M. Harper (1995). **Maturation of kitten ventral medullary surface activity during pressor challenges.** *Developmental Neuroscience* 17(4): 236-45. ISSN: 0378-5866.
Abstract: We used large-array optical recording procedures to examine maturation of regional neural activity within the ventral medullary surface (VMS) of anesthetized kittens during pharmacologically induced blood pressure elevation. Under sodium pentobarbital anesthesia, the VMS was exposed in 10, 20 and 30- to 45-day-old kittens and in adult

cats. Arterial pressure, costal diaphragmatic EMG, and ECG were continuously monitored. An imaging camera, composed of a charge-coupled device and a coherent bundle of optic fibers, was positioned over the VMS. Light at 660 nm illuminated the neural tissue, and was collected by the probe. Resulting light-scatter images were acquired at 2-second intervals during a baseline period, and following intravenous administration of phenylephrine at 10, 20 and 40 micrograms/kg. Sixty to seventy-five images within each epoch were averaged, and subtracted from baseline. Regional differences within the image were determined by ANOVA procedures (alpha = 0.05). Phenylephrine elicited dose-dependent elevations of blood pressure accompanied by decreased diaphragmatic EMG activity which were less profound in younger animals. With maturation, responsiveness of respiratory patterning to the pressor response increased. In contrast to adult cats, 10-day kittens increased VMS neural activity in a dose-dependent fashion with pressor stimulation. A progressive transition to adult response patterns was observed with increasing postnatal age, and was established in over half of the kittens by 30-45 days. We conclude that phenylephrine-induced baroreceptor stimulation elicits divergent VMS activity responses in developing and mature animals. Such a developmental pattern may reflect immature function of central and/or peripheral baroreflexes.
Descriptors: blood pressure, heart rate, medulla oblongata, respiratory mechanics, aging, gas analysis, pressure, cardiotonic agents, cats, diaphragm, dose response relationship, drug, electorcardiography, electromyogrphy, electrophysiology, computer assisted image processing, medulla oblongata growth and development, pHenylepHrine, pressoreceptors, tidal volume.

Greene, S.A. (1995). **Anesthetic considerations for surgery of the reproductive system.** *Seminars in Veterinary Medicine and Surgery Small Animal* 10(1): 2-7. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: anesthesia, genitalia, female surgery, anesthesia, anesthesia, general, anesthesia, local, cats, cesarean section, dogs, hemodynamic processes, lung, orchiectomy, ovariectomy.

Greene, S.A. (1999). **Pros and cons of using alpha-2 agonists in small animal anesthesia practice.** *Clinical Techniques in Small Animal Practice* 14(1): 10-14. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: xylazine, detomidine, medetomidine, anesthesia, drug combinations, parasympatholytics, opioids, drug antagonism, dogs, cats.

Grenier, F., I. Timofeev, S. Crochet, and M. Steriade (2003). **Spontaneous field potentials influence the activity of neocortical neurons during paroxysmal activities in vivo.** *Neuroscience* 119(1): 277-91. ISSN: 0306-4522.
NAL Call Number: QP351.N48
Abstract: Field-potential recordings with macroelectrodes, and extra- and intracellular potentials with micropipettes were used to determine the influence of spontaneous field potentials on the activity of neocortical neurons during seizures. In vivo experiments were carried out in cats under anesthesia. Strong negative field fluctuations of up to 20 mV were associated with electroencephalogram "spikes" during spontaneously occurring paroxysmal activities. During paroxysmal events, action potentials displayed an unexpected behavior: a more hyperpolarized firing threshold and smaller amplitude than

during normal activity, as determined with intracellular recordings referenced to a distant ground. Considering the transmembrane potential (the difference between extra- and intracellular potential) qualified this observation: firing threshold determined from the transmembrane potential did not decrease, and smaller action-potential amplitude was associated with depolarized firing threshold. The hyperpolarization of intracellular firing threshold was thus related to the field potentials. Similar field-potential effects on neuronal activities were observed when the paroxysmal events included very fast oscillations or ripples (80-200 Hz) that represent rapid fluctuations of field potentials (up to 5 mV in <5 ms). Neuronal firing was phase-locked to those oscillations. These results demonstrate that: (a) strong spontaneous field potentials influence neuronal behavior, and thus play an active role during paroxysmal activities; and (b) transmembrane potentials have to be used to accurately describe the behavior of neurons in conditions in which field potentials fluctuate strongly. Since neuronal activity is presumably the main generator of field potentials, and in return these potentials may increase neuronal excitability, we propose that this constitutes a positive feedback loop that is involved in the development and spread of paroxysmal activities, and that a similar feedback loop is involved in the generation of neocortical ripples. We propose a mechanism for seizure initiation involving these phenomena.

Descriptors: neocortex, neurons, cats, cortical synchronization, electroencephalography, electrophysiology, evoked potentials, intracellular membranes, membrane potentials, neocortex, neural conduction, oscillometry, periodicity, synaptic transmission.

Grenier, F., I. Timofeev, and M. Steriade (2001). **Focal synchronization of ripples (80-200 Hz) in neocortex and their neuronal correlates.** *Journal of Neurophysiology* 86(4): 1884-98. ISSN: 0022-3077.

Abstract: Field potentials from different neocortical areas and intracellular recordings from areas 5 and 7 in acutely prepared cats under ketamine-xylazine anesthesia and during natural states of vigilance in chronic experiments, revealed the presence of fast oscillations (80-200 Hz), termed ripples. During anesthesia and slow-wave sleep, these oscillations were selectively related to the depth-negative (depolarizing) component of the field slow oscillation (0.5-1 Hz) and could be synchronized over ~10 mm. The dependence of ripples on neuronal depolarization was also shown by their increased amplitude in field potentials in parallel with progressively more depolarized values of the membrane potential of neurons. The origin of ripples was intracortical as they were also detected in small isolated slabs from the suprasylvian gyrus. Of all types of electrophysiologically identified neocortical neurons, fast-rhythmic-bursting and fast-spiking cells displayed the highest firing rates during ripples. Although linked with neuronal excitation, ripples also comprised an important inhibitory component. Indeed, when regular-spiking neurons were recorded with chloride-filled pipettes, their firing rates increased and their phase relation with ripples was modified. Thus besides excitatory connections, inhibitory processes probably play a major role in the generation of ripples. During natural states of vigilance, ripples were generally more prominent during the depolarizing component of the slow oscillation in slow-wave sleep than during the states of waking and rapid-eye movement (REM) sleep. The mechanisms of generation and synchronization, and the possible functions of neocortical ripples in plasticity processes are discussed.

Descriptors: neocortex, neurons, periodicity, action potentials, action potentials, adrenergic alpha agonists, anesthetics, dissociative, inhalation anesthetics, arousal, cats, electroencephalography, electrophysiology, epilepsy, halothane, ketamine, neocortex, neurons, sleep, sleep, rem, xylazine.

Grisneaux, E. and P. Pibarot (1998). **La place des anti-inflammatoires non steroidiens dand l'analgesie postoperatoire [Usage of non steroidal anti-inflammatory drugs in postoperative analgesia]**. *Medecin Veterinaire Du Quebec* 28(1): 19-23. ISSN: 0225-9591.
Descriptors: analgesics, non steroidal anti-inflammatory agents, postoperative care, surgical operations, aspirin, phenylbutazone, flunixin, ketoprofen, reviews, cats.
Language of Text: French.

Grosenbaugh, D.A. and W.W. Muir (1998). **Using end-tidal carbon dioxide to monitor patients.** *Veterinary Medicine* 93(1): 67-74. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, carbon dioxide, monitoring, internal pressure, equipment, monitors, anesthesia, accuracy, acid base equilibrium, resuscitation, carpnography, end tidal carbon dioxide partial pressure, arterial carbon dioxide partial pressure, cardiopulmonary resuscitation.

Grosenbaugh, D.A. and W.W. Muir (1998). **Blood pressure monitoring.** *Veterinary Medicine* 93(1): 48-59. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, pressure, monitoring, equipment, monitors, measurement, anesthesia, hypertension, accuracy.

Gross, M.E. (1994). **Monitoring the anesthetized patient**. In: *Student American Veterinary Medical Association Symposium 1994 Proceedings*, College of Veterinary Medicine and Coperative Extension Service of the University of Missouri-Columbia: Columbia, Missouri USA, p. 235-237.
Online: http://www.savma.org
Descriptors: small animal practice, electroencepHalograms, haemodynamics, respiration, body temperature, anesthesia, cats.

Gross, M.E., E.R. Pope, J.M. Jarboe, D.P. O'Brien, J.R. Dodam, and J. Polkow Haight (2000). **Regional anesthesia of the infraorbital and inferior alveolar nerves during noninvasive tooth pulp stimulation in halothane-anesthetized cats.** *American Journal of Veterinary Research* 61(10): 1245-1247. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, local anesthesia, peripheral nerves, halothane, teeth, electrical stimulation.

Grover, J.K., S. Khandkar, V. Vats, Y. Dhunnoo, and D. Das (2002). **Pharmacological studies on *Myristica fragrans*--antidiarrheal, hypnotic, analgesic and hemodynamic (blood pressure) parameters.** *Methods and Findings in Experimental and Clinical Pharmacology* 24(10): 675-80. ISSN: 0379-0355.
Abstract: Recurrent diarrhea is prevalent in developing countries, particularly in tropical

regions. A natural based antidiarrheal home remedy can serve as an ideal health tool to limit diarrhea-related morbidity and mortality. In the traditional Indian medical science of Ayurveda, nutmeg is one such plant said to possess antidiarrheal activity. A study was therefore planned to assess the various pharmacological effects (antidiarrheal, sedative, analgesic and blood pressure) of nutmeg. Both Nutmeg crude suspension (NMC) and petroleum ether (PE), but not aqueous extract (Aq), decreased the mean number of loose stools or increased the latency period. NMC increased intestinal tone while PE had no such effect. PE had no effect on guinea pig ileum, but inhibited the contraction produced by acetylcholine, histamine and prostaglandin. NMC but not PE extract showed a significant but weak analgesic effect. While PE effectively potentiated both phenobarbitone and pentobarbitone-induced sleeping time, NMC was considerably less effective. NMC administered intraduodenally did not produce much effect on blood pressure (BP), but potentiated the action of exogenously administered adrenaline and nor-adrenaline. On the other hand, PE in higher, but not lower, doses caused a precipitous fall in BP not blocked by atropine. Thus, overall extracts of nutmeg showed a good antidiarrheal effect, with a significant sedative property. The extracts possessed only a weak analgesic effect, with no harmful effects on blood pressure and ECG.
Descriptors: analgesics, antidiarrheals, antihypertensive agents, barbiturates, pressure, myristica fragrans, oral administration, analgesics, antidiarrheals, antihypertensive agents, barbiturates, cathartics, cathartics, cats, dogs, gastrointestinal motility, hypnosis, ileum, mice, mice, inbred strains, plant preparations, plant preparations, plants, medicinal, rats.

Haghighi, S.S., D.H. York, R.W. Gaines, and J.J. Oro (1994). **Monitoring of motor tracts with spinal cord stimulation.** *Spine* 19(13): 1518-24. ISSN: 0362-2463.
Online: http://www.spinejournal.com
Abstract: STUDY DESIGN. Sensory- and motor-evoked potentials were recorded after high thoracic (T2) epidural electrical stimulation of the spinal cord. Under general anesthesia, 22 cats underwent single or repetitive spinal cord stimulation. OBJECTIVES. Sensory-evoked potentials were recorded after antidromic activation of the posterior column sensory fibers at lower electrical intensities (< 5 V). Motor tract activation was accomplished by recording the ventral root and muscle action potential using single pulse stimulation (> 50 V). METHODS. Sensory-evoked potentials were recorded from the lumbar spinal cord (n = 20), dorsal root (n = 80), and peroneal nerve (n = 40). Motor-evoked potentials were recorded from the ventral root (n = 40) and the hindlimb musculature (n = 10). RESULTS. The lumbar spinal-evoked response resisted lesioning and showed a minimal change after a spinal cord hemisection. Dorsal rhizotomy abolished the ipsilateral peroneal nerve action potential, indicating antidromic activation of afferent fibers. Motor responses did not change after the dorsal rhizotomy, suggesting involvement of nonsensory pathways. CONCLUSIONS. These findings indicate that spinal cord stimulation activates sensory and motor tracts that can be recorded at various sites along the central or the peripheral nervous system.
Descriptors: motor cortex, motor neurons, spinal cord, action potentials, cats, electric stimulation, evoked potentials, evoked potentials, somatosensory, monitoring, intraoperative, muscle, skeletal innervation, muscle, skeletal, spinal nerve roots.

Haji, A., Y. Momose, R. Takeda, S. Nakanishi, T. Horiuchi, and M. Arisawa (1994). **Increased feline cerebral blood flow induced by dehydroevodiamine hydrochloride from Evodia rutaecarpa.** *Journal of Natural Products* 57(3): 387-9. ISSN: 0163-3864.
NAL Call Number: 442.8 L77
Abstract: Dehydroevodiamine hydrochloride (0.1-0.3 mg/kg iv), which was isolated from the leaves of Evodia rutaecarpa, increased the cerebral blood flow recorded from the surface of the supra-sylvian gyrus in anesthetized cats. This action reached a maximum 1-4 min after injection and continued for 10 min. However, the compound had negligible effects on other cardiorespiratory functions at the doses examined. These results suggest that the compound selectively increases cerebral blood flow.
Descriptors: alkaloids, cerebrovascular circulation, drugs, chinese herbal, alkaloids, anesthesia, cats, drugs, chinese herbal, hemodynamic processes, respiratory function tests.

Hale, F.A. and J.M.G. Anthony (1997). **Prevention of hypothermia in cats during routine oral hygiene procedures.** *Candian Veterinary Journal* 38(5): 297-299. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: cats, anesthesia, prevention, hypothermia, body temperature, dentistry, oraly hygiene procedures.
Language of Text: English; Summary in French.

Hall, L. (2001). ***Veterinary Anesthesia***, 10th edition, Saunders, W.B.: New York, New York, 561 p. ISBN: 0702020354.
NAL Call Number: SF914 .H34
Descriptors: anesthesia, patient preparation, anesthetic techniques, monitoring devices, diseases, dogs, cats, birds, small, reptiles, horses, camelids, ruminants, pigs, cardiopulmonary resuscitation, dosages, storing drugs, high risk patients.

Harrington, M.L., R.S. Bagley, M.P. Moore, and J.W. Tyler (1996). **Effect of craniectomy, durotomy, and wound closure on intracranial pressure in healthy cats.** *American Journal of Veterinary Research* 57(11): 1659-61. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVES: To establish intracranial pressure (ICP) measurements in healthy cats under isoflurane anesthesia, using a fiberoptic monitoring system; to assess brain lesions associated with such monitoring; and to determine whether decompressive intracranial surgery decreases ICP in healthy cats. ANIMALS: 6 healthy cats. PROCEDURE: Craniectomy and durotomy were performed, and the effect of these procedures on ICP was determined. ICP was monitored by use of a fiberoptic monitoring system. Gross and microscopic evaluations of brain tissues were performed after data collection. RESULTS: ICP decreased significantly after craniotomy and durotomy. After wound closure, ICP remained significantly reduced relative to initial pressures. However, postsurgical pressures were significantly increased, compared with those associated with ICP after durotomy. Gross and histologic abnormalities associated with placement of the ICP monitoring cable included mild focal acute hemorrhage and mechanical cortical disruption. CONCLUSIONS: Craniectomy and durotomy significantly decreased ICP in healthy cats. ICP increased after wound closure, but remained significantly lower than initial pressures. CLINICAL RELEVANCE:

Craniectomy and durotomy may be used to decrease ICP in cats.
Descriptors: cats surgery, dura mater surgery, intracranial pressure, skull surgery, cats.

Hartsfield, S.M. (1999). **Anesthetic equipment**. In: R.R. Paddleford (Editor), *Manual of Small Animal Anesthesia*, 2nd edition, W.B. Saunders.: Philadelphia, USA, p. 89-109. ISBN: 0721649695.
Descriptors: anesthesia, pets, equipment, inhaled anaesthetics, cats.

Hartsfield, S.M. (1999). **Equipment for inhalant anesthesia**. *Veterinary Clinics of North America, Small Animal Practice* 29(3): 645-663. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: equipment, reviews, anesthesia, inhaled anaesthetics, artificial respiration, cats.

Hasegawa, T., I. Kato, K. Harada, T. Ikarashi, M. Yoshida, and Y. Koike (1994). **The effect of uvulonodular lesions on horizontal optokinetic nystagmus and optokinetic after-nystagmus in cats.** *Acta Oto Laryngologica/ Supplementum* 511: 126-30. ISSN: 0365-5237.
Abstract: The effect of uvulonodular lesions on horizontal optokinetic nystagmus (OKN) and optokinetic after-nystagmus (OKAN) was investigated in alert cats. A lesion in each of 6 cats was made by suction-ablation under anesthesia. In the 3 cats with only a uvular lesion, both the initial slow phase velocity and the time constant of OKAN were unchanged. In the remaining 3 cats whose lesions included the nodulus as well as the uvula, the time constant of OKAN was markedly prolonged, but the initial slow phase velocity of OKAN was not affected. The postoperative average time constant of OKAN increased from the normal value of 9 s to about 40 s. In contrast, OKN parameters (the steady-state velocity and the rising time constant) were not affected by uvular or uvulonodular lesions. These results strongly suggest that the nodulus is involved in the velocity storage mechanism and might control the discharge characteristics of the velocity storage integrator.
Descriptors: cerebellar diseases, nystagmus, optokinetic, nystagmus, pathologic, vestibular nuclei, brain diseases, brain diseases, cats, cerebellar diseases, cerebellum, electrooculography, eye movements, time factors, vestibular nuclei, visual pathways, visual pathways.

Hedman, A.E., K. Matsukawa, and I. Ninomiya (1994). **Origin of cardiac-related synchronized cardiac sympathetic nerve activity in anaesthetized cats.** *Journal of the Autonomic Nervous System* 47(1-2): 131-40. ISSN: 0165-1838.
Abstract: To study the origin of cardiac-related rhythm in cardiac sympathetic nerve activity (CSNA), ECG, aortic pressure and CSNA were recorded when cardiac interval was changed by artificial pacing, or when the aortic nerve was stimulated after baroreceptor denervation in anaesthetized cats. CSNA was averaged by using the R-wave of ECG, or stimulus pulse as a trigger. Delay times from arterial pulse or stimulus pulse to the onset and half amplitude of inhibition and to the maximal inhibition were measured from the averaged data. The delay of inhibition in CSNA was constant and independent of pacing interval. Stimulation of the aortic nerve with single shocks caused an inhibition in averaged CSNA. The delay of inhibition was constant and independent of stimulus frequency. These results indicate that the cardiac-related rhythm in CSNA is

produced reflexly by inhibiting the transmission of the fundamental rhythmicity due to periodic baroreceptor input.
Descriptors: heart innervation, sympathetic nervous system, anesthesia, pressure, cardiac pacing, artificial, carotid sinus, cats, electorcardiography, heart rate, muscle denervation, norepinephrine, pressoreceptors.

Hedman, A.E. and I. Ninomiya (1995). **Periodicity, amplitude and width of synchronized cardiac sympathetic nerve activity in anaesthetized cats.** *Journal of the Autonomic Nervous System* 55(1-2): 81-91. ISSN: 0165-1838.
Abstract: Using a recently developed method, we studied periodicity, amplitude and width of synchronized cardiac sympathetic nerve activity (CSNA) at various intervals of periodic baroreceptor input in anaesthetized cats. ECG, aortic pressure and CSNA were recorded when cardiac interval was changed by artificial pacing, or when the aortic nerve was stimulated after baroreceptor denervation. The periodicity of synchronized CSNA showed mainly two modes: one was 8-14 Hz rhythmicity (Tc) and the other was related to cardiac cycle (Tb). The Tc mode was almost constant and independent of cardiac interval or stimulation. The probability of the Tc mode increased as pacing interval increased. The Tb mode reflected the interval of inhibition in CSNA due to pulsatile baroreceptor input. The mode of inhibitory rhythm (Ts) related to the stimulation of the aortic nerve was almost constant and independent of the stimulation interval. The probability of the Ts mode was highest at a 250-ms interval and decreased with increase in stimulus interval. The mean peak height or mean peak width did not changed significantly during pacing the heart at various intervals nor after baroreceptor denervation. The peak height and peak width had a significant linear relationship at any cardiac interval or after baroreceptor denervation, whereas no relationship between the peak-to-peak interval and the peak height or peak width was found. These results indicate that the cardiac-related rhythm is produced by inhibition of transmission of the fundamental rhythm by periodic baroreceptor input. Our results suggest also that the amplitude and periodicity of synchronized CSNA are separately regulated.
Descriptors: heart innervation, sympathetic nervous system, algorithms, anesthesia, aorta innervation, pressure, cardiac pacing, artificial, cats, electric stimulation, electorcardiography, heart, muscle denervation, periodicity, pressoreceptors, sinoatrial node innervation, sinoatrial node.

Heldmann, E., D.E. Holt, D.J. Brockman, D.C. Brown, and S.Z. Perkowski (1999). **Use of propofol to manage seizure activity after surgical treatment of portosystemic shunts**. *Journal of Small Animal Practice* 40(12): 590-594. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: surgery, anesthesia, treatment, liver, vascular diseases, case reports, portal circulation, cats, dogs.

Hellebrekers, L.J. (1998). **Injection anesthesia in companion animals**. *Veterinary Quarterly* 20(1): S49-S50. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: injectable anaesthetics, anesthesia, preanaesthetic medication, postoperative care, cats.

Hellebrekers, L.J. (1996). **Injection anesthesia in dogs and cats**. *Veterinary Quarterly* 18: S62-S63. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: postoperative care, anesthesia, injectable anaesthetics, cats.

Hellebrekers, L.J. (1996). **Artificial ventilation and monitoring in companion animal anesthesia**. *Veterinary Quarterly* 18: S64-S65. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: artificial ventilation, monitoring, anesthesia, artificial respiration, cats.

Hellebrekers, L.J. (1996). **Anesthetic crisis in companion animals**. *Veterinary Quarterly* 18: S65-S66. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: complications, postoperative, anesthesia, cats.

Hellebrekers, L.J., A.H.A. Kusters, and I.C. Akkerdaas (1998). **Cardiac disease and companion animal anesthesia**. *Veterinary Quarterly* 20(1): S54-S56. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: anesthesia, heart diseases, preanaesthetic medication, postoperative care, cats.

Hellsten, C. (1997). **Kipulaakkeiden kaytto kissalla kirjallisuuskatsaus. 1. Tulehduskipulaakkeet [Use of analgesics in cats. 1. Non-steroidal anti-inflammatory drugs]**. *Suomen Elainlaakarilehti* 103(12): 714-718. ISSN: 0039-5501.
NAL Call Number: 41.8 F49
Descriptors: anti-inflammatory agents, non steroidal anti-inflammatory agents, drugs, analgesics, pain, reviews, cats.
Language of Text: Finnish with a summary in English.

Hellyer, P.W. (1999). **Minimizing dogs' and cats' pain after surgery**. *First Line*(Oct/Nov): 16-22.
Descriptors: pain, surgery, postoperative care, neuroleptics, cats.

Henderson, L.A., C.A. Richard, P.M. Macey, M.L. Runquist, P.L. Yu, J.P. Galons, and R.M. Harper (2004). **Functional magnetic resonance signal changes in neural structures to baroreceptor reflex activation.** *Journal of Applied Physiology* 96(2): 693-703. ISSN: 8750-7587.
NAL Call Number: 447.8 J825
Abstract: The sequence of neural responses to exogenous arterial pressure manipulation remains unclear, especially for extramedullary sites. We used functional magnetic resonance imaging procedures to visualize neural responses during pressor (phenylephrine) and depressor (sodium nitroprusside) challenges in seven isoflurane-anesthetized adult cats. Depressor challenges produced signal-intensity declines in multiple cardiovascular-related sites in the medulla, including the nucleus tractus solitarius, and caudal and rostral ventrolateral medulla. Signal decreases also emerged in the cerebellar vermis, inferior olive, dorsolateral pons, and right insula. Rostral sites, such as the amygdala and hypothalamus, increased signal intensity as arterial pressure declined.

In contrast, arterial pressure elevation elicited smaller signal increases in medullary regions, the dorsolateral pons, and the right insula and signal declines in regions of the hypothalamus, with no change in deep cerebellar areas. Responses to both pressor and depressor challenges were typically lateralized. In a subset of animals, barodenervation resulted in rises and falls of blood pressure that were comparable to these resulting from the pharmacological challenges but different regional neural responses, indicating that the regional signal intensity responses did not derive from global perfusion effects but from baroreceptor mediation of central mechanisms. The findings demonstrate widespread lateralized distribution of neural sites responsive to blood pressure manipulation. The distribution and time course of neural responses follow patterns associated with early and late compensatory reactions.
Descriptors: baroreflex, pressure, magnetic resonance imaging, solitary nucleus, anesthesia, aorta, thoracic, baroreflex, carotid sinus, cats, cerebellum, cerebral cortex, heart rate, hypothalamus, laterality, pHenylepHrine, pons, sodium chloride, sympathectomy, sympathetic nervous system, sympathomimetics.

Heraud, J., J. Orofino, M. Trub, and N. Mei (1996). **Electrophysiologic evidence showing the existence of sensory receptors within the alveolar bone in anesthetized cats.** *The International Journal of Oral and Maxillofacial Implants* 11(6): 800-5. ISSN: 0882-2786.
Abstract: Single-nerve activities were recorded in the gasserian ganglia of anesthetized cats by glass extracellular micro-electrodes to determine whether sensory endings exist within the alveolar bone. Trigeminal cells responded to mechanical and/or thermal stimulation applied to the maxillary bone. Some were activated by specific kinds of fairly precise mechanical stimuli (moderate forces applied in a preferential direction); others exhibited a coarse mechanical sensitivity. In addition, electrical stimulation was applied to the maxillary bone to determine the conduction velocities of the relevant fibers. These mainly ranged between 1 and 6 m/s, which indicates that the fibers belonged to the small-diameter category (thinnest myelinated and unmyelinated fibers). Similar results were obtained from animals with osseointegrated implants. It was concluded that the alveolar bone is endowed with sensory endings capable of detecting mechanical and thermal changes, and that these receptors may provide compensatory sensitivity in edentulous subjects whose main (periodontal) sensitivity has been eliminated.
Descriptors: alveolar process innervation, receptors, sensory, action potentials, anesthesia, general, cats, dental implants, electric stimulation, electrophysiology, glass, jaw, edentulous, maxilla innervation, microelectrodes, nerve fibers, nerve fibers, myelinated, neural conduction, osseointegration, periodontium innervation, physical stimulation, stress, mechanical, temperature, trigeminal ganglion, trigeminal nerve.

Hernandez, P., P. Navalesi, F. Maltais, A. Gursahaney, and S.B. Gottfried (1994). **Comparison of static and dynamic measurements of intrinsic PEEP in anesthetized cats.** *Journal of Applied Physiology* 76(6): 2437-42. ISSN: 8750-7587.
NAL Call Number: 447.8 J825
Abstract: Dynamic measurements of intrinsic positive end-expiratory pressure (PEEPi,dyn) considerably underestimate values obtained under static conditions (PEEPi,stat) in patients with severe airway obstruction. This may be related to regional differences in respiratory system mechanical properties and/or viscoelastic behavior. To

evaluate this concept, PEEPi,stat and PEEPi,dyn were compared in six anesthetized paralyzed cats during dynamic hyperinflation produced by inverse ratio ventilation (IRV) and aerosolized methacholine (MCh). PEEPi,stat did not differ between IRV and MCh, averaging 2.70 +/- 0.33 (SE) and 2.70 +/- 0.25 cmH2O, respectively. PEEPi,dyn was significantly less with MCh (0.25 +/- 0.05 cmH2O) than IRV (2.05 +/- 0.28 cmH2O) (P < 0.0001), resulting in a lower PEEPi,dyn/PEEPi,stat ratio for MCh (0.10 +/- 0.02) than for IRV (0.76 +/- 0.03) (P < 0.0001). Compared with control values (33.5 +/- 3.7 cmH2O.l-1.s), maximum resistance (Rmax) was unchanged during IRV (29.1 +/- 2.1 cmH2O.l-1.s) but increased considerably with MCh (288.8 +/- 18.4 cmH2O.l-1.s) (P < 0.0001). Similar changes in minimum resistance (Rmin) and delta R (Rmax-Rmin) were noted. There was a strong inverse relationship between delta P, an index of time constant inequalities and viscoelastic pressure losses and PEEPi,dyn/PEEPi,stat ratio. No correlation was found between this ratio and Rmax, Rmin, delta R, or compliance. In conclusion, PEEPi,dyn considerably underestimates PEEPi,stat in acute nonhomogeneous airway obstruction with MCh in contrast to IRV, where the magnitude and distribution of mechanical properties remain unaltered. These findings support the concept that the difference between PEEPi,dyn and PEEPi,stat is related to regional time constant inequalities and/or increased viscoelastic pressure losses.
Descriptors: anesthesia, positive pressure respiration, airway obstruction, bronchoconstriction, bronchoconstriction, cats, elasticity, lung compliance, lung compliance, methacholine compounds, pentobarbital, respiration, artificial, respiratory mechanics, respiratory mechanics.

Hernandez, Y.M., V.F. Raczkowski, K.L. Dretchen, and R.A. Gillis (1996). **Cocaine inhibits sympathetic neural activity by acting in the central nervous system and at the sympathetic ganglion.** *The Journal of Pharmacology and Experimental Therapeutics* 277(2): 1114-21. ISSN: 0022-3565.
NAL Call Number: 396.8 J82
Abstract: The effects of cocaine on spontaneous pre- and postganglionic sympathetic nerve activity (SNA), mean blood pressure and heart rate were assessed in anesthetized cats. I.v. administration of 2 and 4 mg/kg decreased preganglionic SNA by -24 +/- 7% (n = 4) and -63 +/- 15% (n = 5), respectively. The 4 mg/kg dose produced a decrease in mean blood pressure (-49 +/- 6 mm Hg) with no change in heart rate. Similar sympathoinhibition was obtained in animals with denervated cardiovascular reflexes. Cocaine methiodide (4 mg/kg), a quaternary derivative of cocaine with limited central nervous system access, reduced mean blood pressure (-47 +/- 9 mm Hg) but did not inhibit preganglionic SNA. Cocaine (4 mg/kg) also reduced sympathetic discharge to the adrenal medulla as evidenced by a -62 +/- 6% (n = 5) decrease in splanchnic nerve firing. Cocaine, 2 and 4 mg/kg i.v., decreased postganglionic cardiac SNA by -54 +/- 5% (n = 7) and -60 +/- 13% (n = 4), respectively. The 2 mg/kg dose depressed postganglionic SNA to a greater extent that it did preganglionic SNA. Furthermore, cocaine methiodide (2 mg/kg) reduced postganglionic SNA by -85 +/- 15%. The depressant effect of cocaine (2 mg/kg) on postganglionic cardiac SNA was attenuated after treatment with phentolamine (5 mg/kg i.v.). Lidocaine administered in doses equimolar to those of cocaine did not significantly affect sympathetic discharge. These results indicate that cocaine acts in the central nervous system and at the stellate ganglion to inhibit

sympathetic discharge and that these sympathoinhibitory effects are unrelated to cocaine's local anesthetic action.
Descriptors: brain, cocaine, ganglia, sympathetic, sympathetic nervous system, pressure, cats, heart rate.

Hikasa, Y., N. Ohe, K. Takase, and S. Ogasawara (1997). **Cardiopulmonary effects of sevoflurane in cats: comparison with isoflurane, halothane, and enflurane.** *Research in Veterinary Science* 63(3): 205-210. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Abstract: The cardiopulmonary effects of sevoflurane (mean, 2.6, 3.8-3.9 and 5.2 per cent) were compared with those of halothane (1.2, 1.8 and 2.4 per cent), enflurane (2.4, 3.6 and 4.8 per cent) and isoflurane (1.6, 2.4 and 3.2-3.3 per cent) at end-tidal concentrations equivalent to 1, 1.5 and 2 minimal alveolar concentrations (MACs) during spontaneous or controlled ventilation (SV or CV) in 57 cats. Cats were assigned to four groups of nine animals each in SV trial and four groups of five or six animals each in CV trial. During SV, respiration rate was decreased by sevoflurane and isoflurane at 2 MAC and by enflurane at each MAC multiple when compared with control values, whereas halothane increased respiration rate at 2 MAC. The degree of hypercapnia and acidosis induced by sevoflurane was not different from that induced by isoflurane and was less than that induced by halothane at 1 to 1.5 MAC or enflurane at 2 MAC. During SV and CV, four anaesthetics decreased heart rate at 2 MAC when compared with control values, but there was no significant difference between anaesthetics. Sevoflurane, like halothane and isoflurane, induced hypotension at 2 MAC when compared with 1 MAC.
Descriptors: cats, inhaled anesthetics, anesthesia, isoflurane, halothane, respiration rate, heart rate, gases, acid base equilibrium, pressure.

Ho, C.M., S.T. Ho, J.J. Wang, T.Y. Lee, and C.Y. Chai (2001). **Effects of dexamethasone on emesis in cats sedated with xylazine hydrochloride.** *American Journal of Veterinary Research* 62(8): 1218-1221. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: cats, dexamethasone, antiemetics, prophylaxis, xylazine, dosage effects, efficacy, vomiting, anesthesia.

Hosgood, G. (1994). **Modalita operatoire ed anestetiche per cuccioli e gattini [Surgical and anesthetic management of puppies and kittens]**. *Veterinaria Cremona* 8(4): 85-98. ISSN: 0394-3151.
Descriptors: young animals, puppies, kittens, surgery, anesthesia, cats.
Language of Text: Italian.

Howe, L.M. (1999). **Prepubertal gonadectomy in dogs and cats. I.** *Compendium of Continuing Education for the Practicing Veterinarian* 21(2): 103-111, 176. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: puppies, kittens, castration, ovariectomy, preanesthetic medication, anesthesia, body heat loss, clinical examination, fluid therapy.

Huang, Z.S. (1996). **The coherence between the frontal-parietal cortex and cardiac sympathetic nerve activity in cats**. *Sheng Li Xue Bao; [Acta Physiologica Sinica]* 48(1): 1-7.

ISSN: 0371-0874.

Abstract: Experiments were performed on 86 cats anesthetized with chloralose, paralyzed with gallamine triethiodide and ventilated artificially. Autospectral and coherence analysis revealed that the frontal-parietal cortex activity (EEG) and cardiac sympathetic nerve discharge (SND) were remarkably correlated in 33/44 cats. SND lagged EEG by 50 +/- 20 ms with a cross-correlation value of 0.4 +/- 0.1. Coherence value was 0.25 +/- 0.05, indicating a statistically significant relationship between the two signals. Midbrain transection at stereotaxic plane A3 preferentially decreased SND power at frequencies 3-4.2 Hz, accompanied by a fall in mean blood pressure (5.47 +/- 0.13 kPa). The coherence of SND to EEG was eliminated after decerebration. However, the total power in EEG was not significantly affected. The SND rhythm and blood pressure returned nearly to control level within 1 h after decerebration. The effects of midbrain transection were significantly attenuated by prior minor lesions of the lateral hypothalamus or medial thalamus. These results suggest that the forebrain is responsible significantly for a component of sympathetic tone in anesthetic cats. The integrity of diencephalon is required for the participation of forebrain in setting the level of basal SND. Reduction in SND following decerebration was due in part to interruption of the descending influence from diencephalon and brain stem sympathetic rhythm generators are involved in compensating for the loss of the forebrain dependent component of SND.

Descriptors: frontal lobe, heart innervation, parietal lobe, sympathetic nervous system, cats, decerebrate state, electroencephalography.

Language of Text: Chinese.

Hubbell, J.A. and W.W. Muir (1996). **Evaluation of a survey of the diplomates of the American College of Laboratory Animal Medicine on use of analgesic agents in animals used in biomedical research.** *Journal of the American Veterinary Medical Association* 209(5): 918-21. ISSN: 0003-1488.

NAL Call Number: 41.8 Am3

Abstract: OBJECTIVE: To determine the analgesic agents administered to animals frequently used in biomedical research. DESIGN: Telephone survey. SAMPLE POPULATION: Diplomates of the American College of Laboratory Animal Medicine. PROCEDURE: 200 of 429 active diplomates listed in the 1993 directory of the American College of Laboratory Animal Medicine were selected at random for telephone interviews. Diplomates were asked to identify the species that they cared for and the dosages, dosing intervals, and routes of administration for analgesic agents. RESULTS: 90 of 200 (45%) diplomates completed the survey. Twenty-two analgesic agents were identified for use in 472 applications in 16 species. Opioid analgesics were the most frequently selected agents, with buprenorphine hydrochloride and butorphanol being most frequently used. Intramuscular and subcutaneous routes of administration were used most frequently. CLINICAL IMPLICATIONS: Among diplomates of the American College of Laboratory Animal Medicine, opioids are the most frequently selected agents used to induce analgesia in animals used in biomedical research. Dosages and dosing intervals used vary widely among animals of various species as well as for animals in each species.

Descriptors: analgesics, drug utilization review, research, medicine standards, cats, data

collection, dogs, drug administration routes, drug administration schedule, ferrets, goats, guinea pigs, hamsters, rabbits, sheep, telepHone, united states.

Hubbell, J.A.E. (2000). **Practical methods of anesthesia**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, Pennsylvania, USA, p. 12-20. ISBN: 072163219X.
NAL Call Number: SF981 .S29
Descriptors: anesthesia, acepromazine, medetomidine, diazepam, analgesics, non-steroidal anti-inflammatory agents, NSAIDS, ketamine, cats.

Hudson, L.C., T.W. Vahlenkamp, C.B. Howard, and M.R.B. Tompkins (2002). **Cerebrospinal fluid centesis at the cerebellomedullary cistern of kittens.** *Contemporary Topics in Laboratory Animal Science* 41(5): 30-2. ISSN: 1060-0558.
NAL Call Number: SF45.5.A23
Abstract: We needed an effective technique for obtaining cerebrospinal fluid (CSF) from young (2- to 18-week-old) kittens. Standard veterinary technique was not suitable, so we adapted a previously published technique for rats. We first established an effective isoflurane-only anesthetic protocol for young kittens. After inhalant anesthesia, the kittens were positioned on a supporting platform to gain flexion of the head and neck. A micromanipulator was used to hold and slowly advance the collection needle. At the time this report was written, we had collected a total of 33 samples from eight kittens without causing apparent neurologic deficits. Correct positioning of the animal and collection needle was critical for success. This procedure enabled the collection of approximately 0.5 ml CSF from kittens younger than 12 weeks and larger volumes from older kittens.
Descriptors: cats cerebrospinal fluid, cats surgery, specimen handling, specimen handling, age factors, anesthesia, general, anesthesia, general, inhalation anesthetics, inhalation anesthetics, isoflurane, isoflurane, specimen handling instrumentation.

Ichiyama, R.M., B.G. Ragan, G.W. Bell, and G.A. Iwamoto (2002). **Effects of topical analgesics on the pressor response evoked by muscle afferents.** *Medicine and Science in Sports and Exercise* 34(9): 1440-5. ISSN: 0195-9131.
Abstract: PURPOSE: Pressor responses are reflexly evoked by the activation of groups III and IV muscle afferents, which are also known to mediate nociceptive responses. In this experiment, the effects of analgesic balm (AB) application on these responses were investigated without the interference of other types of anesthesia or effects from the higher brain. METHODS: Heart rate (HR), blood pressure, and end-tidal CO(2) were monitored in midcollicularly decerebrated cats. Static contractions (30 s) of hindlimb muscles were evoked by electric stimulation of L7 and S1 ventral roots. After control runs, a commercial AB (1% capsaicin, 12.5% methyl salicylate) was applied to the skin surface over the contracting muscles. Muscle contractions were evoked every 10 min, alternating between the two hindlimbs. RESULTS: Changes in mean arterial pressure (MAP) evoked by static ipsilateral muscular contraction were significantly attenuated 20 min and 40 min after AB application. The decreases in the pressor response were significant at both the initial and the last parts of the stimulus intervention after 20 min of AB application. There were no significant changes in the response to contraction of the hindlimb contralateral to the AB application. Application of AB to the contralateral leg did not add to the ipsilateral effects. CONCLUSIONS: AB application to the skin

surface over contracting muscles significantly decreased autonomic responses to static muscular contraction. This effect was independent of higher cortical processing and strongly suggests that application of methyl salicylate and capsaicin on the skin has analgesic effects on signals from receptors located in muscle.
Descriptors: capsaicin, muscles innervation, neurons, afferent, pressoreceptors, salicylates, topical administration, analysis of variance, cats, electric stimulation, muscle contraction, muscle contraction, neurons, afferent, pressoreceptors.

Ide, T., M. Shirahata, C.L. Chou, and R.S. Fitzgerald (1995). **Effects of a continuous infusion of dopamine on the ventilatory and carotid body responses to hypoxia in cats.** *Clinical and Experimental Pharmacology and Physiology* 22(9): 658-64. ISSN: 0305-1870.
Abstract: 1. We investigated how a continuous infusion of dopamine (DA; 5 micrograms/kg per min), which is often used clinically, would affect the ventilation and carotid chemoreceptor neural activity in anaesthetized cats. 2. In anaesthetized, spontaneously breathing cats, tidal volume (VT) and respiratory frequency (f) were continuously monitored at five levels of inspired oxygen (PIO2 = 110, 130, 150, 170, 760 mmHg) during Da or saline infusion. VT and f were sampled for 1 min after 3 min exposure to each level of PIO2. Time control study was also performed. 3. DA infusion significantly lowered VT under both normoxia and hypoxia in seven of eight cats. Respiratory frequency was not affected by DA infusion. Depression of ventilation during post-hypoxic hyperoxia was augmented by DA infusion. Chemodenervation abolished the ventilatory response to hypoxia and DA did not further affect the ventilatory response to hypoxia. 4. In a second group of artificially ventilated cats, carotid chemoreceptor neural activity was recorded at five levels of arterial oxygen tension. DA infusion significantly depressed carotid chemoreceptor neural activity during normoxia and hypoxia in six of seven cats. 5. These findings suggest that changes in ventilation during low dosage of DA infusion closely correlate with carotid body neural output. A predominant effect of this dosage of DA (5 micrograms/kg per min) was depression in the ventilatory response to hypoxia due to an inhibition of carotid body neural output.
Descriptors: anoxia, carotid arteries, dopamine, respiratory mechanics, anesthesia, anoxia, pressure, carbon dioxide, carotid body, cats, chemoreceptors, denervation, dopamine, hydrogen ion concentration, hyperbaric oxygenation, infusions, intravenous, oxygen, oxygen.

Ijima, T., Y. Kubota, T. Kuroiwa, and H. Sankawa (1994). **Blood-brain barrier opening following transient reflex sympathetic hypertension.** *Acta Neurochirurgica Supplementum* 60: 142-4. ISSN: 0065-1419.
Abstract: Numerous researchers have shown that experimentally induced hypertension opens the blood-brain barrier (BBB), whereas physiologically induced hypertension is accompanied by sympathetic activation, which exerts a protective effect on the BBB via cerebral vasoconstriction. It has not yet been established that transient reflex sympathetic hypertension can open the BBB. In this study, 14 lightly-anesthetized adult cats were subjected to electrical stimulation of a tooth and transient reflex sympathetic hypertension (duration of less than 60 s) was elicited repeatedly. Continuous flowmetry of the cerebral blood flow showed that autoregulation breakthrough occurred. Light halothane anesthesia supplemented with 30 or 60% nitrous oxide, or 1.2% halothane

anesthesia occasionally suppressed the elicited pressor response and prevented such breakthrough. Leakage of Evans blue (EB), which was administered before the hypertensive insult, was confirmed in the marginal and suprasylvian gyri in 5 cats. The EB positive cats reached a significantly ($p < 0.05$) higher mean arterial blood pressure (198 +/- 16 mmHg) during reflex sympathetic hypertension than EB negative cats (189 +/- 19 mmHg). Breakthrough occurred 16 times in EB positive, but only 8 times in EB negative cats. In conclusion, transient reflex sympathetic hypertension can elicit cerebrovascular autoregulation breakthrough and if the breakthrough occurs repeatedly it is followed by the opening of the BBB.
Descriptors: blood brain barrier, brain edema, hypertension, reflex, sympathetic nervous system, pressure, cats, cerebral cortex supply, dental pulp innervation, electric stimulation, homeostasis, nociceptors, vascular resistance.

Ikeda, Y., K. ishikawa, K. Ohashi, T. Mori, and A. Asada (2003). **Epidural clonidine suppresses the baroreceptor-sympathetic response depending on isoflurane concentrations in cats.** *Anesthesia and Analgesia* 97(3): 748-54. ISSN: 0003-2999.
Abstract: Epidural administration of clonidine induces hypotension and bradycardia secondary to decreased sympathetic nerve activity. In this study, we sought to elucidate the change in baroreflex response caused by epidural clonidine. Thirty-six cats were allocated to six groups (n = 6 each) and were given either thoracic epidural clonidine 4 micro g/kg or lidocaine 2 mg/kg during 0.5, 1.0, or 1.5 minimum alveolar anesthetic concentration (MAC) isoflurane anesthesia. Heart rate (HR), mean arterial blood pressure (MAP), and cardiac sympathetic nerve activity (CSNA) were measured. Depressor and pressor responses were induced by IV nitroprusside 10 micro g/kg and phenylephrine 10 micro g/kg, respectively. Baroreflex was evaluated by the change in both CSNA and HR relative to the peak change in MAP (deltaCSNA/deltaMAP and deltaHR/deltaMAP, respectively). These measurements were performed before and 30 min after epidural drug administration. Epidural clonidine and lidocaine decreased HR, MAP, and CSNA by similar extents. deltaCSNA/deltaMAP and deltaHR/deltaMAP for depressor response were suppressed with epidural lidocaine and clonidine in all groups but the clonidine 0.5 MAC isoflurane group (0.197 +/- 0.053 to 0.063 +/- 0.014 and 0.717 +/- 0.156 to 0.177 +/- 0.038, respectively, by epidural lidocaine [$P < 0.05$] but 0.221 +/- 0.028 to 0.164 +/- 0.041 and 0.721 +/- 0.177 to 0.945 +/- 0.239, respectively, by epidural clonidine during 0.5 MAC isoflurane). Those for pressor response were suppressed in all groups. We conclude that thoracic epidural clonidine suppresses baroreflex gain during isoflurane anesthesia >1.0 MAC but may offer certain advantages compared with epidural lidocaine during 0.5 MAC isoflurane by virtue of preserving baroreflex sensitivity when inadvertent hypotension occurs.
Descriptors: adrenergic alpha agonists, inhalation anesthetics, clonidine, isoflurane, pressoreceptors, sympathetic nervous system, acidosis, acidosis, adrenergic alpha agonists, local anesthetics, pressure, cats, clonidine, epidural space, heart, heart innervation, heart rate, injections, lidocaine.

Ilkiw, J.E. (1999). **Balanced anesthetic techniques in dogs and cats**. *Clinical Techniques in Small Animal Practice* 14(1): 27-37. ISSN: 1096-2867.
NAL Call Number: SF911. S45

Descriptors: anesthesia, techniques, drug combinations, opioids, inhaled anesthetics, anesthetics, conduction anesthesia, injectable anesthetics, cats.

Ilkiw, J.E., T.B. Farver, C. Suter, D. McNeal, and E.P. Steffey (2002). **The effect of intravenous adminsitration of variable-dose flumazenil after fixed-dose ketamine and midazolam in healthy cats.** *Journal Veterinary Pharmacology and Therapy* 25(3): 181-188. ISSN: 0140-7783.
NAL Call Number: SF915. J63
Abstract: The effects of intravenous administration of variable-dose flumazenil (0, 0.001, 0.005, 0.01, and 0.1 mg/kg) after ketamine (3 mg/kg) and midazolam (0.0 and 0.5 mg/kg) were studied in 18 healthy unmedicated cats from time of administration until full recovery. End-points were chosen to determine whether flumazenil shortened the recovery period and/or modified behaviors previously identified and attributed to midazolam. Overall, flumazenil administration had little effect on recovery or behaviors. One minute after flumazenil administration, all cats were recumbent but a greater proportion of cats which received the highest dose assumed sternal recumbency with head up than any other group. Although not significant, those cats that received the highest flumazenil dose also had shorter mean times for each of the initial recovery stages (lateral recumbency with head up, sternal recumbency with head up and walking with ataxia) than any of the other treatment groups that received midazolam. For complete recovery, flumazenil did decrease the proportion of the cats that was sedated, but did not shorten the time to walking without ataxia. Based on this study, the administration of flumazenil in veterinary practice, at the doses studied, to shorten and/or improve the recovery from ketamine and midazolam in healthy cats cannot be recommended.
Descriptors: cats, intravenous injection, narcotic antagonists, ketamine, injectable anesthetics, anesthesia, recovery, dosage.

Ilkiw, J.E. and P.J. Pascoe (2003). **Cardiovascular effects of propofol alone and in combination with ketamine for total intravenous anesthesia in cats.** *American Journal of Veterinary Research* 64(7): 913-7. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To compare cardiovascular effects of equipotent infusion doses of propofol alone and in combination with ketamine administered with and without noxious stimulation in cats. ANIMALS: 6 cats. PROCEDURE: Cats were anesthetized with propofol (loading dose, 6.6 mg/kg; constant rate infusion [CRI], 0.22 mg/kg/min) and instrumented for blood collection and measurement of blood pressures and cardiac output. Cats were maintained at this CRI for a further 60 minutes, and blood samples and measurements were taken. A noxious stimulus was applied for 5 minutes, and blood samples and measurements were obtained. Propofol concentration was decreased to 0.14 mg/kg/min, and ketamine (loading dose, 2 mg/kg; CRI, 23 microg/kg/min) was administered. After a further 60 minutes, blood samples and measurements were taken. A second 5-minute noxious stimulus was applied, and blood samples and measurements were obtained. RESULTS: Mean arterial pressure, central venous pressure, pulmonary arterial occlusion pressure, stroke index, cardiac index, systemic vascular resistance index, pulmonary vascular resistance index, oxygen delivery index, oxygen consumption index, oxygen utilization ratio, partial pressure of oxygen in

mixed venous blood, pH of arterial blood, PaCO2, arterial bicarbonate concentration, and base deficit values collected during propofol were not changed by the addition of ketamine and reduction of propofol. Compared with propofol, ketamine and reduction of propofol significantly increased mean pulmonary arterial pressure and venous admixture and significantly decreased PaO2. CONCLUSIONS AND CLINICAL RELEVANCE: Administration of propofol by CRI for maintenance of anesthesia induced stable hemodynamics and could prove to be clinically useful in cats.
Descriptors: anesthesia, intravenous anesthetics, cardiovascular system, ketamine, ketamine, propofol, propofol, intravenous anesthetics, pressure, cats, dose response relationship, drug, hemodynamic processes, oxygen.

Ilkiw, J.E., P.J. Pascoe, and L.D. Fisher (1997). **Effect of alfentanil on the minimum alveolar concentration of isoflurane in cats.** *American Journal of Veterinary Research* 58(11): 1274-9. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To evaluate effect of incremental doses of alfentanil on isoflurane minimum alveolar concentration (MAC) in cats to determine whether alfentanil reduces isoflurane MAC and, if so, maximal isoflurane MAC reduction. ANIMALS: 6 healthy spayed female cats. PROCEDURE: Cats were anesthetized with isoflurane and instrumented to allow collection of arterial blood for measurement of gas tensions, pH, and plasma alfentanil concentration and to measure arterial blood pressure. Isoflurane MAC was determined in triplicate, and alfentanil was administered i.v., using a computer-driven syringe pump to achieve estimated plasma alfentanil concentrations of 50, 100, 250, 500, 750, and 1,000 ng/ml; isoflurane MAC was determined at each alfentanil concentration. Cats were allowed to recover, and the process was graded as poor, good, or excellent. RESULTS: Alfentanil had a significant dose effect on isoflurane MAC reduction. Significant regression was found for normalized isoflurane MAC versus estimated plasma alfentanil concentration. A quadratic term was necessary to fit the model and, using this curve, MAC reduction (35.0 +/- 6.6%) was estimated to be maximal at a plasma alfentanil concentration of 500 ng/ml. Significant differences were evident in rectal temperature, bicarbonate concentration, base deficit, arterial carbon dioxide and oxygen tensions, and arterial pH between isoflurane alone and some plasma alfentanil concentration and the corresponding reduction in isoflurane concentration. CONCLUSIONS: Infusion of alfentanil resulted in maximal MAC reduction midway between that reported for horses and dogs. At such plasma alfentanil concentration, adverse effects were minimal, but included increase in rectal temperature, metabolic acidosis, and decrease in PaO2. Provided cats were not handled during the recovery period, recovery was smooth and quiet. CLINICAL RELEVANCE: Infusion of alfentanil decreases the need for potent inhalant anesthetics in cats and could potentially be a clinically useful anesthetic regimen in sick cats.
Descriptors: alfentanil, inhalation anesthetics analysis, intravenous anesthetics, cats, isoflurane analysis, pulmonary alveoli, acid base equilibrium, acid base equilibrium, inhalation administration, alfentanil, alfentanil, inhalation anesthetics, inhalation anesthetics, intravenous anesthetics, intravenous anesthetics, gas analysis, pressure, pressure, dose response relationship, drug, drug interactions, heart rate, heart rate, injections, intravenous, isoflurane, isoflurane.

Ilkiw, J.E., P.J. Pascoe, and L.D. Tripp (2003). **Effect of variable-dose propofol alone and in combination with two fixed doses of ketamine for total intravenous anesthesia in cats.** *American Journal of Veterinary Research* 64(7): 907-12. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To determine the minimum infusion rate (MIR50) for propofol alone and in combination with ketamine required to attenuate reflexes commonly used in the assessment of anesthetic depth in cats. ANIMALS: 6 cats. PROCEDURE: Propofol infusion started at 0.05 to 0.1 mg/kg/min for propofol alone or 0.025 mg/kg/min for propofol and ketamine (low-dose ILD] constant rate infusion [CRI] of 23 microg/kg/min or high-dose [HD] CRI of 46 microg/kg/min), and after 15 minutes, responses of different reflexes were tested. Following a response, the propofol dose was increased by 0.05 mg/kg/min for propofol alone or 0.025 mg/kg/min for propofol and ketamine, and after 15 minutes, reflexes were retested. RESULTS: The MIR50 for propofol alone required to attenuate blinking in response to touching the medial canthus or eyelashes; swallowing in response to placement of a finger or laryngoscope in the pharynx; and to toe pinch, tetanus, and tail-clamp stimuli were determined. Addition of LD ketamine to propofol significantly decreased MIR50, compared with propofol alone, for medial canthus, eyelash, finger, toe pinch, and tetanus stimuli but did not change those for laryngoscope or tail-clamp stimuli. Addition of HD ketamine to propofol significantly decreased MIR50, compared with propofol alone, for medial canthus, eyelash, toe pinch, tetanus, and tail-clamp stimuli but did not change finger or laryngoscope responses. CONCLUSIONS AND CLINICAL RELEVANCE: Propofol alone or combined with ketamine may be used for total IV anesthesia in healthy cats at the infusion rates determined in this study for attenuation of specific reflex activity.
Descriptors: anesthesia, intravenous anesthetics, hemodynamic processes, ketamine, ketamine, propofol, propofol, intravenous anesthetics, cats, dose response relationship, drug, reflex.

Imon, H., K. Ito, L. Dauphin, and R.W. McCarley (1996). **Electrical stimulation of the cholinergic laterodorsal tegmental nucleus elicits scopolamine-sensitive excitatory postsynaptic potentials in medial pontine reticular formation neurons.** *Neuroscience* 74(2): 393-401. ISSN: 0306-4522.
NAL Call Number: QP351.N48
Abstract: A large and consistent body of data implicates mesopontine cholinergic neurons in the production of rapid eye movement sleep, and indicates that many rapid eye movement sleep events are mediated by activation of pontine reticular formation neurons. There is anatomical evidence for projections from the mesopontine cholinergic nuclei to the pontine reticular formation, but no study has shown that stimulation of this cholinergic zone produces excitatory postsynaptic potentials in pontine reticular formation neurons. In the present study, intracellular recording were made from 168 pontine reticular formation neurons, identified by antidromic activation from the bulbar reticular formation and by neurobiotin intracellular labeling, in acutely anesthetized cats. The effects of single-pulse electrical stimulation of the laterodorsal tegmental nucleus portion of the ipsilateral mesopontine cholinergic zone were evaluated in these neurons. Under urethane anesthesia this stimulation produced, in 21 of 22 recorded neurons, long-latency excitatory postsynaptic potentials (mean = 3 ms), consistent with the conduction

velocity of unmyelinated cholinergic fibers (measured conduction velocity was 2 m/s). This excitatory postsynaptic potential was virtually abolished by intravenous administration of the muscarinic cholinergic receptor blocker scopolamine (n = 40 neurons), and by acute cuts separating the laterodorsal tegmental nucleus and the recorded neurons (n = 40). In contrast, a short-latency excitatory postsynaptic potential (0.7-1.5 ms) was not reduced in amplitude by scopolamine and could still be elicited following acute transverse cuts. Unlike the longer-latency excitatory postsynaptic potential, its amplitude was not reduced by barbiturate anesthesia. These data, suggesting the presence of an excitatory, cholinergic laterodorsal tegmental nucleus projection to the pontine reticular formation, provide further support to other lines of evidence implicating mesopontine cholinergic neurons in the production of rapid eye movement sleep, and are compatible with a model of rapid eye movement sleep generation in which a key element is mesopontine cholinergic input depolarizing and increasing the excitability of reticular core neurons.
Descriptors: cholinergic fibers, membrane potentials, pons, scopolamine, tegmentum mesencephali, cats, electric stimulation.

Iwasaki, K., J. Kato, S. Saeki, and S. Ogawa (1994). **Effects of ketamine on somatosympathetic reflex discharges in cats**. *The Japanese Journal of Anesthesiology* 43(11): 1727-36. ISSN: 0021-4892.
Abstract: Effects of ketamine on somatosympathetic reflex discharges induced from sympathetic trunk with electrical stimulation of superficial peroneal nerve were investigated in 51 cats under anesthesia with urethane and alpha chloralose. These reflex discharges through spinal cord and medulla oblongata consist of two components, A and C reflexes, which are derived from somatic myelinated and unmyelinated afferent fiber respectively. Amplitudes of both A and C reflex potentials were depressed significantly after intravenous injection of ketamine 10 mg.kg-1. The maximum depression was observed 5 min after administration. In decerebrated cats with surgical transection at the midbrain, both A and C reflexes were also depressed after administration of the same dosages, and the maximum level of the depression was more profound than that in brain intact cats. After intrathecal injection of ketamine 1 mg.kg-1 to the lumbar spinal region, a slight depression of C reflex was found, but, dosages of 10 mg.kg-1 significantly depressed both A and C reflexes to the similar levels as those in iv injection to brain intact cats. The maximum depression was observed 30 min after administration. The depressive effects on both reflexes of intravenous ketamine 10 mg.kg-1 were not antagonized by naloxone 0.06 mg.kg-1 in brain intact cats. These results suggest that the suppressive effects of ketamine on somatosympathetic reflexes are caused by direct inhibition of medulla oblongata and spinal cord, whereas supra-midbrain regions may be activated by ketamine, and the effect of ketamine is predominant on medulla oblongata in this situation rather than on the spinal cord.
Descriptors: ketamine, reflex, sympathetic nervous system, action potentials, anesthesia, cats, electric stimulation, injections, intravenous, ketamine, medulla oblongata, peroneal nerve.
Language of Text: Japanese.

Jacobs, D.E., M.J. Hutchinson, and W.G. Ryan (2001). **Control of flea populations in a simulated home environment model using lufenuron, imidacloprid or fipronil.** *Medical Veterinary Entomology* 15(1): 73-77. ISSN: 0269-283X.
NAL Call Number: RA639.M44
Abstract: Control strategies were evaluated over a 6-month period in a home simulation model comprising a series of similar carpeted pens, housing matched groups of six cats, in which the life-cycle of the flea Ctenocephalides felis felis Bouche (Siphonaptera: Pulicidae) had been established. Additional adult fleas were placed on the cats at intervals to mimic acquisition of extraneous fleas from outside the home. Treatment strategies included a single subcutaneous deposition of injectable lufenuron supported by initial treatments with a short-acting insecticidal spray, or monthly topical applications of imidacloprid or fipronil. An untreated control group indicated that conditions were suitable for flea replication and development. Controls had to be combed on 18 occasions to remove excessive flea burdens and two developed allergic reactions. Lufenuron cats were combed once and required two insecticidal treatments in the first month to achieve control. Even so, small flea burdens were constantly present thereafter. Imidacloprid and fipronil treatments appeared to give virtually complete control throughout. Single fleas were found on imidacloprid cats on two occasions, whereas none were recovered from fipronil cats at any time after the first treatment. Tracer cats were used to monitor re-infestation rates at the end of the trial period. Small numbers of host-seeking fleas were demonstrated in all treatment pens, indicating that total eradication had not been accomplished. It is concluded that the home environment simulation model incorporating tracer animals could provide a powerful tool for studying flea population dynamics under controlled conditions but improved techniques are.
Descriptors: cats, *Ctenocephalides felis felis*, insecticides, dichlorvos, fenitrothion, imidacloprid, subcutaneous injection, spraying, topical application, insect control, efficacy, reinfestation, monitoring, environment, simulation models, flea burden, flea control, tracer cats.

Jeong, Y., E.J. Baik, T.S. Nam, and K.S. Paik (1995). **Effects of iontophoretically applied naloxone, picrotoxin and strychnine on dorsal horn neuron activities treated with high frequency conditioning stimulation in cats.** *Yonsei Medical Journal* 36(4): 336-347 . ISSN: 0513-5796.
Abstract: Transcutaneous electrical nerve stimulation(TENS), acupuncture-needling, and electroacupuncture are useful non-ablative methods in medical practice for relief of pain. These procedures appear to work by causing an increased discharge in afferent nerve fibers which in turn modifies the transmission of impulses in pain pathways. It is known that the mechanism of analagesic effect via these maneuvers are variable depending on the stimulating parameters. For example, the endogenous opioid system is profoundly related to the mechanism when a peripheral nerve stimulation is applied with parameters of low frequency and high intensity. However, when stimulated with parameters of high frequency and high intensity, the reduced activity of dorsal horn neurons is only slightly reversed by a systemic administration of naloxone, a specific opiate antagonist. Thus, the present study was performed to investigate the neurotransmitter that concerns the mechanism of peripheral nerve stimulation with parameters of high frequency and high intensity. We used an iontophoretic application of

antagonists of possible related neurotransmitters. The dorsal horn neuron activity which was evoked by squeezing the peripheral cutaneous receptive field, was recorded as an index of pain with a microelectrode at the lumbo-sacral spinal cord. Naloxone, picrotoxin and strychnine were applied at 200nA during a period of conditioning nerve stimulation. We observed the effects of these drugs on the change of dorsal horn neuron activities. The main results of the experiment can be summarized as follows. The spontaneous activity of dorsal horn neurons increased in the presence of glutamate and decreased with GABA. It did not change with naloxone, picrotoxin or strychnine. When naloxone was applied iontophoretically during peripheral nerve stimulation, there was no statistically significant analgesic effect compared with that of the control group. When picrotoxin was applied iontophoretically during peripheral nerve stimulation, the analgesic effect was reduced. When strychnine was applied, the analgesic effect was reduced but did not show a statistically significant difference with the control group. These results suggested that the GABAergic system may have been partially related in the analgesic action of peripheral nerve stimulation with parameters of high frequency and high intensity.
Descriptors: conditioning psychology, naloxone, picrotoxin, spinal cord, strychnine, transcutaneous electric nerve stimulation, cats, iontophoresis, neurons.

Jezdimirovic, M. (1995). **Pharmacokinetic and receptor factors in regulating drug dose in dogs and cats**. *Veterinarski Glasnik* 49(7-8): 443-448. ISSN: 0350-2457.
NAL Call Number: 41.8 J93
Descriptors: gastrointestinal tract, absorption, peptidine, opiods, cats, analgesia, glucuronyl transferase, glucuronic acid, histamine .
Language of Text: Polish.

Johnson, M.E. (2001). **Neurotoxicity of spinal procaine--a caution.** *Regional Anesthesia and Pain Medicine* 26(3): 288. ISSN: 1098-7339.
Descriptors: spinal anesthesia, local anesthetics, neurotoxicity syndromes, procaine, cats, lidocaine, polyradiculopathy.

Jones, J.F., G.R. Martin, and A.G. Ramage (1995). **Evidence that 5-HT1D receptors mediate inhibition of sympathetic ganglionic transmission in anaesthetized cats.** *British Journal of Pharmacology* 116(2): 1715-7. ISSN: 0007-1188.
Abstract: In anaesthetized cats, 5-carboxamidotryptamine (5-CT) or 5-hydroxytryptamine (5-HT) (0.3-300 micrograms kg-1,i.v.) inhibited the postganglionic compound action potential evoked by preganglionic electrical stimulation (0.5 Hz) with a similar potency in the stellate and splanchnic ganglia. In the 5-HT experiments transmission thorough the inferior mesenteric ganglia was also recorded. The maximal inhibitory effect of 5-HT was greater on the stellate and splanchnic ganglia (60 +/- 4 and 52 +/- 5%) than on the inferior mesenteric (15 +/- 2%). The effects of 5-HT were unaffected by pretreatment with antagonists (1 mg kg-1;i.v.) for 5-HT2 (BW501C67), 5-HT1A (WAY-100635) and 5-HT3 receptors (ondansetron). However, responses to both 5-HT and 5-CT were attenuated significantly by GR127935 (1 mg kg-1) except the responses to 5-HT at the inferior mesenteric ganglia. These results are consistent with the involvement of 5-HT1D receptors mediating inhibition of sympathetic ganglionic transmission in vivo.
Descriptors: receptors, serotonin, serotonin, serotonin, serotonin agonists, synaptic

transmission, action potentials, anesthesia, cats, dose response relationship, drug, electric stimulation, sympathetic nervous system.

Jones, J.L. (1996). **Noninvasive monitoring techniques in anesthetized animals.** *Veterinary Medicine* 91(4): 326-336. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, anesthesia, monitoring, techniques, cardiovascular system, heart rate, arrhythmia, animal tissues, pressure, respiratory system, respirometry, oxygen, carbon dioxide, central nervous system, thermoregulation, noninvasive techniques.

Kania, B.F. and K. Kania (2003). **Pharmacological and toxicological aspects of combination of beta-lactam and aminoglycoside antibiotic, prednisolone and procaine hydrochloride on the example of vetramycin.** *Polish Journal of Veterinary Sciences* 6(4): 279-296. ISSN: 1505-1773.
NAL Call Number: SF604. P65
Descriptors: pharmacology, antibiotics, dosage, cats, toxicology .

Kato, M., A. Nishida, Y. Aga, J. Kita, Y. Kudo, H. Narita, and T. Endo (1997). **Pharmacokinetic and pharmacodynamic evaluation of central effect of the novel antiallergic agent betotastine besilate.** *Arzneimittel Forschung* 47(10): 1116-24. ISSN: 0004-4172.
Abstract: Betotastine besilate (betotastine CAS 125602-71-3, TAU-284) is a novel antiallergic agent with histamine H1 receptor antagonistic activity. As the classical antihistamines are known to produce drowsiness, the present study was conducted to assess a possible influence of betotastine on the central nervous system (CNS). Measurement of the drug concentration in brain and plasma after i.v. administration revealed that betotastine, as well as cetirizine and epinastine, poorly penetrate into the CNS, while terfenadine do so slightly more and ketotifen remarkably more. In vitro receptor binding assays demonstrated that betotastine is a highly specific histamine H1 receptor ligand, having no significant binding affinity for histamine H3, adrenergic alpha 1, alpha 2, beta, dopamine D2L, serotonin 5-HT2, muscarinic, and benzodiazepine receptors. On global behavior of mice, oral administration of betotastine did not produce any marked changes at the doses of 100-1000 mg/kg, but suppressed huddling behavior at 1000 mg/kg and caused slight mydriasis at 300 mg/kg and more. Betotastine did not significantly affect spontaneous motor activity (SMA) and hexobarbital-induced anesthesia in mice up to 300 mg/kg p.o. In the sleep-wakefulness pattern of cats, it reduced the total duration of sleep at 10 mg/kg p.o., but did not show significant effect at 30 and 100 mg/ kg p.o. Cetirizine showed a similar profile as betotastine in these experiments, whereas ketotifen and epinastine induced sedative signs or toxic symptoms in lower doses, and terfenadine affected SMA and the anesthesia at a high dose. These results suggest the very low liability of betotastine to produce sedative side-effect in a therapeutic dose range.
Descriptors: anti allergic agents, anti allergic agents, central nervous system, piperidines, piperidines, pyridines, pyridines, arousal, cho cells, cats, chromatography, high pressure liquid, guinea pigs, hamsters, mice, motor activity, rats, rats, wistar, receptors, drug, receptors, drug, sleep.

Keene, B.W. (2004). **Evaluating and minimizing anaesthetic risk in patients with heart disease**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 18: 148-150.
Descriptors: anesthesia, anesthetics, diagnosis, heart, heart diseases, risk assessment, risk factors, cats.

Keifer, J.C., H.A. Baghdoyan, L. Becker, and R. Lydic (1994). **Halothane decreases pontine acetylcholine release and increases EEG spindles.** *Neuroreport* 5(5): 577-80. ISSN: 0959-4965.
Abstract: This study tested the hypothesis that halothane anesthesia would cause decreased acetylcholine (ACh) release within the medial pontine reticular formation (mPRF). ACh was collected by microdialysis and measured by high pressure liquid chromatography during wakefulness and during halothane-induced anesthesia. The electroencephalogram (EEG) showed that spindles were a reliable indicator of anesthetic depth. There was a statistically significant disease in ACh release during halothane anesthesia compared with ACh release during wakefulness. Spindles always disappeared during noxious stimulation and during emergence from anesthesia when pontine ACh levels began to increase. These results are consistent with previous data concerning brain stem cholinergic influences on thalamocortical spindle generation, and suggest that similar mechanisms generate cortical spindles during natural sleep and halothane anesthesia.
Descriptors: acetylcholine secretion, anesthesia, electroencephalography, halothane, pons, cats, pons secretion, sleep, wakefulness.

Keifer, J.C., H.A. Baghdoyan, and R. Lydic (1996). **Pontine cholinergic mechanisms modulate the cortical electroencephalographic spindles of halothane anesthesia.** *Anesthesiology* 84(4): 945-54. ISSN: 0003-3022.
Abstract: BACKGROUND: Halothane anesthesia causes spindles in the electroencephalogram (EEG), but the cellular and molecular mechanisms generating these spindles remain incompletely understood. The current study tested the hypothesis that halothane-induced EEG spindles are regulated, in part, by pontine cholinergic mechanisms. METHODS: Adult male cats were implanted with EEG electrodes and trained to sleep in the laboratory. Approximately 1 month after surgery, animals were anesthetized with halothane and a microdialysis probe was stereotaxically placed in the medial pontine reticular formation (mPRF). Simultaneous measurements were made of mPRF acetylcholine release and number of cortical EEG spindles during halothane anesthesia and subsequent wakefulness. In additional experiments, carbachol (88 mM) ws microinjected in the the mPRF before halothane anesthesia to determine whether enhanced cholinergic neurotransmission in the MPRF would block the ability of halothane to induce cortical EEG spindles. RESULTS: During wakefulness, mPRF acetylcholine release averaged 0.43 pmol/10 min of dialysis. Halothane at 1 minimum alveolar concentration decreased acetylcholine release (0.25 pmol/10 min) while significantly increasing the number of cortical EEG spindles. Cortical EEG spindles caused by 1 minimum alveolar concentration halothane were not significantly different in waveform, amplitude, or number from the EEG spindles of nonrapid eye movement sleep. Microinjection of carbachol into the mPRF before halothane administration caused

a significant reduction in number of halothane-induced EEG spindles. CONCLUSIONS: Laterodorsal and pedunculopontine tegmental neurons, which provide cholinergic input to the mPRF, play a causal role in generating the EEG spindles of halothane anesthesia.
Descriptors: inhalation anesthetics, electroencephalography, halothane, parasympathetic nervous system, reticular formation, acetylcholine analysis, carbachol, cats, parasympathetic nervous system.

Kenet, T., D. Bibitchkov, M. Tsodyks, A. Grinvald, and A. Arieli (2003). **Spontaneously emerging cortical representations of visual attributes.** *Nature* 425(6961): 954-6. ISSN: 0028-0836.
NAL Call Number: 472 N21
Abstract: Spontaneous cortical activity--ongoing activity in the absence of intentional sensory input--has been studied extensively, using methods ranging from EEG (electroencephalography), through voltage sensitive dye imaging, down to recordings from single neurons. Ongoing cortical activity has been shown to play a critical role in development, and must also be essential for processing sensory perception, because it modulates stimulus-evoked activity, and is correlated with behaviour. Yet its role in the processing of external information and its relationship to internal representations of sensory attributes remains unknown. Using voltage sensitive dye imaging, we previously established a close link between ongoing activity in the visual cortex of anaesthetized cats and the spontaneous firing of a single neuron. Here we report that such activity encompasses a set of dynamically switching cortical states, many of which correspond closely to orientation maps. When such an orientation state emerged spontaneously, it spanned several hypercolumns and was often followed by a state corresponding to a proximal orientation. We suggest that dynamically switching cortical states could represent the brain's internal context, and therefore reflect or influence memory, perception and behaviour.
Descriptors: anesthesia, visual cortex, visual perception, algorithms, brain mapping, cats, fluorescent dyes, orientation.

Keroack, S., B. Langevin, and E. Troncy (2002). **Les analgesiques en phase perioperatoire [Analgesics in the perioperative phase in dogs and cats]** . *Le Point Veterinaire* 33(224): 20-25. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: analgesics, non steroidal anti-inflammatory agents, reviews, surgery, cats.
Language of Text: French.

Keroack, S., B. Langevin, and E. Troncy (2002). **Analgesie des carnivores domestiques: quels analgesiques utiliser en periode perioperatoire [Which analgesics are suitable for use before and after surgical operations in dogs and cats?]**. *Le Point Veterinaire* 33(223): 48-53. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: analgesics, pain, surgery, surgery, cats, dogs.
Language of Text: French.

Khater Boidin, J., F. Wallois, P. Toussaint, and B. Duron (1994). **Nonvagal reflex apnea in the newborn kitten and during the early postnatal period.** *Biology of the Neonate* 65(1): 41-50. ISSN: 0006-3126.

NAL Call Number: Q301. B46

Abstract: The aim of this work was to study the nonvagal mechanisms which might induce apneic reflexes in kittens. Experiments were performed on spontaneously breathing animals (19 kittens at different postnatal ages). Animals were anesthetized (halothane) or decerebrated by transcollicular section of the brainstem. Weakly nociceptive cutaneous stimulations and various oral stimulations were administered in all animals. In 10 kittens, one of the lingual nerves was stimulated electrically. In 3 decerebrate kittens the effects of serotonin on respiratory activity and on muscles innervated by the hypoglossal nerve were studied. All the stimulations produced apneas of variable duration, and expiratory reinforcement was associated with activation of pretracheal muscles. Similar effects were observed after applying serotonin to the floor of the 4th ventricle. Thus serotonin may be involved in the mechanisms that cause some apneas.

Descriptors: animals, newborn, apnea, anesthesia, brain stem surgery, cats, decerebrate state, electric stimulation, electromyogrphy, electrophysiology, hypoglossal nerve, lingual nerve, mouth innervation, mouth, nociceptors, reflex, respiration, respiratory muscles, serotonin.

Kii, Y., K. Nakatsuji, I. Nose, M. Yabuuchi, Y. Mizuki, and T. Ito (2001). **Effects of 5-HT(4) receptor agonists, cisapride and mosapride citrate on electrocardiogram in anaesthetized rats and guinea-pigs and conscious cats.** *Pharmacology and Toxicology* 89(2): 96-103 . ISSN: 0901-9928.

Abstract: The purpose of this study was to examine the arrhythmogenic potential of 5-HT4 receptor agonists, cisapride and mosapride citrate (mosapride) in vivo. In anaesthetized rats, cisapride at intravenous infusion of 10 and 30 mg/kg/hr for 1 hr prolonged the electrocardiographic RR and QT intervals, whereas at 3 mg/kg/hr, it prolonged the RR interval without affecting the QT interval. Mosapride at 30 mg/kg/hr for 1 hr slightly, but not significantly, prolonged the QT interval. In anaesthetized guinea-pigs, cisapride at intravenous infusion of 0.3, 1 and 3 mg/kg over 15 min. prolonged the RR interval (18-44%), QT interval (18-42%) and the corrected QT interval (QTc; 8-19%). Mosapride at 3, 10 and 30 mg/kg over 15 min. little affected the QTc although at 30 mg/kg, it slightly prolonged the RR and QT intervals. With repeated oral administrations of 30 mg/kg twice a day for 7 days, cisapride prolonged the QT interval (11-35%) and QTc (11-32%) at the 3rd and 7th days in conscious cats. In addition, cisapride depressed the ST segment in two out of five cats. Mosapride at 60 mg/kg twice a day for 7 days did not affect the QT interval or QTc in cats. The maximal plasma concentrations of mosapride and its main metabolite (a des-4-fluorobenzyl-mosapride) at the 7th day in cats were 9.4+/-2.8 microM and 2.5+/-0.3 microM, respectively, being 100 and 30-60 times higher than those in man given therapeutic doses (Sakashita et al. 1993a&b). These results indicate that mosapride has little arrhythmogenic potential.

Descriptors: benzamides, cisapride, electorcardiography, heart ventricles, morpholines, serotonin agonists, anesthesia, cats, consciousness, dose response relationship, drug, guinea pigs, heart rate, heart ventricles, long qt syndrome, rats, rats, sprague dawley.

Kimura, A., Y. Hamada, Y. Kawai, and Y. Tamai (1996). **Sensory response properties of cortical neurons in the anterior ectosylvian sulcus of cats: intracellular recording and labeling.** *Neuroscience Research* 26(4): 357-67. ISSN: 0168-0102.

Abstract: Visual and auditory sensory responses of cortical neurons in the caudal half of the anterior ectosylvian sulcus (AES) of cats were examined under alpha-chloralose anesthesia, using intracellular recording and labeling techniques. Stable intracellular recordings were obtained from 155 neurons, and 141 neurons exhibited responses to sensory stimuli. Of 141 sensory neurons, 74 (52%) were bimodal neurons that responded to both visual and auditory stimuli, and 67 (48%) were unimodal showing sensory responses only to visual (25) or auditory stimulation (42). Forty-five neurons (35 pyramidal neurons, 5 non-pyramidal neurons, 5 not classified) responsive to sensory stimuli were labeled with biocytin. The percentage of bimodal neurons of the biocytin-labeled neurons was 40% (4/10) in layer II, 50% (10/20) in layer III-IV, 70% (7/10) in layer V and 60% (3/5) in layer VI. Thus the convergence of visual and auditory inputs on single neurons was most intense in layer V. Auditory response latencies were in a narrow range from 10 to 40 ms, whereas visual response latencies were in a wide range from 15 to 100 ms. Late visual responses (> 60 ms) were more commonly elicited in biomodal neurons than in visual unimodal neurons. Visual responses in layer II were all elicited over 40 ms, whereas early visual responses within 40 ms were observed in the other cortical layers. A subgroup of neurons (22/141) had a propensity to exhibit a burst discharge, a train of three to seven action potentials on a depolarizing envelope in response to sensory stimuli. Their specific distribution in cortical tissue was suggested by the result that six out of nine biocytin-labeled neurons (seven pyramidal neurons, two non-pyramidal neurons) showing burst discharges to sensory stimuli were observed in layer V. These results are considered to signify some aspects of intracortical organization related to the cross-modal integration of sensory inputs.

Descriptors: auditory cortex, neurons, afferent, visual cortex, cats, reaction time.

Kimura, A. and A. Sato (1997). **Somatic regulation of autonomic functions in anesthetized animals--neural mechanisms of physical therapy including acupuncture.** *The Japanese Journal of Veterinary Research* 45(3): 137-45. ISSN: 0047-1917.

NAL Call Number: 41.8 V6446

Abstract: This paper concerns somato-autonomic reflex responses in various visceral organs following somatic sensory stimulation in animals anesthetized to eliminate emotional factors. Various forms of somatic sensory stimulation can produce different autonomic reflex responses, depending on the visceral organs and which somatic afferents are stimulated. Some responses have a dominant sympathetic efferent involvement, whereas others have predominantly parasympathetic efferent involvement. Some responses have propriospinal and segmental characteristics, while others have supraspinal and systemic characteristics in their reflex nature. These somato-autonomic reflex responses may be functioning during physical therapy including acupuncture.

Descriptors: acupuncture therapy, anesthesia, autonomic nervous system, reflex, unconsciousness, acupuncture therapy, anesthesia, bladder, cardiovascular, cats, digestion, endocrine system, immune system, rats, regional flow.

Kishikawa, K., H. Uchida, Y. Yamamori, and J.G. Collins (1995). **Low-threshold neuronal activity of spinal dorsal horn neurons increases during REM sleep in cats: comparison with effects of anesthesia.** *Journal of Neurophysiology* 74(2): 763-9. ISSN: 0022-3077.

Abstract: 1. Cats were prepared for chronic recordings from the lumbar enlargement of the spinal dorsal horn. At the beginning of each recording session, a tungsten microelectrode was advanced through the dura in a physiologically intact, awake, drug-free animal, until amplitude discrimination provided a single neuron with a receptive field on the hindquarters. 2. Extracellular recordings of activity of each neuron were made during receptive field stimulation with tactile and thermal nonnoxious and noxious stimuli. 3. Baseline responses obtained in the awake state were compared with responses of the same neurons during slow-wave or rapid-eye-movement (REM) sleep. In a subpopulation of neurons, the effects of anesthesia (propofol, 7.5 mg/kg iv) were observed after the completion of sleep studies. 4. The low-threshold receptive fields of the seven neurons studied during REM sleep were all increased in size when compared with the baseline value. The average increase was 52.6% (range 26.2-96.7%). 5. The low-threshold receptive fields of the seven neurons studied during REM sleep were reduced by propofol anesthesia by an average of 49.1% (range 29-74%). 6. Neuronal response to receptive field brushing was observed in 15 neurons during REM sleep. The effect of propofol on receptive field brushing was observed in 8 of those neurons. In only one of those eight neurons were the effects of REM sleep and anesthesia in the same direction. 7. Changes in neuronal responses were less consistent during slow-wave sleep but still differed from changes induced by propofol.

Descriptors: anesthesia, neurons, sleep, REM, spinal cord, afferent pathways, cats, pentobarbital, photic stimulation.

Kitagawa, H., T. Yamazaki, T. Akiyama, H. Mori, and K. Sunagawa (2003). **Effects of ketamine on exocytotic and non-exocytotic noradrenaline release.** *Neurochemistry International* 42(3): 261-267. ISSN: 0197-0186.

NAL Call Number: QP356.3

Descriptors: exocytosis, ketamine, norepinephrine, cats, electric stimulation, neurons, neurons, ouabain.

Kitagawa, H., T. Yamazaki, T. Akiyama, H. Mori, and K. Sunagawa (2001). **Effects of ketamine on in vivo cardiac sympathetic nerve endings.** *Journal of Cardiovascular Pharmacology* 38(Suppl 1): S39-42. ISSN: 0160-2446.

Abstract: Using the dialysis technique, we examined the effect of ketamine on dialysate norepinephrine (NE) levels in the myocardial interstitial space in anesthetized cats. Dialysis probes were implanted in the left ventricular myocardium, and we measured the dialysate NE levels serving as an indicator of NE output at the cardiac sympathetic nerve endings. During local administration of ketamine (10 mM), we examined the time-course of the change in dialysate NE levels and the dialysate NE response to coronary occlusion. Dialysate NE levels significantly increased from 39+/-7 pg/ml at control to 133+/-22 pg/ml 30 min after beginning the ketamine administration. Addition of either omega-conotoxin GVIA (N-type calcium channel blocker) at 10 microg/kg intravenously or desipramine (neuronal NE transport blocker) at 100 microM did not inhibit the

increment in dialysate NE evoked by ketamine. These findings suggest that the increase in dialysate NE evoked by ketamine is dependent neither on the activity of NE exocytosis nor on the neuronal NE transport. Left descending coronary artery occlusion evoked increments in dialysate NE. The addition of ketamine augmented the dialysate NE response to coronary occlusion. A ketamine-induced increment in dialysate NE might occur as a consequence of NE exocytosis independent or membrane NE transport insensitive efflux of NE.

Descriptors: excitatory amino acid agonists, ketamine, myocardium, myocardium secretion, nerve endings, sympathetic fibers, postganglionic, cats, coronary disease, dialysis, dialysis solutions analysis, dialysis solutions, heart ventricles, heart ventricles, heart ventricles secretion, myocardial ischemia, nerve endings, nerve endings secretion, norepinephrine, norepinephrine secretion, sympathetic fibers, postganglionic, sympathetic fibers, postganglionic secretion.

Kitagawa, H., T. Yamazaki, T. Akiyama, N. Yahagi, T. Kawada, H. Mori, and K. Sunagawa (2002). **Modulatory effects of ketamine on catecholamine efflux from in vivo cardiac sympathetic nerve endings in cats.** *Neuroscience Letters* 324(3): 232-6. ISSN: 0304-3940.

NAL Call Number: QP351.N3

Abstract: With the use of the microdialysis technique, we examined the modulatory effect of ketamine on catecholamine efflux from in vivo cardiac sympathetic nerve endings. A dialysis probe was implanted in the left ventricular myocardium, and dialysate norepinephrine (NE) levels in anesthetized cats were measured with liquid chromatogram-electrical detection. A 60-min occlusion of the left anterior descending coronary artery caused increases in dialysate NE levels. Through the dialysis probe, locally applied ketamine (10 mM) augmented the dialysate NE responses to coronary occlusion in the presence and absence of desipramine (membrane NE transport blocker). Thus, the ketamine-induced NE increment is not mediated through the neuronal NE transporter. The sympathomimetic action of ketamine may augment the NE efflux evoked by myocardial ischemia.

Descriptors: catecholamines, excitatory amino acid antagonists, heart, ketamine, presynaptic terminals, synaptic transmission, adrenergic uptake inhibitors, calcium channel blockers, catecholamines secretion, cats, coronary arteriosclerosis, desipramine, epinephrine, epinephrine secretion, heart innervation, heart, myocardial ischemia, norepinephrine, norepinephrine secretion, presynaptic terminals, presynaptic terminals secretion, sympathetic fibers, postganglionic, sympathetic fibers, postganglionic secretion, symporters, synaptic transmission, omega conotoxin gvia.

Kitagawa, H., T. Akiyama, and T. Yamazaki (2002). **Effects of mild hypothermia on cardiac autonomic nerve endings function.** In: *2000 Annual Meeting of the American Society of Anesthesiologists: Abstracts of Scientific Papers, October 16, 2000-October 18, 2000, San Francisco, CA, USA*, Vol. 2000, p. Abstract No. 727.

Online: http://www.asa-abstracts.com

Descriptors: cardiovascular system:, hypothermia, cardiac autonomic nerve endings, norepinephrine, acetylcholine.

Kitano, Y., M. Makino, C. Usui, K. Takasuna, Y. Kasai, M. Hirohashi, K. Tamura, S. Takayama, H. Kojima, H. Iizuka, and et al. (1994). **General pharmacological profile of the new cognition-enhancing agent nefiracetam.** *Arzneimittel Forschung* 44(2a): 199-210. ISSN: 0004-4172.

Abstract: The general pharmacological properties of a novel cognition-enhancing agent, nefiracetam (N-(2,6-dimethylphenyl)-2-(2-oxo-1-pyrrolidinyl)acetamide, DM-9384, CAS 77191-36-7) were investigated, and the following results were obtained. 1. Central nervous system: Nefiracetam showed depressant activities (such as ataxia) on general behavior (mice), and inhibited spontaneous locomotor activity, rota-rod and traction performances (mice) and polysynaptic potential of the spinal reflex (rats), and potentiated pentobarbital anesthesia (mice). The drug inhibited electroshock-induced seizure at relatively low doses, but did not affect chemoshock-induced seizure (mice). Nefiracetam failed to show analgesic activity in the tail pinch test, but inhibited the acetic acid-induced writhing syndrome (mice). An inhibitory pattern in the electroencephalogram was observed (cats). Nefiracetam had little or no effect on body temperature (rats). 2. Respiratory and cardiovascular systems: Nefiracetam induced transient decreases in blood pressure, left ventricular pressure and LV dp/dt max at higher doses (dogs). 3. Autonomic nervous system: Nefiracetam had no influence on pupil size (rabbits). The drug induced no significant effect on the pressor response to norepinephrine or depressor response to acetylcholine, but inhibited the contractile response of the nictitating membrane to preganglionic cervical sympathetic nerve stimulation at the highest dose (dogs). 4. Gastrointestinal system: Nefiracetam inhibited gastrointestinal propulsion (mice), gastric emptying rate and gastric secretion (rats) at higher doses. Nefiracetam produced no apparent damage in the gastric mucosa, and had no effect on bile secretion (rats). 5. Isolated smooth muscle: Nefiracetam had no effect on the resting tonus of isolated ileum, whereas it inhibited the contractile response to acetylcholine, histamine, serotonin, nicotine and BaCl2 at higher concentrations (guinea pigs). Nefiracetam had no effect on the resting tonus or the serotonin-induced contraction of stomach fundus (rats). The drug had no effect on the resting tonus or the norepinephrine-induced contraction of vas deferens, but tended to inhibit the contraction induced by nerve stimulation (guinea pigs). Nefiracetam had little or no effect on the resting tonus or oxytocin-induced contraction of virgin uterus, or on spontaneous contraction of pregnant uterus (rats). Nefiracetam did not affect the resting tonus of trachea, whereas it inhibited isoproterenol-induced relaxation at the highest concentration (guinea pigs). Nefiracetam had no chronotropic effect in isolated atria, but showed a slight negative inotropic effect at the highest concentration (guinea pigs). 6. Miscellaneous: Nefiracetam slightly decreased urinary volume, whereas it did not affect urinary electrolyte excretion (rats).

Descriptors: psychotropic drugs, pyrrolidinones, autonomic nervous system, animal behavior, cardiovascular system, cats, central nervous system agents, digestive system, dogs, guinea pigs, mice, mice, inbred icr, mice, inbred strains, muscle, smooth, psychotropic drugs, pyrrolidinones, rabbits, rats, rats, sprague dawley, respiratory system.

Kocsis, B. and K. Gyimesi Pelczer (2002). **Activation of the 10-Hz sympathetic generator during the second phase of severe hypoxia-hypercapnia and Cushing reaction.** *Autonomic Neuroscience Basic and Clinical* 98(1-2): 41-4. ISSN: 1566-0702.

Abstract: Under urethane anesthesia, as in freely moving cats, the sympathetic nerve discharge (SND) contains a 10-Hz component, either as a single peak in the autospectra or in addition to the cardiac-related or 2-6-Hz rhythm. In this study, we examined the changes in these rhythmic SND components during the reaction to asphyxia and to sudden elevation in the intracranial pressure (Cushing reaction). In all cats included in this study, resting SND was dominated by 2-6-Hz rhythm, but a peak at 10 Hz was also present in the coherence functions. During asphyxia or Cushing reaction, the 2-6-Hz component exhibited the usual two-phase pattern of activation followed by suppression. In phase 2, however, the SND did not desynchronize, as in chloralose-urethane anesthetized cats [Am. J. Physiol. 256 (1989) R120; J. Physiol. (London) 469 (1993) 37], and the massive SND activation and the resulting pressor reaction was due to strengthening of the 10-Hz rhythm. After the ischemic reaction, the 10-Hz component diminished and 2-6-Hz rhythm recovered. These findings suggest that two-phase response to hypoxia-hypercapnia is not due to hypoxic neuronal damage but represents a physiological sympathetic reaction involving different patterns of SND.
Descriptors: anoxia, hypercapnia, intracranial pressure, sympathetic nervous system, aspHyxia, pressure, cats, electrophysiology, oscillometry, time factors.

Kore, A.M. (1997). **Over-the-counter analgesic drug toxicoses in small animals.** *Veterinary Medicine* 92(2): 158, 160, 162-165. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, poisoning, salicylic acids, drugs, anti-inflammatory agents, symptoms, acids, aromatic compounds, drugs, organic acids, phenolic acids, phenolic compounds, aspirin, acetaminophen, non steroidal anti-inflammatory agents, treatment .

Kotliarov, A.A. and L.D. Smirnov (2004). **[Vliianie oksimetiletilpiridina suktsinata na elektrofiziologicheskie i gemodinamicheskie parametry serdtsa pri torakotomii i pri ostroi ishemii miokarda v eksperimente] Effect of hydroxymethylethylpyridine succinate on the cardiac electrophysiological and hemodynamic parameters during experimental thoracotomy and acute myocardial ischemia**.
Eksperimental'Naia i Klinicheskaia Farmakologiia 67(3): 14-7. ISSN: 0869-2092.
Abstract: Effects of the natural antioxidant hydroxymethylethylpyridine succinate (mexidol) on the electrophysiological and hemodynamic cardiac parameters were studied on narcotized mongrel cats with experimental thoracotomy and acute myocardial ischemia, as manifested by sinoatrial node automatism, conduction, effective refractory period, and excitability of myocardium. The rate of contractility (dp/dtmax) in the left ventricle and the arterial pressure level (p) were monitored using a special differentiating device. The antiarrhythmic activity of mexidol was studied by ECG. The cardioprotective effect of the drug is manifested by normalization of the electrophysiological parameters during operation (accompanied by artificial lung ventilation, thoraco- and pericardiotomy). The positive effect was also observed in operated animals with acute ischemia model. The prophylactic administration of mexidol in a dose of 7 mg/kg prevented the cardio-depressant consequences of acute ischemia and reduced the risk of ventricular arrhythmia during coronary artery occlusion.
Descriptors: antioxidants, pressure, heart, myocardial contraction, myocardial ischemia, picolines, acute disease, antioxidants, cats, electrophysiology, heart, myocardial ischemia,

myocardial ischemia surgery, picolines, thoracotomy.
Language of Text: Russian.

Kramer, S. (1997). **Padiatrische und geriatrische Kleintierpatienten als Risikogruppen beim Narkosemanagement. [Pediatric and geriatric small animal patients as risk groups in anesthesia management]**. *Tierarztliche Praxis* 25(6): 637-42. ISSN: 1434-1239.
NAL Call Number: SF603 .V433
Abstract: In the first 12 weeks of postnatal life puppies and kittens are defined by the term pediatric, because of their immature organ systems. In anaesthesiology they are considered as high risk patients. Dogs and cats can be defined by the term geriatric when they have completed 80% of their expected life spans. These patients show age-related decline in organ functions or in their mechanisms of compensation. Physiological and pathophysiological characteristics of pediatric and geriatric patients are discussed and principles of the perioperative anaesthetic management and of pediatric and geriatric anaesthetic techniques are given.
Descriptors: anesthesia, cats growth and development, dog growth and development, age factors, life expectancy, risk factors.
Language of Text: German.

Kristensen, M.P., S.A. McErlane, and P.J. Soja (2000). **Gaba and glycine inhibit trigeminal sensory neurons in unanesthetized animals**. *Society for Neuroscience Abstracts* 26(1-2): Abstract No.-454.2. ISSN: 0190-5295.
NAL Call Number: QP351. S6
Descriptors: cats, ventrolateral thalamus, anesthesia, neural coordination, GABA, glycine, receptors, trigemino thalamic tract, sensory reception, spontaneous spike activity.
Notes: Meeting Information: 30th Annual Meeting of the Society of Neuroscience, New Orleans, LA, USA; November 4-9, 2000.

Kurahashi, K., M. Iwamoto, S. Aoki, A. Kawaguchi, H. Jino, H. Usui, H. Nishiwaki, and H. Kitagawa (1997). **Inhibitory effects of various spasmolytics on the vagal afferent gastric excitatory response in cats.** *Life Sciences* 61(8): 831-8. ISSN: 0024-3205.
NAL Call Number: 442.8 L62
Abstract: The inhibitory effects of atropine, cimetropium, pirenzepine and N-butylscopolamine on the vagal afferent gastric excitatory response in cats under anesthesia with pentobarbital sodium and infusion of gallamine were examined. Electrical stimulation of vagal trunk in left side (10 Hz in frequency, 3 msec in duration, 15 V in intensity and for 10 sec) caused an initial gastric excitatory response during the period of stimulation followed by a late excitatory gastric response after stimulation in normal cats. The initial response was inhibited by atropine (100 microg/kg, i.v.) and hexamethonium (10 mg/kg, i.v.), while the late response was inhibited by atropine but not by hexamethonium (10 mg/kg, i.v.). In chronic supranodose vagotomized cats 11-15 days after the operation, stimulation of the vagal trunk caused a late gastric excitatory response after the stimulation period, which was inhibited by atropine (100 microg/kg, i.v.) but not by hexamethonium (10 mg/kg, i.v.). The two types of gastric responses in normal cats have been defined as follows: the initial gastric excitatory response (atropine- and

hexamethonium- sensitive) is due to activation of vagal efferent fibers and the late gastric excitatory response (atropine-sensitive and hexamethonium-resistant) is due to activation of vagal afferent fibers. ED50 values of atropine, cimetropium, pirenzepine and N-butylscopolamine in inhibiting the vagal afferent gastric response were 7.2 microg/kg (n=4), 2.4 microg/kg (n=6), 82.6 microg/kg (n=3) and 93.0 microg/kg (n=4), respectively. The inhibitory effects of atropine and cimetropium on the vagal afferent gastric excitatory response (hexamethonium-resistant) were more potent than those of pirenzepine and N-butylscopolamine. These results suggested that the potent inhibitory effects of cimetropium and atropine on the vagal afferent gastric response may involve a potent spasmolytic effect.
Descriptors: neurons, afferent, neurons, efferent, parasympatholytics, stomach innervation, vagus nerve, atropine, butylscopolammonium bromide, cats, electric stimulation, neurons, afferent, neurons, efferent, pirenzepine, scopolamine derivatives, vagus nerve.

Kurata, J., S. Nakao, M. Murakawa, T. Adachi, T. Shichino, and K. Mori (1994). **The cerebral cortex origin of enflurane-induced generalized seizure in cats.** *Anesthesia and Analgesia* 79(4): 713-8. ISSN: 0003-2999.
Abstract: The role of sensorimotor cortex (anterior and posterior sigmoid gyri) as the origin of enflurane-induced generalized seizures was examined and compared to that of lidocaine-induced seizures in cats. The inhaled enflurane concentration was adjusted at 3.5% in oxygen, the maximum potency to induce generalized seizures. Repetitive electrical stimulation with supramaximum intensity at a forepaw (2 Hz, 0.5 ms, 10 V) induced generalized seizures, which ended with a sudden appearance of isoelectricity in the electroencephalogram (EEG), the so-called "postictal depression." Repetitive auditory stimuli also induced similar grand mal-type EEGs. Unilateral ablation of the sensorimotor cortex completely blocked the induction of generalized seizures by contralateral somatosensory stimuli. However, it had little effect on the induction of seizures by ipsilateral somatosensory stimuli or bilateral auditory stimuli. In contrast, bilateral ablation of the sensorimotor cortex did not have a significant effect on the lidocaine-induced seizures. These findings indicate that the involvement of the sensorimotor cortex is essential for the development of enflurane-induced but not lidocaine-induced seizures.
Descriptors: cerebral cortex, enflurane toxicity, evoked potentials, seizures, acoustic stimulation, cats, cerebral decortication, electric stimulation, electroencephalography, evoked potentials, somatosensory, random allocation.

Kuroki, K., K. Nagaoka, K. Nakayama, and T. Kaneko (1997). **Surgical treatment of aural hematoma using biopsy punch.** *Japanese Journal of Veterinary Anesthesia and Surgery* 28(4): 95-101. ISSN: 0916-5908.
Descriptors: pet animals, surgical operations, hemorrhage, anesthesia, cartilage, biopsy, dogs, cats, biological analysis, body parts, bones.
Language of Text: Japanese; Summaries in English and Japanese.

Kushner, L.I. and C.A. Calvert (2000). **Perianesthetic arrhythmias.** *Compendium of Continuing Education for the Practicing Veterinarian* 22(1): 61-73. ISSN: 0193-1903.
NAL Call Number: SF601 .C66

Descriptors: dogs, cats, arrhythmia, anesthesia, electrocardiograms, heart rate, case reports.

Kustritz, M.V. (2002). **Early spay-neuter: clinical considerations.** *Clinical Techniques in Small Animal Practice* 17(3): 124-8. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Abstract: Early spay-neuter is ovariohysterectomy or castration of puppies or kittens 6 to 14 weeks of age. Pediatric animals may have an enhanced response to relatively low doses of anesthetic agents. Animals should be fasted no more than 3 to 4 hours before surgery to prevent hypoglycemia, and hypothermia should be avoided. Heart and respiratory rates must be monitored carefully throughout anesthesia. Pediatric gonadectomy surgeries are quick with minimal bleeding. Anesthetic recovery is rapid. No significant short-term or long-term effects have been reported. Prepuberal gonadectomy is most useful for humane organizations and conscientious breeders wishing to preclude reproduction of pet dogs and cats while placing animals at a young enough age to optimize socialization and training.
Descriptors: cats surgery, dogs surgery, orchiectomy, ovariectomy, anesthesia, animals, newborn, cats, dogs, orchiectomy, ovariectomy.

Kuznetsov, I.E. and L.V. Natrus (1999). **Characteristics of background firing activity of the rostral hypothalamic neurons and analysis of it modifications due to stimulation of evolutionary distinct cortical areas**. *Fiziolohichnyi Zhurnal* 45(5): 24-30. ISSN: 0201-8489.
Descriptors: cats, ketamine, nitrous oxide, hypothalamic neurons, frequency histograms, nervous system, neural coordination.
Language of Text: Ukrainian.

Lacroix, J.S., L.G. Ulman, and E.K. Potter (1994). **Sympathetic and parasympathetic interaction in vascular control of the nasal mucosa in anaesthetized cats.** *The Journal of Physiology* 480(Pt 2): 325-31. ISSN: 0022-3751.
Abstract: In cats anaesthetized with pentobarbitone sodium (45 mg kg-1), electrical stimulation of the parasympathetic nerve fibres to the nasal mucosa evoked frequency-dependent increases in nasal arterial blood flow whereas stimulation of the superior cervical sympathetic nerve induced marked vasoconstriction. 2. Sympathetic nerve stimulation for 3 min at 10 Hz evoked significant (P < 0.05) and prolonged (> 30 min) attenuation of the vasodilatory response to subsequent parasympathetic stimulation. 3. Combined pretreatment with adrenergic and cholinergic blockers reduced the vasoconstrictory effect of sympathetic stimulation by 28 +/- 4% (mean +/- S.E.M.) and the parasympathetically evoked vasodilatation by 20 +/- 5%. 4. The vasodilatory effects of exogenous vasoactive intestinal polypeptide, peptide histidine isoleucine and galanin, and the vasoconstrictory effects of exogenous neuropeptide Y (NPY) and alpha,beta-methylene adenosine 5'-triphosphate were not altered by adrenoceptor antagonists and atropine whereas the effects of exogenous noradrenaline and acetylcholine were virtually abolished. 5. The atropine-resistant parasympathetic vasodilatation remained significantly attenuated for more than 30 min after the non-adrenergic sympathetically evoked vasoconstriction. 6. Exogenous NPY (25 x 10(-9) mol) mimicked the effect of sympathetic stimulation in attenuating subsequent parasympathetically evoked

vasodilatation.
Descriptors: nasal mucosa supply, nasal mucosa innervation, parasympathetic nervous system, sympathetic nervous system, acetylcholine, anesthesia, cats, electric stimulation, nasal mucosa, neuropeptide y, norepinephrine, vasoactive intestinal peptide, vasoconstriction, vasoconstriction, vasodilation, vasodilation.

Lamont, L.A. (2002). **Feline perioperative pain management.** *Veterinary Clinics of North America, Small Animal Practice* 32(4): 747-63. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Abstract: Veterinary surgeons today are performing increasingly complex and invasive feline surgical procedures. In light of this, it is crucial that perioperative pain management in these patients be a top priority. This article outlines pain physiology and pathophysiology, pain recognition and management strategies, relevant pharmacology, and techniques for local and regional analgesia in cats.
Descriptors: cats surgery, postoperative pain, analgesics, anesthesia, epidural, local anesthetics, anti inflammatory agents, non steroidal, postoperative pain.

Lamont, L.A., W.J. Tranquilli, and K.A. Mathews (2000). **Adjunctive analgesic therapy**. *Veterinary Clinics of North America, Small Animal Practice* 30(4): 805-813. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: analgesics, adjuvants, local anaesthetics, neuroleptics, dogs, cats.

Lanska, D.J. (2002). **Classic articles of 19th-century American neurologists: a critical review.** *Journal of the History of the Neurosciences* 11(2): 156-73. ISSN: 0964-704X.
Abstract: The purpose of this article is to critically review citation classics of 19th-century members of the American Neurological Association (ANA), and to elaborate what these works contributed and why they continue to be important. Most classic articles of 19th-century American neurologists were initial or early descriptions of clinical conditions, diseases, or procedures. These include descriptions by Beard of the Jumping Frenchmen of Maine; by Sachs of "amaurotic family idiocy" (Tay-Sachs disease); by Hun of the lateral medullary syndrome; by Mitchell of phantom limbs; and by Dana of familial tremor. Few of these were the initial description, although most were clear and fairly complete by modern standards. Several citation classics were cited mainly as a point of comparison with later events or developments, including those by Corning on spinal anesthesia, Bartholow on electrical stimulation of the brain, Mitchell on the status of American psychiatry, and Starr on childhood brain tumors. The reports of Corning, Bartholow, and Mitchell have been the subjects of continued controversy. The only examples of basic neuroscience among the citation classics are the classic studies by Onuf and Collins involving ablation of portions of the sympathetic chain in cats, and Onuf's description of the nucleus of Onuf in the human spinal cord. Onuf's basic science work was made possible by a unique and short-lived multidisciplinary research environment created at the New York State Pathological Institute for the scientific investigation of insanity and neurologic diseases.
Descriptors: neurology history, bibliometrics, history, 19th century, united states.

Lantz, G.C. (2003). **Regional anesthesia for dentistry and oral surgery.** *Journal of Veterinary Dentistry* 20(3): 181-6. ISSN: 0898-7564.

NAL Call Number: SF867.V47
Abstract: Pain is a perception that results from activation of a specific set of receptors by noxious stimuli. Processing by the central nervous system results in the stimulus to be perceived as pain. Thermal receptors respond to temperature changes, mechanoreceptors respond to pressure, tension, stretch, and chemoreceptors respond to substances released during the inflammatory process such as prostaglandins, histamine, serotonin, and bradykinin. The current standard of veterinary medical practice is adequate pain management for all patients. Regional anesthesia is one component of overall pain management of the oral surgery/dental patient and is described step-by-step.
Descriptors: cats, dogs, anesthesia, conduction, anesthesia, dental, surgery, oral.

Larson, M.D., F. Tayefeh, D.I. Sessler, M. Daniel, and M. Noorani (1996). **Sympathetic nervous system does not mediate reflex pupillary dilation during desflurane anesthesia.** *Anesthesiology* 85(4): 748-54. ISSN: 0003-3022.
Abstract: BACKGROUND: Pupil size is determined by an interaction between the sympathetic and parasympathetic divisions of the autonomic nervous system. Noxious stimulation dilates the pupil in both unanesthetized and anesthetized humans. In the absence of anesthesia, dilation is primarily mediated by the sympathetic nervous system. In contrast, pupillary dilation in cats given barbiturate or cloralose anesthesia is mediated solely by inhibition of the midbrain parasympathetic nucleus. The mechanism by which noxious stimuli dilate pupils during anesthesia in humans remains unknown. Accordingly, the authors tested the hypothesis that the pupillary dilation in response to noxious stimulation during desflurane anesthesia is primarily a parasympathetic reflex. METHODS: In six volunteers, the alpha-I adrenergic receptors of the iris musculature were blocked by unilateral administration of topical dapiprazole; six other volunteers were given unilateral topical tropicamide to block the muscarinic receptors in the iris. Desflurane anesthesia was subsequently induced in all volunteers. Sympathetic nervous system activation, with reflex dilation of the pupil, was produced by noxious electrical stimulation during 4% and 8% end-tidal desflurane, and by a rapid 4%-to-8% step-up in the desflurane concentration. Pupil diameter and the change in pupil size induced by a light stimulus (light reflex amplitude) were measured with infrared pupillometry. RESULTS: Dapiprazole drops produced a Horner's miosis, but pupils were equally small after induction of anesthesia. Pupillary dilation after noxious stimulation and desflurane step-up was identical in the unblocked and dapiprazole-blocked pupils. After tropicamide administration, the pupil was dilated and the light reflex was completely inhibited. Noxious stimulation nonetheless produced a slight additional dilation. CONCLUSIONS: During desflurane anesthesia, pupillary dilation in response to noxious stimulation or desflurane step-up is not mediated by the sympathetic nervous system (as it is in unanesthetized persons). Although inhibition of the pupillo-constrictor nucleus may be the cause of this dilation, the mechanism remains unknown.
Descriptors: inhalation anesthesia, inhalation anesthetics, isoflurane, reflex, pupillary, reflex, pupillary, sympathetic nervous system, sympathetic nervous system, topical administration, adrenergic alpha antagonists, adult, cats, isoflurane, muscarinic antagonists, triazoles, tropicamide.

Lascelles, B.D. and S.A. Robertson (2004). **Antinociceptive effects of hydromorphone, butorphanol, or the combination in cats.** *Journal of Veterinary Internal Medicine* 18(2): 190-5. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Abstract: The goal of this study was to assess the antinociceptive activity of a single dose of hydromorphone or butorphanol and to examine the effect of their coadministration on thermal thresholds in cats. Thermal thresholds were measured after IM administration of hydromorphone (0.1 mg/kg), butorphanol (0.4 mg/kg), a combination of butorphanol and hydromorphone (0.4 and 0.1 mg/kg), or saline to each of 6 cats in a randomized, blinded, crossover study design. There were at least 12 days between treatments. Thermal thresholds were measured by a thorax-mounted thermal threshold-testing device specifically developed for cats. Thermal thresholds were measured before treatment, at varying intervals to 12 hours, and at 24 hours after treatments. Data were analyzed by an analysis of variance with a repeat factor of time. Dysphoria was associated with butorphanol administration but not with hydromorphone or hydromorphone-butorphanol combined administration. Vomiting was seen with hydromorphone but not with butorphanol or hydromorphone-butorphanol combined. The control treatment group was stable over time ($P = .22$; mean threshold, 40.1 degrees C). Thresholds were significantly ($P < .05$) higher than the control treatment between 15 and 165 minutes for butorphanol, between 15 and 345 minutes for hydromorphone, and between 15 and 540 minutes for hydromorphone-butorphanol combined. The addition of butorphanol to hydromorphone decreased the intensity of antinociception during the 1st 2 hours but extended the duration of observable antinociception from 5.75 to 9 hours. The present study suggests that the combination of butorphanol and a pure OP3 (mu) receptor agonist clinically does not produce increased analgesia and indeed may result in decreased analgesia.
Descriptors: analgesics, body temperature, butorphanol, cats, analgesics, analgesics, butorphanol, combination, hydromorphone.

Lascelles, B.D.X., C.A. Capner, and A.E. Waterman Pearson (1999). **Current British veterinary attitudes to perioperative analgesia for cats and small mammals.** *Veterinary Record* 145(21): 601-604. ISSN: 0042-4900.
NAL Call Number: 41.8 V641
Descriptors: cats, analgesics, surgery, veterinarians, attitudes, pain.

Lawrence, D.T., J. Lang, J. Culvenor, G. Mischol, S. Haynes, and G. Swinney (1999). **Intrathoracic tracheal rupture.** *Journal of Feline Medicine and Surgery* 1(1): 43-51. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, trachea, rupture, clinical aspects, treatment, surgery, anesthesia, postoperative, prognosis, case reports.

Lemke, K.A. (2004). **Perioperative use of selective alpha-2 agonists and antagonists in small animals.** *The Canadian Veterinary Journal* 45(6): 475-80. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Abstract: Alpha-2 agonists are the only single class of anesthetic drugs that induce reliable, dose-dependent sedation, analgesia, and muscle relaxation in dogs and cats. Used

at low doses, as adjuncts to injectable and inhalational anesthetics, selective alpha-2 agonists dramatically reduce the amount of anesthetic drug required to induce and maintain anesthesia. This reduction in anesthetic requirements is achieved without significant depression of pulmonary function and with limited effects on cardiovascular function. Selective alpha-2 agonists can also be used postoperatively to potentiate the analgesic effects of opioids and other drugs. Given the nearly ideal pharmacodynamic profile and reversibility of alpha-2 agonists, these drugs will play a central role in balanced approaches to anesthesia and the management of perioperative pain in healthy dogs and cats.
Descriptors: adrenergic alpha agonists, adrenergic alpha agonists, adrenergic alpha antagonists, adrenergic alpha antagonists, anesthesia, cats, dogs, perioperative care, anesthesia, anesthetics, combined, receptors, adrenergic, alpha 2 agonists, receptors, adrenergic, alpha 2, receptors, adrenergic, alpha 2.

Lemke, K.A. and S.D. Dawson (2000). **Local and regional anesthesia**. *Veterinary Clinics of North America, Small Animal Practice* 30(4): 839-857. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: anesthesia, anesthetics, local anesthetics, pain, cats.

Lerche, P., W.W.I. Muir, and R.M. Bednarski (2000). **Rebreathing anesthetic systems in small animal practice**. *Journal of the American Veterinary Medical Association* 217(4): 485-492. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: anesthesia, inhaled anaesthetics, artificial respiration, respiration, equipment, cats.

Lerche, P., W.W.I. Muir, and R.M. Bednarski (2000). **Nonrebreathing anesthetic systems in small animal practice**. *Journal of the American Veterinary Medical Association* 217(4): 493-497. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: equipment, inhaled anaesthetics, anesthesia, respiration, artificial respiration, cats.

Lerner, R.A. (1997). **A hypothesis about the endogenous analogue of general anesthesia.** *Proceedings of the National Academy of Sciences of the United States of America* 94(25): 13375-7. ISSN: 0027-8424.
NAL Call Number: 500 N21P
Descriptors: anesthesia, general, biological models, anesthetics, general, brain, cats, gap junctions, membrane fluidity, membrane lipids, membrane proteins, oleic acids.

Lestienne, R. (1996). **Determination of the precision of spike timing in the visual cortex of anaesthetised cats.** *Biological Cybernetics* 74(1): 55-61. ISSN: 0340-1200.
Abstract: Neuronal cortical spike trains contain precisely replicating patterns whose presence cannot be accounted for by change production. A comparison of the number of triplets of spikes present two times with the number of doublets replicated three times in the same window duration gives a frequency-insensitive measure of this type of fine temporal organisation. By varying the tolerance with which such precisely replicating

patterns are detected, one can evaluate the accuracy of spike timing in spike trains. In the sample of data here analysed, it was found that replicating patterns were best seen in the precision range 0.4-1.4 ms (a result evidently at variance with a simple 'integrate and fire' model of neurons). Surprisingly, the fine temporal structure of spike trains thus evidenced was stronger at relatively low firing rate discharges and was present in both the 'spontaneous' and 'evoked' responses.
Descriptors: action potentials, visual cortex, anesthesia, cats, cybernetics, electrophysiology, evoked potentials, visual, biological models, time factors.

Li, J. (2002). **Nitric oxide synthase (NOS) coexists with activated neurons by skeletal muscle contraction in the brainstem of cats.** *Life Sciences* 71(24): 2833-43. ISSN: 0024-3205.
NAL Call Number: 442.8 L62
Abstract: Contraction of skeletal muscle evokes increases in arterial blood pressure and heart rate. Some regions of the brainstem have been implicated for expression of the cardiovascular responses to muscle contraction. Previous studies have reported that static muscle contraction induced c-Fos protein in the nucleus of tractus solitarii (NTS), lateral reticular nucleus (LRN), lateral tegmental field (FTL), subretrofacial nucleus (SRF), A1 region and periaqueductal gray (PAG) of the brainstem. Furthermore, neuronal NADPH-diaphorase (NADPH-d), which is considered as a marker of neuronal nitric oxide synthase (nNOS), has been localized in those same regions. In this study, static muscle contraction was induced by electrical stimulation of the L7 and S1 ventral roots in anaesthetized cats. Distribution of c-Fos protein within neurons containing nNOS was evaluated by double labeling methods in order to determine if nNOS containing neurons in the brainstem were activated during muscle contraction. The results indicate that c-Fos protein colocalized with NADPH-d positive staining within the neurons of the SRF and PAG, but not within the NTS neurons. Distinct number of neurons with c-Fos protein was in close proximity to NADPH-d positive staining in the NTS, SRF, and PAG. Coexisting of c-Fos protein and NADPH-d positive staining was not observed in the LRN, FTL and A1 region. These findings demonstrate that nNOS containing neurons were activated by muscle contraction in the selective regions of the brainstem, and nNOS positive staining had close anatomic contacts with the neurons activated by contraction. This result provides neuroanatomic evidence suggesting that nitric oxide modulates the cardiovascular responses to muscle contraction within the NTS, SRF and PAG of the brainstem.
Descriptors: brain stem, muscle contraction, muscle, skeletal, neurons, nitric oxide synthase, anesthesia, brain stem, cats, cell count, electrophysiology, immunoenzyme techniques, lumbosacral region, neurons, proto oncogene proteins c fos, reflex.

Lien, C.A., M.R. Belmont, A. Abalos, L. Eppich, S. Quessy, M.M. Abou Donia, and J.J. Savarese (1995). **The cardiovascular effects and histamine-releasing properties of 51W89 in patients receiving nitrous oxide/opioid/barbiturate anesthesia.** *Anesthesiology* 82(5): 1131-8. ISSN: 0003-3022.
Abstract: BACKGROUND: Atracurium consists of a mixture of ten stereoisomers. One of these isomers, 51W89, is a potent intermediate-acting nondepolarizing neuromuscular blocking agent. Its ED95 is 0.05 mg.kg-1 in patients receiving nitrous

oxide/opioid anesthesia. In preclinical trials, 51W89 did not show evidence of histamine release in cats at doses up to 80 times the human ED95. This study was undertaken to determine the cardiovascular effects and histamine-releasing properties of 51W89 in patients undergoing elective surgical procedures. METHODS: Sixty patients, ASA physical status 1 or 2, anesthetized with nitrous oxide/fentanyl/thiopental were studied. Patients received either 2 times the ED95 of atracurium or 51W89 or 4 or 8 times the ED95 of 51W89 as a rapid intravenous bolus under stable anesthesia, before surgical stimulation. Blood pressure and heart rate were measured by oscillometry and the electrocardiogram in patients receiving 2 times the ED95 of 51W89 or atracurium and by an intraarterial catheter and a tachograph triggered by the arterial pulse waveform in patients receiving 4 or 8 times the ED95 of 51W89. Maximal blood pressure and heart rate changes during the 5 min after administration of the muscle relaxant were recorded. Venous blood samples were obtained before the administration of relaxant and at 2 and 5 min after the administration of relaxant for determination of plasma histamine concentrations by radioenzymatic assay. RESULTS: Maximal blood pressure and heart rate changes in all groups of patients receiving 51W89 were small and similar to those observed in patients receiving 2 times the ED95 of atracurium. The mean maximum percent changes (+/- SE) in heart rate and mean arterial pressure were -0.6 +/- 1.5 and 0.4 +/- 2.5, respectively, in the group receiving 2 times the ED95 atracurium; -1.3 +/- 3.3 and 2.3 +/- 4.4, respectively, in the group receiving 2 times the ED95 51W89; -2.6 +/- 1.0 and 2.6 +/- 1.5, respectively, in the group receiving 4 times the ED95 51W89; and -2.4 +/- 1.5 and -1.0 +/- 1.3, respectively, in the group receiving 8 times the ED95 51W89. No patient developed a decrease in blood pressure > or = 20% or an increase in heart rate > or = 20% that was attributable to muscle relaxant administration. There was no dose-related change in plasma histamine concentration associated with the administration of 51W89. One patient in the study developed transient facial flushing after the administration of atracurium. CONCLUSIONS: 51W89 is a benzylisoquinolinium-type, nondepolarizing muscle relaxant that does not affect plasma histamine concentrations. No cutaneous flushing or clinically important cardiovascular effects were noted after rapid injection of doses up to and including 8 times its ED95 (0.4 mg.kg-1) in healthy patients undergoing elective surgical procedures.
Descriptors: atracurium, pressure, heart rate, histamine release, adult, aged, anesthesia, dose response relationship, drug, fentanyl, middle aged, nitrous oxide, stereoisomerism, thiopental.

Liu, Z., R. Sakakibara, K. Nakazawa, T. Uchiyama, T. Yamamoto, T. Ito, and T. Hattori (2004). **Micturition-related neuronal firing in the periaqueductal gray area in cats.** *Neuroscience* 126(4): 1075-1082. ISSN: 1471-2202.
Descriptors: action potentials, bladder, neurons, periaqueductal gray, urination, brain mapping, cats, electric stimulation, electromyogrphy, smooth muscle, neural inhibition, neural inhibition radiation effects, neurons classification, neurons radiation effects, periaqueductal gray, pons radiation effects, reflex.

Ludders, J.W. (1994). **Anesthesia for difficult cats.** *Proceedings of the North American Veterinary Conference* 8: 8-10.

NAL Call Number: SF605.N672
Descriptors: anesthesia, cats, behavior.

Lundy, K.M., H. Cheng, S.M. Sakya, J. Li, M.L. Minich, and C. Uchida (2003). **Heterocyclo-alkylsulfonyl pyrazole derivatives as anti-inflammatory/analgesic agents**. *Official Gazette of the United States Patent and Trademark Office Patents* 1268(2) ISSN: 0098-1133.
Online: http://www.uspto.gov/web/menu/patdata.html
NAL Call Number: T223. A21
Descriptors: pharmacology, cats, heterocyclo alkylsulfonyl pyrazole, anti inflamatory drug, Alzheimer's disease, Colonic Neoplasms, digestive system disease, osteoarthritis, joint disease, rheumatoid arthritis, connective tissue disease, immune system disease, joint disease.

Machon, R.G., M.R. Raffe, and E.P. Robinson (1999). **Warming with a forced air warming blanket minimizes anesthetic-induced hypothermia in cats.** *Veterinary Surgery* 28(4): 301-310. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: cats, hypothermia, halothane, equipment, prevention, body temperature, anesthesia .

Mangusheva, N.A., L.L. Katalymov, and A.S. Solov'ev (1995). **Vliianie CO2 na blokirovanie provedeniia vozbuzhdeniia mestnymi anestetikami v A-del'ta- i C-voloknakh koshek. [The effect of CO2 on the blocking of excitation conduction by local anesthetics in feline A-delta and C fibers]** . *Fiziologicheskii Zhurnal Imeni I/M/ Sechenova Rossiiskaia Akademiia Nauk* 81(10): 15-9. ISSN: 0869-8139.
NAL Call Number: QP1. F58
Abstract: Five adult clinically-healthy mongrel dogs and cats were used in the study. Following anaesthetic routine and surgical protocol, five incisions (2 cm in length) were made on the left costal region and another five in right costal region of each animal. The right side costal wounds were sutured with surgical nylon 3-0, while the left side costal wounds were repaired by methyl-2-cyanoacrylate. The animals were submitted to clinical evaluation every three days while biopsy was performed at three, six, nine, twelve and fifteen days after the surgery. In both species, no clinical or histologic difference were noted between the two treatments used.The data obtained showed that the CO2 potentiated the conduction blockade of the saphenous nerve with tertiary amine trimecaine in anesthetised cats. The data suggests that acidification of cytoplasm with increased CO2 increases the concentration of active cationic protonated forms of a local anesthetic agent.
Descriptors: local anesthetics, benzocaine, carbon dioxide, nerve fibers, nerve fibers, myelinated, neural inhibition, trimecaine, action potentials, cats, drug interactions, electric stimulation, hydrogen ion concentration, nerve fibers, nerve fibers, myelinated.
Language of Text: Russian.

March, P.A. and W.W.3. Muir (2003). **Minimum alveolar concentration measures of central nervous system activation in cats anesthetized with isoflurane.** *American Journal of Veterinary Research* 64(12): 1528-33. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A

Abstract: OBJECTIVE: To compare the minimum alveolar concentration (MAC) of isoflurane required to prevent corticocerebral activation, autonomic responses, and purposeful movements after somatic or visceral stimulation in cats anesthetized with isoflurane. ANIMALS: 17 healthy spayed female cats. PROCEDURE: Bispectral index (BIS), autonomic parameters, and purposeful movements were monitored before and after somatic or visceral stimuli in cats anesthetized with isoflurane. End-tidal (ET) isoflurane concentration was varied to determine MAC values for cortical arousal (MAC(BIS)), autonomic responsiveness (MAC(BAR)), and purposeful movement (MAC). Bispectral index values > or = 60 were considered to represent corticocerebral activation. RESULTS: Minimum alveolar concentration for purposeful movement was significantly less than MAC(BIS) and MAC(BAR) for both somatic and visceral stimulation. Individual MAC values for somatic stimulation were not significantly different from respective MAC values for visceral stimulation. The percentage of cats that had a BIS response > or = 60 was inversely related to the end-tidal isoflurane concentration. CONCLUSIONS AND CLINICAL RELEVANCE: Corticocerebral arousal and subcortical autonomic reflexes occured at isoflurane anesthetic concentrations at which reflexive or purposeful movements were absent. These results suggested that isoflurane had a preferential effect on voluntary motor output at low end-tidal isoflurane concentrations, and that sensory pathways, subcortical sympathetic output, and cortical responsiveness are less susceptible to the anesthetic effects of isoflurane. Bispectral index values obtained after somatic or visceral stimulation were sensitive for the detection of early changes in cortical excitability.
Descriptors: inhalation anesthetics, central nervous system, electroencephalography, isoflurane, movement, analysis of variance, inhalation anesthetics, cats, central nervous system, electroencephalography, isoflurane.

March, P.A. and W.W.3. Muir (2003). **Use of the bispectral index as a monitor of anesthetic depth in cats anesthetized with isoflurane.** *American Journal of Veterinary Research* 64(12): 1534-41. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To determine whether the prestimulation bispectral index (BIS) value or relative change in BIS after noxious stimulation can be used to assess the depth of isoflurane anesthesia in cats. ANIMALS: 17 healthy female cats. PROCEDURE: Electroencephalogram (EEG) patterns and BIS values were examined in cats that received increasing end-tidal (ET) isoflurane concentrations. Subsequently, BIS values were determined before and after either a noxious somatic or visceral stimulus in cats that received ET isoflurane concentrations ranging from 1.8% to 2.4%. Electrical stimuli of the tail base and bladder distension to 50 cm of water were the somatic and visceral stimuli, respectively. RESULTS: he resting BIS at ET isoflurane concentrations from 1.4% to 1.9% steadily decreased concurrently with increasing degrees of EEG suppression. Prestimulation BIS values, however, were not related to 1.8% to 2.4% ET isoflurane concentrations and not useful for prediction of BIS values or hemodynamic and movement responses after a noxious stimulus. The poststimulation BIS value and the difference between mean BIS values before and after stimulation were inversely correlated with increasing ET isoflurane concentrations. Poststimulation BIS values > 60 were observed at ET isoflurane concentrations greater than those associated with a

movement response after a stimulus. CONCLUSIONS AND CLINICAL RELEVANCE: The prestimulation BIS value has limited use in assessing anesthetic depth in cats during isoflurane anesthesia. The change in BIS values after a noxious somatic or visceral stimulus was a reliable measure of anesthetic depth and may be a useful measure of early arousal from the hypnotic state.
Descriptors: inhalation anesthetics, central nervous system, electroencephalography, electroencephalography, isoflurane, movement, analysis of variance, cats, central nervous system.

Marks, S.L., I.M. Straeter Knowlen, M. Moore, R. Speth, M. Rishniw, and G.G. Knowlen (1996). **Effects of acepromazine maleate and phenoxybenzamine on urethral pressure profiles of anesthetized, healthy, sexually intact male cats.** *American Journal of Veterinary Research* 57(10): 1497-500. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVES: To evaluate the effects of 2 compounds with alpha adrenergic antagonist properties on the urethral pressures of anesthetized, healthy, sexually intact male cats, and to evaluate one of the compounds for effect on striated muscle. ANIMALS: 20 healthy, sexually intact male cats. PROCEDURE: Cats were anesthetized with halothane, and urethral pressure profilometry was performed before and after treatment. 125I-labeled alpha-bungarotoxin bound to nicotinic receptors of murine skeletal muscle was used in a competitive binding study with acepromazine maleate. RESULTS: Acepromazine maleate significantly decreased intraurethral pressures in the preprostatic (19%) and prostatic (21%) regions of the urethra. There was no effect on the postprostatic/penile segment. Acepromazine did not inhibit 125I-labeled alpha-bungarotoxin binding to nicotinic receptors in murine skeletal muscle. Phenoxybenzamine significantly decreased intraurethral pressures (14%) in the preprostatic region of the urethra only. CONCLUSIONS: Acepromazine maleate and phenoxybenzamine have effects on the smooth muscle of the urethra of healthy, male cats. Acepromazine has no effect on striated muscle. CLINICAL RELEVANCE: alpha-Adrenergic compounds may be used in the pharmacologic management of feline urinary tract disease.
Descriptors: acepromazine, pHenoxybenzamine, urethra, anesthesia, general, binding, competitive, bungarotoxins, cats, halothane, iodine radioisotopes, mice, muscle, skeletal, muscle, smooth, muscle, smooth, pressure, radioligand assay, receptors, nicotinic, urethra.

Marshall, R.J., A.W. Muir, T. Sleigh, and D.S. Savage (1994). **An overview of the pharmacology of rocuronium bromide in experimental animals.** *European Journal of Anaesthesiology/ Supplement* 9: 9-15. ISSN: 0265-0215.
Abstract: In various animal species anaesthetized with a-chloralose (cats and pigs) or pentobarbitone (Beagle dogs and Rhesus monkeys), rocuronium has been shown to be a readily reversible, non-depolarizing neuromuscular blocking agent with a similar duration of action as vecuronium but a 6-10 fold lower potency. The outstanding features of its action is rapidity of onset. It is not expected to have any marked cardiovascular or autonomic side-effects when used in the neuromuscular blocking dose range. There is no evidence of any selective pre-junctional effect and there is no clinically relevant inhibition

of acetycholinesterase. Screening in rats has not demonstrated any oestrogenic, androgenic, anabolic, glucocorticoid-like or gonad-inhibiting properties, although there was a slight increase in pituitary weight in male rats.
Descriptors: androstanols, neuromuscular nondepolarizing agents, acetylcholinesterase, anesthesia, cardiovascular system, cats, dogs, Macaca mulatta, neuromuscular junction, neuromuscular junction, rats, swine, synaptic transmission.

Martin, G.R. (1997). **Pre-clinical pharmacology of zolmitriptan (zomig; formerly 311c90), a centrally and peripherally acting 5ht1b/1d agonist for migraine**. *Cephalalgia* 17(SUPPL. 18): 4-14. ISSN: 0333-1024.
Abstract: .
Descriptors: nervous system, cats, 5 hydroxytryptamine receptor agonist, migraine, vascular disease, zolmitriptan, Zomig, 311C90, sumatriptan, trigeminal nucleus caudalis, nucleus tractus solitarius, nervous system disease, drug treatment.

Mates, N., A. Timen, A. Muste, L. Oana, and D. Neculoiu (1997). **Influenta unor anestezice asupra starii generale la animalele supuse interventiilor operatorii [Influence of some anaesthetics (promazine and a tiletamine-zolazepam combination) on the general condition of animals subjected to surgery]**. *Revista Romana De Medicina Veterinara* 7(3): 293-303. ISSN: 1220-3173.
Descriptors: anesthesia, surgery, anesthetics, neuroleptics, promazine, sheep, dogs, cats, mink, *Capreolus capreolus*.
Language of Text: Romanian with summaries in French and English.

Mates, N., A. Timen, A. Muste, L. Oana, and D. Neculoiu (1995). **Folosirea anestezicelor in interventiile chirurgicale la animale [Anaesthetics used in surgery on animals: Romtiazin (Promazine) and Zoletil (zolazepam and tiletamine)]**. *Buletinul Universitatii De Stiinte Agricole Cluj Napoca Seria Zootehnie Si Medicina Veterinara* 49: 433-443. ISSN: 0557-4668.
Descriptors: anesthesia, anesthetics, promazine, sheep, dogs, cats, rabbits, mink, Capreolus capreolus.
Language of Text: Romanian with a summary in English.

Mathews, K.A. (2000). **Nonsteroidal anti-inflammatory analgesics. Indications and contraindications for pain management in dogs and cats**. *Veterinary Clinics of North America, Small Animal Practice* 30(4): 783-804. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: analgesics, pain, treatment, non steroidal anti-inflammatory agents, reviews, anti-inflammatory agents, cats.

Mathews, K.A. (1996). **Nonsteroidal anti-inflammatory analgesics in pain management in dogs and cats**. *Canadian Veterinary Journal* 37(9): 539-545. ISSN: 0008-5286.
NAL Call Number: 41.8 R3224
Descriptors: pain, flunixin, ketoprofen, aspirin, acetaminophen, sucralfate, stomach ulcers, anti-inflammatory agents, analgesics, cats.

Matot, I. and O. Jurim (2001). **The protective effect of acadesine on lung ischemia-reperfusion injury.** *Anesthesia and Analgesia* 92(3): 590-5. ISSN: 0003-2999.

Abstract: The purine precursor acadesine is highly effective in preventing ischemia-reperfusion (I-R) injury of the heart and intestine. The aim of this study was to test the effect of acadesine on I-R--induced lung injury. The lobar artery of the left lower lung lobe in intact-chest, spontaneously breathing cats was occluded for 2 h (Group 1, ischemia) and reperfused for 3 h (Group 2, I-R). Animals were subjected to one of the following three protocols: acadesine administered IV 15 min before ischemia (Group 3), 15 min before reperfusion (Group 4), or 30 min after reperfusion (Group 5). Acadesine was administered at an initial dose of 2.5 mg. kg(-1). min(-1) for 5 min, followed by 0.5 mg. kg(-1). min(-1) until the end of reperfusion. Injury was assessed by histologic examination. The right lower lobe served as control. Compared with the right lower lobe, which showed no abnormal findings in any group (percentage of injured alveoli, 2% +/- 1% to 4% +/- 2%), the left lower lung lobe in the I-R group revealed a disrupted alveolar structure with 63% +/- 9% injured alveoli. Ischemia alone did not produce alterations in alveolar structure. Acadesine significantly reduced the number of injured alveoli when given before ischemia (4% +/- 1%) or reperfusion (6% +/- 2%) but not when administered after reperfusion (62% +/- 8%). In conclusion, acadesine, when administered before ischemia or reperfusion, can blunt I-R-induced lung injury. The mechanism underlying the protection remains to be elucidated. IMPLICATIONS: Acadesine reduces ischemia-reperfusion-induced lung injury in spontaneously breathing cats when administered before ischemia or reperfusion, but not after reperfusion.

Descriptors: aminoimidazole carboxamide, ischemia, lung supply, reperfusion injury, ribonucleosides, adenosine triphosphate, aminoimidazole carboxamide, pressure, cats.

Mayrand, S., L. Tremblay, and N. Diamant (1994). **In vivo measurement of feline esophageal tone.** *American Journal of Physiology* 267(5 Pt 1): G914-21. ISSN: 0002-9513.

NAL Call Number: 447.8 AM3

Abstract: Using an isotonic recording device (barostat), we assessed feline esophageal smooth and striated muscle tone in vivo and determined the effects of a cholinergic agonist (bethanechol) and antagonist (atropine) and the effect of body position on this tone. Studies were performed on six cats under light intravenous ketamine anesthesia. Two parameters were analyzed: compliance and resistance to initial stretch (resting tone). Smooth muscle compliance (0.51 +/- 0.03 ml/mmHg) was significantly greater than that of the striated muscle section (0.26 +/- 0.02 ml/mmHg; P = 0.0260). Resting tone was low in both esophageal sections. Neither atropine nor bethanechol had any significant effect on the two tone parameters measured in smooth muscle. Change in body position had no influence on the intraesophageal balloon volume. We conclude that esophageal wall compliance varies according to location (smooth vs. striated muscle) and that esophageal smooth muscle tone is not under cholinergic excitatory control. Isotonic recording in vivo should allow further investigations of the nature of the neural and myogenic control of esophageal tone and of the relationships between phasic and tonic activity.

Descriptors: esophgus, muscle tonus, atropine, balloon dilatation, bethanechol, cats, esophgus, posture, pressure.

Mazzaferro, E. and A.E. Wagner (2001). **Hypotension during anesthesia in dogs and cats: recognition, causes, and treatment.** *Compendium of Continuing Education for the Practicing Veterinarian* 23(8): 728-737. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, hypotension, anesthesia, anesthetics, cardiovascular system, arteries, pressure, monitoring, pathogenesis, medical treatment, perianesthetic hypotension, arterial pressure, inotrope therapy.

McAllen, R.M. and C.N. May (1994). **Effects of preoptic warming on subretrofacial and cutaneous vasoconstrictor neurons in anaesthetized cats.** *The Journal of Physiology* 481(Pt 3): 719-30. ISSN: 0022-3751.
Abstract: 1. Sympathetic and subretrofacial neuron responses to preoptic warming were studied in chloralose- or Saffan-anaesthetized, paralysed cats. 2. Warming a thermode in the preoptic region inhibited the activity of cutaneous vasoconstrictor fibres supplying hairy skin. Muscle vasoconstrictor fibre activity recorded at the same time was either unaffected or raised. 3. Small injections of sodium glutamate (5 nl, 0.1 M) were made into the region of the subretrofacial nucleus in the ventrolateral medulla. The part of that region where glutamate injections evoked brisk increases in cutaneous vasoconstrictor fibre activity was chosen for further study. 4. Extracellular single unit recordings were made in that area from seventy-seven subretrofacial neurons, which were identified by their barosensitivity (inhibition by carotid blind sac inflation). Forty-seven of them were antidromically activated by stimulation in the spinal cord. 5. The activity of twenty subretrofacial neurons (twelve proven bulbospinal) was significantly reduced by periods of preoptic warming. Cutaneous vasoconstrictor activity recorded at the same time also fell. Forty-nine subretrofacial neurons (thirty-five proven bulbospinal) were unaffected or excited by periods of preoptic warming that inhibited cutaneous vasoconstrictor fibres. The response of eight neurons was unclear. 6. No difference in either mean firing rate or axonal conduction velocity was found between neurons inhibited by preoptic warming and other subretrofacial neurons. 7. The subretrofacial neurons inhibited by warming were found intermingled with those unaffected or excited. Marked recording sites of warm-inhibited neurons were clustered around the ventromedial border of the subretrofacial nucleus. 8. In two cats, bilateral inhibition of subretrofacial neurons by surface application of 1 M glycine reduced cutaneous vasoconstrictor fibre activity to 32 and 44% of control levels. 9. The results suggest that specific cutaneous vasoconstrictor premotor neurons exist in the subretrofacial nucleus. These apparently provide most of the background excitatory drive to cutaneous vasomotor neurons. Central warming stimuli may act, at least in part, by withdrawing that drive.
Descriptors: autonomic fibers, preganglionic, medulla oblongata, sympathetic nervous system, vasoconstriction, anesthesia, body temperature regulation, cats, electrophysiology, heat, medulla oblongata, muscle, skeletal innervation, neural conduction, neural pathways, neurons classification, preoptic area, skin innervation.

McEvoy, F.J., M.A. Forster van Hijfte, and R.N. White (1998). **Detection of portal blood flow using per-rectal 99mTc-pertechnetate scintigraphy in normal cats.** *Veterinary Radiology and Ultrasound* 39(3): 234-237. ISSN: 1058-8183.
Online: Raleigh. NC

NAL Call Number: SF757.8 .A4
Descriptors: cats, scintigraphy, detection, flow, portal vein, anesthesia, restraint of animals, liver, heart.

McKelvey, D. and K.W. Hollingshead (1994). ***Small Animal Anesthesia: Canine and Feline Practice.***, Mosby: St. Louis, 332 p. ISBN: 0801679613.
NAL Call Number: SF991.M22
Descriptors: dogs, surgery, cats, anesthesia.

McKelvey, D. and W. Hollingshead (2000). ***Small Animal Anesthesia and Analgesia***, 2nd edition, Mosby: St. Louis, Missouri, 334 p. ISBN: 0323002730 .
NAL Call Number: SF991 .M27
Descriptors: dogs, cats, surgery, anesthesia, workplace safety, anesthetic problems and emergencies, analgesia.

McLoughlin, P., R.A. Linton, and D.M. Band (1995). **Effects of potassium and lactic acid on chemoreceptor discharge in anaesthetized cats.** *Respiration Physiology* 99(3): 303-12. ISSN: 0034-5687.
NAL Call Number: QP121. A1R4
Abstract: Both increasing [K+]a and falling pHa stimulate ventilation through an action on the peripheral chemoreceptors. We have examined the effect on afferent carotid chemoreceptor discharge, of intravenous infusion of lactic acid alone, KCl alone, and both combined at constant PETCO2 in anaesthetized, artificially ventilated cats. Infusions of lactic acid alone and KCl alone caused similar increases in both the mean and amplitude of oscillation of chemoreceptor discharge. In the case of the lactic acid alone infusion the increase in the amplitude of oscillation could be accounted for by the resultant increase in carbon dioxide production. Simultaneous infusion of KCl and lactic acid caused an increase in the mean and amplitude of the discharge which was greater than either given alone, although the combined effect was less than additive. The alterations in mean and amplitude of oscillation of discharge during infusion of both agents together may be completely accounted for by a combined effect of increased carbon dioxide production and elevated [K+]a.
Descriptors: anesthesia, carotid body, lactates, potassium, gas analysis, carbon dioxide, cats, hydrogen ion concentration, lactic acid, tomography, emission computed.

McLoughlin, P., R.A. Linton, and D.M. Band (1994). **Effects of intravenous infusions of KCl and lactic acid on chemoreceptor discharge in anaesthetized cats.** *Advances in Experimental Medicine and Biology* 360: 245-7. ISSN: 0065-2598.
NAL Call Number: QP901 A33
Descriptors: chemoreceptors, lactates, potassium chloride, anesthesia, general, carbon dioxide, cats, chemoreceptors, hydrogen ion concentration, infusions, intravenous, lactates, lactic acid, oxygen, partial pressure, potassium, potassium chloride.

McMurphy, R.M. and D.S. Hodgson (1995). **The minimum alveolar concentration of desflurane in cats.** *Veterinary Surgery* 24(5): 453-455. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: cats, inhaled anesthetics, anesthesia, lungs, concentration, potency.

McMurphy, R.M., D.S. Hodgson, and P.H. Cribb (1995). **Modification of a nonrebreathing circuit adapter to prevent barotrauma in anesthetized patients**. *Veterinary Surgery* 24(4): 352-355. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: inhaled anaesthetics, instruments, pneumothorax, case reports, surgery, anesthesia, cats.

Mealey, K.A. and N.S. Matthews (1999). **Drug interactions during anesthesia: general principles**. *Veterinary Clinics of North America, Small Animal Practice* 29(3): 629-643. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: pharmacology, anesthesia, drugs, drug combinations, pharmacodynamics, drug synergy, anesthetics, reviews, drug, cats.

Mendes, G.M. and A.L. Selmi (2003). **Use of a combination of propofol and fentanyl, alfentanil, or sufentanil for total intravenous anesthesia in cats.** *Journal of the American Veterinary Medical Association* 223(11): 1608-13. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Abstract: OBJECTIVE: To determine the cardiorespiratory effects of an i.v. infusion of propofol alone or in association with fentanyl, alfentanil, or sufentanil in cats and, for each combination, the minimal infusion rate of propofol that would inhibit a response to noxious stimuli. DESIGN: Randomized crossover study. ANIMALS: 6 cats. PROCEDURE: Cats were anesthetized 4 times in random order. After i.v. administration of fentanyl, alfentanil, sufentanil, or saline (0.9% NaCl) solution, anesthesia was induced with propofol (7 mg/kg 13.2 mg/lb], i.v.) and maintained for 90 minutes with a continuous infusion of propofol in conjunction with fentanyl (0.1 microg/kg/min [0.045 microg/lb/min]), alfentanil (0.5 microg/kg/min [0.23 microg/lb/min]), sufentanil (0.01 microg/kg/min [0.004 microg/lb/min]), or saline solution (0.08 mL/kg/min [0.036 mL/lb/min]). RESULTS: Minimal infusion rate of propofol required to prevent a response to a noxious stimulus was higher when cats received saline solution. After 70 minutes, minimal infusion rate of propofol was significantly higher with fentanyl than with sufentanil. Decreases in heart rate, systolic blood pressure, rectal temperature, and respiratory rate were detected with all treatments. Oxygen saturation did not change significantly, but end-tidal partial pressure of carbon dioxide increased with all treatments. There were no significant differences in recovery times or sedation and recovery scores among treatments. CONCLUSIONS AND CLINICAL RELEVANCE: Results suggest that infusion of propofol in combination with fentanyl, alfentanil, or sufentanil results in satisfactory anesthesia in cats.
Descriptors: intravenous anesthesia, anesthetics, combined, intravenous anesthetics, cats, alfentanil, alfentanil, anesthesia recovery period, anesthetics, combined, intravenous anesthetics, pressure, cross over studies, fentanyl, fentanyl, heart rate, infusions, intravenous, kinetics, propofol, propofol, respiration, sufentanil, sufentanil.

Miebach, H. (2000). ***Untersuchungen zum metabolischen Zustand mittels der quantitativen Saure-Basen-Analyse nach Stewart wahrend der Langzeitanasthesie bei experimental-chirurgischen Eingriffen an Katzen [Studies on metabolic acid-base-status Stewart's quantitative acid-base-analysis during long-term anesthesia***

in cats undergoing experimental surgery]. Dissertation, Tierarztliche Hochschule Hannover: Hannover, Germany. 127 p.
NAL Call Number: DISS F2000150
Descriptors: cats, anesthesia, blood pH, Stewart's quantitative acid-base analysis.
Language of Text: German with a summary in English.

Mitchell, S.K., R.L. Toal, G.B. Daniel, and B.W. Rohrbach (1998). **Evaluation of renal hemodynamics in awake and isoflurane-anesthetized cats with pulsed-wave doppler and quantitative renal scintigraphy.** *Veterinary Radiology and Ultrasound* 39(5): 451-458. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: cats, kidneys, flow, anesthesia, scintigraphy, renal function, ultrasonography, isoflurane, hemodynamics.

Mitsanyi, A. and L. Fedina (1996). **Spontaneous activity of various postganglionic sympathetic nerves in anaesthetized cats.** *Neurobiology* 4(3): 271-2. ISSN: 1216-8068.
Descriptors: efferent pathways, ganglia, sympathetic, sympathetic nervous system, anesthesia, general, cats, kidney innervation, spine innervation, tidal volume.

Miyashita, M., T. Suzuki Inatomi, and N. Hirai (2003). **Respiratory control during postural changes in anesthetized cats.** *Journal of Vestibular Research Equilibrium and Orientation* 13(2-3): 57-64. ISSN: 0957-4271.
Abstract: The effect of postural changes on respiration was investigated in ten anesthetized cats by applying body tilting during the inspiration phase while recording respiratory patterns, as given by the diaphragmatic EMG, together with either the lung volume or the air flow temperature. The results show that the head-up tilting during inspiration reduced the period of the inspiratory phase and increased the end-inspiratory lung volume. On the other hand, the head-down tilting during inspiration had opposite effects. These effects disappeared after transection of the vagus nerve. However, labyrinthectomy did not diminish the effects, probably because of functional suppression of the vestibular system due to the anesthetic. When correlating the activity of 15 vagal afferents presumably originating from the slowly adapting lung stretch receptors with lung volume changes during tilting, their maximum firing rate (87 +/- 15.7 Hz) was increased with an increase in the lung inflation volume and was attained earlier on head-up tilting and it was reduced with a decrease of the lung volume on head-down tilting (63 +/- 16.6 Hz) as compared with the value in the horizontal position (74 +/- 14.2 Hz). These results suggest that respiratory modulation during head-up or head-down tilting is consistent with the Hering-Breuer reflexes and minimizes the externally induced lung volume changes during postural changes.
Descriptors: posture, respiratory, body temperature, cats, diaphragm, electromyogrphy, electrophysiology, head down tilt, inhalation, lung, lung volume measurements, mechanoreceptors, neurons, afferent, pulmonary ventilation, reflex, tidal volume, vagotomy, vagus nerve, vagus nerve.

Mochida, K., K. Shinomiya, H. Komori, and K. Furuya (1995). **A new method of multisegment motor pathway monitoring using muscle potentials after train spinal stimulation.** *Spine* 20(20): 2240-6. ISSN: 0362-2436.

Abstract: Evoked muscle and nerve action potentials after spinal stimulation for intraoperative monitoring were investigated using a modified stimulation technique. Animal experiments and clinical application were performed. OBJECTIVES. To contrive a useful method of intraoperative motor pathway monitoring under inhalation anesthesia. SUMMARY OF BACKGROUND DATA. Many different kinds of procedures have been reported. No reliable method that reflects pure motor tract function has been established. METHODS. Characteristic of our stimulating technique was the use of numbered consecutive pulses ("train stimulation"). In 16 cats, optimum condition of train stimulation, effects of anesthetic agents, and conductive pathway were examined. In 35 patients, muscle potentials evoked by train stimulation were recorded, and clinical usefulness was evaluated. RESULTS. In the experimental study, the optimum stimulus condition was determined 1 ms interstimulous interval train of five pulses. Conductive pathway of this method was identified as a lateral column by selective spinal cord transection. In the clinical application, by using train stimulation, multisegmental muscle potentials were obtainable even using inhalation anesthetics. CONCLUSIONS. The facilitative effects of train stimulation, attributed to temporal summation, are considered to overcome the suppression of inhalation anesthesia. The evoked muscle potentials by train spinal stimulation reflect the functions of pure motor tract and is the only, extremely efficient method for intraoperative motor pathway monitoring.
Descriptors: electric stimulation, laminectomy, monitoring, intraoperative, muscles, spinal diseases, spinal diseases surgery, action potentials, inhalation anesthesia, cats, middle aged, sciatic nerve.

Moens, Y.P.S. (1996). **Drugs in the spinal cord.** *Small Animal' s Anesthesia.*, Djurkliniken.: Moelndal, Sweden, p. 33-34.
Descriptors: dogs, cats, analgesics, spine, pain, body parts, bones, disease control, drugs, musculoskeletal system, neurotropic drugs, therapy, spinal analgesia.

Moon, P.F. (1997). **Cortisol suppression in cats after induction of anesthesia with etomidate, compared with ketamine-diazepam combination.** *American Journal of Veterinary Research* 58(8): 868-71. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To evaluate duration and magnitude of adrenocortical function suppression after administration of etomidate to cats. ANIMALS: 15 purpose-bred, healthy cats. PROCEDURE: Cats were allotted to 2 groups. Anesthesia was induced with etomidate (ET, 2 mg/kg of body weight, i.v.; n = 8) or a mixture (KD, n = 7) of ketamine (5 mg/kg; i.v) and diazepam (0.25 mg/kg, i.v.). Anesthesia was maintained with halothane in all cats for 2 hours. ACTH gel (2.2 U/kg, i.m.) was administered 30 minutes after anesthesia induction. Blood samples for cortisol assay were taken before anesthesia induction (T -30), and before (T0) and at 30, 60, 120, 180, 300, and 420 minutes after ACTH administration. Anesthesia was discontinued after the T120 sample was obtained. RESULTS: After anesthesia induction, median (interquartile range [Q1-Q3]) cortisol values were significantly lower in the ET group (4 [3 to 4] micrograms/dl) at T0, compared with T -30 values and with T0 values in the KD group (5 [3 to 9] micrograms/dl). After ACTH administration, cortisol values in the ET group continued to decrease two- to threefold below T -30 values and remained decreased over the 2-hour

anesthesia period. After ACTH administration, cortisol values increased twofold for 2 hours in the KD group, compared with T -30 values. One hour after anesthesia recovery, cortisol values in the ET group (3 [2 to 3] micrograms/dl) remained significantly lower than values in the KD group (9 [7 to 11] micrograms/dl) and preanesthesia values. By T300, both groups had cortisol concentration near 7 micrograms/dl, similar to preanesthesia values. CONCLUSION: Induction of anesthesia with etomidate caused suppression of adrenocortical function during 2 hours of halothane anesthesia and 1 hour of recovery in cats. Cortisol concentration did not return to baseline until after 2 additional hours. CLINICAL RELEVANCE: Results from these healthy cats suggest profound suppression of important stress hormones after anesthesia induction with etomidate, use of which could put critically ill cats at further risk.
Descriptors: anesthesia, diazepam, etomidate, hydrocortisone secretion, ketamine, anesthesia, body temperature, cats, drug combinations, heart rate, hydrocortisone, respiration, systole, tidal volume.

Morray, J.P., R. Nobel, L. Bennet, and M.A. Hanson (1996). **The effect of halothane on phrenic and chemoreceptor responses to hypoxia in anesthetized kittens.** *Anesthesia and Analgesia* 83(2): 329-35. ISSN: 0003-2999.
Abstract: We examined the effect of halothane on phrenic never and carotid sinus discharge during hypoxia in anesthetized kittens. In 12 animals, phrenic amplitude was measured during normoxia, during isocapnic hypoxia, and after a return to normoxia, both with and without halothane. Without halothane, all animals had an increase in phrenic amplitude during hypoxia. With halothane, half the animals showed an increase in phrenic amplitude followed by a decline. In a second group of animals, recordings were obtained from single or a few fiber strands of carotid sinus nerve. Without halothane, an increase in chemoreceptor discharge frequency during hypoxia was seen. With 1.0% halothane, frequency was decreased during normoxia and did not increase during hypoxia. Thus, halothane's effect on the ventilatory response to hypoxia, as measured by phrenic discharge, is at least partially explained by an effect on peripheral chemoreceptors.
Descriptors: inhalation anesthesia, inhalation anesthetics, anoxia, chemoreceptors, halothane, phrenic nerve, action potentials, pressure, carbon dioxide, carotid sinus, carotid sinus innervation, cats, electromyogrphy, glossopHaryngeal nerve, oxygen, oxygen, respiration, signal processing, computer assisted.

Muir, A.W., T. Sleigh, R.J. Marshall, E. Pow, K.A. Anderson, L.H. Booij, and D.R. Hill (1998). **Neuromuscular blocking and cardiovascular effects of org 9487, a new short-acting aminosteroidal blocking agent, in anaesthetized animals and in isolated muscle preparations**. *European Journal of Anaesthesiology* 15(4): 467-479. ISSN: 0265-0215.
Descriptors: pharmacology, cardiovascular effects, neuromuscular blockade, aminosteroid, suxmethonium, vecuronium, neostigmine, pyridostigmine, cats, anesthesia.

Muir, W.W. (1998). **Anesthesia for dogs and cats with cardiovascular disease. II.** *Compendium of Continuing Education for the Practicing Veterinarian* 20(4): 473-484. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: dogs, cats, cardiovascular diseases, anesthesia, anesthetics, preanesthetic

medication, dosage, electrocardiograms, hemodynamics, opioids, benzodiazepines, analgesics, respiration, pressure, heart rate, body temperature, gases, cholinergic receptors, antagonists, treatment, literature reviews.

Muir, W.W. and J.E. Gadawski (2002). **Cardiovascular effects of a high dose of romifidine in propofol-anesthetized cats.** *American Journal of Veterinary Research* 63(9): 1241-6. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To determine the hemodynamic effects of IM administration of romifidine hydrochloride in propofol-anesthetized cats. ANIMALS: 15 adult domestic shorthair cats. PROCEDURE: Cats were randomly assigned to receive romifidine (0, 400, or 2,000 microg/kg, IM). Cats were anesthetized with propofol and mechanically ventilated with oxygen. The right jugular vein, left carotid artery, and right femoral artery and vein were surgically isolated and catheterized. Heart rate; duration of the PR, QRS, and QT intervals; mean pulmonary artery pressure; mean right atrial pressure; systolic, diastolic, and mean arterial pressures; left ventricular systolic pressure; left ventricular end-diastolic pressure; and cardiac output were monitored. Systemic vascular resistance, rate of change of left ventricular pressure, and rate pressure product were calculated. Arterial and venous blood samples were collected anaerobically for determination of pH and blood gas tensions (Po2 and Pco2). RESULTS: Administration of romifidine at 400 and 2,000 microg/kg, IM, decreased heart rate, cardiac output, rate of change of left ventricular pressure, rate pressure product, and pH. Arterial and pulmonary artery pressures, left ventricular pressure, left ventricular end-diastolic pressure, and right atrial pressure increased and then gradually returned to baseline values. Arterial blood gas values did not change, whereas venous Pco2 increased and venous Po2 decreased. Significant differences between low and high dosages were rare, suggesting that the dosages investigated produced maximal hemodynamic effects. CONCLUSIONS AND CLINICAL RELEVANCE: Romifidine produces cardiovascular effects that are similar to those of other alpha2-agonists. High dosages of romifidine should be used with caution in cats with cardiovascular compromise.
Descriptors: anesthetics, cardiovascular system, cats, imidazoles, imidazoles, propofol, anesthesia, anesthetics, chemical analysis, gas analysis, dose response relationship, drug, time factors.

Muir, W.W.I. (2000). **New injectable and inhalant anesthetics in cats.** *Proceedings of the North American Veterinary Conference, January 15, 2000-January 19, 2000, Orlando, Fla.,* Eastern States Veterinary Association: Gainsville, Fla., Vol. 14, p. 38-40.
Descriptors: anesthesia, intramuscular injection, inhaled anesthetics.

Muir, W.W.I. (2000). **Hypothermia in cats.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 14 : 36-37.
NAL Call Number: SF605.N672
Descriptors: anesthesia, body temperature regulation, cats, lungs, hypothermia.

Muir, W.W.I. (1999). **Anesthesia and analgesia for trauma patients.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 13: 103-105.

NAL Call Number: SF605.N672
Descriptors: dogs, cats, trauma, analgesics, pain.

Muir, W.W.I. (1994). **Anesthesia and anesthetic concerns for the critically ill.** In: *Proceedings of the North American Veterinary Conference, January 15, 1994-January 20, 1994, Orlando, Florida*, Eastern States Veterinary Association: Gainesville, Fla, 25-27 p.
Descriptors: anesthesia, intensive care, dogs, cats.

Muir, W. (2000). **Veterinary Anesthesia.** In: *Handbook of Veterinary Anesthesia*, 3rd edition, Mosby: St. Louis, MissouriISBN: 0323008011.
NAL Call Number: SF914 .M85
Descriptors: veterinary anesthesia, handbooks, manuals, euthanasia, acupuncture, intavenous anesthesia, inhalation anesthesia, neuromuscular blocking agents, fluid administration, shock.

Murison, P. (2001). **Prevention and treatment of perioperative hypothermia in animals under 5 kg bodyweight.** *In Practice* 23(7): 412, 415-418. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: anesthesia, hypothermia, prevention, treatment, body weight, dogs, cats, heat loss, pharmacodynamics.

Nagy, A., G. Eordegh, and G. Benedek (2003). **Spatial and temporal visual properties of single neurons in the feline anterior ectosylvian visual area.** *Experimental Brain Research* 151(1): 108-114. ISSN: 0014-4819.
Descriptors: nervous system, sensory reception, drifting sinusoidal grating, motion perception, neuron visual property, feline anterior ectosylvian visual area, halothane.

Nakata, A., A. Jozaki, N. Hirata, and M. Tokuriki (1994). **Crossed and uncrossed segmental synaptic effects on obliquus externus abdominis motoneurons from cutaneous and cutaneous-muscle nerve in spinal cats and alpha-chloralose-anesthetized cats.** *Journal of Veterinary Medical Science* 56(3): 503-9. ISSN: 0916-7250.
NAL Call Number: SF604 .J342
Abstract: Segmental synaptic responses in the obliquus externus abdominis (OEA) for stimulation of the dorsal cutaneous and cutaneous-muscle (CD) nerve and the ventral cutaneous and cutaneous-muscle (CV) nerve were investigated in 49 spinal cats and 28 cats under alpha-chloralose anesthesia (chloralose cats) with an intracellular recording method. The result that there was no monosynaptic PSP in OEA motoneurons for stimulation of the CD or CV nerves (containing the cutaneous-muscle nerve) indicates that the cutaneous muscle of the dorsal or ventral area does not connect monosynaptically to the OEA motoneuron. The OEA motoneurons in chloralose cats received few effects from descending pathways coming from the upper spinal cord and the brain. Almost all OEA neurons had polysynaptic EPSP responses for stimulation of the ipsilateral or contralateral CD or CV nerves at 5-10T stimulus intensity in spinal or chloralose cats, which indicates that the OEA muscle can contract bilaterally when strong impulses of superficial afferents from the left or right skin or cutaneous muscle enter in the spinal cord.
Descriptors: cats, motor neurons, muscles innervation, skin innervation, spinal cord,

synapses, anesthesia, general, chloralose, electric stimulation, evoked potentials, synaptic transmission, time factors.

Nam, T.S., E.J. Baik, Y.U. Shin, Y. Jeong, and K.S. Paik (1995). **Mechanism of transmission and modulation of renal pain in cats: Effects of transcutaneous electrical nerve stimulation on renal pain.** *Yonsei Medical Journal* 36(2): 187-201. ISSN: 0513-5796.
Abstract: Transcutaneous electrical nerve stimulation (TENS) has widely been employed as a method of obtaining analgesia in medical practice. The mechanisms of pain relief by TENS are known to be associated with the spinal gate control mechanism or descending pain inhibitory system. However, most of the studies concerning the analgesic effects and their mechanisms for TENS have dealt with somatic pain. Thus, in this experiment, we investigated the analgesic effects of TENS on renal pain as a model of visceral pain, and the characteristics of the dorsal horn cells with renal inputs. The renal pain was induced by acute occlusion of the ureter or renal artery. The main results are summarized as follows: 1) The renal nerve was composed of A beta, A delta and C fiber groups; the thresholds for each group were 400-800 mV, 1.1-1.5 V, and 2.1-5.8 V, respectively. 2) The dorsal horn cells tested received A and/or C afferent fibers from the kidney, and the more C inputs the dorsal horn cells had, the greater was the response to the stimuli that elicited the renal pain. 3) 94.9% of cells with renal input had the concomitant somatic receptive fields on the skin; the high threshold (HT) and wide dynamic range (WDR) cells exhibited a greater responses than low threshold (LT) cells to the renal pain-producing stimuli. 4) TENS reduced the C-responses of dorsal horn cells to 38.9 +/- 8.4% of the control value and the effect lasted for 10 min after the cessation of TENS. 5) By TENS, the responses evoked by acute occlusion of the ureter or renal artery were reduced to 37.5 +/- 9.7% and 46.3 +/- 8.9% of the control value, respectively. This analgesic effects lasted 10 min after TENS. 6) The responses elicited by squeezing the receptive fields of the skin were reduced to 40.7 +/- 7.9% of the control value and the effects lasted 15 min after TENS. These results suggest that most of dorsal horn cells with renal inputs have the concomitant somatic inputs and TENS can alleviate the renal pain as well as somatic pain.
Descriptors: kidney, pain therapy, transcutaneous electric nerve stimulation, cats, kidney innervation, pain.

Nastasa, V., P. Cura, and V. Vulpe (2002). **The analgesic plan: a strategy to control pain**. *Lucrai Stiinifice Medicina Veterinara,* 45(4(1)): 296-301. ISSN: 1454-7406.
Descriptors: adverse effects, analgesics, pain, cats.

Neely, C.F. and I. Matot (1996). **Pharmacological probes for A1 and A2 adenosine receptors in vivo in feline pulmonary vascular bed.** *American Journal of Physiology* 270(2 Pt 2): H610-9. ISSN: 0002-9513.
NAL Call Number: 447.8 AM3
Abstract: Under conditions of controlled pulmonary blood flow and constant left atrial pressure, adenosine produces dose-dependent, tone-dependent responses in the pulmonary vascular (PV) bed of intact-chest, spontaneously breathing cats. The potency profile for adenosine receptor agonists to produce vasoconstriction at low baseline PV tone is 5'-(N-ethylcarboxamido)adenosine > or = CGS-21680 > or = 2-chloroadenosine (2-CADO) > or = [R]-N6-(2-phenylisopropyl)adenosine (R-PIA) > or = N6-

cyclopentyladenosine > adenosine > > CV-1808. After an increase in PV tone with the use of an intralobar infusion of the thromboxane mimic U-46619, the potency profile for adenosine receptor agonists to produce vasodilation at elevated PV tone is 2-CADO > or = CV-1808 > or = CGS-21680 > R-PIA > or = adenosine. The selective A1 adenosine receptor antagonists xanthine amine congener (XAC) and 8-cyclopentyl-1,3-dipropylxanthine (DP-CPX) significantly antagonize the vasoconstrictor responses of adenosine and R-PIA at low baseline PV tone while having less effect on the vasodilator responses of adenosine, 2-CADO, and R-PIA at elevated PV tone. DPCPX antagonizes the vasoconstrictor responses of CGS-21680 at low baseline PV tone. The nonselective A1 and A2 adenosine receptor antagonist BWA-1433U significantly antagonizes vasoconstrictor responses of R-PIA and vasodilator responses of adenosine, 2-CADO, and R-PIA. These data support that adenosine produces vasoconstriction at low baseline PV tone and vasodilation at elevated PV tone in the feline PV bed by acting on A1 and A2 adenosine receptors, respectively. Compared with the adenosine receptor agonists tested in this in vivo model, R-PIA and CV-1808 are the most selective adenosine receptor agonists for A1 and A2 adenosine receptors, respectively, in the feline PV bed. R-PIA, CV-1808, DPCPX, and XAC may be used in this in vivo model to define the roles of A1 and A2 adenosine receptors in acute lung injury and pathophysiological changes in the pulmonary vasculature associated with pulmonary hypertension and edema formation in the same animal model.

Descriptors: pulmonary circulation, pulmonary circulation, receptors, purinergic p1, 15 hydroxy 11 alpha,9 alpha epoxymethanoprosta 5,13 dienoic acid, vessels, vessels, cats, dose response relationship, drug, prostaglandin endoperoxides, synthetic, receptors, purinergic p1 agonists, receptors, purinergic p1, thromboxane a2, thromboxane a2, vascular resistance, vasoconstriction, vasoconstrictor agents, vasodilation, vasomotor system.

Neely, C.F., I. Matot, D. Haile, J. Nguyen, and V. Batra (1995). **Tone-dependent responses of histamine in feline pulmonary vascular bed.** *American Journal of Physiology* 268(2 Pt 2): H653-61. ISSN: 0002-9513.

NAL Call Number: 447.8 AM3

Abstract: Under conditions of controlled pulmonary blood flow and constant left atrial pressure, histamine produced tone-dependent responses in the pulmonary vascular (PV) bed of intact-chest, spontaneously breathing cats. At low, baseline PV tone, histamine produced dose-dependent increases in mean lobar arterial pressure that were antagonized by the selective histamine H1-receptor antagonist, diphenhydramine. The cyclooxygenase inhibitor, meclofenamate, and the thromboxane A2 (TxA2) receptor antagonist, SQ-29548, had no effect on these vasoconstrictor responses of histamine. After an increase in PV tone with an intralobar arterial infusion of a TxA2 mimic, U-46619, histamine produced vasodilator responses at low doses, biphasic vasodilator/vasoconstrictor responses at midrange doses, and vasoconstrictor responses at high doses. Diphenhydramine antagonized vasoconstrictor responses and the vasodilator responses of low to midrange doses and enhanced vasodilator responses of high doses of histamine at elevated PV tone. Selective H2-receptor antagonists, ranitidine and meclofenamate, and selective H3-receptor antagonist, thioperamide, did not antagonize vasodilator responses of histamine. H1- and H2-receptor antagonism was more effective in reducing

the vasodilator responses of histamine at elevated PV tone than H1-receptor antagonism alone. These data support that histamine produces vasoconstrictor responses at low baseline and elevated PV tone by acting on H1 receptors that do not induce the release of vasoconstrictor prostanoids. At elevated PV tone, histamine produces vasodilation by acting on H1 receptors that are not coupled to the release of vasodilator prostaglandins and also, in part, by acting on H2 receptors.
Descriptors: histamine, pulmonary circulation, vasomotor system, cats, cyclooxygenase inhibitors, dose response relationship, drug, histamine agonists, histamine antagonists, hydrazines, meclofenamic acid, receptors, thromboxane.

Neely, C.F. and I.M. Keith (1995). **A-1 adenosine receptor antagonists block ischemia-reperfusion injury of the lung**. *American Journal of Physiology* 268(6 PART 1): L1036-L1046. ISSN: 0002-9513.
NAL Call Number: 447.8 Am3
Descriptors: cardiovascular system, feline, membranes, cell biology, respiratory system, respiration, lung transplantation, pulmonary edema, xanthine amine congener, 1,3 dipropyl 8 cyclopentylxanthine, A1 receptor antagonist, ischemia reperfusion injury, preconditioning.

Neely, K.A., J.T. Ernest, and T.K. Goldstick (1995). **Retinal tissue oxygen tension in normoxic cats under enflurane anesthesia.** *Investigative Ophthalmology and Visual Science* 36(9): 1943-6. ISSN: 0146-0404.
Abstract: PURPOSE. General anesthesia reduces systemic blood pressure and, thus, ocular perfusion pressure (at constant intraocular pressure). Whether this reduction in ocular perfusion pressure produces retinal hypoxia is unknown. To answer this question, the authors measured inner retinal oxygen tension in cats under general enflurane anesthesia at three clinically relevant levels of anesthesia under normoxic conditions. METHODS. Polarographic oxygen microelectrodes were used to measure inner retinal oxygen tension in cats under enflurane anesthesia at 21% inspired oxygen tension. Measurements were made in the preretinal vitreous body within 100 to 200 microns of the internal limiting membrane of the retina. Three levels of enflurane anesthesia were used: 1.2%, 2.4%, and 3.6%, corresponding to 0.5, 1.0, and 1.5 minimal alveolar concentration. Intraocular pressure of the cats was maintained at a constant normal level throughout the experiments. RESULTS. Under normoxic conditions, inner retinal oxygen tension remained unchanged or increased slightly as ocular perfusion pressure decreased with deeper levels of enflurane anesthesia. CONCLUSION. Commonly used surgical levels of enflurane general anesthesia do not cause hypoxia of the inner retina in cats breathing 21% inspired oxygen. This may be the result of preservation of retinal vascular autoregulation under enflurane anesthesia, retinal vasodilatation secondary to a direct smooth muscle relaxing effect of enflurane, or decreased retinal oxygen use under enflurane anesthesia.
Descriptors: inhalation anesthesia, enflurane, oxygen, retina, cats, microelectrodes, oxygen consumption, polarograpHy.

Nehashi, S., T. Nishino, and T. Ide (2001). **Inhaled furosemide inhibits behavioral response to airway occlusion in anesthetized cats.** *Anesthesiology* 95(5): 1234-7. ISSN: 0003-3022.

Abstract: BACKGROUND: A recent study showed that inhaled furosemide greatly improves experimentally induced dyspnea in humans. The objective of the current study is to test the hypothesis that inhaled furosemide suppresses the behavioral response to airway occlusion without changing the behavioral response to a somatic noxious stimulus in anesthetized animals. METHODS: In 10 spontaneously breathing cats anesthetized with isoflurane, anesthetic ED(50) was determined by measuring an end-tidal anesthetic concentration while observing escape behavior. The monitored behavior consisted of purposeful movement of the head and forearm after endotracheal tube occlusion. The duration from the start of airway occlusion to the onset of the positive response (DOCCL) was measured at the highest concentration of isoflurane permitting the positive motor response to airway occlusion before pretreatment. ED(50) values (minimum alveolar concentration) for the suppression of a somatic motor response to a noxious stimulus induced by toe pinch (toe-pinch ED(50)) were also determined. Then, the effects of inhaled furosemide or vehicle on the ED(50) for the suppression of the behavioral response to airway occlusion, DOCCL, and toe-pinch ED(50) were evaluated in a randomized, cross-over design. RESULTS: The ED(50) for the suppression of the behavioral response to airway occlusion significantly decreased ($P < 0.01$) and DOCCL was significantly prolonged ($P < 0.01$) after furosemide inhalation, whereas vehicle inhalation did not change these measurements. The decrease in ED(50) for the suppression of the behavioral response to airway occlusion after furosemide inhalation lasted 3 h. Furosemide inhalation did not affect the toe-pinch ED(50). CONCLUSION: Inhaled furosemide suppressed the behavioral response to airway occlusion in anesthetized animals without affecting the response to somatic noxious stimulus. The authors' animal model of respiratory distress may be applicable to the study of dyspnea in regard to its mechanism and treatment.
Descriptors: airway obstruction, inhalation anesthesia, diuretics, sulfamyl, furosemide, hemodynamic processes, isoflurane, inhalation administration, cats, diuretics, sulfamyl, furosemide.

Nelson, A.J., B.G. Ragan, G.W. Bell, R.M. Ichiyama, and G.A. Iwamoto (2004). **Capsaicin-based analgesic balm decreases pressor responses evoked by muscle afferents.** *Medicine and Science in Sports and Exercise* 36(3): 444-50. ISSN: 0195-9131.

Abstract: Capsaicin-based analgesic balm decreases pressor responses evoked by muscle afferents. Physically active individuals use countless analgesic balm (AB) products with various active ingredients daily. Despite this, few studies have investigated the mechanism of action and efficacy of AB. PURPOSE: We examined the effects of capsaicin (CAP) application on pressor responses evoked by muscle contraction (MC), which are mediated by group III and IV muscle afferents. METHODS: Heart rate (HR), blood pressure, and end-tidal CO2 were monitored in cats (N = 12) decerebrated under halothane. Decerebration eliminated anesthesia use and effects from the higher brain. Electrical stimulation of L7 and S1 ventral roots evoked static hindlimb MC (30 s). After control runs, a commercial CAP (4.95% Oleoresin Capsicum) AB was applied to the skin over the contracting muscles of one hindlimb. MC were evoked every 10 min, alternating between hindlimbs. Data were analyzed with RM ANOVA and Tukey post hoc test. RESULTS: Changes in peak mean arterial pressure (MAP) induced by static ipsilateral MC were significantly attenuated at 20 min and tended to approach baseline levels at 40

min after CAP application. The mean (+/- SEM) of the peak MAP for the ipsilateral side just before application (T = 0), at 20 min (T+20), and 40 min (T+40) were 28.3 mm Hg +/- 6.4, 13.8 mm Hg +/-2.9, and 22.6 mm Hg +/- 5.2, respectively. There were no significant changes in HR. CONCLUSIONS: Cardiovascular effects due to activation of group III and IV afferent fibers were significantly attenuated by the application of CAP. The time course of the effects appeared to support the need for repeated CAP application for pain relief. Central nervous system circuitry responsible for this effect awaits elucidation.
Descriptors: analgesics, pressure, capsaicin, heart rate, muscles innervation, afferent pathways, cats, time factors.

Nemeth, T. and M.P. Dunay (2003). **Elso magyarorszagi tapasztalatok az alfaxalone injekcios szteroid anesztetikummal kapcsolatban [First Hungarian experiences with the injectable steroid anaesthetic alfaxalone]**. *Kisallat Praxis* 4(6): 294-295. ISSN: 1585-9142.
Online: www.kisallatpraxis.hu
NAL Call Number: SF981 .K573
Descriptors: acepromazine, anesthesia, anesthetics, diazepam, xylazine, cats.
Language of Text: Hungarian.

Nishikawa, K., T. Terai, O. Morimoto, H. Yukioka, and M. Fujimori (1994). **Effects of intravenous lidocaine on cardiac sympathetic nerve activity and A-V conduction in halothane-anesthetized cats.** *Acta Anaesthesiologica Scandinavica* 38(2): 115-20. ISSN: 0001-5172.
Abstract: To study neural contributions to the alterations in intracardiac conduction induced by i.v. lidocaine, we measured cardiac sympathetic nerve activity (CSNA) simultaneously with sinus cycle length (SCL) and A-V cats. Sixteen cats were anesthetized with halothane in oxygen and mid-sternotomized. The His-bundle electrogram and CSNA were recorded from an electrode placed in the interatrial septum and from the left ventrolateral or ventromedial nerve, respectively. Atrium-His (A-H), His-Purkinje (H-V), and total intraventricular (H-S) conduction times were measured during atrial pacing conducted at a cycle length of 300 ms. In eight cats, 1 MAC, 2 MAC, and 3 MAC halothane were given during i.v. lidocaine (Groups H-1, H-2 and H-3). In the other eight cats, anesthesia was switched from halothane to i.v. alpha-chloralose (30-50 mg.kg BW-1; Group C). A significant decrease in CSNA with i.v. lidocaine, 2 mg.kg BW-1 was recognized in Groups C and H-1, but not in Groups H-2 and H-3. Prolongations of SCL during the spontaneous cycle, A-H and H-V in the paced mode following i.v. lidocaine were significant in Groups C, H-1 and H-2, but not significant in Group H-3. We conclude that i.v. lidocaine induces a significant decrease in CSNA during alpha-chloralose or 1 MAC halothane anesthesia which partly contributes to the control of intracardiac conduction.
Descriptors: inhalation anesthesia, atrioventricular node, electorcardiography, halothane, heart conduction system, lidocaine, sympathetic nervous system, atrioventricular node, pressure, bundle of his, bundle of his, cardiac pacing, artificial, cats, heart conduction system, injections, intravenous, lidocaine, neurons, efferent, neurons, efferent, purkinje fibers, purkinje fibers, sympathetic nervous system.

Nishikawa, K., M. Yabe, T. Mori, T. Terai, H. Yukioka, and M. Fujimori (1996). **The effects of dobutamine and phenylephrine on atrioventricular conduction during combined use of halothane and thoracic epidural lidocaine.** *Anesthesia and Analgesia* 82(3): 551-7. ISSN: 0003-2999.

Abstract: The purpose of this study was to measure cardiac sympathetic nerve activity (CSNA) and atrioventricular (AV) conduction and to test the effects of dobutamine (DOB) and phenylephrine (PHE) on AV conduction during combined use of halothane and thoracic epidural lidocaine. Cats were anesthetized with 1 % halothane and an epidural catheter was inserted through T-9 laminectomy. His bundle and atrial electrocardiograms were obtained and atrial electric stimulation was performed using quadripolar catheter electrodes. Cats underwent left thoracotomy, and CSNA was recorded directly from the left ventrolateral or ventromedial nerve. In addition to sinus cycle length (SCL) measurement during spontaneous beating, the functional refractory period (FRP) of the atrioventricular node (AV node), effective refractory period (ERP) of the atrium, atrium-His (A-H) intervals were determined just before and 10, 20, and 30 min after epidural administration of 1% lidocaine (0.2 mL/kg) in Group C. DOB 5 micrograms/kg/min (Group DOB) and PHE 0.5-1.0 micrograms/kg/min (Group PHE) were intravenously administered from 12 to 22 min after epidural lidocaine. CSNA and mean arterial pressure (MAP) were markedly decreased and SCL, FRP of AV node, ERP of atrium and A-H interval were significantly prolonged after epidural lidocaine. MAP increased to baseline level during DOB or PHE infusion. Worsening of cardiac electrophysiological variables was improved with DOB infusion, but did not change with PHE infusion. We conclude that thoracic epidural lidocaine during halothane anesthesia almost eliminates CSNA, and thereby attenuates sinus node automaticity and AV node function. DOB restored normal cardiac electrophysiological variables, and therefore is preferable to phenylephrine as a pressor drug.

Descriptors: adrenergic alpha agonists, adrenergic beta agonists, anesthesia, epidural, inhalation anesthetics, local anesthetics, atrioventricular node, dobutamine, lidocaine, pHenylepHrine, sympathomimetics, inhalation anesthesia, pressure, bundle of his, cats, electorcardiography, halothane, heart rate, injections, intravenous, sympathetic nervous system, thoracic vertebrae.

Nishikawa, Y., N. Koyama, Y. Yoshida and T. Yokota (1995). **Effects of intravenous morphine on responses of thalamic nociceptive neurons in cats**. In: *Brain and Oral Functions: Oral Motor Function and Dysfunction: International Congress Series*, Vol. 1079, Elsevier Science Publishing Co. New York, New York, USA, p. 617-620. ISBN: 0444819630.

Descriptors: cell biology, dental and oral system, cats, nervous system, analgesic drug, morphine, antagonist, book chapter, central stimulant drug, meeting paper, naloxone, pain, splanchnic afferents.

Notes: Meeting Information: Osaka International Oral Physiology Symposium on Brain and Oral Function, Osaka, Japan; September 3-5, 1994.

Niwa, H., Y. Hirota, T. Shibutani, K. Sugiyama, and H. Matsuura (1996). **The effects of the hypothalamus on hemodynamic changes elicited by vagal nerve stimulation.** *Anesthesia Progress* 43(2): 41-51. ISSN: 0003-3006.

Abstract: To investigate the means by which neurogenic shock or syncope occur in

dentistry, we determined the hemodynamic response to the activation of vagal tone in cats while they were under emotional stress. The hypothalamus and the vagal nerve were electrically stimulated to produce emotional stress and to activate vagal tone, respectively. Hemodynamic changes were recorded during vagal stimulation (Va group) and during vagal stimulation preceded by hypothalamic stimulation (AH + Va group). Although blood pressure decreased in both groups, the degree of hypotensive response in the AH + Va group was greater than the response in the Va group. Total peripheral resistance (TPR) was reduced in the AH + Va group but was increased in the Va group. The blood flow to the skeletal muscles in the AH + Va group was greater than that of the Va group. Reduced TPR, which could be due to vasodilation in the skeletal muscles, was the cause of intensified hypotension in the AH + Va group. Clearly, the hypotension produced by vagal stimulation was worsened when it was preceded by hypothalamic stimulation; this occurrence could be related to the tendency of blood to flow to the skeletal muscles.
Descriptors: hypothalamus, anterior, stress, psychological, vasovagal syncope, vagus nerve, analysis of variance, cats, animal disease models, electric stimulation, hypotension, hypotension, pain, nonparametric statistics, translations, trigeminal nerve.

Nizioek, R. and J. Wypart (2000). **Postepowanie anestetyczne u pacjentow z chorobami ukadu krazenia - czesc I [Anaesthetic considerations in patients with cardiovascular diseases. Part I]**. *Magazyn Weterynaryjny* 9(49): 37-41. ISSN: 1230-4425.
Descriptors: anesthesia, cardiovascular diseases, risk factors, cats.
Language of Text: Polish.

Norman, W.M., N.H. Dodman, M.H. Court, and D.C. Seeler (1995). **Traumatize kucuk hayvanlarn anestezi yonunden degerlendirilmesi [Anaesthetic management of the traumatized small animal patient]**. *Veteriner Cerrahi Dergisi* 1(1): 49-52. ISSN: 1300-7106.
Descriptors: anesthesia, pets, burns, orthopedics, trauma, cats.
Language of Text: Turkish.

Novo, R.E., J. Churchill, L. Faudskar, and A.J. Lipowitz (2001). **Limited approach to the right flank for placement of a duodenostomy tube.** *Journal of the American Animal Hospital Association* 37(2): 193-199. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: cats, nutritional support, tube feeding, duodenum, surgery, laparotomy, local anesthesia.

Nowak, L.G., M.H. Munk, J.I. Nelson, A.C. James, and J. Bullier (1995). **Structural basis of cortical synchronization. I. Three types of interhemispheric coupling.** *Journal of Neurophysiology* 74(6): 2379-400. ISSN: 0022-3077.
Abstract: 1. Single-unit and multiunit activities were recorded at the area 17-18 border of each cortical hemisphere in paralyzed cats anesthetized with nitrous oxide supplemented with halothane. Cross-correlation histograms (CCHs) were computed between 86 pairs of single units and 99 pairs of multiunit activities. Visually evoked peaks in the CCHs were removed by subtracting the shift predictor. 2. Three types of CCH peaks were observed: T peaks with narrow widths (4-28 ms), C peaks with intermediate widths (30-100 ms), and H peaks with large widths (100-1,000 ms). Oscillatory coupling

was observed rarely. This tripartite distribution of CCH peaks is similar to that reported in an earlier study on the temporal coupling between areas 17 and 18. Different types of peaks occurred in isolation or in combination. Combination of different peak types was more often observed in multiunit recordings. 3. CCH peaks of all types were usually centered, meaning that units in opposite hemispheres tend to synchronize their discharges. 4. T peaks were observed almost exclusively for units with overlapping receptive fields and preferentially for units with similar optimal orientations. No dependence on receptive field position or optimal orientation was observed for the encounter rate of C and H peaks. 5. A new method, called the peristimulus CCH, was developed to study the time course of the temporal coupling. This showed that H peaks can occur during visual stimulation and that their time course follows that of the visual responses of the coupled neurons. 6. Using one single bar or two simultaneously presented light bars as stimuli, we studied the effect of visual stimulation on the strength of H coupling. This showed that H coupling observed under stimulation with a single moving light bar can be completely abolished, with little change in visual responses, when the stimulus is changed to two noncoherently moving bars. This was related to a strong decrease of the H peaks in the autocorrelograms. 7. These results demonstrate that T, C, and H peaks constitute, together with high-frequency oscillations, universal forms of temporal coupling between neurons located in different cortical areas. The following paper reports on the effects of cortical lesions on the encounter rate and strength of these different types of coupling.
Descriptors: cerebral cortex, cortical synchronization, laterality, anesthesia, cats, electrodes, implanted, electroencephalography, photic stimulation, visual fields.

Nunes, N., A.A. Camacho, S.N. Kronka, and J.L.O. Costa (1996). **Electrocardiographic study of the anaesthetic combination of ketamine and chlorpromazine HCL in cats**. *Brazilian Journal of Veterinary Research and Animal Science* 33(SUPPL.): 313-316. ISSN: 0303-7525.
Descriptors: anesthesia, ketamine, chlorpromazine, electrocardiograms, heart rate, body temperature, cats.
Language of Text: English; Summary in Portuguese.

Nunez, R. and S. Roth (1994). **Eye injury, intraocular pressure, succinylcholine, and eye extrusion: an experimental study in cats**. *Anesthesiology* 81(3A): A1098. ISSN: 0003-3022.
Descriptors: muscular system, sensory reception, toxicology, anesthesia, relaxant, toxicity, cats, succinylcholine .

Ogawa, M., Y. Magata, Y. Ouchi, H. Fukuyama, H. Yamauchi, J. Kimura, Y. Yonekura, and J. Konishi (1994). **Scopolamine abolishes cerebral blood flow response to somatosensory stimulation in anesthetized cats: PET study.** *Brain Research* 650(2): 249-52. ISSN: 0926-6410.
Abstract: The effect of the cholinergic blocker, scopolamine on the cerebral blood flow (CBF) response to vibrotactile stimulation of a fore paw was studied using high-resolution positron emission tomography and H2 15O in 5 pentobarbital-anesthetized cats. Before scopolamine injection, the CBF response to the stimulation was found in the contralateral somatosensory cortex (mean ratio (contralateral/ipsilateral) control:

stimulated 1.02 +/- 0.02: 1.17 +/- 0.05; P < 0.01). After intravenous injection of scopolamine (0.35 mg/kg), the CBF response was abolished. However, the cerebral metabolic rate of glucose (CMRGlu) response to the same stimulation was unchanged after scopolamine injection in the same cats. We concluded that scopolamine abolishes the CBF response but not neuronal response to stimulation. We suggest that cholinergic mechanisms may play an important role for mediating CBF coupling to neuronal activity during physiological stimulation.
Descriptors: anesthesia, cerebrovascular circulation, scopolamine, brain, cats, deoxyglucose, deoxyglucose, fluorodeoxyglucose f18, glucose, magnetic resonance imaging, physical stimulation, tomography, emission computed.

Ohashi, K., K. Nishikawa, M. Hatano, T. Mori, and A. Asada (2002). **Dose-related attenuation of cardiac sympathetic nerve activity and intracardiac conduction with thoracic epidural clonidine in alpha-chloralose-anesthetized cats.** *Osaka City Medical Journal* 48(1): 45-58. ISSN: 0030-6096.
Abstract: Epidural clonidine produces hypotension, bradycardia and sympatholysis. We studied the dose-effects of thoracic epidural and intravenous clonidine (1 to 8 microg/kg) on cardiac sympathetic nerve activity (CSNA), hemodynamics and intracardiac conduction in cats anesthetized with alpha-chloralose. Mean arterial pressure was decreased with epidural clonidine doses above 2 microg/kg, and to a greater extent with 4 microg/kg than 8 microg/kg. Sinus heart rate, Wenckebach atrial rate and CSNA were significantly decreased and corrected sinus node recovery time and Atrium-His interval were significantly prolonged with doses above 2 microg/kg. Vagotomy induced no significant change in these parameters. Thoracic epidural clonidine doses above 2 microg/kg caused a similar extent of sympatholysis. Less of CSNA decrease and hemodynamic changes by intravenous clonidine suggested that sympatholysis caused by epidural clonidine was primarily mediated by spinal mechanism, although hemodynamic changes were influenced by clonidine systemically redistributed from epidural space. Vagal facilitation played no role in suppression of the sinoatrial and AV nodal functions.
Descriptors: clonidine, heart innervation, heart conduction system, sympathetic nervous system, anesthesia, pressure, cats, chloralose, dose response relationship, drug, epidural space, heart conduction system, heart rate.

Orem, J. and R. Lydic (2002). **Upper airway function during sleep and wakefulness: experimental studies on normal and anesthetized cats.** *Sleep* 25(5): 49-68. ISSN: 0161-8105.
Descriptors: sleep apnea, obstructive, sleep, rem, wakefulness, anesthesia, brain stem, cats, cricoid cartilage, diaphragm, electric stimulation instrumentation, electrodes, implanted, electrooculography, inspiratory capacity, laryngeal muscles, sleep stages.

Osawa, M., K. Shingu, M. Murakawa, T. Adachi, J. Kurata, N. Seo, T. Murayama, S. Nakao, and K. Mori (1994). **Effects of sevoflurane on central nervous system electrical activity in cats.** *Anesthesia and Analgesia* 79(1): 52-7. ISSN: 0003-2999.
Abstract: We analyzed the effect of a new volatile anesthetic, sevoflurane (2%-5% in oxygen) on the electroencephalogram (EEG) of the neocortex, amygdala, and hippocampus, cortical somatosensory evoked potential (SEP), and brainstem reticular multiunit activity (R-MUA) in cats. Sevoflurane suppressed the background activity of the

neocortex more than the amygdala and hippocampus. With increasing concentration of sevoflurane, the cortical EEG progressed from high-amplitude slow waves to a suppression-burst pattern, which was followed by an isoelectric pattern and then spikes with isoelectricity. The amplitude of the SEP was augmented and the R-MUA was suppressed by sevoflurane in a dose-related manner. Repetitive peripheral electrical stimulation induced generalized seizures at 5% sevoflurane in 2 of 13 cats. These results suggest that sevoflurane suppresses the background central nervous system electrical activities in a dose-related manner, leaving the reactive capabilities facilitated at deep anesthesia.

Descriptors: anesthetics, brain, ethers, methyl ethers, brain, cats, electroencephalography, electrophysiology, evoked potentials, somatosensory, reticular formation, reticular formation.

Oshima, T. and S. Dohi (2004). **Isoflurane facilitates hiccup-like reflex through gamma aminobutyric acid (GABA)A- and suppresses through GABAB-receptors in pentobarbital-anesthetized cats.** *Anesthesia and Analgesia* 98(2): 346-52. ISSN: 0003-2999.

Abstract: The mechanism by which volatile anesthetics exert inconsistent effects on hiccups is unknown. We elicited a hiccup-like reflex by mechanical stimulation of the dorsal epipharynx in mechanically ventilated cats. The magnitude of the hiccup-like reflex was measured as the peak negative esophageal pressure (nPes) generated against an occluded airway. First, we examined the effects of different end-expiratory concentrations of isoflurane on nPes. Second, we determined the effects of 1.0 minimum alveolar anesthetic concentration of isoflurane on nPes after a peripherally restricted gamma aminobutyric acid (GABA)(A)-receptor antagonist, bicuculline methiodide (BM), a GABA(B)-receptor antagonist, CGP 35348, a peripherally restricted GABA(B)-receptor antagonist, CGP 54626, or saline had been administered IV. Third, BM, CGP 35348, or artificial cerebrospinal fluid was administered intracisternally before 1.0 minimum alveolar anesthetic concentration of isoflurane exposure. During isoflurane anesthesia, nPes was inversely proportional to the end-expiratory isoflurane concentration. The rank order of nPes values obtained after IV drug pretreatment and isoflurane exposure was BM < saline < CGP54626 < CGP35348. After intracisternal drug pretreatment and isoflurane administration, the order of nPes was BM < artificial cerebrospinal fluid < CGP35348. Isoflurane modulates the hiccup-like reflex in opposite directions through both central and peripheral GABA(A) and GABA(B) receptors, with the net effect being a dose-dependent suppression. IMPLICATIONS: Isoflurane facilitated the hiccup-like reflex through activation of central and peripheral gamma aminobutyric acid (GABA)(A) receptors but suppressed it via activation of central and peripheral GABA(B) receptors. The net result was that the hiccup-like reflex was inhibited in proportion to the alveolar isoflurane concentration.

Descriptors: anesthesia, inhalation anesthetics, gaba modulators, hiccup, isoflurane, pentobarbital, receptors, gaba a, receptors, gaba b, inhalation anesthetics toxicity, bicuculline, pressure, cats, cisteRNA magna, electromyogrphy, gaba agonists, gaba antagonists, heart rate, hyperventilation, injections, injections, intravenous, isoflurane toxicity, organophosphorus compounds, pharynx, physical stimulation, respiration, artificial.

Ostwald, P., S.S. Park, A.Y. Toledano, and S. Roth (1997). **Adenosine receptor blockade and nitric oxide synthase inhibition in the retina: impact upon post-ischemic hyperemia and the electroretinogram.** *Vision Research* 37(24): 3453-3461. ISSN: 0042-6989.

NAL Call Number: QP474 .I5

Abstract: We preformed this study to determine the effect on ocular blood flow and the electroretinogram of either nitric oxide synthase (NOS) inhibition, adenosine receptor blockade or the combination of both after 1 hr of ocular ischemia. Thirty-seven cats under general anesthesia were subjected to 1 hr of complete ischemia in one eye by raising the intraocular pressure above systolic blood pressure. The other eye in each animal served as a non-ischemic control. Arterial blood gas tension, systemic arterial pressure, body temperature, hematocrit, and anesthetic level were controlled in each experiment. Cats were divided into four groups. Group 1 received normal saline injections [intravenous (i.v.) and intravitreal], Group 2 adenosine receptor blockade (0.1 ml of 0.01 M 8-sulfophenyltheophylline intravitreal) and saline i.v., Group 3 NOS inhibition (30 mg/kg l-NG-nitroarginine-methyl-ester i.v.) and saline intravitreal, and Group 4 intravitreal adenosine receptor blockade and NOS inhibition i.v. A subset of Group 3 received l-arginine to investigate the reversibility of NOS inhibition, after the blood flow measurements were completed. Five minutes after the end of ischemia, blood flows in retina and choroid were measured using injections of radioactively labeled microspheres. Electroretinographic (ERG) studies were carried out before treatment, before ischemia, during ischemia, and 1, 2, 3, and 4 hr after ischemia ended. NOS inhibition significantly reduced basal blood flow in the choroid, and in the retina when combined with adenosine receptor blockade. Adenosine receptor blockade completely attenuated post-ischemic hyperemia in the retina, but retinal hyperemia reappeared when adenosine receptor blockade and NOS inhibition were combined. Adenosine receptor blockade had no effect on ERG recovery after ischemia. NOS inhibition led to a reduction of ERG a- and b-wave amplitudes in control eyes, that could be reversed by l-arginine. Nitric oxide (NO) appears to be a significant factor in the regulation of basal blood flow in the choroid. Adenosine appears to be a major mediator of retinal hyperemia after 60 min of ischemia. Since NOS inhibition appeared to have direct effects on ERG wave amplitudes, short-term ERG studies may be of limited use in assessing the role of NO in postischemic recovery of the retina. Our observations correlate well with the emerging role of NO as a neurotransmitter in the retina.

Descriptors: ischemia, ng nitroarginine methyl ester, nitric oxide synthase, analysis of variance, arginine, cats, choroid supply, choroid, electroretinography, hyperemia, microspheres, regional flow, retina, theophylline.

Ostwald, P. and S. Roth (1995). **Effect of nitric oxide synthase inhibition on blood flow after retinal ischemia in cats**. *Anesthesiology* 83(3A): A722. ISSN: 0003-3022.

Descriptors: transport and circulation, biochemistry, cats, retinal ischemia, hyperemia, intraocular pressure, n g nitro arginine methyl ester, nitric oxide synthase inhibition.

Ozaki, H. and R. Nishimura (2000). **Clinical pharmacology for treatment of small animals. 30. Injectable general anaesthetics (1)**. *Journal of Veterinary Medicine, Japan* 53(5): 419-423. ISSN: 0447-0192.

Descriptors: anesthesia, pentobarbital, thiopental, ketamine, propofol, injectable anaesthetics, reviews, cats.
Language of Text: Japanese.

Ozaki, H. and R. Nishimura (2000). **Clinical pharmacology for treatment of small animals. 32. Local anaesthetics**. *Journal of Veterinary Medicine, Japan* 53(8): 675-678. ISSN: 0447-0192.
Descriptors: local anaesthetics, reviews, cats.
Language of Text: Japanese.

Ozaki, H. and R. Nishimura (2000). **Clinical pharmacology for treatment of small animals. 31. Injectable general anaesthetics (2)**. *Journal of Veterinary Medicine, Japan* 53(6): 513-516. ISSN: 0447-0192.
Descriptors: anesthesia, reviews, cats.
Language of Text: Japanese.

Ozaki, H. and R. Nishimura (1998). **Clinical pharmacology for treatment of small animals. 12. Non-steroidal antiinflammatory drugs (NSAIDs). (1). Antipyretic and analgesic agents**. *Journal of Veterinary Medicine, Japan* 51(10): 811-818. ISSN: 0447-0192.
Descriptors: non steroidal anti-inflammatory agents, aspirin, flunixin, anti-inflammatory agents, cats.
Language of Text: Japanese.

Ozaki, H. and R. Nishimura (1998). **Clinical pharmacology for treatment of small animals. 8. Inhalation anaesthetics (2)**. *Journal of Veterinary Medicine, Japan* 51(4): 317-321. ISSN: 0447-0192.
Descriptors: nitrous oxide, ethers, halothane, isoflurane, anesthesia, anesthetics, inhaled anesthetics, cats.
Language of Text: Japanese.

Ozaki, H. and R. Nishimura (1998). **Clinical pharmacology for treatment of small animals. 7. Inhalation anaesthetics (1)**. *Journal of Veterinary Medicine, Japan* 51(3): 245-250. ISSN: 0447-0192.
Descriptors: anesthesia, anesthetics, inhaled anesthetics, cats.
Language of Text: Japanese.

Paddleford, R.R. (1999). **Analgesia and pain management**. In: R.R. Paddleford (Editor), *Manual of Small Animal Anesthesia*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 227-246. ISBN: 0721649695.
Descriptors: pets, anesthesia, pain, analgesics, dogs, cats.

Paddleford, R.R. (1999). **Anesthetic agents**. In: R.R. Paddleford (Editor), *Manual of Small Animal Anesthesia*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 31-77. ISBN: 0721649695.
NAL Call Number: SF914.M36
Descriptors: anesthesia, anesthetics, pets, neurotropic drugs, dogs, cats.

Pare, D., J. Dong, and H. Gaudreau (1995). **Amygdalo-entorhinal relations and their reflection in the hippocampal formation: generation of sharp sleep potentials.** *Journal of Neuroscience* 15(3 Pt 2): 2482-503. ISSN: 0270-6474.

Abstract: While the anatomical relations between the amygdala, parahippocampal cortices, and hippocampus have been studied extensively, little is known about how they interact. To address this issue, we studied the timing of entorhinal (ENT), subicular, and basolateral amygdaloid (BL) discharges with respect to previously unknown population events, hereafter termed sharp potentials (SPs), that appear in the ENT cortex of cats during EEG-synchronized states. SPs occurred in two forms. Simple SPs were monophasic potentials, negative in deep ENT layers and positive in layer I. Complex SPs appeared as simple SPs interrupted by a brief potential of opposite polarity. Simple SPs had no hippocampal correlate whereas complex SPs were followed by large potentials that could be recorded at several levels of the hippocampal loop under barbiturate anesthesia, but not beyond the dentate gyrus in natural sleep. In agreement with this, layer II ENT neurons and most subicular cells fired only in relation to complex SPs under anesthesia. Layer II ENT neurons fired in phase with SPs whereas subicular neurons fired 20-40 msec later. In contrast, BL cells, layers IV-VI and layer III ENT neurons fired sequentially in relation to SPs with BL cells discharging as early as 40 msec before SPs. Finally, amygdala lesions abolished ENT SPs. These results suggest that the BL complex plays an essential role in the generation of population events that are transmitted to the ENT cortex. This is the first demonstration that spontaneous events occurring in the amygdala are reflected in the activity of related cortices. In turn, layer II ENT neurons gate the transfer of incoming inputs to the hippocampus. These findings shed light on the elaboration of normal and pathological activities in the amygdalo-hippocampal network.

Descriptors: amygdala, brain mapping, entorhinal cortex, hippocampus, polysomnography, sleep, action potentials, arousal, arousal, cats, neural pathways, pentobarbital, sleep.

Pare, D., E. Lebel, and E.J. Lang (1997). **Differential impact of miniature synaptic potentials on the soma and dendrites of pyramidal neurons in vivo.** *Journal of Neurophysiology* 78(3): 1735-9. ISSN: 0022-3077.

Abstract: We studied the impact of transmitter release resistant to tetrodotoxin (TTX) in morphologically identified neocortical pyramidal neurons recorded intracellularly in barbiturate-anesthetized cats. It was observed that TTX-resistant release occurs in pyramidal neurons in vivo and at much higher frequencies than was previously reported in vitro. Further, in agreement with previous findings indicating that GABAergic and glutamatergic synapses are differentially distributed in the somata and dendrites of pyramidal cells, we found that most miniature synaptic potentials were sensitive to gamma-aminobutyric acid-A (GABA(A)) or alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) antagonists in presumed somatic and dendritic impalements, respectively. Pharmacological blockage of spontaneous synaptic events produced large increases in input resistance that were more important in dendritic (approximately 50%) than somatic (approximately 10%) impalements. These findings imply that in the intact brain, pyramidal neurons are submitted to an intense spike-independent synaptic bombardment that decreases the space constant of the cells. These

results should be taken into account when extrapolating in vitro findings to intact brains.
Descriptors: dendrites, pyramidal cells, synapses, anesthesia, barbiturates, cats, dendrites, dendrites ultrastructure, electroencephalography, excitatory amino acid antagonists, membrane potentials, membrane potentials, pyramidal cells, pyramidal cells ultrastructure, quinoxalines, receptors, AMPA, receptors, GABA(A), synapses, synapses ultrastructure, synaptic membranes, synaptic membranes, tetrodotoxin.

Pascoe, P. (1997). **Local and regional anesthesia and analgesia.** *Seminars on Veterinary Medical Surgery of Small Animals* 12(2): 94-105. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: cats, pain, control, anesthesia, body regions, local anesthesia, analgesics, surgery, preemptive analgesia.

Pascoe, P.J. (2000). **Opioid analgesics**. *Veterinary Clinics of North America, Small Animal Practice* 30(4): 757-772. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: analgesics, pain, treatment, opioids, neurotropic drugs, cats.

Pascoe, P.J., J.E. Ilkiw, and L.D. Fisher (1997). **Cardiovascular effects of equipotent isoflurane and alfentanil/isoflurane minimum alveolar concentration multiple in cats.** *American Journal of Veterinary Research* 58(11): 1267-73. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To determine whether administration of opioids to anesthetized cats induced less cardiovascular depression than that induced by an equivalent amount of anesthetic alone, and to measure endocrine responses to a noxious stimulus. ANIMALS: 6 healthy female cats. PROCEDURE: Anesthesia was induced with isoflurane and was maintained for 60 minutes at 1.3 isoflurane MAC. Blood gas tensions, pH, and plasma alfentanil and hormone concentrations, blood pressures, and cardiac output were measured. A noxious stimulus was applied for 5 minutes, while blood acquisition and measurements were repeated. Alfentanil was administered i.v. to achieve estimated plasma concentration of 500 ng/ml, and end-tidal isoflurane concentration was reduced by 35%. After another 60 minutes, blood was obtained and measurements were taken, then a second 5-minute noxious stimulus was applied while blood acquisition and measurements were retaken. RESULTS: Alfentanil administration and reduction of isoflurane concentration significantly increased body temperature, heart rate, mean arterial pressure, mean pulmonary arterial pressure, stroke index, cardiac index, hemoglobin, oxygen delivery index, PvO2 and PvCO2, dopamine, epinephrine (EPI), norepinephrine (NOREPI), and cortisol values, and significantly decreased arterial and venous pH. Application of a noxious stimulus significantly increased heart rate, stroke index, cardiac index, PaO2, oxygen delivery index, arterial and venous pH, and NOREPI values, and decreased bicarbonate, PaCO2, PvCO2, and EPI values. Alfentanil administration blunted cardiac index, PaCO2, oxygen delivery index, arterial pH, PaO2, and EPI, and NOREPI responses to a noxious stimulus. CONCLUSIONS: Compared with isoflurane alone, alfentanil administration and reduction of isoflurane MAC improved cardiovascular variables, and blunted respiratory, hormonal, and most hemodynamic responses to a noxious stimulus in cats. CLINICAL RELEVANCE: Use of the balanced opioid anesthesia regimen induced some beneficial effects in healthy cats;

effects were similar to, although greater in nature, than effects induced by a noxious stimulus.
Descriptors: alfentanil, inhalation anesthetics, intravenous anesthetics, cardiovascular, cats, isoflurane, pulmonary alveoli, acid base equilibrium, alfentanil, alfentanil analysis, inhalation anesthetics, inhalation anesthetics analysis, intravenous anesthetics, intravenous anesthetics analysis, bicarbonates, gas analysis, pressure, pressure, body temperature, body temperature, catecholamines, dose response relationship, drug, drug combinations, drug interactions, heart rate, heart rate, hemoglobins analysis, hydrogen ion concentration, isoflurane, isoflurane analysis, oxygen consumption, oxygen consumption, stroke volume, stroke volume, time factors.

Pascoe, P.J. and P.F. Moon (2001). **Periparturient and neonatal anesthesia.** *Veterinary Clinics of North America, Small Animal Practice* 31(2): 315-40. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Abstract: Small animal patients may need to be anesthetized in the periparturient period for emergency, nonobstetric reasons, elective ovariohysterectomy, or cesarean section. In each case, the physiologic changes in the dam must be accounted for in designing an anesthetic protocol, but the requirements of the fetuses will be different. Subsequent to birth, the neonatal animal may need to be anesthetized, and the unique physiology and pharmacology at this age is described.
Descriptors: anesthesia, general, anesthesia, obstetrical, animals, newborn, cats, dogs.

Pedersen, K.M., M.A. Butler, A.K. Ersboll, and H.D. Pedersen (2002). **Evaluation of an oscillometric blood pressure monitor for use in anesthetized cats.** *Journal of the American Veterinary Medical Association* 221(5): 646-50. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Abstract: OBJECTIVE: To determine accuracy of an oscillometric blood pressure monitor used over a wide range of pressures in anesthetized cats. DESIGN: Prospective study. ANIMALS: 6 healthy cats. PROCEDURE: 4 female cats and 2 male cats that weighed 2.7 to 4.5 kg (5.9 to 9.9 lb) and were 2 to 8 years old were anesthetized. Blood pressure was measured directly with an arterial catheter placed in the right femoral artery and indirectly from the left antebrachium by use of an oscillometric monitor. A series of diastolic arterial pressure (DAP), mean arterial pressure (MAP), and systolic arterial pressure (SAP) measurements were obtained during hypotension, normotension, and hypertension. Values obtained indirectly and directly were compared. RESULTS: The oscillometric monitor was accurate for DAP and MAP throughout the entire pressure range and met the standards of the Association for the Advancement of Medical Instrumentation (mean +/- SD difference from values obtained directly, < or = 5 +/- 8 mm Hg). The SAP was increasingly underestimated with increasing overall pressure; mean differences from direct measurements were -5.2, -12.1, and -17.7 mm Hg during hypo-, normo-, and hypertension, respectively. Standard deviations for SAP were all < or = 8 mm Hg. The monitor gave readings during all attempts. The direct blood pressure recording system appeared to perform well with neither under- nor overdamping. CONCLUSIONS AND CLINICAL RELEVANCE: Except for a minor underestimation of SAP during normo- and hypertension, the oscillometric monitor yielded reliable and easily obtainable blood pressure measurements in anesthetized cats.

Descriptors: anesthesia, pressure, pressure determination, pressure monitors, cats, pressure determination, pressure monitors standards, oscillometry, prospective studies, reproducibility of results, sensitivity and specificity.

Perkowski, S.Z. (2000). **Anesthesia for the emergency small animal patient**. *Veterinary Clinics of North America, Small Animal Practice* 30(3): 509-530. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: anesthesia, pets, emergencies, intensive care, monitoring, cats.

Pierrefiche, O., A.S. Foutz, J. Champagnat, and M. Denavit Saubie (1994). **NMDA and non-NMDA receptors may play distinct roles in timing mechanisms and transmission in the feline respiratory network.** *The Journal of Physiology* 474(3): 509-23. ISSN: 0022-3751.
Abstract: 1. Activation of N-methyl-D-aspartate (NMDA) glutamate receptors in the brainstem network of respiratory neurones is required to terminate inspiration in the absence of lung afferents, but it is not required in the inspiratory motor act of lung inflation. In the present study we examined the involvement of non-NMDA ionotropic glutamate receptors in these two mechanisms in the adult mammal. 2. Adult cats were either decerebrated or anaesthetized with sodium pentobarbitone, paralysed and ventilated. Inspiratory motor output was recorded from the phrenic nerve and central respiratory activity from neurones in the bulbar ventral respiratory group. 3. In decerebrate vagotomized cats, ionophoretic application of 2,3-dihydroxy-6-nitro-7-sulphamoylbenzo(F)quinoxaline (NBQX) onto single respiratory neurones decreased their spontaneous discharge rate and abolished the excitatory effect of exogenously applied (RS) alpha-amino-3-hydroxy-5-methyl-4-isoxazoleproprionic acid (AMPA) but not NMDA. 4. In these animals, intravenous infusion (12 mg kg-1) of the non-NMDA receptor blockers GYKI 52466 (1-(4-aminophenyl)-4-methyl-7,8-methylene-dioxy-5-H-2,3-benzodi aze pine) or NBQX: (1) decreased (in 10/15 cats) or abolished (in 5/15 cats) the inspiratory-related discharge of the phrenic nerve; (2) did not prolong the inspiratory phase; (3) reduced or abolished the spontaneous discharge of respiratory neurones; and (4) profoundly decreased the excitatory effects of AMPA but not NMDA ionophoresed onto these neurones. When both the phrenic nerve and the recorded respiratory neurone were silenced, neuronal excitation by ionophoretic application of NMDA first revealed a subthreshold respiratory modulation without lengthening of the inspiratory phase, then respiratory modulation became undetectable. 5. Additional blockade of NMDA receptors by a small dose (0.15 mg kg-1) of dizocilpine (MK-801), abolished the phrenic nerve activity which persisted after NBQX (apnoea), but the discharge or the subthreshold modulation of the bulbar respiratory neurones showed a lengthening of the inspiratory phase (apneusis). 6. Elevation of FA,CO2 increased or re-established phrenic nerve discharges after blockade of non-NMDA receptors or of both NMDA and non-NMDA receptors. 7. Small doses of NBQX or GYKI 52466 induced apnoea in five of five cats anaesthetized with sodium pentobarbitone. 8. In decerebrate animals with intact vagi, GYKI 52466 and NBQX depressed the Hering-Breuer expiratory-lengthening reflex. 9. The results suggest that: (1) there is a specialization of different classes of glutamate receptors participating in timing mechanisms and transmission within the mammalian respiratory network. Neural transmission predominantly involves activation of non-

NMDA receptors, acting in synergy with NMDA receptors.
Descriptors: anti anxiety agents, n methylaspartate, receptors, glutamate, receptors, n methyl d aspartate, respiration, action potentials, anesthesia, benzodiazepines, pressure, carbon dioxide, cats, dizocilpine maleate, neurons, neurons, phrenic nerve, pulmonary alveoli, quinoxalines, receptors, glutamate, reflex, synaptic transmission, time factors.

Piper, I.R., K.H. Chan, and J.D. Miller (1994). **Pulsatile cerebral perfusion pressure: significance for cerebral blood flow.** *Journal of Neurosurgical Anesthesiology* 6(3): 223-5. ISSN: 0898-4921.
Descriptors: blood pressure, cerebrovascular circulation, intracranial pressure, anesthesia, general, angiotensin ii, pressure, cats, cerebral arteries, cerebrovascular circulation, homeostasis, hypertension, intracranial pressure, pulsatile flow, trimethapHan, vascular resistance.

Polati, E., G. Finco, A. Bartoloni, V. Rigo, L. Gottin, A.M. Pinaroli, and G. Barzoi (1995). **Treatment of postoperative pain by balanced spinal analgesia [Il trattamento del dolore post-operatorio mediante analgesia spinale bilanciata.]**. *Chirurgia Italiana* 47(6): 30-6. ISSN: 0009-4773.
Abstract: Postoperative pain relief has the aim to provide patient subjective comfort, to inhibit neuroendocrine and metabolic responses to surgical injury and to enhance restoration of function by allowing the patient to breathe, cough, move more easily and to begin enteral nutrition. Opioid analgesics, independently from the route of administration, are unable to provide all this. In addition to spinal opioids other drugs, such as local anesthetics, alpha 2-agonists and cholinergic drugs, may produce an antinociceptive effect when administered by spinal route. All these drugs may be administered in combination between them, realising the so called "balanced spinal analgesia". The aim of this study is to analyse the available methods for the evaluation of pharmacological interactions, the types of interaction among different spinal antinociceptive drugs and the role of balanced spinal analgesia in the treatment of postoperative pain. Analysis of the presented data shows that the spinal synergism between opioids-local anesthetics and opioids-alpha 2-agonists can be useful in the treatment of postoperative pain, because these drug combinations are able to provide a satisfactory pain control at low doses with a reduction of the adverse effects. Furthermore, the combined use of opioids-local anesthetics proved to be effective also in abolishing postoperative incident pain and in inhibiting neuroendocrine and metabolic responses to surgical injury. Especially in high risk patients this is related to a better outcome. Finally, even if the synergism between cholinergic drugs with opioids or a2-agonists have been proved, at the moment their use in man by spinal route in the treatment of postoperative pain is not advisable.
Descriptors: adrenergic alpha agonists, analgesia, analgesics, local anesthetics, postoperative pain, adrenergic alpha agonists, analgesics, local anesthetics, cats, cholinergic agents, cholinergic agents, clinical trials, clonidine, clonidine, dogs, dose response relationship, drug, drug combinations, drug synergism, evaluation studies, injections, spinal, macaca, morphine, morphine, rats, receptors, adrenergic, alpha 2, swine.
Language of Text: Italian.

Poppele, R.E., G. Bosco, and A.M. Rankin (2002). **Independent representations of limb axis length and orientation in spinocerebellar response components.** *Journal of Neurophysiology* 87(1): 409-22. ISSN: 0022-3077.

Abstract: Dorsal spinocerebellar tract (DSCT) neurons transmit sensory signals to the cerebellum that encode global hindlimb parameters, such as the hindlimb end-point position and its direction of movement. Here we use a population analysis approach to examine further the characteristics of DSCT neuronal responses during continuous movements of the hind foot. We used a robot to move the hind paw of anesthetized cats through the trajectories of a step or a figure-8 footpath in a parasagittal plane. Extracellular recordings from 82 cells converted to cycle histograms provided the basis for a principal-component analysis to determine the common features of the DSCT movement responses. Five principal components (PCs) accounted for about 80% of the total variance in the waveforms across units. The first two PCs accounted for about 60% of the variance and they were highly robust across samples. We examined the relationship between the responses and limb kinematic parameters by correlating the PC waveforms with waveforms of the joint angle and limb axis trajectories using multivariate linear regression models. Each PC waveform could be at least partly explained by a linear relationship to joint-angle trajectories, but except for the first PC, they required multiple angles. However, the limb axis parameters more closely related to both the first and second PC waveforms. In fact, linear regression models with limb axis length and orientation trajectories as predictors explained 94% of the variance in both PCs, and each was related to a particular linear combination of position and velocity. The first PC correlated with the limb axis orientation and orientation velocity trajectories, whereas second PC with the length and length velocity trajectories. These combinations were found to correspond to the dynamics of muscle spindle responses. The first two PCs were also most representative of the data set since about half the DSCT responses could be at least 85% accounted for by weighted linear combinations of these two PCs. Higher-order PCs were unrelated to limb axis trajectories and accounted instead for different dynamic components of the responses. The findings imply that an explicit and independent representation of the limb axis length and orientation may be present at the lowest levels of sensory processing in the spinal cord.

Descriptors: biomechanics, hindlimb, orientation, spinocerebellar tracts, anesthesia, axons, cats, linear models, movement, multivariate analysis, muscle spindles, neurons, predictive value of tests, principal component analysis, robotics.

Pratt, P.W. (1994). ***Medical, Surgical, and Anesthetic Nursing for Veterinary Technicians.*** 2nd edition, American Veterinary Publications: Goleta, California, 627 p. ISBN: 0939674491.

NAL Call Number: SF774.5.M43

Descriptors: general patient management, supportive care, treatment techniques, dogs, cats, birds, small exotic animals, horses, food animals, anesthesia, surgical nursing, theriogenology.

Pypendop, B. (2003). **Anesthesiologie du chien et du chat: L'oxymetrie de pouls: surveillance des animaux anesthesies [Pulse oximetry: monitoring anaesthetized animals]**. *Le Point Veterinaire* 34(235): 10-11. ISSN: 0303-4997.

Descriptors: anesthesia, measurement, monitoring, oxygen, cats.
Language of Text: French.

Pypendop, B.H. and J.E. Ilkiw (2004). **Hemodynamic effects of sevoflurane in cats.** *American Journal of Veterinary Research* 65(1): 20-5. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To determine hemodynamic effects of 3 concentrations of sevoflurane in cats. ANIMALS: 6 cats. PROCEDURE: Cats were anesthetized with sevoflurane in oxygen. After instruments were inserted, end-tidal sevoflurane concentration was set at 1.25, 1.5, or 1.75 times the individual minimum alveolar concentration (MAC), which was determined in another study. Twenty-five minutes were allowed after each change of concentration. Heart rate; systemic and pulmonary arterial pressures; central venous pressure; pulmonary artery occlusion pressure; cardiac output; body temperature; arterial and mixed-venous pH, PCO2, PO2, oxygen saturation, and hemoglobin concentrations; PCV; and total protein and lactate concentrations were measured for each sevoflurane concentration before and during noxious stimulation. Arterial and mixed-venous bicarbonate concentrations, cardiac index, stroke index, rate-pressure product, systemic and pulmonary vascular resistance indices, left and right ventricular stroke work indices, PaO2, mixed-venous partial pressure of oxygen (PVO2), oxygen delivery, oxygen consumption, oxygen-extraction ratio, alveolar-to-arterial oxygen difference, and venous admixture were calculated. Spontaneous and mechanical ventilations were studied during separate experiments. RESULTS: Mode of ventilation did not significantly influence any of the variables examined. Therefore, data from both ventilation modes were pooled for analysis. Mean arterial pressure, cardiac index, stroke index, rate-pressure product, left ventricular stroke work index, arterial and mixed-venous pH, PaO2, and oxygen delivery decreased, whereas PaCO2, PVO2, and mixed-venous partial pressure of CO2 increased significantly with increasing doses of sevoflurane. Noxious stimulation caused a significant increase in most cardiovascular variables. CONCLUSIONS AND CLINICAL RELEVANCE: Sevoflurane induces dose-dependent cardiovascular depression in cats that is mainly attributable to myocardial depression.
Descriptors: inhalation anesthetics, cats, hemodynamic processes, methyl ethers, analysis of variance, anesthesia, catheterization, pulmonary ventilation.

Pypendop, B.H., J.E. Ilkiw, A. Imai, and J.A. Bolich (2003). **Hemodynamic effects of nitrous oxide in isoflurane-anesthetized cats**. *American Journal of Veterinary Research* 64(3): 273-278. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Descriptors: anesthesia, anesthetics, arteries, bicarbonates, pressure, body temperature, carbon dioxide, cardiac output, hematology, haemodynamics, haemoglobin, heart rate, isoflurane, lactic acid, nitrous oxide, oxygen, oxygen consumption, pH, pulmonary artery, stroke, veins, cats.

Quandt, J.E. (1999). **Anesthetic considerations for laser, laparoscopy, and thoracoscopy procedures**. *Clinical Techniques in Small Animal Practice* 14(1): 50-55. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: lasers, anesthesia, endoscopy, laparoscopy, thorax, dogs, cats.

Raffe, M.R. (1996). **Complications of anesthesia**. In: A.J. Lipowitz, D.D. Caywood, C.D. Newton and A. Schwartz (Editors), *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Williams & Wilkins: Baltimore, Maryland, USA, p. 73-97. ISBN: 0683050478.
NAL Call Number: SF991.C68
Descriptors: complications, anesthesia, cats, dogs.

Rajan, R. (1995). **Involvement of cochlear efferent pathways in protective effects elicited with binaural loud sound exposure in cats**. *Journal of Neurophysiology* 74(2): 582-597. ISSN: 0022-3077.
Descriptors: nervous system, sensory reception, anesthetic, exposure frequency, olivocochlear bundle pathway.

Rajan, R. (1995). **Frequency and loss dependence of the protective effects of the olivocochlear pathways in cats.** *Journal of Neurophysiology* 74(2): 598-615. ISSN: 0022-3077.
Abstract: 1. In the previous manuscript I suggested a frequency dependency to olivocochlear bundle (OCB)-mediated protection from loud sound by showing protection for binaural compared with monaural 11-kHz exposures but not 3-kHz exposures of the same intensity and duration. To determine whether this was the case, experiments were carried out in barbiturate-anesthetized cats using the paradigm of a unilateral brain stem incision to deefferent one cochlea in each animal before presentation of a binaural loud sound exposure. With equal-intensity, equal-duration binaural exposures, in different groups protection in OCB-intact compared with OCB-cut ears was seen only for exposures at 11, 15, or 20 kHz, but not at 3 or 7 kHz, suggesting that OCB-mediated protection was found only for higher-frequency exposures. This would be consistent with the OCB-mediated protection in guinea pig studies where 10-kHz exposures were used and its absence in a study in cats where 6-kHz exposures were used. However, this conclusion had to be qualified by the fact that the lower-frequency exposures resulted in smaller threshold losses than did the higher-frequency exposures. 2. To determine whether OCB-mediated protection could be obtained for lower-frequency exposures that were made as damaging as or more damaging than the high-frequency exposures, longer-duration, lower-frequency exposures were used. OCB-mediated protection could then be obtained for exposure at 7 kHz, 100 dB SPL for 15 min but not at 3 or 5 kHz, 100 dB SPL for 20 min or at 3 kHz, 100 dB SPL for 40 min or 106 dB SPL for 20 min. Finally, when large threshold losses were produced with exposure at 3 kHz, 106 dB SPL for 40 min, OCB-mediated protection could be obtained for this low-frequency exposure too. These effects suggested that there were different "activation threshold" for OCB-mediated protection as a function of exposure frequency. To determine whether this also applied for the higher-frequency exposures (11, 15, and 20 kHz), all of which had elicited OCB-mediated protection when presented at 100 dB SPL for 10 min, these exposure frequencies were presented at 100 dB SPL for 7 min to produce low threshold losses. Now protection was found for the 11- and 15-kHz exposures but not for the 20-kHz exposure. 3. Thus the activation threshold for OCB-mediated protection varied in a frequency-dependent manner.

Descriptors: action potentials, cochlea, efferent pathways, anesthesia, brain stem, cats, sound, time factors.

Ramachandran, R. and B.J. May (2002). **Functional segregation of ITD sensitivity in the inferior colliculus of decerebrate cats.** *Journal of Neurophysiology* 88(5): 2251-61. ISSN: 0022-3077.

Abstract: Decerebration allows single-unit responses in the central nucleus of the inferior colliculus (ICC) to be studied in the absence of anesthesia and descending efferent influences. When this procedure is applied to cats, three neural response types (V, I, and O) can be identified by distinct patterns of excitation and inhibition in pure-tone frequency-response maps. Similarities of the definitive response map features with those of projection neurons in the auditory brain stem have led to the proposal that the ICC response types are derived from different sources of ascending input that remain functionally segregated within the midbrain. Additional evidence for the existence of these hypothesized parallel processing pathways has been obtained in our previous investigations of the effects of interaural level differences, brain stem lesions, and pharmacological manipulations on physiologically classified units. This study extends our characterization of the functional segregation of single-unit activity in the ICC by investigating how sensitivity to interaural time differences (ITDs) is related to the response types that are observed in decerebrate cats. The results of these experiments support our parallel-processing model of the ICC by linking the ITD sensitivity of type V and I units to putative inputs from the medial superior olive and lateral superior olive and by showing that most type O units lack a systematic sensitivity to binaural temporal information presumably because their dominant ascending inputs arise from weakly binaural neurons in the dorsal cochlear nucleus.

Descriptors: decerebrate state, inferior colliculus, sound localization, acoustic stimulation, brain stem, brain stem, cats, electrophysiology, mesencephalon, mesencephalon, microelectrodes, models, neurological, neurons, neurons, efferent, olivary nucleus.

Ramage, A.G. and M.G. Wyllie (1995). **A comparison of the effects of doxazosin and terazosin on the spontaneous sympathetic drive to the bladder and related organs in anaesthetized cats.** *European Journal of Pharmacology* 294(2-3): 645-50. ISSN: 0014-2999.

NAL Call Number: QP901 .E8

Abstract: The effects of i.v. infusion of the alpha1-adrenoceptor antagonists doxazosin and terazosin (2 mg kg-1 h-1) on spontaneous hypogastric, renal and inferior cardiac nerve activity, spontaneous bladder contractions, blood pressure, heart rate and femoral arterial flow were investigated separately in alpha-chloralose-anaesthetized cats. Both drugs caused a reduction in hypogastric nerve activity associated with no overt changes in spontaneous bladder contractions. Doxazosin was more potent than terazosin, in that there was a significant reduction in hypogastric nerve activity after 20 min (0.67 mg kg-1) of infusion, while for terazosin this occurred after 40 min (1.33 mg kg-1). Both drugs also caused significant falls in blood pressure of 34 +/- 3 mm Hg and 33 +/- 4 mm Hg after 60 min. This was associated with no change in heart rate for doxazosin while terazosin caused an initial and significant increase in heart rate of 20 +/- 3 beats min-1 by 5 min,

declining by 30 min to 1 +/- 5 beats min-1. This terazosin-induced tachycardia was associated with a significant increase in cardiac nerve activity of 128 +/- 22%. Both drugs caused increases in renal nerve activity however only for doxazosin was this increase significant. Femoral arterial conductance was also increased by both drugs, however, for doxazosin this increase was immediate and larger over the infusion period. These results demonstrate that alpha1-adrenoceptor antagonists can reduce sympathetic drive to the bladder and related organs.
Descriptors: adrenergic alpha antagonists, bladder innervation, doxazosin, prazosin, receptors, adrenergic, alpha 1, sympathetic nervous system, anesthesia, pressure, cats, heart rate, prazosin.

Read, M.R. (2002). **Midazolam: premedicant for general anesthesia.** *Compendium of Continuing Education for the Practicing Veterinarian* 24(10): 774-777. ISSN: 0193-1903.
NAL Call Number: SF601.C66
Descriptors: dogs, cats, preanesthetic medication, benzodiazepines, neuroleptics, drug combinations, drug toxicity, antagonists, dosage.

Reinoso Barbero, F. and I. De Andres (1995). **Effects of opioid microinjections in the nucleus of the solitary tract on the sleep-wakefulness cycle states in cats**. *Anesthesiology* 82(1): 144-152. ISSN: 0003-3022.
Descriptors: behavior, biosynchronization, cell biology, endocrine system, nervous system, analgesic, anesthesiology, behavior, brainstem, electroencephalography, enkephalin, hypnotic effect, kappa agonist, morpHiceptin, morphine, opioid receptor, pharmacodynamics, slow wave sleep, u 50488h.

Ringach, D.L. (2003). **Neuroscience: states of mind.** *Nature* 425(6961): 912-3. ISSN: 0028-0836.
NAL Call Number: 472 N21
Descriptors: anesthesia, visual cortex, visual perception, brain mapping, cats, fluorescent dyes.

Rivadulla, C., L. Martinez, K.L. Grieve, and J. Cudeiro (2003). **Receptive field structure of burst and tonic firing in feline lateral geniculate nucleus.** *The Journal of Physiology* 553(Pt 2): 601-10. ISSN: 0022-3751.
NAL Call Number: 447.8J82
Abstract: There are two recognised modes of firing activity in thalamic cells, burst and tonic. A low-threshold (LT) burst (referred to from now on as 'burst') comprises a small number of high-frequency action potentials riding the peak of a LT Ca(2+) spike which is preceded by a silent hyperpolarised state > 50 ms. This is traditionally viewed as a sleep-like phenomenon, with a shift to tonic mode at wake-up. However, bursts have also been seen in the wake state and may be a significant feature for full activation of recipient cortical cells. Here we show that for visual stimulation of anaesthetised cats, burst firing is restricted to a reduced area within the receptive field centre of lateral geniculate nucleus cells. Consistently, the receptive field size of all the recorded neurons decreased in size proportionally to the percentage of spikes in bursts versus tonic spikes, an effect that is further demonstrated with pharmacological manipulation. The role of this shrinkage may be distinct from that also seen in sleep-like states and we suggest that this is a mechanism

that trades spatial resolution for security of information transfer.
Descriptors: evoked potentials, visual, geniculate bodies, visual fields, acetylcholine, anesthesia, anesthetics, cats, electroencephalography, evoked potentials, visual, geniculate bodies, photic stimulation, thalamic nuclei, thalamic nuclei, visual fields, visual pathways, visual pathways.

Riviere, J.E. and M.G. Papich (2001). **Potential and problems of developing transdermal patches for veterinary applications.** *Advanced Drug Delivery Reviews* 50(3): 175-203. ISSN: 0169-409X.
Abstract: A new frontier in the administration of therapeutic drugs to veterinary species is transdermal drug delivery. The primary challenge in developing these systems is rooted in the wide differences in skin structure and function seen in species ranging from cats to cows. The efficacy of a transdermal system is primarily dependent upon the barrier properties of the targeted species skin, as well as the ratio of the area of the transdermal patch to the species total body mass needed to achieve effective systemic drug concentrations. A drug must have sufficient lipid solubility to traverse the epidermal barrier to be considered for delivery for this route. A number of insecticides have been developed in liquid "pour-on" formulations that illustrate the efficacy of this route of administration for veterinary species. The human transdermal fentanyl patch has been successfully used in cats and dogs for post-operative analgesia. The future development of transdermal drug delivery systems for veterinary species will be drug and species specific. With efficient experimental designs and available transdermal patch technology, there are no obvious hurdles to the development of effective systems in many veterinary species.
Descriptors: animal diseases, drug delivery systems, skin, cutaneous administration, diffusion, fentanyl, iontophoresis, pesticides, skin, skin absorption.

Robertson, S.A. (2002). **Update on anesthesia and pain management in dogs and cats.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 16: 51-53.
NAL Call Number: SF605 .N672
Descriptors: dogs, cats, anesthesia, pain, analgesics.
Notes: In the volume: Small animal and exotics. Part of a three volume set. Meeting held January 12-16, 2002, Orlando, Florida.

Robertson, S.A. (2002). **How to perform an epidural injection in dogs and cats.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 16: 49-50.
NAL Call Number: SF605 .N672
Descriptors: dogs, cats, conduction anesthesia, epidural injection.

Robertson, S.A. (1999). **Newer diagnostic and surgical techniques and their impact on anesthesia**. *Veterinary Clinics of North America, Small Animal Practice* 29(3): 665-682. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: diagnostic techniques, surgery, anesthesia, lasers, computed tomography, magnetic resonance imaging, scintigraphy, ultrasonography, endoscopy, reviews, cats.

Robertson, S.A., M. Richter, and S. Martinez (1996). **Comparison of two injectable anesthetic regimens for onychectomy in cats**. *Veterinary Surgery* 25(2): 186. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: anesthesia, surgical operations, acepromazine, butorphanol, thiopental, xylazine, atropine, ketamine, pain, injectable anaesthetics, surgery, cats.

Robertson, S.A. and P.M. Taylor (2004). **Pain management in cats--past, present and future. Part 2. Treatment of pain--clinical pharmacology.** *Journal of Feline Medicine and Surgery* 6(5): 321-33. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Abstract: Opioids have an unjustified reputation for causing mania in cats, but with refinements in dosing they are now used successfully in this species. The mu-opioid agonists are generally considered the best analgesics. Morphine (0.1-0.3 mg/kg) is effective in a clinical setting. Methadone (up to 0.5 mg/kg) has a similar profile to morphine. Pethidine (Demerol, meperidine; 2-5 mg/kg) is a useful analgesic with a faster onset but shorter duration of action than morphine. Oxymorphone and hydromorphone (0.05-0.1 mg/kg) are widely used in the USA. These opioids are more potent (up to 10 times), and longer acting than morphine in cats. Butorphanol (0.1-0.4 mg/kg) is a mu-opioid antagonist that produces its analgesic actions through kappa agonist activity. It rapidly reaches a ceiling effect, is short acting and is a weaker analgesic than pure mu opioids. Buprenorphine (0.01-0.02 mg/kg), a partial mu-agonist, is the most popular opioid used in small animal practice in the UK, other parts of Europe, Australia and South Africa. In clinical studies it has produced better analgesia than several other opioids and appears to be highly suitable for perioperative pain management in cats. NSAIDs are also used in cats for pain management, although cats metabolise these differently from other species. With appropriate dosing, carprofen (1-4 mg/kg) and meloxicam (0.3 mg/kg) have proved highly effective with few side effects. The use of ketoprofen (2 mg/kg), tolfenamic acid (4 mg/kg) and vedaprofen (0.5 mg/kg) has been reported in cats. Other less traditional analgesics such as ketamine, medetomidine and local anaesthetics are also used for clinical pain management. The transmucosal, transdermal and epidural routes offer novel methods for administration of analgesic drugs and have considerable potential for improving techniques in feline pain management.
Descriptors: analgesics, cats injuries, pain, pain measurement, pain.

Roth, M.T., M.A. Fleegal, R. Lydic, and H.A. Baghdoyan (1996). **Pontine acetylcholine release is regulated by muscarinic autoreceptors.** *Neuroreport* 7(18): 3069-72. ISSN: 0959-4965.
Abstract: Acetylcholine (ACh) in the medial pontine reticular formation (mPRF) originates from the laterodorsal and pedunculopontine tegmental (LDT/PPT) nuclei and contributes to generating rapid eye movement (REM) sleep. The mechanisms controlling mPRF ACh levels are incompletely understood. This study tested the hypothesis that mPRF ACh release is regulated, in part, by muscarinic autoreceptors. The mPRF of intact, halothane-anesthetized cats was dialyzed with Ringer's solution (control) or Ringer's containing the muscarinic antagonist scopolamine, Scopolamine caused a dose-dependent increase in mPRF ACh release and a concomitant decrease in the number of

halothane-induced cortical EEG spindles. These data suggest that presynaptic muscarinic receptors, presumed to reside on cholinergic LDT/PPT terminals in the mPRF, play a role in regulating mPRF ACh release, REM sleep and EEG spindles.
Descriptors: acetylcholine, autoreceptors, pons, receptors, muscarinic, cats, chromatography, high pressure liquid, electroencephalography, microdialysis, reticular formation.

Roth, S. and M. Roizen (1996). **Optic nerve injury: Role of the anesthesiologist?** *Anesthesia and Analgesia* 82(2): 435-436. ISSN: 0003-2999.
Descriptors: optic neuropathy, ischemic, postoperative, cats.
Notes: Comment On: Anesth Analg. 1995 May;80(5):1018-29.

Roy, S.A., S.P. Dear, and K.D. Alloway (2001). **Long-range cortical synchronization without concomitant oscillations in the somatosensory system of anesthetized cats.** *The Journal of Neuroscience* 21(5): 1795-808. ISSN: 0270-6474.
Abstract: To determine whether neuronal oscillations are essential for long-range cortical synchronization in the somatosensory system, we characterized the incidence and response properties of gamma range oscillations (20-80 Hz) among pairs of synchronized neurons in primary (SI) and secondary (SII) somatosensory cortex. Synchronized SI and SII discharges, which occurred within a 3 msec period, were detected in 13% (80 of 621) of single-unit pairs and 25% (29 of 118) of multiunit pairs. Power spectra derived from the auto-correlation histograms (ACGs) revealed that approximately 15% of the neurons forming synchronized pairs were characterized by oscillations. Although 24% of the synchronized neuron pairs (19/80) were characterized by oscillations in one or both neurons, only 1% (1/80) of these pairs displayed oscillations at the same frequency in both neurons. Similar results were observed among pairs of multiunit responses. When single-trial responses were analyzed, the vast majority of responses still did not exhibit oscillations in the gamma frequency range. These results suggest that separate populations of cortical neurons can be bound together without being constrained by the phase relationships defined by specific oscillatory frequencies.
Descriptors: biological clocks, cortical synchronization, somatosensory cortex, action potentials, anesthesia, cats, computer simulation, electrodes, implanted, forelimb innervation, forelimb, fourier analysis, models, neurological, normal distribution, physical stimulation, signal processing, computer assisted.

Rumbeiha, W.K., Y.S. Lin, and F.W. Oehme (1995). **Comparison of N-acetylcysteine and methylene blue, alone or in combination, for treatment of acetaminophen toxicosis in cats.** *American Journal of Veterinary Research* 56(11): 1529-1533. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: Acetaminophen is widely used in human beings for analgesic purposes, but is one of the most frequent causes of poisoning in cats. Acetaminophen-poisoned cats develop methemoglobinemia and sometimes hepatic failure. To determine the benefit of using methylene blue, a treatment for methemoglobinemia, along with N-acetylcysteine (NAC), the recommended treatment for acetaminophen-poisoned cats, groups of 3 male and 3 female cats each were given methylene blue NAC, or both after administration of acetaminophen (120 mg/kg of body weight, PO). Male cats seemed more susceptible

than female cats to acetaminophen toxicosis, because 3 males died of hepatic failure (2 cats given acetaminophen/methylene blue and 1 given acetaminophen/NAC/methylene blue). Although NAC alone seemed to elicit the best overall response, methylene blue, alone or in combination with NAC, may be useful in female cats.
Descriptors: cats, drugs, poisoning, detoxicants, disinfectants, sex, biological differences, drug combinations, therapy, antimicrobials, disease control, drugs, antidotes, medical treatment.

Saito, R., R. Graf, K. Hubel, T. Fujita, G. Rosner, and W.D. Heiss (1997). **Reduction of infarct volume by halothane: effect on cerebral blood flow or perifocal spreading depression-like depolarizations.** *Journal of Cerebral Blood Flow and Metabolism* 17(8): 857-64. ISSN: 0271-678X.
Abstract: Halothane is a strong inhibitor of potassium evoked spreading depression (SD) in cats. In the current study, we investigate halothane effects on induction of perifocal SD-like depolarizations, CBF, and infarct evolution in focal ischemia. Calomel and platinum electrodes measured cortical direct current potential and CBF in ectosylvian, suprasylvian, and marginal gyri. Left middle cerebral artery occlusion (MCAO) induced permanent focal ischemia for 16 hours in artificially ventilated cats (30% oxygen, 70% nitrous oxide) under halothane (0.75%, n = 8) or alpha-chloralose anesthesia (60 mg/kg intravenously, n = 7). Under alpha-chloralose, MCAO induced severe ischemia in ectosylvian and suprasylvian gyri(mean CBF < 10 mL/100 g/min), and direct current potentials turned immediately into terminal depolarization. In marginal gyri, CBF reduction was mild (more than 20 mL/100 g/min), and in six of seven animals, frequent SD-like depolarizations turned into terminal depolarization at a later stage of the experiments. Under halothane, MCAO induced severe ischemia (less than 10 mL/100 g/min) and immediate terminal depolarization only in ectosylvian gyrus. In suprasylvian gyrus, residual CBF remained significantly higher (more than 10 mL/100 g/min) than under alpha-chloralose, whereas in marginal gyri, CBF did not differ between groups. Compared with chloralose, the number of transient depolarizations was significantly reduced in marginal gyrus, and in suprasylvian gyrus transient but significantly longer depolarizations than in marginal gyrus were recorded. Except for one animal, transient depolarizations did not turn into terminal depolarization under halothane, and infarct volume reduction was particularly seen in suprasylvian gyrus. We conclude that halothane, the most commonly used anesthetic in studies of experimental brain ischemia, has protective properties, which may depend on both cerebrovascular and electrophysiologic influences.
Descriptors: inhalation anesthetics, brain ischemia, cerebral infarction, cerebrovascular circulation, halothane, spreading cortical depression, brain ischemia, brain ischemia, cats, cerebral infarction, cerebral infarction.

Saito, R., R. Graf, K. Hubel, J. Taguchi, G. Rosner, T. Fujita, and W.D. Heiss (1995). **Halothane, but not alpha-chloralose, blocks potassium-evoked cortical spreading depression in cats.** *Brain Research* 699(1): 109-15. ISSN: 0926-6410.
Abstract: The effects of two anesthetics, halothane and alpha-chloralose, on induction of spreading depression and on extracellular glutamate elevation after intracortical potassium administration were investigated in artificially ventilated (30% oxygen/70%

nitrous oxide) cats. High potassium concentrations were achieved using either direct KCl injections (7 microliters, 150 mM via a micropipette) or microdialysis by supplementing 100, 300 or 500 mM KCl, respectively, for 10 min to the perfusion solution (Ringer's). Changes of the cortical DC potential were recorded adjacent (1-2 mm: electrode DC1) and distant (6-7 mm: electrode DC2) to the injection site. Either under halothane (0.75% in the respiratory gas mixture) or under alpha-chloralose (60 mg/kg i.v.) anesthesia, prolonged negative shifts of the DC potential reflecting the elevated potassium levels after KCl injection were measured near the injection site (electrode DC1). In contrast, spreading depressions (transient short DC deflections) were almost exclusively observed under alpha-chloralose. Spreading depressions recorded with electrode DC1 were superimposed on the prolonged negative DC shifts and they propagated frequently to the more distant site (DC2). Upon KCl administration, dose dependent elevations of extracellular glutamate were measured. These elevations were not significantly altered by the type of anesthesia. Our results suggest that in cats, spreading depression induction is affected by anesthesia, i.e., spreading depression induction is inhibited by halothane as compared to alpha-chloralose. Furthermore, factors other than glutamate or high potassium seem to contribute to spreading depression induction.
Descriptors: cerebral cortex, chloralose, halothane, potassium, cats, dose response relationship, drug, glutamic acid, microdialysis, perfusion.

Sakakibara, R., K. Nakazawa, T. Uchiyama, M. Yoshiyama, T. Yamanishi, and T. Hattori (2003).
Effects of subthalamic nucleus stimulation on the micturation reflex in cats.
Neuroscience 120(3): 871-5. ISSN: 0306-4522.
NAL Call Number: QP351.N48
Abstract: High frequency stimulation (HFS) of the subthalamic nucleus (STN) has been performed to reverse motor dysfunction in severe parkinsonian patients. Recent studies suggested that neural circuitry in the basal ganglia might regulate micturition function as well. In 15 adult male cats under ketamine anesthesia, in which spontaneous isovolumetric micturition reflex had been generated, we performed electrical stimulation and extracellular single unit recording in the STN. Electrical stimulation applied in the STN elicited inhibition of the micturition reflex. None of the responses was facilitatory. Effective amplitude of the electrical stimulation for evoking inhibitory responses was less than 50 microA, which gradually increased and exceeded 250 microA as the location of the stimulation exceeded an area of the STN. Effective frequency of the electrical stimulation with given stimulus intensity was 50 Hz and higher. Total 10 neurons were recorded in the STN that were related to urinary storage/micturition cycles. All neurons were tonically active throughout storage/micturition cycles with storage phase predominance, with almost constant firing activities during the storage phase. In conclusion, our results showed that HFS-STN inhibited the micturition reflex and there were micturition-related neuronal firings in the STN in cats, suggesting the STN may be involved in neural control of micturition. The results also provide an implication that clinical HFS-STN may alter urinary function in parkinsonian patients.
Descriptors: electric stimulation, reflex, subthalamic nucleus, urination, cats, electric stimulation therapy, electrophysiology, subthalamic nucleus, urination disorders, urination disorders therapy.

Sakya, S.M. (2003). **Pyrazole derivatives as anti-inflammatory/analgesic agents**. *Official Gazette of the United States Patent and Trademark Office Patents* 1268(4) ISSN: 0098-1133.
Online: http://www.uspto.gov/web/menu/patdata.html
Descriptors: pharmacology, Alzheimer's disease, nervous system disease, arthritis, joint disease, colon cancer, digestive system disease, neoplastic disease, inflammation, immune system disease .

Sano, T., R. Nishimura, M. Mochizuki, Y. Hara, M. Tagawa, and N. Sasaki (2003). **Clinical usefulness of propofol as an anesthetic induction agent in dogs and cats.** *Journal of Veterinary Medical Science* 65(5): 641-3. ISSN: 0916-7250.
NAL Call Number: SF604 .J342
Abstract: Propofol was used as an induction agent of general anesthesia in 77 dogs and 64 cats, all client owned, for a variety of surgeries/treatments or diagnostic procedures. The mean intravenous doses of propofol required to achieve endotracheal intubation in dogs and cats were 6.5 +/- 1.4 mg/kg and 10.1 +/- 2.8 mg /kg, respectively. Most of the animals could be induced to anesthesia smoothly by the administration of propofol with a high incidence of apnea. Propofol is a clinically valuable anesthetic induction agent in both dogs and cats, however, care must be taken for apnea.
Descriptors: intravenous anesthesia, anesthetics, preanesthetic medication, propofol, cats, dogs, dose response relationship, drug, injections, intravenous, species specificity, surgical procedures, operative.

Sanotskaia, N.V., I.K. Kurambaev, D.D. Matsievskii, and V.A. Safonov (1995). **Effect of the organophosphorus compound antio on pulmonary and systemic blood circulation in unanesthetized cats [Vozdeistvie fosfoororganicheskogo soedineniia antio na legochnoe i sistemnoe krovoobrashchenie nenarkotizirovannykh koshek]**. *Biulleten' Eksperimental'Noi Biologii i Meditsiny* 119(3): 276-9. ISSN: 0007-4888.
NAL Call Number: 442.8 B87AE
Descriptors: cardiovascular system, insecticides toxicity, lung, organothiophosphorus compounds toxicity, anesthesia, pressure, cats, heart rate, lung supply.
Language of Text: Russian.

Sawyer, D.C. (1998). **Pain control in small animal patients.** *Applied Animal Behavioral Science* 59(1/3): 135-146. ISSN: 0168-1591.
NAL Call Number: QL750 .A6
Descriptors: dogs, cats, receptors, pain, analgesics, animal welfare, animal behavior, opioids, conduction anesthesia.

Sawyer, D.C. (1994). **Anesthesia**. *Central Veterinary Conference Proceedings: 6th Annual Central Veterinary Conference*, Veterinary Medicine Pub. Co.: Lenexa, Kansas, p. 1-32. ISBN: 0935078517.
NAL Call Number: SF605.C47
Descriptors: analgesia, receptors, opiate and opiod agonists, demerol, sublamaze, oxymorphine, talwin, nubain, torbutrol, valium.

Scherk Nixon, M. (1996). **A study of the use of a transdermal fentanyl patch in cats.** *Journal of the American Animal Hospital Association* 32(1): 19-24. ISSN: 0587-2871.

NAL Call Number: SF601.A5
Abstract: A transdermal therapeutic system (TTS) has been developed for the continuous delivery of fentanyl citrate to provide ongoing analgesia in human patients with chronic pain. Several researchers believe that fentanyl transdermal patches have a place in postoperative pain control. The purpose of this study was to determine whether transdermal technology is an effective way of administering fentanyl to feline patients. Fentanyl patches were applied to the skin of six cats, and blood samples for fentanyl analysis were collected over 104 hours. This study establishes that the transdermal patch technology is an effective, long-lasting, cost-effective, noninvasive, and well-tolerated mode of deliverying fentanyl to cats.
Descriptors: analgesics, cats, pain, cutaneous administration, analgesics, analgesics, cost benefit analysis, fentanyl, pain economics, postoperative care.

Schmeling, W.T. and N.E. Farber (1994). **Anesthetic actions on cardiovascular control mechanisms in the central nervous system.** *Advances in Pharmacology and Chemotherapy* 31: 617-42. ISSN: 1054-3589.
Descriptors: anesthetics, brain, hemodynamic processes, pressure, cats, dogs, halothane, hypothalamus, isoflurane, medulla oblongata, reticular formation.

Schomburg, E.D. and H. Steffens (2002). **Only minor spinal motor reflex effects from feline group iv muscle nociceptors.** *Neuroscience Research* 44(2): 213-223. ISSN: 0168-0102.
Descriptors: nervous system, neural coordination, spinal motor reflex, muscle nociceptors, gastrocnemius soleus muscle, bradykinin, muscle afferents, reflex motor control, feline muscle.

Schwarz, G. and S. Schwarz (1995). **Erfahrungen mit druckgesteuerter mandatorischer Beatmung unter Verwendung des Respirators ADS 1000 [Experiences with pressure controlled mandatory ventilation using ADS 1000]**. *Kleintier-Praxis* 40(8): 591-596. ISSN: 0023-2076.
NAL Call Number: 41.8 K67
Descriptors: dogs, cats, surgical operations, anesthesia, breathing, equipment, gas exchange, physiological functions.
Language of Text: German.

Seif, D.P. (1994). **Anesthesia for early spaying/neutering.** *Journal of the American Veterinary Medical Association* 205(10): 1393. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Descriptors: anesthesia, castration, cats surgery, dogs surgery, cats, dogs.

Sendler, K., C. Lendl, I. Henke, K. Otto, U. Matis, S. Mundt, and W. Erhardt (1994). **Zur Anasthesie bei der Katze mit Tiletamin/Zolazepam in Minimaldosierung [Anesthesia in cats using tiletamine/zolazepam in minimal doses]**. *Tierarztliche Praxis* 22(3): 286-290. ISSN: 0303-6286.
NAL Call Number: SF603 .V4
Abstract: The object of this study was to evaluate minimal dose anesthesia with Tiletamine/Zolazepam for castration, dental treatments and other minor surgical procedures in cats. The study included 264 cats treated either at the Department of

Veterinary Surgery, Ludwig-Maximilians University of Munich or under private practice conditions, in a small animal clinic in Hamburg (Germany). The drug dose needed for anesthesia for a 10 minute surgical procedure was calculated in each case using a formula. Side effects that occurred with doses recommended by the manufacturer could not be eliminated by decreasing the drug dose, but could be reduced considerably in severity and duration. Tiletamine/Zolazepam was found to be a useful drug for short anesthesia in cats at an average dose of 4.2 mg/kg.
Descriptors: anesthesia, cats, tiletamine, zolazepamdose response relationship, electorcardiography, heart rate, reflex, regression analysis, respiration.
Language of Text: German.

Shafford, H.L., B.D.X. Lascelles, and P.W. Hellyer (2001). **Preemptive analgesia: managing pain before it begins.** *Veterinary Medicine* 96(6): 478-492. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: pain, analgesics, preventive medicine, prevention, treatment, surgery, dogs, cats, postoperative pain.

Shen, J. (2001). **Research on the neurophysiological mechanisms of acupuncture: review of selected studies and methodological issues.** *Journal of Alternative and Complementary Medicine* 7(Suppl 1): S121-7. ISSN: 1075-5535.
Abstract: This presentation reviews studies that contribute to an understanding of the neurophysiological mechanisms of acupuncture. A 1973 study, using volunteer medical students, looked into acupuncture's analgesic effect on experimentally induced pain and suggests that humoral factors may mediate acupuncture-induced analgesia. In a study of the possible role of the cerebrospinal fluid transmission of pain suppression effects of acupuncture, cerebrospinal fluid from acupuncture-treated rabbits was infused into recipient rabbits. The analgesic effect was observed in the recipient rabbits, suggesting that acupuncture-induced analgesia may be mediated by substances released in the cerebrospinal fluid. Studies of electroacupuncture in rats revealed that both low-frequency and high-frequency stimulation could induce analgesia, but that there are differential effects of low- and high-frequency acupuncture on the types of endorphins released. In another study, low-frequency electroacupuncture, given as median nerve stimulation in cats, was shown to protect the myocardium by inhibiting sympathetic pressor response and increasing myocardial oxygen demand. The development of neuroimaging tools, such as positron emission tomography (PET) and functional magnetic resonance imaging (fMRI), make noninvasive studies of acupuncture's effects on human brain activity possible. Studies using PET have shown that thalamic asymmetry present among patients suffering from chronic pain was reduced after the patients underwent acupuncture treatment. Other studies, using fMRI, have pointed to relationships between particular acupoints and visual-cortex activation. These powerful new tools open the possibility to new scientific studies of this ancient therapy.
Descriptors: acupuncture analgesia, central nervous system, electroacupuncture, pain, electric stimulation, endorphins cerebrospinal fluid, pain therapy.

Shiba, K., K. Yoshida, and T. Miura (1995). **Functional roles of the superior laryngeal nerve afferents in electrically induced vocalization in anesthetized cats.** *Neuroscience Research* 22(1): 23-30. ISSN: 0168-0102.

Abstract: Our purpose was to elucidate the functional roles of the laryngeal afferents in controlling vocalization. We investigated the effects of laryngeal deafferentation (sectioning the internal branch of the superior laryngeal nerve (ISLN)) on respiration and voice quality during electrically-induced vocalization in twelve ketamine anesthetized cats. Co-ordinated vocal activity was obtained by electrical stimulation to the pontine call site. After the bilateral ISLN section, the respiratory, expiratory and inspiratory durations during induced vocalization became 0.56 +/- 0.15, 0.44 +/- 0.12 and 0.67 +/- 0.19 (mean +/- S.D., n = 9) times, respectively, compared with those before the ISLN section. A decrease in respiratory duration was also observed when local anesthetics were applied to the laryngeal mucosa. The laryngeal deafferentation increased the degree of hoarseness with a decrease in the fundamental frequency. Since the laryngeal deafferentation caused a decrease in the intralaryngeal adductor activities, it was suspected that the voice quality change was partly caused by the reduction in adductor activities. It was thus concluded that feedback via laryngeal afferents plays an important role in controlling vocalization.
Descriptors: anesthesia, laryngeal nerves, neurons, afferent, vocalization, animal, cats, electric stimulation, electromyogrphy, laryngeal muscles innervation, laryngeal muscles, respiratory mechanics, stereotaxic techniques.

Shibata, M., K. Shingu, M. Murakawa, T. Adachi, M. Osawa, S. Nakao, and K. Mori (1994). **Tetraphasic actions of local anesthetics on central nervous system electrical activities in cats.** *Regional Anesthesia* 19(4): 255-63. ISSN: 0146-521X.

Abstract: BACKGROUND AND OBJECTIVES. The effects of seven local anesthetics, mepivacaine, bupivacaine, etidocaine, dibucaine, prilocaine, procaine, and tetracaine, on the central nervous system (CNS) electrical activities were studied in five cats with each agent. METHODS. Brain electrodes were implanted chronically in the cortex, amygdala, hippocampus, and midbrain reticular formation. The cortical, amygdala, and hippocampus electroencephalograms (EEGs), reticular multiunit activity (R-MUA), and heart rate were recorded. Drugs were administered intravenously with constant rates of equipotent doses until EEG seizures appeared. Effects of lidocaine, 1 mg.kg-1.min-1, were studied for comparison. The rates of infusion were: mepivacaine, 1 mg.kg-1.min-1; procaine, 4 mg.kg-1.min-1; bupivacaine and tetracaine, 0.25 mg.kg-1.min-1; etidocaine, 0.5 mg.kg-1.min-1; dibucaine, 0.15 mg.kg-1.min-1; and prilocaine, 3 mg.kg-1.min-1. The effects of 10-15 times higher rates of infusion were also studied in two cats with each drug. RESULTS. During the slow rates of infusion, a tetraphasic sequence of changes, common to all agents, was observed: the initial stage represented by diffuse EEG slowing and a suppression of the R-MUA; the second stage by low voltage fast wave EEG and an activation of the R-MUA; the third stage by reappearance of slow wave EEG and a suppression of the R-MUA; and the fourth stage by an epileptiform EEG and an activation of the R-MUA. These changes in EEG were not typical in some cats administered procaine, bupivacaine, prilocaine, and dibucaine. During the high rates of infusion, suppressive stages in the R-MUA were less dominant and activations dominated. High rates of infusion of mepivacaine produced sudden epileptic activities in EEG. Tetracaine, procaine, etidocaine, and bupivacaine in the high rates of infusion produced slow waves for a short period, prior to seizure activities in the EEG. Dibucaine or prilocaine in high rates of infusion could not produce seizure activities in the EEG,

but slow waves and isoelectrical EEG, which were accompanied with idioventricular rhythm followed by ventricular fibrillation. CONCLUSIONS. All local anesthetics have similar tetraphasic CNS actions and whether the expression of CNS intoxication with subconvulsive doses is excitation or suppression may possibly be dependent on the brain drug level and its rate of increase.
Descriptors: local anesthetics, central nervous system, local anesthetics, cats, dose response relationship, drug, electrodes, implanted, electroencephalography, electrophysiology, heart rate, lidocaine, lidocaine, reticular formation.

Slingsby, L.S. and A.E. Waterman Pearson (2002). **Comparison between meloxicam and carprofen for postoperative analgesia after feline ovariohysterectomy.** *Journal of Small Animal Practice* 43(7): 286-289. ISSN: 0022-4510.
NAL Call Number: 41.8 J8292
Descriptors: cats, ovariectomy, hysterectomy, non steroidal anti-inflammatory agents, analgesics, postoperative care, pain, anesthesia, urea, creatinine, alanine aminotransferase, aspartate aminotransferase.

Smith, J.D., S.W. Allen, J.E. Quandt, and R.L. Tackett (1996). **Indicators of postoperative pain in cats and correlation with clinical criteria.** *American Journal of Veterinary Research* 57(11): 1674-8. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To identify clinical indicators that may help identity postoperative pain in cats after ovariohysterectomy. ANIMALS: Healthy, laboratory animal source cats. PROCEDURE: Clinical indicators of pain were identified, and relief from pain in response to butorphanol was studied in 5 groups of cats. 10 cats had 1 hour of general anesthesia only, followed by recovery without additional medication. 10 cats had general anesthesia and ovariohysterectomy, followed by recovery without additional medication. 10 cats had general anesthesia, ovariohysterectomy, and postoperative administration of 0.1 mg of butorphanol/kg of body weight. Another 10 cats had general anesthesia, ovariohysterectomy, and postoperative administration of 0.3 mg butorphanol/kg. 10 cats received 0.1 mg of butorphanol/kg, IM, only. Samples and recorded data were obtained before, during, and after the anesthesia period. Clinical variables measured included heart rate, blood pressure, respiratory rate, rectal temperature, PCV, and blood glucose concentration. Results were compared with changes in norepinephrine, epinephrine, and cortisol concentrations. RESULTS: Cats that did not receive analgesics had higher cortisol concentration than did cats without surgery and cats that received butorphanol after surgery. Systolic blood pressure measured by ultrasonic Doppler was found to be predictive of cortisol concentration, using a multiple linear regression model. CONCLUSIONS: Cortisol concentration increased in response to surgical stress and pain, and this increase was diminished by use of butorphanol. CLINICAL RELEVANCE: Systolic blood pressure was the best clinical predictor of postoperative pain.
Descriptors: cats surgery, postoperative pain, analgesics, anesthesia, glucose analysis, pressure, butorphanol, hysterectomy, norepinephrine, ovariectomy, pain measurement, postoperative pain.

Soja, P.J., N. Taepavarapruk, W. Pang, B.E. Cairns, S.A. McErlane, and M.C. Fragoso (2002). **Transmission through the dorsal spinocerebellar and spinoreticular tracts: wakefulness versus thiopental anesthesia.** *Anesthesiology* 97(5): 1178-88. ISSN: 0003-3022.

Abstract: BACKGROUND: Most of what is known regarding the actions of injectable barbiturate anesthetics on the activity of lumbar sensory neurons arises from experiments performed in acute animal preparations that are exposed to invasive surgery and neural depression caused by coadministered inhalational anesthetics. Other parameters such as cortical synchronization and motor ouflow are typically not monitored, and, therefore, anesthetic actions on multiple cellular systems have not been quantitatively compared. METHODS: The activities of antidromically identified dorsal spinocerebellar and spinoreticular tract neurons, neck motoneurons, and cortical neurons were monitored extracellularly before, during, and following recovery from the anesthetic state induced by thiopental in intact, chronically instrumented animal preparations. RESULTS: Intravenous administration of 15 mg/kg, but not 5 mg/kg, of thiopental to awake cats induced general anesthesia that was characterized by 5-10 min of cortical synchronization, reflected as large-amplitude slow-wave events and neck muscle atonia. However, even though the animal behaviorally began to reemerge from the anesthetic state after this 5-10-min period, neck muscle (neck motoneuron) activity recovered more slowly and remained significantly suppressed for up to 23 min after thiopental administration. The spontaneous activity of both dorsal spinocerebellar and spinoreticular tract neurons was maximally suppressed 5 min after administration but remained significantly attenuated for up to 17 min after injection. Peripheral nerve and glutamate-evoked responses of dorsal spinocerebellar and spinoreticular tract neurons were particularly sensitive to thiopental administration and remained suppressed for up to 20 min after injection. CONCLUSIONS: These results demonstrate that thiopental administration is associated with a prolonged blockade of motoneuron output and sensory transmission through the dorsal spinocerebellar and spinoreticular tracts that exceeds the duration of general anesthesia. Further, the blockade of glutamate-evoked neuronal responses indicates that these effects are due, in part, to a local action of the drug in the spinal cord. The authors suggest that this combination of lumbar sensory and motoneuron inhibition underlies the prolonged impairment of reflex coordination observed when thiopental is used clinically.

Descriptors: afferent pathways, intravenous anesthetics, reticular formation, spinal cord, spinocerebellar tracts, thiopental, wakefulness, afferent pathways, cats, glutamic acid, reticular formation, spinal cord, spinocerebellar tracts, synaptic transmission.

Solov'eva, E.V., S.V. Kulikov, A.O. Khar'kovskii, and E.G. Bogdanov (1994). **[O boleutoliaiushchem deistvii novykh analogov enkefalinov.] The analgesic action of new enkephalin analogs**. *Eksperimental'Naia I Klinicheskaia Farmakologiia* 57(6): 20-2. ISSN: 0869-2092.

Abstract: The enkephalin analogue peptide IKB-901 containing epsilon-ACA and cysteine with the modified S-end shows an analgetic activity in rats (1 micron, intrathecally and 5 mg/kg intravenously) and in cats (0.35 and 0.7 mg/kg intravenously). Naloxone (0.1 mg/kg) prevents the analgetic effect of peptide. The coadministration of the peptide and the enkephalinase inhibitor D-phenylalanine (0.35 and 10 mg/kg,

respectively) enhances analgesia and displays an antihypertensive effect in nociceptive stimulation.
Descriptors: analgesics, enkephalins, analgesics, cats, dose response relationship, drug, drug evaluation, preclinical, enkephalins, mice, pain, rats, time factors.
Language of Text: Russian.

Soto, C., J. Aguilar, F. Martin Cora, C. Rivadulla, and A. Canedo (2004). **Intracuneate mechanisms underlying primary afferent cutaneous processing in anaesthetized cats.** *The European Journal of Neuroscience* 19(11): 3006-16. ISSN: 0953-816X.
Abstract: The cutaneous primary afferents from the upper trunk and forelimbs reach the medial cuneate nucleus in their way towards the cerebral cortex. The aim of this work was twofold: (i) to study the mechanisms used by the primary afferents to relay cutaneous information to cuneate cuneolemniscal (CL) and noncuneolemniscal (nCL) cells, and (ii) to determine the intracuneate mechanisms leading to the elaboration of the output signal by CL cells. Extracellular recordings combined with microiontophoresis demonstrated that the primary afferent cutaneous information is communicated to CL and nCL cells through AMPA, NMDA and kainate receptors. These receptors were sequentially activated: AMPA receptors participated mainly during the initial phase of the response, whereas kainate- and NMDA-mediated activity predominated during a later phase. The involvement of NMDA receptors was confirmed by in vivo intracellular recordings. The cutaneous-evoked activation of CL cells was decreased by GABA and increased by glycine acting at a strychnine-sensitive site, indicating that glycine indirectly affects CL cells. Two subgroups of nCL cells were distinguished based on their sensitivity to iontophoretic ejection of glycine and strychnine. Overall, the results support a model whereby the primary afferent cutaneous input induces a centre-surround antagonism in the cuneate nucleus by activating (via AMPA, NMDA and kainate receptors) and disinhibiting (via serial glycinergic-GABAergic interactions) a population of CL cells with overlapped receptive fields that at the same time inhibit (via GABAergic cells) other neighbouring CL cells with different receptive fields.
Descriptors: afferent pathways, anesthesia, medulla oblongata, neurons, skin innervation, action potentials, action potentials radiation effects, bicuculline, cats, dose response relationship, radiation, drug interactions, electric stimulation, excitatory amino acid antagonists, forelimb innervation, forelimb radiation effects, gaba antagonists, glycine, glycine agents, iontophoresis, medulla oblongata, medulla oblongata, membrane potentials, membrane potentials radiation effects, neural networks computer, neurons classification, neurons, reaction time, reaction time radiation effects, strychnine, gamma aminobutyric acid.

Souza, A.P., L.G. Pompermayer, F. Antunes, I.C. Araujo, and R.M.N. Silva (2003). **Anestesia por infusao continua e doses fracionadas de propofol em gatos pre-tratados com acepromazina. [Anesthesia by continuous infusion and intermittent injection of propofol in cats premicated with acepromazine]**. *Ars Veterinari* 19(2): 119-125. ISSN: 0102-6380.
Descriptors: cats, anesthesia, quantitative analysis, analytical, veterinarian.
Language of Text: Portuguese; Summaries in English and Portuguese.

Souza, A.P., L.G. Pompermayer, M.S.L. Lavor, T.S. Duarte, and R.M.N. Silva (2002). **Butorphanol on the anesthesia by propofol in female cats premedicated with levomepromazine.[Butorfanol na anestesia com propofol em gatas pre-tratadas com levomepromazina.]**. *Ciencia Rural* 32(4): 589-594. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: cats, anesthesia, surgical operations, drugs, gato, anesthesia, ovario, cirurgia, medicamento .
Language of Text: Portuguese.

Souza, H.J.M., M.D. Hahn, L.E. Silva da, R.M. Leivas, C. Belchior, C.H.R. Teixeira, M.C. Daiha, R.F. Graca, and K.B. Corgozinho (2001). **Estudo da resposta neuroendocrina em gatas submetidas a ovario-salpingohisterectomia com analgesia preventiva pelo tartarato de butorfanol e flunixin meglumine. [Neuro-endocrine response of cats to spaying, with analgesia provided by butorphanol tartrate and/or flunixin meglumine]** . *A Hora Veterinaria* 21(124): 13-20. ISSN: 0101-9163.
Descriptors: analgesics, butorphanol, flunixin, stress, surgery, cats.
Language of Text: Portuguese; Summary in English.

Spellman, P. (1994). **Anaesthetic circuits used in small animal practice**. *Veterinary Practice* 26(16): 8-10. ISSN: 0042-4897.
NAL Call Number: SF601. V5
Descriptors: small animal practice, inhaled anaesthetics, apparatus, anesthesia, cats.

Steriade, M. and F. Amzica (1996). **Intracortical and corticothalamic coherency of fast spontaneous oscillations.** *Proceedings of the National Academy of Sciences of the United States of America* 93(6): 2533-8. ISSN: 0027-8424.
NAL Call Number: 500 N21P
Abstract: We report that fast (mainly 30- to 40-Hz) coherent electric field oscillations appear spontaneously during brain activation, as expressed by electroencephalogram (EEG) rhythms, and they outlast the stimulation of mesopontine cholinergic nuclei in acutely prepared cats. The fast oscillations also appear during the sleep-like EEG patterns of ketamine/xylazine anesthesia, but they are selectively suppressed during the prolonged phase of the slow (<1-Hz) sleep oscillation that is associated with hyperpolarization of cortical neurons. The fast (30- to 40-Hz) rhythms are synchronized intracortically within vertical columns, among closely located cortical foci, and through reciprocal corticothalamic networks. The fast oscillations do not reverse throughout the depth of the cortex. This aspect stands in contrast with the conventional depth profile of evoked potentials and slow sleep oscillations that display opposite polarity at the surface and midlayers. Current-source-density analyses reveal that the fast oscillations are associated with alternating microsinks and microsources across the cortex, while the evoked potentials and the slow oscillation display a massive current sink in midlayers, confined by two sources in superficial and deep layers. The synchronization of fast rhythms and their high amplitudes indicate that the term "EEG desynchronization," used to designate brain-aroused states, is incorrect and should be replaced with the original term, "EEG activation" [Moruzzi, G. & Magoun, H.W. (1949) Electroencephalogr. Clin. Neurophysiol. 1, 455-473].

Descriptors: cerebral cortex, trigeminal nuclei, action potentials, cats, electric stimulation, electroencephalography, periodicity.

Steriade, M. and F. Amzica (1994). **Dynamic coupling among neocortical neurons during evoked and spontaneous spike-wave seizure activity.** *Journal of Neurophysiology* 72(5): 2051-69. ISSN: 0022-3077.

Abstract: 1. We investigated the development from patterns of electroencephalogram (EEG) synchronization to paroxysms consisting of spike-wave (SW) complexes at 2-4 Hz or to seizures at higher frequencies (7-15 Hz). We used multisite, simultaneous EEG, extracellular, and intracellular recordings from various neocortical areas and thalamic nuclei of anesthetized cats. 2. The seizures were observed in 25% of experimental animals, all maintained under ketamine and xylazine anesthesia, and were either induced by thalamocortical volleys and photic stimulation or occurred spontaneously. Out of unit and field potential recordings within 370 cortical and 65 thalamic sites, paroxysmal events occurred in 70 cortical and 8 thalamic sites (approximately 18% and 12%, respectively), within which a total of 181 neurons (143 extracellular and 38 intracellular) were simultaneously recorded in various combinations of cell groups. 3. Stimulus-elicited and spontaneous SW seizures at 2-4 Hz lasted for 15-35 s and consisted of barrages of action potentials related to the spiky depth-negative (surface-positive) field potentials, followed by neuronal silence during the depth-positive wave component of SW complexes. The duration of inhibitory periods progressively increased during the seizure, at the expense of the phasic excitatory phases. 4. Intracellular recordings showed that, during such paroxysms, cortical neurons displayed a tonic depolarization (approximately 10-20 mV), sculptured by rhythmic hyperpolarizations. 5. In all cases, measures of synchrony demonstrated time lags between discharges of simultaneously recorded cortical neurons, from as short as 3-10 ms up to 50 ms or even longer intervals. Synchrony was assessed by cross-correlograms, by a method termed first-spike-analysis designed to detect dynamic temporal relations between neurons and relying on the detection of the first action potential in a spike train, and by a method termed sequential-field-correlation that analyzed the time course of field potentials simultaneously recorded from different cortical areas. 6. The degree of synchrony progressively increased from preseizure sleep patterns to the early stage of the SW seizure and, further, to its late stage. In some cases the time relation between neurons during the early stages of seizures was inversed during late stages. 7. These data show that, although the common definition of SW seizures, regarded as suddenly generalized and bilaterally synchronous activities, may be valid at the macroscopic EEG level, cortical neurons display time lags between their rhythmic spike trains, progressively increased synchrony, and changes in the temporal relations between their discharges during the paroxysms.

Descriptors: cerebral cortex, electroencephalography, seizures, synaptic transmission, brain mapping, cats, cortical synchronization, evoked potentials, kindling neurology, nerve net, neural pathways, neurons, reaction time, thalamic nuclei.

Steriade, M., I. Timofeev, and F. Grenier (2001). **Natural waking and sleep states: a view from inside neocortical neurons.** *Journal of Neurophysiology* 85(5): 1969-85. ISSN: 0022-3077.

Abstract: In this first intracellular study of neocortical activities during waking and sleep

states, we hypothesized that synaptic activities during natural states of vigilance have a decisive impact on the observed electrophysiological properties of neurons that were previously studied under anesthesia or in brain slices. We investigated the incidence of different firing patterns in neocortical neurons of awake cats, the relation between membrane potential fluctuations and firing rates, and the input resistance during all states of vigilance. In awake animals, the neurons displaying fast-spiking firing patterns were more numerous, whereas the incidence of neurons with intrinsically bursting patterns was much lower than in our previous experiments conducted on the intact-cortex or isolated cortical slabs of anesthetized cats. Although cortical neurons displayed prolonged hyperpolarizing phases during slow-wave sleep, the firing rates during the depolarizing phases of the slow sleep oscillation was as high during these epochs as during waking and rapid-eye-movement sleep. Maximum firing rates, exceeding those of regular-spiking neurons, were reached by conventional fast-spiking neurons during both waking and sleep states, and by fast-rhythmic-bursting neurons during waking. The input resistance was more stable and it increased during quiet wakefulness, compared with sleep states. As waking is associated with high synaptic activity, we explain this result by a higher release of activating neuromodulators, which produce an increase in the input resistance of cortical neurons. In view of the high firing rates in the functionally disconnected state of slow-wave sleep, we suggest that neocortical neurons are engaged in processing internally generated signals.
Descriptors: neocortex, neurons, sleep, wakefulness, action potentials, cats, membrane potentials, neocortex, periodicity, polysomnography, sleep stages, synaptic transmission.

Still, J. (1998). **Sustainable medicine for animals**. In: *Proceedings of the 24th Annual International Congress on Veterinary Acupuncture: Acupuncture in anaesthesiology, August 12, 1998-August 15, 1998, Chitou, Nantou, Taiwan,* Research Centre of Bornholm: Nexo, p. 184-185.
Descriptors: acupuncture, anesthesia, surgery, analgesics, dogs, cats.

Straeter Knowlen, I.M., S.L. Marks, R.C. Speth, W. Wirth, and G.G. Knowlen (1994). **Effect of succinylcholine, diazepam, and dantrolene on the urethral pressure profile of anesthetized, healthy, sexually intact male cats.** *American Journal of Veterinary Research* 55(12): 1739-44. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: Effects of the neuromuscular blocking agent succinylcholine (n = 9), the centrally acting skeletal muscle relaxant diazepam (n = 11), and the directacting skeletal muscle relaxant dantrolene sodium (n = 8) on the urethral pressure profile were evaluated in anesthetized, healthy, sexually intact, adult male cats. Intravenous administration of succinylcholine (0.075 mg/kg of body weight) significantly decreased mean absolute pressure in the prostatic and post-prostatic/penile intraurethral segments by -9.5 and -6.5 mm of Hg, respectively (P = 0.0002 and P = 0.0006, respectively). Dantrolene (1.0 mg/kg, IV) significantly decreased mean prostatic and postprostatic/penile intraurethral segmental pressures by -3.5 and -2.8 mm of Hg, respectively (P = 0.005 and P = 0.0181, respectively). Diazepam (0.8 mg/kg, IV) did not significantly alter mean intraurethral segmental pressures. None of the drugs caused a change in segmental lengths of the urethra. These results indicate that skeletal muscle makes a substantial contribution to intraurethral tone in anesthetized, healthy, sexually

intact male cats and that skeletal muscle relaxation may be successful in reducing prostatic and post-prostatic/penile urethral segmental tone in male cats. These results also suggest that dantrolene sodium may be valuable for the pharmacologic management of urethral disorders in male cats.
Descriptors: cats, dantrolene, diazepam, succinylcholine, urethra, anesthesia, general, dose response relationship, drug, muscle contraction, pressure, urethra.

Sugaya, K., Y. Ogawa, T. Hatano, S. Nishijima, and O. Nishizawa (2001). **Micturition in thoracic spinal cord injured cats with autografting of the adrenal medulla to the sacral spinal cord.** *The Journal of Urology* 166(6): 2525-9. ISSN: 0022-5347.
Abstract: PURPOSE: The role of noradrenergic projection from the pontine micturition center to the sacral spinal cord during micturition was examined in thoracic spinal cord injured cats after autografting the adrenal medulla to the sacral spinal cord. MATERIALS AND METHODS: In 13 female cats the lower thoracic cord was transected and the right adrenal gland was removed under halothane anesthesia. The resected adrenal medulla was divided into several small pieces, which were subsequently autografted to the sacral spinal cord in 7 cats. Another 6 cats underwent sham operation and served as controls. Continuous cystometry and electromyography of the external urethral sphincter were performed every 2 weeks postoperatively without anesthesia. At week 8 the sacral spinal cord was removed and immunohistochemical testing was done to assess tyrosine hydroxylase immunoreactivity. RESULTS: At week 6 the relative mean duration of detrusor-external sphincter coordination plus or minus standard error during bladder contraction was 62.4% +/- 4.9% in adrenal grafted cats, which was significantly (p = 0.0485) longer than in controls (34.2% +/- 12.6%). However, maximum bladder contraction pressure, bladder contraction duration and post-void residual urine volume were not significantly different in the 2 groups. Tyrosine hydroxylase immunoreactive cells were observed in and on the sacral spinal cord in adrenal grafted animals but not in controls. CONCLUSIONS: Autografting the adrenal medulla to the sacral spinal cord prolonged detrusor-external sphincter coordination during bladder contraction in thoracic spinal cord injured cats, although other urodynamic parameters did not change. Therefore, noradrenergic projections to the sacral spinal cord may relax the external urethral sphincter during bladder contraction.
Descriptors: adrenal glands transplantation, spinal cord surgery, spinal cord injuries, urination, adrenal glands, adrenal glands, adrenal glands innervation, cats, sacrum, thoracic vertebrae, transplantation, heterotopic, tyrosine 3 monooxygenase.

Sumida, T., M. Tagami, Y. Ide, M. Nagase, H. Sekiyama, and K. Hanaoka (1995). **Intravenous midazolam suppresses noxiously evoked activity of spinal wide dynamic range neurons in cats.** *Anesthesia and Analgesia* 80(1): 58-63. ISSN: 0003-2999.
Abstract: The effects of intravenously (i.v.) administered midazolam on noxiously evoked activity of spinal wide dynamic range (WDR) neurons were investigated in decerebrate, spinal-cord-transected cats. Extracellular, single-unit recordings were measured during stimulation by pinching the receptive field on the hind paw and the effect of midazolam at doses of 0.25, 0.5, 1, 2, and 4 mg/kg were measured. Two series of experiments were performed to characterize the analgesic effects of midazolam. In the first, dose-response experiments (n = 59) demonstrated a dose-dependent suppression of

the noxiously evoked activity of spinal WDR neurons after midazolam administration. This effect of midazolam was maximal at a dose of 1 mg/kg i.v.. The second series of experiments (n = 14) demonstrated that a benzodiazepine antagonist, flumazenil (n = 8), promptly reversed the effect of midazolam, while an opioid antagonist, naloxone (n = 6), had no effect on the effect of midazolam. The present study demonstrates that i.v. administered midazolam suppresses noxiously evoked activity of spinal WDR neurons that is reversible by a benzodiazepine antagonist. This is consistent with an analgesic action of midazolam.
Descriptors: midazolam, neurons, spinal cord, pressure, cats, dose response relationship, drug, evoked potentials, flumazenil, heart rate, infusions, intravenous, midazolam, midazolam, neurons, neurons.

Sundeman, H., B. Biber, J. Martner, C. Raner, and O. Winso (1995). **Vasodilator effects of desflurane and isoflurane in the feline small intestine.** *Acta Anaesthesiologica Scandinavica* 39(8): 1105-10. ISSN: 0001-5172.
Abstract: The influence of desflurane (DES) and isoflurane (ISO) on the intestinal vasculature was investigated in normoventilated cats (n = 10) during basal chloralose anesthesia (control). We measured heart rate, mean arterial pressure (MAP), and intestinal blood flow (optical drop flowmetry). Intestinal vascular resistance (IVR) was derived. To avoid changes in local vascular tone related to alterations in transmural pressure gradients, intestinal arterial pressure was controlled and kept constant by a variable aortic clamp. Measurements were performed during control and during the administration of DES (3.5% and 7.0% end-tidal) or ISO (0.8% and 1.6% end-tidal). Each animal was exposed to both agents, prior to and after intestinal postganglionic denervation. In the innervated intestine, both DES and ISO dose-dependently decreased IVR. At the high dose, DES (50 +/- 10% decrease in IVR) was a significantly more powerful vasodilator than ISO (37 +/- 12% decrease in IVR). In the denervated intestine, less pronounced vasodilations were produced by both DES and ISO, as compared to the innervated state, and there were, in this situation, no significant differences between agents concerning the magnitude of the vasodilation. As indicated by comparisons between the innervated versus the denervated state, both neurogenic and non-neurogenic mechanisms contributed to the vasodilator responses. The vascular relaxation at the high dose was for ISO associated with a significantly more powerful non-neurogenic vasodilation, and for DES associated with a significantly more powerful neurogenic vasodilation. This suggests that withdrawal of sympathetic neurogenic vasoconstrictor tone is more important for the vasodilation produced by DES than it is for ISO.
Descriptors: inhalation anesthetics, intestine, small supply, isoflurane, isoflurane, vasodilator agents, cats, denervation, hemodynamic processes, intestine, small innervation, vasodilation.

Sundeman, H., B. Biber, C. Raner, and O. Winso (1997). **Autoregulation and vasodilator responses by isoflurane and desflurane in the feline renal vascular bed.** *Acta Anaesthesiologica Scandinavica* 41(9): 1180-6. ISSN: 0001-5172.
Abstract: BACKGROUND: Inhalational anesthetics have agent-specific effects on the renal circulation. This study investigated renal vasodilator responses produced by either autoregulation, 0.8% isoflurane (ISO) or 3.5% desflurane (DES). METHODS: We

measured systemic mean arterial pressure (MAP-SYST; axillary artery), renal blood flow (QREN; perivascular ultrasound) and central venous pressure (CVP) in normoventilated cats (n = 8) during basal chloralose anesthesia (control) and after the addition of ISO and DES. Renal mean arterial pressure (MAPREN) was controlled by an aortic clamp. QREN was measured at pre-set-MAPREN levels of 50, 70 and 90 mmHg. Renal vascular resistance (RREN) was derived. RESULTS: When MAPREN was artificially restrained from 133 +/- 5 mmHg to 90 mmHg during control, RREN decreased by 35% and no significant change in QREN was observed, reflecting an intact autoregulation. RREN levels during ISO or DES at stages with unrestrained MAPREN (95 +/- 6 and 102 +/- 9 mmHg, respectively), were not significantly different from RREN at 90 mmHg during control. When MAPREN was artificially decreased below 90 mmHg, QREN decreased in a similar fashion among control and ISO/DES sequences. The autoregulatory capacity was not significantly different among these sequences. Between 90-70 mmHg, the autoregulatory capacity was reduced and not demonstrable below 70 mmHg. CONCLUSION: The renal autoregulatory capacity was not attenuated by either ISO or DES. These agents produced equipotent renal vasodilation, which was not more powerful than that produced by autoregulation alone. The renal vasorelaxant effects of ISO and DES may therefore to a substantial extent be attributable to autoregulation.
Descriptors: inhalation anesthetics, isoflurane, isoflurane, renal circulation, vascular resistance, intravenous anesthetics, cats, chloralose, homeostasis.

Suzuki, T., H. Nagai, N. Katsumata, S. Ogawa, and H. Suzuki (1996). **Comparative neuromuscular inhibitory effects of volatile anesthetics**. *The Japanese Journal of Anesthesiology* 45(5): 599-607. ISSN: 0021-4892.
Abstract: Neuromuscular inhibitory effects of three volatile anesthetics were compared using muscular compound action potential (CAP) which was elicited from gastrocnemius muscle by sciatic nerve stimulation in cats. The amplitude of CAP evoked by 0.1 Hz single stimulation and eight repetitive stimulation (RS8) with frequencies ranged from 2 to 100 Hz were recorded as control values. After obtaining the control values, 0.5, 1, 1.5 and 2 MAC of halothane (n = 5), isoflurane (n = 7) or sevoflurane (n = 10) were administered respectively for 30 minutes and the single CAP amplitude and the responses evoked by RS8 were observed. Only after the inhalation of sevoflurane 2MAC, mean single CAP amplitude was depressed significantly to 82.6% of control. Under halothane and isoflurane anesthesia, the depression of single CAP amplitude was not observed at any concentration. Additionally, the most prominent fading responses were observed in sevoflurane-inhaled cats when the results obtained by 100Hz-RS8 were compared under 2MAC of three different anesthetic agents. Our results suggest that sevoflurane has the most potent neuromuscular inhibitory effect through both post- and presynaptic inhibitory mechanisms.
Descriptors: inhalation anesthetics, ethers, halothane, isoflurane, methyl ethers, muscle, skeletal, neuromuscular junction, sciatic nerve, action potentials, cats, depression, chemical, electric stimulation.
Language of Text: Japanese.

Sviatkina, O.I., V.P. Balashov, L.A. Balykova, and S.A. Shchukin (2004).
[Protivoaritmicheskaia aktivnost' derinata v eksperimente] Anti-arrhythmia

activity of derinat in an experiment. *Eksperimental'Naia i Klinicheskaia Farmakologiia* 67(1): 22-4. ISSN: 0869-2092.
Abstract: The acute toxicity of the immunostimulant derinat is very low: the LD50 value for intraperitoneal administration exceeds 1000 mg/kg. The drug effectively prevents from acute arrhythmia development upon occlusion in cats and produces antifibrillator effect on a model of reperfusive arrhythmia in a dose of 7.5 mg/kg. Derinat also exhibits the antiarrhythmic activity on the model of adrenalin-induced rhythm violations, but appears ineffective on the calcium chloride model.
Descriptors: adjuvants, immunologic, anti arrhythmia agents, DNA, adjuvants, immunologic toxicity, anti arrhythmia agents toxicity, cats, DNA toxicity, lethal dose 50, rats.
Language of Text: Russian.

Szereda Przestaszewska, M. and B. Kopczynska (2003). **Apnoeic responses to intracarotid nicotine challenge in anaesthetized cats.** *Journal of Physiology and Pharmacology* 54(2): 151-62. ISSN: 0867-5910.
Abstract: To determine the effects of an intraarterial administration of nicotine on the occurrence of apnoea and the activity of rib cage respiratory muscles, we studied 31 anaesthetized, spontaneously breathing cats. Phrenic activity was used as an index of neural inspiratory drive. Activity of parasternal intercostal (PIM) and triangularis sterni (TS) muscles was recorded. Nicotine in a dose of 65 microg/kg was injected into the left common carotid artery prior to and after midcervical vagotomy, preceded by section of the superior laryngeal nerves (SLNs). In eight additional cats, initially neurotomized as mentioned, nicotine was injected after bilateral disruption of the carotid sinus nerves (CSNs). Nicotine induced prompt expiratory apnoea of mean duration of 5.4+/-0.3s in 19 non-vagotomized and of 5.92+/-0.51 s (mean+/-S.E.M.) in 13 vagotomized cats. The occurrence and duration of the temporary arrest of breathing were reduced by midcervical vagotomy but not by subsequent CSNs neurotomy, which abolished post-apnoeic acceleration of breathing.In post-nicotine breathing of increased tidal volume and respiratory rate, peak activity of the parasternal intercostal muscles increased from baseline of 3.2+/-1.2 to 9.5+/-2.0 arbitrary units ($p<0.001$). The peak height of the phrenic nerve elevated from 7.9+/-0.9 to 14.5+/-1.7 arbitrary units ($p<0.001$). That of the triangularis sterni showed no change.The response of the respiratory effectors elicited by nicotine was independent of the vagal integrity and may be attributed to activation of nicotine receptors within the brainstem respiratory neurones.
Descriptors: anesthesia, apnea, nicotine, respiration, carotid artery, common, cats, injections, intra arterial, phrenic nerve, vagotomy.

Szereda Przestaszewska, M., B. Kopczynska, K. Kaczynska, and S.J. Chrapusta (2001). **Diverging respiratory effects of serotonin and nicotine in vagotomised cats prior to and after section of carotid sinus nerves.** *Journal of Physiology and Pharmacology* 52(1): 71-9. ISSN: 0867-5910.
Abstract: Respiratory effects of intravenous serotonin and nicotine were investigated prior to and after bilateral neurotomy of the carotid sinus nerves (CSNs) in eight pentobarbitone/chloralose-anaesthetised, bilaterally vagotomised and superior laryngeal nerves-sectioned cats. Injection of 188 nmol kg(-1) serotonin (hydrogen oxalate salt, 50

microg x kg(-1)) prior to and after CSNs section induced an expiratory apnoea of, respectively, 7.9 +/- 1.25 s and 8.3 +/- 1.6 s duration (mean +/- S.E.M.) in, respectively, five and three of those cats. In all cats, the serotonin challenge produced a period of accelerated breathing (P < 0.05) both prior to and after section of CSNs. Injection of a 433 nmol nicotine bolus (hydrogen tartrate salt, 200 microg) increased tidal volume by 25 +/- 8% in cats with intact CSNs (P < 0.01), but decreased it by 13 + 10% (P < 0.05) after CSNs section. Nicotine, but not serotonin, transiently increased mean arterial blood pressure in our cats, which rise was delayed by CSNs cut. Results of this study indicate that the respiratory response to serotonin occurs beyond carotid body chemoreceptors in vagotomised cats, and suggest that the volume response to intravenous nicotine depends qualitatively on carotid body chemoreceptor input in this experimental model.
Descriptors: blood pressure, carotid sinus innervation, nicotine, respiration, serotonin, analysis of variance, pressure, cats, denervation, nicotinic agonists, vagotomy.

Talwar, A., M.E. Hussain, and M. Fahim (1995). **Hemodilution-induced inhibition of cardiovascular responses to some vasoactive agents in anesthetized cats.** *Japanese Journal of Physiology* 45(3): 423-36. ISSN: 0021-521X.
NAL Call Number: QP34.5 J3
Abstract: Cardiovascular responses to adrenaline and acetylcholine (ACh) were investigated in anesthetized, artificially ventilated cats in control and after induction of acute normovolemic hemodilution. Progressive replacement of blood by high molecular weight dextran was performed in three steps of 20% each of the total estimated blood volume. Hemodynamic responses were recorded at four stages: the control stage and after the 1st, 2nd, and 3rd exchanges of blood for dextran. With the fall in hematocrit (Ht) there was a corresponding significant (p < 0.05) increase in heart rate (HR), cardiac output (CO), and stroke volume (SV), and a decrease in systemic vascular resistance (TPR). However, left ventricular systolic pressure (LVSP), left ventricular contractility (LV dP/dtmax), mean arterial pressure (MAP), and right atrial pressure (RAP) did not show any significant (p > 0.05) change due to hemodilution. The cardiovascular responses of intravenously administered adrenaline and ACh were significantly (p < 0.05) attenuated. Responses to sodium nitroprusside (SNP), a potent vasodilator and an exogenous source of nitric oxide, were also attenuated after hemodilution. The increase in SV and HR seem to be the contributing factors to the CO response. Our results indicate that the cardiovascular responsiveness to adrenaline, ACh and SNP is reduced during acute hemodilution which could be due to inadequate myocardial and vascular O2 supply. The possibility of a modulatory role of an endothelium-dependent mechanism and reflex regulatory responses by arterial baroreceptors during hemodilution also exists.
Descriptors: cardiovascular system, epinephrine, hemodilution, acetylcholine, anemia, anesthesia, cats, hematocrit, vasodilation.

Taniguchi, N., M. Miyata, S. Yachiku, S. Kaneko, S. Yamaguchi, and A. Numata (2002). **A study of micturition inducing sites in the periaqueductal gray of the mesencephalon.** *The Journal of Urology* 168(4 Pt 1): 1626-31. ISSN: 0022-5347.
Abstract: PURPOSE: The mesencephalon, especially the periaqueductal gray, is believed to integrate specific movement patterns of the somatic and autonomic nervous system, including those of vocalization, defensive behaviors and others. Fiber

communications exist between the periaqueductal gray and the pontine micturition center, and many nerve fibers ascending from the sacral spinal cord project to the periaqueductal gray. We examined whether the mesencephalon is involved in micturition function using microstimulation and a neurotracer. MATERIALS AND METHODS: We decerebrated 28 adult cats under general anesthesia. An electrode that can be used for microinjection was positioned in stereotaxic fashion in the mesencephalon and pons. Subsequently electrical stimulation and chemical stimulation with DL-homocysteine acid were applied to search for micturition inducing sites. Blood pressure and respiration were monitored simultaneously. We also performed electrical microstimulation of pontine micturition center. The neurotracer 5% Fluoro-Gold (Denver, Colorado) was injected into these sites to identify neural pathways between the mesencephalon and pons. The brainstem was removed after 10 hours and the mesencephalon was examined by fluorescence microscopy. RESULTS: Bladder contraction was provoked by electrical and chemical stimulation applied mainly at the ventrolateral side of the periaqueductal gray. Blood pressure increased simultaneously with bladder contraction after periaqueductal gray stimulation. Neurotracer injected into the pontine micturition center was found mainly on the ventrolateral side of the periaqueductal gray, in agreement with the sites where micturition was provoked by microstimulation. CONCLUSIONS: Nerve cells on the ventrolateral side of the periaqueductal gray have neural communications with the pontine micturition center bilaterally and they regulate micturition.
Descriptors: bladder innervation, mesencephalon, periaqueductal gray, urination, urodynamics, pressure, brain mapping, cats, electric stimulation, electromyogrphy, neural pathways, pons, spinal cord, urethra innervation.

Tarakanov, I.A., I.K. Kurambaev, and V.A. Safonov (1994). **The effect of anesthesia on acute experimental poisoning of animals by antio, an organophosphorus compound. [Vliianie narkoza na effekt ostrogo eksperimental'nogo otravleniia zhivotnykh pestitsidom antio iz gruppy fosfororganicheskii]** . *Bulletin of Experimental Biology and Medicine* 117(6): 587-90. ISSN: 0007-4888.
NAL Call Number: 442.8 B87AE
Descriptors: anesthesia, insecticides poisoning, organothiophosphorus compounds poisoning, carbon dioxide, cats, drug synergism, heart rate, oxygen, poisoning, respiration, gamma aminobutyric acid.
Language of Text: Russian.

Tatar, M. and R. Pecova (1996). **The effect of experimental gastroesophageal reflux on the cough reflex in anesthetized cats [Vplyu experimentalneho gastroezofagealneho refluxu na kasel' u anestezovanych maciek]**. *Bratislavske Lekarske Listy* 97(5): 284-8. ISSN: 0006-9248.
Abstract: BACKGROUND: Gastroesophageal reflux (GER) is a common cause of chronic cough. It has been suggested that GER most often causes chronic cough by stimulating the distal oesophagus. Possible mechanisms of this interactive process are: a) an oesophageal-tracheobronchial reflex, b) acid reflux seems to be only a cofactor of cough; it decreases cough threshold. AIM: To evaluate the effects of experimental GER on the cardiorespiratory parameters and on the cough induced by mechanical stimulation of airways mucosa in anaesthetised cats. METHODS: In 10 adults cats of either sex,

mean body weight 2.4 +/- 0.2 kg, anaesthetised with pentobarbitone sodium (30 mg/kg b.w., i.p.), oesophageal pressure, blood pressure, and volume tidal were recorded. 2 ml 0.1 N HCl was instilled into the isolated thoracic oesophagus with preserved innervation over a period of 5 minutes. The cough was induced by the insertion of nylon fibre into the airways and its intensity was evaluated from the changes in oesophageal pressure. Cough challenge was also repeated during intraesophageal instillation of 2 ml capsaicin (350 mumol/l). The parameters of cough intensity elicited during experimental GER were compared with the control cough parameters obtained during intraesophageal instillation of 2 ml physiological saline. RESULTS: Intraesophageal instillation of either HCl or capsaicin was accompanied by the contractions of oesophageal wall and by the fluctuations in volume tidal. These changes were more pronounced after capsaicin challenge. There was no induction of either cough or other respiratory reflexes with forced expiration during the experimental GER. In other part of this study there were not obtained any significant differences of the intensity of mechanically-induced cough during intraesophageal instillation of physiological saline, HCl, and capsaicin. CONCLUSION: The oesophageal-tracheobronchial reflex mechanism for either induction or modulation of cough is not present in healthy anaesthetised cats. We agree with previous data that GER alone is not trigger agent of cough. (Fig. 5, Ref. 17.)
Descriptors: anesthesia, cough, gastresophageal reflux, reflex, capsaicin, cats, esophgus, gastresophageal reflux, hydrochloric acid, muscle contraction, physical stimulation, sodium chloride.
Language of Text: Slovak.

Tatewaki, T., M. Inagaki, T. Kawada, T. Shishido, Y. Yanagiya, H. Takaki, T. Sato, M. Sugimachi, and K. Sunagawa (2003). **Biphasic response of action potential duration to sudden sympathetic stimulation in anesthetized cats.** *Circulation Journal* 67(10): 876-80. ISSN: 1346-9843.
Abstract: Although certain roles of the sympathetic nervous system have been suggested as possible mechanisms of life-threatening arrhythmias and sudden cardiac death, the dynamic electrophysiological response to sympathetic activation remains unclear. The aim of this study was to investigate the dynamic response of action potential duration (APD) to sudden sympathetic stimulation (SYM) using monophasic action potential (MAP) recording. In 10 anesthetized cats, MAPs were continuously recorded from the right ventricular endocardium under constant pacing. The dynamic response of the APD to SYM (3 Hz) were examined before and after the administration of propranolol (0.5 mg/kg i.v.) (n=5) or phentolamine (1.0 mg/kg i.v.) (n=5). In response to SYM, the APD was transiently prolonged by 5.5+/-3.2 ms at 7.0+/-1.3 s, and monotonically shortened toward a steady-state level (-14.5+/-6.9 ms). Propranolol almost abolished both the transient prolongation (6.6+/-4.5 to 0.2+/-0.4 ms, $p<0.05$) and the steady-state shortening (-13.7+/-3.6 to -1.1+/-2.4 ms, $p<0.005$), whereas phentolamine did not have a significant effect on the response of APD to SYM. These findings might partly account for the propensity of ventricular arrhythmias to occur immediately after sudden sympathetic activation.
Descriptors: action potentials, sympathetic nervous system, action potentials, adrenergic alpha antagonists, anesthesia, cardiac pacing, artificial, cats, electrophysiology, heart

ventricles, phentolamine, propranolol, sympathetic nervous system, ventricular fibrillation.

Tatsumi, K., C.K. Pickett, C.R. Jacoby, J.V. Weil, and L.G. Moore (1997). **Role of endogenous female hormones in hypoxic chemosensitivity.** *Journal of Applied Physiology* 83(5): 1706-10. ISSN: 8750-7587.
NAL Call Number: 447.8 J825
Abstract: Effective alveolar ventilation and hypoxic ventilatory response (HVR) are higher in females than in males and after endogenous or exogenous elevation of progesterone and estrogen. The contribution of normal physiological levels of ovarian hormones to resting ventilation and ventilatory control and whether their site(s) of action is central and/or peripheral are unclear. Accordingly, we examined resting ventilation, HVR, and hypercapnic ventilatory responses (HCVR) before and 3 wk after ovariectomy in five female cats. We also compared carotid sinus nerve (CSN) and central nervous system translation responses to hypoxia in 6 ovariectomized and 24 intact female animals. Ovariectomy decreased serum progesterone but did not change resting ventilation, end-tidal PCO2, or HCVR (all P = NS). Ovariectomy reduced the HVR shape parameter A in the awake (38.9 +/- 5.5 and 21.2 +/- 3.0 before and after ovariectomy, respectively, P < 0.05) and anesthetized conditions. The CSN response to hypoxia was lower in ovariectomized than in intact animals (shape parameter A = 22.6 +/- 2.5 and 54.3 +/- 3.5 in ovariectomized and intact animals, respectively, P < 0.05), but central nervous system translation of CSN activity into ventilation was similar in ovariectomized and intact animals. We concluded that ovariectomy decreased ventilatory and CSN responsiveness to hypoxia, suggesting that the presence of physiological levels of ovarian hormones influences hypoxic chemosensitivity by acting primarily at peripheral sites.
Descriptors: anoxia, ovariectomy, respiratory mechanics, anesthesia, gas analysis, carotid sinus, cats, chemoreceptors, estradiol, oxygen consumption, progesterone.

Tatsumi, K., C.K. Pickett, and J.V. Weil (1995). **Possible role of dopamine in ventilatory acclimatization to high altitude.** *Respiration Physiology* 99(1): 63-73. ISSN: 0034-5687.
NAL Call Number: QP121. A1R4
Abstract: Ventilatory acclimatization to high altitude is accompanied by increased hypoxic (HVR) and hypercapnic (HCVR) ventilatory responses which may reflect increased carotid body chemosensitivity. Dopamine is an inhibitory neuromodulator of the carotid body and its activity may be reduced by hypoxic exposure. To determine whether decreased dopaminergic activity could account for the increased chemosensitivity of acclimatization, we examined the response to peripheral dopamine receptor (D2) blockade with domperidone on HVR and HCVR in awake cats before and after exposure to simulated altitude of 14,000 ft for 2 days. During anesthesia, we also examined the effects of domperidone on carotid body responses to hypoxia and hypercapnia in acclimatized and low altitude cats. Two days' exposure to hypobaric hypoxia produced an increase in HVR and HCVR. Before acclimatization, domperidone augmented HVR and HCVR, but there was no effect after acclimatization. In anesthetized low altitude cats, domperidone increased carotid body responses to hypoxia and hypercapnia, but had no effect in acclimatized cats. These results indicate that decreased endogenous dopaminergic activity may contribute to increased ventilatory and

chemoreceptor responsiveness to hypoxia and hypercapnia during hypoxic ventilatory acclimatization.
Descriptors: acclimatization, dopamine, respiration, altitude, anoxia, body weight, cats, domperidone, hypercapnia.

Tatsumi, K., C.K. Pickett, and J.V. Weil (1995). **Decreased carotid body hypoxic sensitivity in chronic hypoxia: role of dopamine.** *Respiration Physiology* 101(1): 47-57. ISSN: 0034-5687.
NAL Call Number: QP121. A1R4
Abstract: Previously we showed that prolonged exposure to severe hypoxia produces decreased peripheral chemoreceptor responsiveness to hypoxia and attenuates central nervous system (CNS) chemosensory translation, which together may contribute to the decreased hypoxic ventilatory response (HVR) in chronic hypoxia. In this study, we sought to determine whether the central or peripheral activity of endogenous dopamine modulates this decreased HVR. We examined the effects of peripheral and central dopamine receptor blockade on HVR and carotid sinus nerve (CNS) response to hypoxia in controls and in cats exposed to a simulated altitude of 5500 m for 3 weeks. Domperidone increased CSN response to hypoxia in hypoxic cats to levels similar to those observed in controls. HVR was also augmented by domperidone in hypoxic cats, but remained below that of controls. As a result, the CNS chemosensory translation remained reduced in hypoxic animals. We further treated animals with haloperidol. However, this combined treatment with domperidone and haloperidol led to no further increase in CSN or ventilatory responses to hypoxia, or in CNS chemosensory translation in hypoxic cats. Thus, decreased HVR in hypoxic cats is mediated both by depression of hypoxic sensitivity of the carotid body, which is largely dopaminergic, and by decreased CNS chemosensory translation which must involve non-dopaminergic mechanisms.
Descriptors: anoxia, carotid body, dopamine, anesthesia, carotid sinus, cats, chronic disease, domperidone, dopamine antagonists, haloperidol, phrenic nerve, respiratory mechanics, respiratory mechanics.

Taylor, P.M. (1999). **Newer analgesics: nonsteroid anti-inflammatory drugs, opioids and combinations**. *Veterinary Clinics of North America, Small Animal Practice* 29(3): 719-735. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: non steroidal anti-inflammatory agents, analgesics, opioids, drug combinations, reviews, cats.

Thurmon, J.C., W.J. Tranquilli and G.J. Benson (1999). ***Essentials of Small Animal Anesthesia and Analgesia***, 3rd edition, Vol. viii, Lippincott, Williams & Wilkins: Philadelphia, Pa., 580 p. ISBN: 0683301071.
NAL Call Number: SF914.E77
Descriptors: veterinary medicine, small animal practice, anesthesia, pets, dogs, cats, students, birds, small exotic animals.

Tillson, D.M. (1997). **Thoracostomy tubes. I. Indications and anesthesia.** *Compendium on Continuing Education for the Practicing Veterinarian* 19(11): 1258-1275. ISSN: 0193-1903.
NAL Call Number: SF601 .C66

Descriptors: dogs, cats, thorax, anesthesia, animal morphology, animal, body parts, body regions.

Timofeev, I. and M. Steriade (1996). **Low-frequency rhythms in the thalamus of intact-cortex and decorticated cats.** *Journal of Neurophysiology* 76(6): 4152-68. ISSN: 0300-9858.
NAL Call Number: 41.8 P27
Abstract: 1. The patterns and synchronization of low-frequency, sleeplike rhythms (slow, spindle and delta oscillations) were compared in the intact-cortex and decorticated hemispheres of cats under ketamine-xylazine anesthesia. Intracellular recordings were performed in intact and decorticated hemispheres from 58 rostrolateral thalamic reticular (RE) neurons and from 164 thalamocortical (TC) neurons in the ventrolateral (VL) nucleus. In the decorticated hemisphere, dual intracellular recordings were performed from five RE-VL cell couples and from 12 TC cell couples within the VL nucleus. In addition, field potentials were simultaneously recorded from the neocortex (electroencephalogram) and ipsilateral thalamus [electrothalamogram (EThG)] of the intact (right) hemisphere, while EThG was recorded from the VL nucleus of the decorticated (left) hemisphere. 2. The slow oscillation (< 1 Hz) was absent in all 72 VL cells and in 23 of 25 RE cells from the decorticated hemisphere, as well as in the EThG recorded from the VL nucleus in the decorticated hemisphere, whereas it was simultaneously present in the cortex and thalamus of the intact hemisphere. The remaining two RE neurons (8%) in the decorticated hemisphere oscillated in close time relation with the slow oscillation in the cortex and thalamus of the opposite hemisphere; averaged activities showed that the onset of depolarization in RE cell followed 12 ms after the sharp depth-negative (depolarizing) component in the contralateral cortex. We view this result as the electrophysiological correlate of a disynaptic excitatory pathway consisting of crossed cortical projections, first relayed in contralateral dorsal thalamic nuclei. 3. The patterns of thalamic spindles (7-14 Hz) differed between the two hemispheres. Whereas the decorticated hemisphere displayed prolonged, waxing and waning spindles, the spindles in the intact-cortex hemisphere were short and exclusively waning and followed the depth-negative component of cortical slow oscillation. This result indicates that the synchronized corticothalamic drive associated with the slow oscillation fully entrains thalamic circuits from the onset of spindles, thus preventing further waxing. Similar differences between waxing and waning and waning spindles were obtained by stimulating with different intensities the thalamus in the decorticated hemisphere. 4. Simultaneous intracellular recordings from two VL cells or from RE and VL cells showed nearly simultaneous spindle sequences in the decorticated hemisphere. 5. The hyperpolarization-activated intrinsic delta oscillation (1-4 Hz) of TC cells was asynchronous in the decorticated hemisphere. 6. These results strengthen the idea that the slow oscillation is cortical in origin; demonstrate a full, short-range, intrathalamic synchrony of spindles in the absence of cortex; and indicate that the pattern of spindles, a sleep rhythm that is conventionally regarded as purely thalamic, is shaped by the corticothalamic feedback.
Descriptors: cerebral cortex, electroencephalography, neurons, sleep, thalamus, cats, cerebral cortex, corpus callosum, databases, factual, decerebrate state, delta rhythm, laterality, thalamus.

Titier, K., E. Deridet, and N. Moore (2002). **In vivo and in vitro myocardial binding of risperidone and 9-hydroxyrisperidone.** *Toxicology and Applied Pharmacology* 180(2): 145-149. ISSN: 0041-008X.
NAL Call Number: 391.8 T662
Descriptors: isoxazoles, myocardium, antipsychotic agents, chromatography, high pressure liquid, guinea pigs, isoxazoles, pyrimidines, risperidone.

Tomita, Y., M. Tomita, I. Schiszler, T. Amano, N. Tanahashi, M. Kobari, H. Takeda, M. Ohtomo, and Y. Fukuuchi (2002). **Repetitive concentric wave-ring spread of oligemia/hyperemia in the sensorimotor cortex accompanying K(+)-induced spreading depression in rats and cats.** *Neuroscience Letters* 322(3): 157-60. ISSN: 0304-3940.
NAL Call Number: QP351.N3
Abstract: Vascular changes accompanying spreading depression (SD) remain controversial. We examined dynamic alterations of local cerebral blood volume (CBV) during SD by observing light transmission at an isosbestic point of hemoglobin (550 nm) in seven rats and five cats under alpha-chloralose/urethane anesthesia. The two species were used for comparison between the lissencephalic and gyrencephalic brains. We found that a concentrated K(+) solution microinjected into the sensorimotor cortex provoked CBV changes that appeared as a repetitive propagation of concentric wave-rings of ischemia followed by hyperemia expanding peripherally from the injection site at speeds of 1.9-3.2 mm/min. The dynamic CBV changes continued repeatedly every 1-5 min for more than 30 min in three rats, ceased within 30 min in three rats and remained at the site of K(+) injection in one rat. Similar repeated CBV changes occurred in two out of five cats.
Descriptors: blood volume, cerebrovascular circulation, hyperemia, motor cortex supply, potassium, somatosensory cortex supply, spreading cortical depression, volume, cats, cerebrovascular circulation, hyperemia, light, microinjections, motor cortex, rats, rats, sprague dawley, somatosensory cortex, species specificity.

Topal, A. (2000). **Kedilerde Tiletamin/Zolezepam ve Xylazine/Ketamin anestezisinin karslastrlmas [The comparison of Tiletamine/Zolezepam and Xylazine/Ketamine anesthesia in cats]**. *Kafkas Universitesi Veteriner Fakultesi Dergisi* 6(1/2): 81-88. ISSN: 1300-6045.
Descriptors: anesthetics, analgesics, ketamine, muscles, xylazine, cats.
Language of Text: Turkish; Summary in English.

Torske, K.E. and D.H. Dyson (2000). **Epidural analgesia and anesthesia**. *Veterinary Clinics of North America, Small Animal Practice* 30(4): 859-874. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: analgesics, anesthesia, conduction anesthesia, local anaesthetics, reviews, dogs, cats.

Tranquilli, W., R. Radasch, and D. Bjorling (1998). **Managing the pain of soft tissue surgery.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 12: 612-615.

NAL Call Number: SF605.N672
Descriptors: dogs, cats, anesthesia, soft tissue surgery.

Trim, C.M. (1999). **Anesthetic emergencies and complications**. In: R.R. Paddleford (Editor), *Manual of Small Animal Anesthesia*, 2nd edition, W.B. Saunders: Philadelphia, Pennsylvania, USA, p. 147-195. ISBN: 0721649695.
Descriptors: anesthesia, emergencies, pets, cats.

Uchida, H., K. Kishikawa, and J.G. Collins (1995). **Effect of propofol on spinal dorsal horn neurons. Comparison with lack of ketamine effects.** *Anesthesiology* 83(6): 1312-22. ISSN: 0003-3022.
Abstract: BACKGROUND: Pentobarbital reduces low-threshold receptive field (RF) size and enhances responses of some spinal dorsal horn neurons to noxious stimulation in cats. To better understand the effects of general anesthetics on spinal sensory processing, this study was designed to determine if intravenous propofol and ketamine have similar effects. METHODS: Spinal dorsal horn neuronal responses to RF stimulation were observed in physiologically intact, awake, drug-free cats. After baseline observations were made, the effects of propofol (7.5 or 10 mg/kg intravenous) or ketamine (10 mg/kg intravenous) on those neuronal responses were observed. RESULTS: Propofol is capable of producing a profound reduction in low-threshold RF size. Propofol also depressed neuronal responses to non-noxious and noxious RF stimulation in many of the neurons tested. Ketamine was not observed to produce any change in either RF size or neuronal response to non-noxious RF stimulation. CONCLUSIONS: General anesthetics that interact with gamma aminobutyric acid receptors may significantly depress low-threshold sensory information within the spinal dorsal horn. This may contribute to anesthetic-induced loss of sensation. Lack of a ketamine effect suggests an absence of n-methyl-d-aspartate receptor involvement in spinal dorsal horn processing of low threshold sensory information.
Descriptors: intravenous anesthetics, ketamine, pain, propofol, spinal cord, action potentials, pressure, cats, neurons, spinal cord, touch.

Villanueva, L. and D. Le Bars (1995). **The activation of bulbo-spinal controls by peripheral nociceptive inputs: diffuse noxious inhibitory controls.** *Biological Research* 28(1): 113-25. ISSN: 0716-9760.
Abstract: Some neurones in the dorsal horn of the spinal cord are strongly inhibited when a nociceptive stimulus is applied to any part of the body, distinct from their excitatory receptive fields. This phenomenon was termed "Diffuse Noxious Inhibitory Controls" (DNIC). DNIC influence only convergent neurones, and these inhibitions can be triggered only by conditioning stimuli which are nociceptive. The inhibitions are extremely potent, affect all the activities of the convergent neurones and persist after the removal of the conditioning stimulus. Only activity of A delta- or A delta- and C-peripheral fibres can trigger DNIC. DNIC are sustained by a complex loop which involves supraspinal structures since, unlike segmental inhibitions, they are not observed in animals in which the cord has previously been transected at the cervical level. The ascending and descending limbs of this loop travel respectively through the ventro-lateral and dorso-lateral funiculi, respectively. We proposed that DNIC result from the physiological activation of some brain structures putatively involved in descending

inhibition. However, lesions of the mesencephalon, including the periaqueductal grey (PAG) and the rostral ventromedial medulla (RVM), including nucleus raphe magnus, did not modify DNIC. By contrast, lesions of subnucleus reticularis dorsalis (SRD) in the caudal medulla strongly reduced DNIC. Both electrophysiological and anatomical data support the involvement of SRD neurones in spino-bulbo-spinal loop(s). In man, very similar results have been obtained by means of combined psychophysical measurements and recordings of nociceptive reflexes (RIII reflex). Painful heterotopic conditioning stimuli depress both the reflex and the associated painful sensation, with stronger effects being observed with more intense conditioning stimuli. By contrast, in tetraplegic patients, heterotopic nociceptive stimulation did not produce any depression of the RIII reflex. Observations were also made on patients with cerebral lesions causing contralateral hemi-analgesia, either a unilateral thalamic lesion or a lesion of the retro-olivary part of the medulla (Wallenberg's syndrome). In the patients with Wallenberg's syndrome, no inhibitions were observed when the nociceptive conditioning stimuli were applied to the affected side whereas if these stimuli were applied to the normal side they triggered inhibitory effects and post-effects very similar to those seen in normal subjects. These results show that in humans, brainstem--probably reticular--structures seem to play a key role in these phenomena. The data suggest that nociceptive stimuli, even though there are unquestionably perceived as being painful activate certain inhibitory controls which originate in the brainstem. Since all convergent neurones are subject to DNIC, one can make the assertion that the transmission of nociceptive signals towards higher centres is under the influence of these controls. In other words, the descending inhibitory controls may play a physiological role in the detection of nociceptive signals. It is proposed that DNIC constitute both a filter which allows the extraction of the signal for pain and an amplifier in the transmission system which increases the potential alarm function of the nociceptive signals. This hypothesis is supported by the finding that DNIC are blocked by low doses of morphine in both rat and man.
Descriptors: medulla oblongata, neurons, nociceptors, spinal cord, cats, haplorhini, neural inhibition, rats.

Villeneuve, M.Y. and C. Casanova (2003). **On the use of isoflurane versus halothane in the study of visual response properties of single cells in the primary visual cortex.** *Journal of Neuroscience Methods* 129(1): 19-31. ISSN: 0165-0270.
NAL Call Number: RC346
Abstract: Halothane is a widely used anesthetic in research. It produces several alterations in organs, especially in the brain. Recently, isoflurane emerged in neuroscience laboratories. For many reasons it appears to be better than halothane for animal brain research (e.g. isoflurane induces lower intracranial pressure, and is less detrimental on the cardiovascular system). However, no one is in a position to recommend it in electrophysiology research because its effects on specific brain functions are relatively unknown. Given that both anesthetics yield different actions on gross brain activity (EEG, VEP), it is likely that they differentially affect single neuron activity. The goal of this study is to determine whether halothane or isoflurane use is best suited to study the receptive field properties of neurons in the cat's primary visual cortex. Extra-cellular recordings were made for both anesthetics in area 17 of adult cats under different levels of anesthesia. Results indicate that various cell parameters differ under halothane

anesthesia when compared with isoflurane. The main difference between the two anesthetics is the greater depression of the cell optimal visual response amplitude induced by isoflurane at equipotent concentration. Due to its stronger depressive effects, isoflurane may not be the ideal anesthetic for single-cell recordings in the primary visual cortex.
Descriptors: inhalation anesthetics, halothane, isoflurane, neurons, visual cortex, action potentials, action potentials, carbon dioxide, cats, dose response relationship, drug, electroencephalography, evoked potentials, visual, heart rate, lung, neurons classification, neurons, orientation, photic stimulation, visual cortex, visual cortex.

Vulpe, V. and V. Nastasa (2000). **Utilizarea examenelor radiologice la animalele mici cu ajutorul tehnicilor de anestezie [Radiological examination of small animals using anaesthetic techniques]**. *Lucrai Stiinifice Medicina Veterinara* 43(2): 333-336. ISSN: 1454-7406.
Descriptors: anesthesia, anesthetics, diagnostic techniques, domestic animals, droperidol, drug combinations, fentanyl, immobilization, injectable anesthetics, medetomidine, morphine, neuroleptics, pets, radiography, techniques, cats.
Language of Text: Romanian; Summary in English.

Wagner, A.E. (1999). **Is butorphanol analgesic in dogs and cats.** *Veterinary Medicine* 94(4): 346-350. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, analgesics, pain.

Wagner, A.E. (2004). **Anesthetic monitoring: What monitors can and cannot tell you**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 18: 80-82.
NAL Call Number: SF605.N672
Descriptors: anesthesia, pressure, body temperature, carbon dioxide, cardiac output, diagnostic techniques, electrocardiograms, electorcardiography, monitoring, pulse, respiration, surgery, cats.

Wagner, A.E. (2004). **Use of local anesthetic techniques to complement general anesthesia**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 86.
NAL Call Number: SF605.N672
Descriptors: anesthesia, local anesthesia, local anaesthetics, pharmacodynamics, surgical operations, techniques, cats, dogs.

Wagner, A.E., B.D. Wright, and P.W. Hellyer (2003). **Myths and misconceptions in small animal anesthesia.** *Journal of the American Veterinary Medical Association* 223(10): 1426-1432. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: anesthesia, animals, domestic, anesthesia, anesthetics, combined, cats, dogs, preanesthetic medication, safety, treatment outcome.

Wang, Y., G. Pei, Y.C. Cai, Z.Q. Zhao, J.B. Wang, C.L. Jiang, Z.C. Zheng, and X.Y. Liu (1996). **Human interleukin-2 could bind to opioid receptor and induce corresponding signal transduction.** *Neuroreport* 8(1): 11-4. ISSN: 0959-4965.

Abstract: Interleukin-2 (IL-2) was found to have an analgesic effect in the peripheral nervous system. Both electrophysiological and behavioural experiments suggested an anti-noceiceptive effect of IL-2 in animals. Biochemical experiments revealed that IL-2 could displace diprenorphine binding in both NG 108-15 cells and HEK 293 cells transfected with pCDNA3-DOR (delta opioid receptor). Furthermore, IL-2 significantly inhibited cAMP production stimulated by forskolin in both NG 108-15 and transfected HEK 293 cells, indicating that the binding of IL-2 to the delta opioid receptor is functional.

Descriptors: interleukin 2, interleukin 2, receptors, opioid, receptors, opioid, signal transduction, analgesics, binding, competitive, cats, cell line, cyclic amp, diprenorpHine, narcotic antagonists, neural pathways, peripheral nervous system, rats, rats, wistar, receptors, opioid, receptors, opioid, delta, transfection.

Wang, Y. and A.G. Ramage (2001). **The role of central 5-HT(1A) receptors in the control of B-fibre cardiac and bronchoconstrictor vagal preganglionic neurones in anaesthetized cats.** *The Journal of Physiology* 536(Pt 3): 753-67. ISSN: 0022-3751.

NAL Call Number: 0022-3751

Abstract: Experiments were performed to determine whether 5-HT(1A) receptors (a) modulate the activity of cardiac and bronchoconstrictor vagal preganglionic neurones (CVPNs and BVPNs) in the nucleus ambiguus (NA) and (b) are involved in pulmonary C-fibre afferent-evoked excitation of CVPNs, by right-atrial injections of phenylbiguanide (PBG). These experiments were carried out on alpha-chloralose-anaesthetized, artificially ventilated and atenolol (1 mg kg(-1))-pretreated cats. 2. The ionophoretic application of 8-OH-DPAT (a selective 5-HT(1A) receptor agonist) influenced the activity of 16 of the 19 CVPNs tested. 8-OH-DPAT tended to cause inhibition at low currents (40 nA) and excitation at high currents (120 nA). The activity of 15 of these neurones increased in response to the application of 8-OH-DPAT. In six of the CVPNs tested, this excitatory action of 8-OH-DPAT was attenuated by co-application of the selective 5-HT(1A) receptor antagonist WAY-100635. 3. The pulmonary C-fibre afferent-evoked excitation of eight CVPNs was attenuated by ionophoretic application of WAY-100635. 4. In three out of four CVPNs, the ionophoretic application of PBG caused excitation. 5. In five out of the nine identified BVPNs that were tested with ionophoretic application of 8-OH-DPAT, excitation was observed that was attenuated by WAY-100635. 6. WAY-100635 (I.V. or intra-cisternally) also reversed bradycardia, hypotension and the decrease in phrenic nerve activity evoked by the I.V. application of 8-OH-DPAT (42 microg kg(-1)). 7. In conclusion, the data indicate that 5-HT(1A) receptors located in the NA play an important role in the reflex activation of CVPNs and BVPNs, and support the view that overall, these receptors play a fundamental role in the reflex regulation of parasympathetic outflow.

Descriptors: autonomic fibers, preganglionic, bronchoconstriction, heart innervation, receptors, serotonin, 8 hydroxy 2 di n propylaminotetralin, anesthesia, cats, electrophysiology, iontophoresis, lung innervation, membrane potentials, nerve fibers,

phrenic nerve, piperazines, pyridines, receptors, serotonin, 5 ht1, serotonin agonists, serotonin antagonists.

Wang, Y.C., S.H. Wei, M.H. Sun, and C.W. Lin (2001). **A new mode of percutaneous upper thoracic phenol sympathicolysis: report of 50 cases.** *Neurosurgery* 49(3): 628-34. ISSN: 0148-396X.
Abstract: Our previous study demonstrated that a high concentration of phenol (75-90%) with minimal volume (0.02 ml) can elicit serious degeneration of ganglion cells of the stellate ganglia in cats. Another previous study in our clinical patients demonstrated that approximately 84 to 90% of the upper thoracic (T2-T3) sympathetic trunks can be found under an endoscope on the ventral side of the T2-T3 rib heads. In this report, we present a new mode of dorsal percutaneous thoracic phenol sympathicolysis (PTPS) for the treatment of palmar hyperhidrosis or axillary bromidrosis. METHODS: Fifty patients with palmar hyperhidrosis or axillary bromidrosis were injected with 75% phenol into a total of 98 sides of the T2-T3 or T3-T4 sympathetic trunks and ganglia. The injected volume was 0.6 to 1.2 ml (average, 0.8 ml) for each side. The technique of dorsal percutaneous injection was performed under local anesthesia or local with intravenous general anesthesia and under the guidance of a C-arm fluoroscope. RESULTS: Forty patients (80%) showed satisfactory results, including cessation of sweating. The success rates of PTPS were 83.7% (41 of 49 patients) on the left side and 91.8% (45 of 49 patients) on the right side. The skin temperature of the thumb increased by 5.3 to 5.4 degrees C approximately 1 hour after the phenol injection in patients with satisfactory results, whereas it increased by only 1.3 to 2.7 degrees C in patients who had unsatisfactory results. CONCLUSION: PTPS may be a good alternative to endoscopic sympathectomy to treat palmar hyperhidrosis and axillary bromidrosis. The skin temperature of the thumb is still a useful index to evaluate preliminarily whether PTPS has been successful.
Descriptors: hyperhidrosis, phenol, sclerosing solutions, sympathectomy, chemical, adolescent, adult, axilla, body temperature, hand, injections, subcutaneous, middle aged, phenol, sclerosing solutions.

Watson, A.D.J., A. Nicholson, D.B. Church, and M.R.B. Pearson (1996). **Use of anti-inflammatory and analgesic drugs in dogs and cats.** *Australian Veterinary Journal* 74(3): 203-210. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: dogs, cats, anti-inflammatory agents, analgesics, usage, species differences, pain, symptoms, surgery, veterinarians.

Welch, S.L. (2000). **Local anesthetic toxicosis**. *Veterinary Medicine* 95(9): 670-673. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: chemical structure, clinical aspects, local anaesthetics, pets, poisoning, susceptibility, cats.

Welles, E.G., C. Bourne, J.W. Tyler, and M.K. Boudreaux (1994). **Detection of activated feline platelets in platelet-rich plasma by use of fluorescein-labeled antibodies and flow cytometry.** *Veterinary Pathology* 31(5): 553-60. ISSN: 0300-9858.

NAL Call Number: 41.8 P27
Abstract: Platelets contribute to prethrombotic or thrombotic states; however, accepted evaluation methods (i.e., in vitro testing by use of an aggregometer) of platelet function in cats can be difficult because of the large volume of blood required from which platelets are isolated and the potential for platelet activation due to difficult venipunctures in sometimes uncooperative or excited animals. The activation problem also contributes to errors in platelet counts. Platelets from four domestic short haired cats (two males, two females, 2-3 years old) minimally restrained without sedation or anesthesia were evaluated. Blood (5 ml) was collected by jugular venipuncture directly into syringes containing 3.8% trisodium citrate (nine parts blood to one part anticoagulant) plus prostaglandin E1 (3 microM; 0.25, 0.5, 1, or 2 microliters/500 microliters citrate) or 3.8% trisodium citrate alone. Prostaglandin E1, which is a stable metabolite of arachidonic acid with platelet inhibitory properties similar to those of prostaglandin I2, was added to the anticoagulant to prevent activation of platelets during the collection process. Feline platelets exposed to prostaglandin E1 became immediately and persistently nonreactive to agonists, which negated their use in functional studies (aggregation, 14C-serotonin release, binding of fluorescein-conjugated antifibrinogen) but improved platelet counting accuracy. Detection of in vivo activation of platelets in prethrombotic and thrombotic states in humans has been done by identification of activation-dependent molecules on platelet surfaces by use of specific antibody recognition and detection by flow cytometric analysis. Many activation-dependent platelet surface receptor changes are species specific; however, fibrinogen appears to be conserved across species.
Descriptors: blood platelets, cats, platelet activation, antibodies, platelets, specimen collection, flow cytometry, fluorescein 5 isothiocyanate, prostaglandins E1.

White, G.A. and N.S. Matthews (1999). **Frequency of hypoventilation during general anesthesia for routine elective surgery**. *Veterinary Medicine* 94(3): 247-251. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: anesthesia, respiration, monitoring, gases, hypercapnia, lung ventilation, cats.

Whitsel, B.L., E.F. Kelly, M. Quibrera, M. Tommerdahl, Y. Li, O.V. Favorov, M. Xu, and C.B. Metz (2003). **Time-dependence of SI RA neuron response to cutaneous flutter stimulation.** *Somatosensory and Motor Research* 20(1): 45-69. ISSN: 0899-0220.
Abstract: Spike discharge activity of RA-type SI cortical neurons was recorded extracellularly in anesthetized monkeys and cats. Multiple applications (trials) of 10-50 Hz sinusoidal vertical skin displacement stimulation ("flutter") were delivered to the receptive field (RF). Analysis revealed large and systematic temporal trends not only in SI RA neuron responsivity (measured as spikes/s and as spikes/stimulus cycle), but also in entrainment, and in phase angle of the entrained responses. In contrast to SI RA neurons, the response of RA skin afferents to comparable conditions of skin flutter stimulation exhibited little or no dynamics. The occurrence and form of the SI RA neuron response dynamics that accompany skin flutter stimulation are shown to depend on factors such as stimulus frequency and the locus of the recording site in the global cortical response pattern. Comparison of recordings obtained in near-radial vs tangential

microelectrode penetrations further reveals that the SI RA neuron response dynamics that occur during skin flutter stimulation are relatively consistent within, but heterogeneous across column-sized regions. The observed SI RA neuron response dynamics are suggested to account, in part, for the improved capacity to discriminate stimulus frequency after an exposure ("adaptation") to skin flutter stimulation (Goble and Hollins, J Acoust Soc Am 96: 771-780, 1994). Parallels with recent proposals about the contributions to visual perception of short-term primary sensory cortical neuron dynamics and synchrony in multineuron spike activity patterns are identified and discussed.
Descriptors: neurons, somatosensory cortex, somatosensory cortex, anesthesia, cats, electric stimulation, electrophysiology, microelectrodes, physical stimulation, saimiri, skin innervation, time factors, touch.

Williams, L.S., J.K. Levy, S.A. Robertson, A.M. Cistola, and L.A. Centonze (2002). **Use of the anesthetic combination of tiletamine, zolazepam, ketamine, and xylazine for neutering feral cats.** *Journal American Veterinary Medical Association* 220(10): 1491-1495. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, wild animals, gonadectomy, anesthesia, ketamine, xylazine, anesthetics, benzodiazepines, drug combinations, dosage, mortality.

Wilson, L.B., P.T. Wall, J.A. Pawelczyk, and K. Matsukawa (1996). **Divergence of ventilatory responses to isometric contraction in anesthetized cats.** *Respiration Physiology* 104(2-3): 137-46. ISSN: 0034-5687.
NAL Call Number: QP121. A1R4
Abstract: The purpose of this study was to determine if the initial ventilatory and phrenic nerve responses to isometric contraction of the triceps surae muscle of anesthetized cats are influenced by the pattern of the contraction. To address this, three different types of muscle contraction were evoked: (1) a high tension, continuous tetanic (HT-CT) contraction; (2) a moderate tension, continuous tetanic (MT-CT) contraction; and (3) high tension, intermittent tetanic (HT-IT) contractions. The duration of each contraction period was 60 sec. The MT-CT and HT-IT contractions increased minute volume (VE; 19 +/- 4% and 15 +/- 5%, respectively) within the first 15 sec. These increases were the result of rises in breathing frequency and tidal volume. However, only the MT-CT contraction increased phrenic activity (pVE) in the first 15 sec. By contrast, ventilation and phrenic nerve activity failed to increase within the first 15 sec of the HT-CT contraction. If fact, 'tidal' phrenic activity (pVT; -14 +/- 5%) decreased during the first 5 sec, and there was a tendency for tidal volume (VT; -8 +/- 5%), VE (-8 +/- 6%), and pVE (-16 +/- 8%) to fall. These data suggest that stimulation of muscle afferent fibers by static contraction can initially inhibit phrenic nerve activity, provided the activation is sustained and of sufficient intensity.
Descriptors: isometric contraction, respiratory mechanics, anesthesia, general, gas analysis, pressure, carbon dioxide, cats, electric stimulation, hemodynamic processes, mechanoreceptors, neurons, afferent, phrenic nerve, reflex, respiratory function tests.

Wright, B.D. (2002). **Clinical pain management techniques for cats.** *Clinical Techniques in Small Animal Practice* 17(4): 151-157 . ISSN: 1096-2867.

NAL Call Number: SF911 .S45
Descriptors: cats, pain, analgesics, analgesia, nonsteroidal anti inflammatory agents, narcotics.

Wu, W.C., S.Y. Chen, J.S. Kuo, and C.Y. Chai (1996). **Glycine produced pressor responses when microinjected in the pressor areas of pons and medulla in cats.** *Journal of the Autonomic Nervous System* 59(1-2): 1-11. ISSN: 0165-1838.
Abstract: In 24 cats under chloralose/urethane anesthesia changes of systemic arterial pressure (SAP) and sympathetic vertebral nerve activities (VNA) were induced by microinjection of glycine (Gly, 1.0 M, 50 nl) into the pressor areas of the rostral pons, i.e., locus coeruleus-parabrachial nucleus (LC-PBN), nucleus of gigantocellular tegmental field-lateral tegmental field (FTG-FTL), and dorsomedial (DM) and ventrolateral (VLM) medulla. The effects were compared with those induced by microinjection of sodium glutamate (Glu, 0.25 M, 50 nl) into the same sites. In about 60% of the injections Gly produced increases in SAP and VNA similar to that of Glu. The increase in SAP was greater in VLM, while the increase in VNA was more marked in DM. In the rest of microinjections Gly and Glu produced changes of SAP and VNA in different combinations. The latency of Gly-induced increases in SAP and VNA was 1 to 3 s longer than that induced by Glu. Our findings show that although Gly is classified as an inhibitory transmitter, it often produced excitation of the pressor neurons in the pons and medulla similar to that of Glu. Whether Gly acts through the same cardiovascular neurons that respond to Glu or through activation of different kinds of neurons remains to be elucidated.
Descriptors: blood pressure, glycine, medulla oblongata, pons, cats, dose response relationship, drug, electric stimulation, glutamic acid, glutamic acid, glycine, locus coeruleus, microinjections, stellate ganglion, stellate ganglion, stimulation, chemical, sympathetic fibers, postganglionic.

Wu, W.C., J.S. Kuo, Y. Wang, and C.Y. Chai (1997). **Glycine increases arterial pressure and augments NMDA-induced pressor responses in the dorsomedial and ventrolateral medulla of cats.** *Journal of the Autonomic Nervous System* 67(3): 145-55. ISSN: 0165-1838.
Abstract: The present study is designed to determine and characterize two neurobiological events. Firstly, we investigated whether increases of systemic arterial pressure (SAP) and sympathetic vertebral nerve activity (VNA) produced by microinjection of glycine (Gly) in the dorsomedial (DM) or rostral ventrolateral medulla (RVLM) are mediated by pressor neurons in DM or RVLM. Secondly, we assessed whether simultaneous microinjections of Gly and N-methyl-D-aspartate (NMDA) in DM or RVLM potentiate the NMDA-pressor effects. Changes in SAP and VNA were recorded in 33 cats under alpha-chloralose and urethane anesthesia. Microinjection of sodium glutamate (Glu, 0.25 M, 30 nl) or Gly (1.0 M, 30 nl) into the DM or RVLM increased SAP and VNA in similar magnitude. Latencies of changes in SAP and VNA induced by Gly, however, were longer (3 s) than those induced by Glu. Prior microinjection of the following antagonists blocked the Gly-induced pressor responses: 2-amino-5-phosphonopentanoate (AP-5, 25 mM, 30 nl), a specific NMDA receptor antagonist; or glutamate diethyl ester (GDEE, 0.5 M, 30 nl), a quisqualate receptor antagonist; or kynurenic acid (KYN, 10 mM, 30 nl), a broad spectrum competitive Glu

antagonist. Prior treatment with strychnine (3 mM, 30 nl), a specific Gly antagonist, also blocked the Gly-induced pressor responses. Since Gly is believed to be an inhibitory neurotransmitter, these data suggest that Gly may produce pressor actions via an inhibition on specific inhibitory neurons synapsing with the pressor neurons. NMDA (0.1 M, 30 nl) and Gly (1.0 M, 30 nl) microinjected simultaneously in DM or RVLM produced a greater pressor action than NMDA alone. This potentiation was blocked by KYN, another known antagonist for such potentiation, but was only partially blocked by strychnine.

Descriptors: blood pressure, dorsomedial hypothalamic nucleus, glycine, n methylaspartate, ventromedial hypothalamic nucleus, 2 amino 5 phosphonovalerate, cats, dorsomedial hypothalamic nucleus, drug synergism, excitatory amino acid antagonists, glutamates, glutamic acid, kynurenic acid, microinjections, receptors, glycine, receptors, n methyl d aspartate, ventromedial hypothalamic nucleus.

Wu, W.C., C.K. Su, C.Y. Yang, and C.Y. Chai (2003). **The nNos/cGMP mediation of the depressor response to NMDA receptor stimulation in the caudal ventrolateral medulla.** *The Chinese Journal of Physiology* 46(4): 175-9. ISSN: 0304-4920.

Abstract: Using in vivo voltammetry to directly measure extracellular nitric oxide (NO) levels, our previous studies suggested that the neuronal NO synthase (nNOS) and cyclic guanosine monophosphate (cGMP) signal transducing systems are involved in the cardiovascular responses elicited by activation of N-methyl-D-aspartate (NMDA) receptors in the rostral ventrolateral medulla. In this study, we examined if the depressor responses elicited by activation of NMDA receptors in the caudal ventrolateral medulla (CVLM) also depend on the actions of nNOS and soluble guanylyl cyclase. In anesthetized cats, microinjection of NMDA into the CVLM produced hypotension and bradycardia associated with NO formation. These NMDA-induced responses were attenuated by prior injections of 2-amino-5-phosphonopentanoate (a NMDA receptor competitive antagonist), 7-nitroindazole (a nNOS inhibitor) and 1H-[1,2,4]oxadiazolo[4,3-a]quinoxalin-1-one (an inhibitor of soluble guanylyl cyclase). These findings suggest that NO is also involved in the NMDA-induced depressor responses of the CVLM.

Descriptors: cyclic gmp, medulla oblongata, nitric oxide synthase, receptors, n methyl d aspartate, anesthesia, pressure, pressure, cats, excitatory amino acid agonists, heart rate, heart rate, medulla oblongata, n methylaspartate, nitric oxide.

Yamada, H., E.E. Transfeldt, T. Tamaki, H. Nishiura, B.A. Taylor, F. Torres, and P.A. Iaizzo (1995). **General anesthetic effects on compound muscle action potentials elicited by single or dual spinal cord stimulation.** *Journal of Spinal Disorders* 8(2): 157-62. ISSN: 0895-0385.

Abstract: The aim of this study was to determine the optimal conditions, during general anesthesia, to obtain reproducible monitoring of compound muscle action potentials (CMAPs) as a means to evaluate motor tract integrity. The CMAPs were recorded in the soleus muscle of cats and were elicited by either single or double pulse stimulations (with various amplitudes and interpulse durations) of the spinal cord via an epidural electrode. The effects of various depths of general anesthesia with halothane, enflurane, isoflurane, or propofol on such recordings were also determined. For each agent, the CMAP

amplitudes were significantly greater following double pulse stimulations (2-ms optimal interpulse duration) relative to single pulses. The CMAP amplitudes elicited by double pulse stimulations were the same at propofol concentrations of 50, 100, 150, and 200 micrograms/kg/min, whereas those for each volatile anesthetic, at all concentrations studied (0.5%, 1.0%, 1.5%, or 2.0%), were significantly lower. It was concluded that to obtain reliable CMAP amplitudes, general anesthesia with propofol should be employed and the potentials should be evoked by double pulse stimulations.
Descriptors: inhalation anesthetics, intravenous anesthetics, electric stimulation, evoked potentials, monitoring, intraoperative, motor neurons, muscle, skeletal innervation, pyramidal tracts, action potentials, inhalation anesthesia, intravenous anesthesia, cats, electric stimulation instrumentation, enflurane, epidural space, halothane, isoflurane, propofol, pyramidal tracts, reproducibility of results.

Yamada, H., E.E. Transfeldt, T. Tamaki, F. Torres, and P.A. Iaizzo (1994). **The effects of volatile anesthetics on the relative amplitudes and latencies of spinal and muscle potentials evoked by transcranial magnetic stimulation.** *Spine* 19(13): 1512-7. ISSN: 0362-2436.
Online: http://www.spinejournal.com
Abstract: STUDY DESIGN. The effects of halothane, enflurane, or isoflurane on motor-evoked potentials via transcranial magnetic stimulation were investigated in cats. Time and dose effects on muscle potentials and spinal potentials were determined by measuring relative changes in amplitudes and latencies. METHODS. In 16 cats, muscle potentials and spinal potentials were evoked transcranially using magnetic stimulation. Potentials were recorded every 2 minutes for 10 minutes at end-tidal anesthetic concentrations of 0.25%, 0.5%, 0.75%, or 1.0%, and for 10 minutes after agents were removed. RESULTS. These anesthetics significantly attenuated the amplitude, but not the latency of muscle potentials. Effects were reversible and time and dose dependent. In contrast, these agents had little or no effect on amplitudes or latencies of spinal potentials. CONCLUSIONS. Monitoring intraoperative changes in spinal potentials may provide useful information regarding motor pathway assessment, because anesthetics have minimal effects on spinal potentials, whereas this is not so for muscle potentials.
Descriptors: inhalation anesthetics, magnetics, motor cortex, muscle, skeletal, spinal cord, cats, evoked potentials, monitoring, intraoperative, motor cortex, muscle, skeletal, reaction time, reproducibility of results, spinal cord.

Yang, C.Y., W.C. Wu, C.Y. Chai, J.C. Hsu, L.C. See, P.W. Lui, and P.P. Tan (2003). **Propofol inhibits neuronal firing activities in the caudal ventrolateral medulla.** *Chang Gung Medical Journal* 26(8): 570-7. ISSN: 0255-8270.
Abstract: BACKGROUND: Propofol is a potent intravenous anesthetic. The action of propofol on the medullary depressor area, the caudal ventrolateral medulla (CVLM), has not been well established. We therefore performed extracellular recordings to study the neuronal activity of the CVLM in cats before and after intravenous propofol administration, to investigate its influence on neuronal firings. METHODS: Experiments were performed on 31 cats anaesthetized with a mixture of alpha-chloralose and urethane administered intraperitoneally. Mean systemic arterial pressure, heart rate, and the neuronal firing (NF) rate were continuously recorded before and after intravenous

injection of a single dose of 2 mg x kg(-1) propofol or separate supplemental doses of 1, 2, and 4 mg x kg(-1) propofol until those parameters had returned to the premedication level. RESULTS: Propofol dose-dependently and reversibly inhibited the NF rate after the supplemental doses of 1, 2, and 4 mg x kg(-1) propofol. The control NF rate of 17.9 +/- 8.6 Hz was depressed to 15.8 +/- 8.5 Hz after the first dose of propofol ($p < 0.05$ vs. the control), and was further depressed to 12.8 +/- 8.3 Hz ($p < 0.05$ vs. the control) and 10.0 +/- 7.9 Hz ($p < 0.05$ vs. the control) after the second and the third doses of propofol, respectively. CONCLUSION: The dose-dependent inhibition of the spontaneous neuronal firing rate is the main pharmacological action of propofol in the caudal ventrolateral medulla of cats.
Descriptors: intravenous anesthetics, medulla oblongata, neurons, propofol, chick embryo, dose response relationship, drug, medulla oblongata, neurons.

Yata, S., H. Kitano, K. Shimouchi, and K. Kitagawa (1998). **A new drain tube insertion holder and its application for thoracic drainage.** *Japanese Journal of Veterinary Anesthesia and Surgery (Japan)* 29(1): 11-17. ISSN: 0916-5908.
Descriptors: cats, anesthesia, thorax, drainage, surgical operations, body parts, body regions.
Language of Text: Japanese.

Yetkin, Y. (2002). **Physical properties of the cerebral hemispheres and paw preferences in mongrel cats: sex-related differences.** *The International Journal of Neuroscience* 112(3): 239-62. ISSN: 0020-7454.
Abstract: This study was performed on 30 female and 18 male mongrel cats, of which 36 appeared to be right- and 12 left-pawed, respectively. The physical features of the brain hemispheres and the paw preferences in cats were investigated related to both functional and morphological asymmetry. Right-pawed cats were more prevalent, with scores ranging from +60 to +80%, as compared with the left-pawed ones scoring from -40 to -60%. However, females were found to be more right-pawed than males, but the differences were not considered significant ($p > .05$). After half-open ether anesthesia, the whole brain was excised by craniotomy under deep-anesthesia (Ketalar: 40-50 mg/kg). The brains excised were kept in formaldehyde (10%) for three days, and then the weight, volume, density, and the morphological dimensions of left and right hemispheres and whole brain bodies were measured. There were no significant sex-related differences in body weights and paw preferences; nor was there any relation among the weights, volumes, and lengths of right and left hemispheres in either sex. There was, however, a significant sex-related difference between the mean heights of the left hemispheres of both male and female cats ($p < .05$), which is expected to be on the right hemispheres. As for the total samples, the mean density of the left hemispheres exceeded that of the right hemispheres.
Descriptors: animal behavior, brain, forelimb, laterality, sex characteristics, brain, cats.

Yoshida, K. and K. Horch (1996). **Closed-loop control of ankle position using muscle afferent feedback with functional neuromuscular stimulation.** *Transactions on Bio Medical Engineering* 43(2): 167-76. ISSN: 0018-9294.
Abstract: This paper describes a closed-loop functional neuromuscular stimulation system that uses afferent neural activity from muscle spindle fibers as feedback for

controlling position of the ankle joint. Ankle extension against a load was effected by neural stimulation through a dual channel intrafascicular electrode of a fascicle of the tibial nerve that innervated the gastrocnemius muscle. Ankle joint angle was estimated from recordings of tibialis anterior and lateral gastrocnemius spindle fiber activity made with dual channel intrafascicular electrodes. Experiments were conducted in neurally intact anesthetized cats and in unanesthetized decerebrate cats to demonstrate the feasibility of this system. The system was able to reach and maintain a fixed target ankle position in the presence of a varying external moment ranging in magnitude between 7.3 and 22 N-cm opposing the action of the ankle extensor, as well as track a sinusoidal target ankle position up to a frequency of 1 Hz in the presence of a constant magnitude 22- or 37-N-cm external moment.
Descriptors: feedback, muscle, skeletal innervation, neuromuscular junction, neurons, afferent, tarsus, animal, anesthesia, general, artifacts, cats, decerebrate state, electric stimulation instrumentation, electric stimulation, electrodes, implanted, electromyogrphy, feasibility studies, muscle contraction, muscle fibers, muscle spindles, muscle, skeletal, posture, tarsus, animal, tibial nerve.

Young, W. (2002). **Spinal cord contusion models.** *Progress in Brain Research* 137: 231-55. ISSN: 0079-6123.
Abstract: Most human spinal cord injuries involve contusions of the spinal cord. Many investigators have long used weight-drop contusion animal models to study the pathophysiology and genetic responses of spinal cord injury. All spinal cord injury therapies tested to date in clinical trial were validated in such models. In recent years, the trend has been towards use of rats for spinal cord injury studies. The MASCIS Impactor is a well-standardized rat spinal cord contusion model that produces very consistent graded spinal cord damage that linearly predicts 24-h lesion volumes, 6-week white matter sparing, and locomotor recovery in rats. All aspects of the model, including anesthesia for male and female rats, age rather than body weight criteria, and arterial blood gases were empirically selected to enhance the consistency of injury.
Descriptors: spinal cord injuries, spinal cord injuries, cats, animal disease models, rats.

Zealear, D.L., G.L.Jr. Bryant, M.B. Logan, and M.K. Schwaber (1995). **An investigation of acute facial paralysis in animals induced by exposure of the tympanic membrane to cold air.** *Otolaryngology: Head and Neck Surgery* 113(6): 760-5. ISSN: 1068-9508.
Abstract: The goal of this investigation was to test the hypothesis that tympanic membrane exposure to cold air is a cause of acute facial palsy. A series of acute invasive experiments and a series of chronic noninvasive experiments were conducted in both cats and dogs. In the acute studies, stimulation was applied intracranially to the facial nerve root through a stereotaxically placed microelectrode and recordings of compound action potentials obtained extracranially from the facial nerve. Nerve conduction was monitored continuously during the application of cold air to the tympanic membrane. Nerve conduction disturbances were observed in all animals tested (8), and reduction in compound action potential amplitude ranged from 33% to 96%. Histologic analysis of the intratemporal portion of the facial nerve was performed in the animal exhibiting the greatest block in conduction, representative of a near-total paralysis. Axon swelling, demyelinization, and degeneration (Bungner's bands) without inflammation were

apparent along the entire tympanic membrane segment. Interstitial swelling of nerve endoneurium was also present at the second genu and vertical segment. In the chronic studies, animals were exposed to cold air and monitored daily for facial paralysis after recovery from anesthesia. None of the animals demonstrated any detectable behavioral facial paralysis.
Descriptors: cold, facial paralysis, tympanic membrane, action potentials, acute disease, air, axons, cats, demyelinating diseases, dogs, facial nerve, microelectrodes, neural conduction.

Zheng, X., Z. Chen, W. Xu, and H. Shi (1994). **Involvement of glutamate in corticofugal modulation of intralaminar nuclei from SII via motor cortex in acupuncture analgesia** . *Zhen Ci Yan Jiu [Acupuncture Research]* 19(1): 11-15. ISSN: 1000-0607.
Abstract: The present experiments were designed to study the effect of glutamate on cortical somatosensory area II (S II) producing descending modulation of intralaminar nuclei (ILN) via the motor cortex (MCtx) in acupuncture analgesia. The glutamate antagonist glutamate diethylester (GDEE) or saline was topically applied at MCtx in 17 cats. Single unit activities of ILN neurons were extracellularly recorded. The results were as follows: 1. The nociceptive responses of ILN neurons were attenuated by stimulating S II after topical administration of saline at MCtx. However, the inhibitory effect of stimulating S II in the same neurons was reduced after application of GDEE. There was a significant difference at 0'-1' after the stimulation between the two groups ($n = 10$, $P < 0.05$). 2. The inhibitory effect of electroacupuncture (EA) on nociceptive responses was reduced after topical application of GDEE, while marked inhibition was shown at 0'-10' after cessation of EA in the saline control group ($n = 11$, $P < 0.05$). The results, together with the finding that the majority of S II neurons could be activated by EA, showed that glutamate released from S II to MCtx might be involved in corticofugal modulation of ILN from S II via MCtx in acupuncture analgesia.
Descriptors: acupuncture analgesia, glutamic acid, motor cortex, somatosensory cortex, thalamic nuclei, cats, nociceptors.
Language of Text: Chinese.

Zhong, S., G.L. Gebber, Y. Liu, S.Y. Zhou, and S.M. Barman (1996). **Comparison of results obtained with time- and frequency-domain analysis when searching for the 10-Hz rhythm in sympathetic nerve discharge.** *Neuroscience Letters* 211(2): 113-6. ISSN: 0304-3940.
NAL Call Number: QP351.N3
Abstract: Kubota et al. (Neurosci. Lett., 196 (1995) 173-176) constructed distributions of the intervals between successive bursts of sympathetic nerve discharge (SND) in three mammalian species. The mode in such interburst interval histograms (IBIHs) was near 100 ms in most cases. This interval was equated with the 10-Hz rhythm in SND identified by others using power density autospectral analysis. However, in the current study we found a modal interval near 100 ms independent of whether the autospectrum showed a peak near 10 Hz. A 10-Hz rhythm appeared in the autospectrum of SND only when counts in the IBIH were normally distributed around 100 ms and the coefficient of variation was < 0.25. We conclude that a modal interval of 100 ms, by itself, is not a predictor of a 10-Hz rhythm in SND. As such, the conclusions of Kubota et al. on the

spinal origin and ubiquity of the 10-Hz rhythm are open to question.
Descriptors: sympathetic nervous system, anesthesia, general, anesthetics cats, electrophysiology, heart innervation, pressoreceptors, rats, sympathectomy, time factors, urethane.

Zohmann, A. and M. Kasper (2002). **Szimpatikus blokadok helyi erzestelenitok alkalmazasaval [Sympathetic blockade by use of local anaesthetics]**. *Magyar Allatorvosok Lapja* 124(11): 682-686. ISSN: 0025-004X.
Descriptors: anesthesia, local anesthesia, cats.
Language of Text: Hungarian.

Zurita, P., A.E. Villa, Y. de Ribaupierre, F. de Ribaupierre, and E.M. Rouiller (1994). **Changes of single unit activity in the cat's auditory thalamus and cortex associated to different anesthetic conditions.** *Neuroscience Research* 19(3): 303-16. ISSN: 0168-0102.
Abstract: Single unit spike trains were recorded in the auditory cortex (n = 78) and in the auditory thalamus (n = 55) of nitrous oxide anesthetized cats. The electrophysiological activity was studied before and during the application of pentobarbital (P, 7 mg/kg), ketamine (K, 12 mg/kg) and a mixture of these anesthetics (KP). The units were characterized during the spontaneous and acoustically driven activity ('white' noise and pure tone bursts). For the majority of cortical (61%) and thalamic (83%) units both drugs tended to decrease the spontaneous firing rate, but affected differently its time structure: P tended to increase the average size of burst discharges, whereas K and KP tended to decrease it. In the cortex the peak firing rate evoked by 'white' noise tended to be decreased, whereas stronger excitatory responses were observed in the thalamus after injection of K or KP. The overall effect of the anesthetics during stimulation by pure tones was an increase in tonal selectivity due to a decrease in the response bandwidth. The response pattern to tones was also sometimes affected by the drugs. The direct evidence reported here for significant alterations of the discharge properties of auditory neurons in the thalamus and cortex resulting from low dose administration of K and/or P emphasizes difficulties in comparing data derived from experiments conducted in various conditions of anesthesia or in the awake state.
Descriptors: anesthesia, general, auditory cortex, ketamine, pentobarbital, thalamus, acoustic stimulation, auditory cortex, cats, evoked potentials, nitrous oxide, thalamus.

Research Models

Abramo, F., S. Bo, M.G. Canese, and A. Poli (1995). **Regional distribution of lesions in the central nervous system of cats infected with feline immunodeficiency virus.** *AIDS Research and Human Retroviruses* 11(10): 1247-1253. ISSN: 0889-2229.
Abstract: Neuropathological examination of the central nervous system of 13 naturally and 13 experimentally feline immunodeficiency virus (FIV)-infected cats revealed diffuse gliosis of gray and white matter and vacuolar myelinopathy in a large proportion of infected animals, sometimes associated with lymphocytic meningitis. Multinucleated giant cell formation, the hallmark of multifocal giant cell encephalitis in HIV infection, was never observed. Morphometric analysis confirmed a marked increase of GFAP reactivity in infected cats. Gliosis was mainly present in cortical structures of frontal, parietal, and occipital lobes. Only one naturally infected animal evidenced clinical symptoms of neurological damage. This study confirms that FIV provides an interesting model for studying HIV-induced cortical and subcortical brain pathology believed to be the cause of the neurological manifestations frequently observed in AIDS patients.
Descriptors: central nervous system, feline acquired immunodeficiency syndrome, immunodeficiency virus, feline, cats, meninges.

Albert, M., F. Schuster, S. Schulze, B. Pontz, W. Roeschinger, A. Muntau, C. Peters, D. Stachel, I. Schmid, and R. Haas (2001). **Successful allogeneic t-cell-depleted peripheral blood stem cell transplantation (pbsct) in a child with alpha-mannosidosis**. *Blood* 98(11 Part 2): 373b. ISSN: 0006-4971.
NAL Call Number: RB145.A1B57
Descriptors: clinical, alpha mannosidosis, feline animal model, stem cell, human disease, digestive system disease, metabolic disease, surgical method, therapeutic method.
Notes: Meeting Information: 43rd Annual Meeting of the American Society of Hematology, Part 2, Orlando, Florida, USA; December 7-11, 2001.

Alex, J.C. (2004). **The application of sentinel node radiolocalization to solid tumors of the head and neck: A 10-year experience.** *The Laryngoscope* 114(1): 2-19. ISSN: 0023-0852X.
Abstract: OBJECTIVES/HYPOTHESIS: The goals of the research study were to develop an easily mastered, accurate, minimally invasive technique of sentinel node radiolocalization with biopsy (SNRLB) in the feline model; to compare it with blue-dye mapping techniques; and to test the applicability of sentinel node radiolocalization biopsy in three head and neck tumor types: N0 malignant melanoma, N0 Merkel cell carcinoma, and N0 squamous cell carcinoma. STUDY DESIGN: Prospective consecutive series studies were performed in the feline model and in three head and neck tumor types: N0 malignant melanoma (43 patients), N0 Merkel cell carcinoma (8 patients), and N0 squamous cell carcinoma (20 patients). METHODS: The technique of sentinel node radiolocalization with biopsy was analyzed in eight felines and compared with blue-dye mapping. Patterns of sentinel node gamma emissions were recorded. Localization success rates were determined for blue dye and sentinel node with radiolocalization biopsy. In the human studies, all patients had sentinel node radiolocalization biopsy performed in a

similar manner. On the morning of surgery, each patient had sentinel node radiolocalization biopsy of the sentinel lymph node performed using an intradermal or peritumoral injection of technetium Tc 99m sulfur colloid. Sentinel nodes were localized on the skin surface using a handheld gamma detector. Gamma count measurements were obtained for the following: 1) the "hot" spot/node in vivo before incision, 2) the hot spot/node in vivo during dissection, 3) the hot spot/node ex vivo, 4) the lymphatic bed after hot spot/node removal, and 5) the background in the operating room. The first draining lymph node(s) was identified, and biopsy of the node was performed. The radioactive sentinel lymph node(s) was submitted separately for routine histopathological evaluation. Preoperative lymphoscintigrams were performed in patients with melanoma and patients with Merkel cell carcinoma. In patients with head and neck squamous cell carcinoma, the relationship between the sentinel node and the remaining lymphatic basin was studied and all patients received complete neck dissections. The accuracy of sentinel node radiolocalization with biopsy, the micrometastatic rate, the false-negative rate, and long-term recurrence rates were reported for each of the head and neck tumor types. In the melanoma study, the success of sentinel node localization was compared for sentinel node radiolocalization biopsy, blue-dye mapping, and lymphoscintigraphy. In the Merkel cell carcinoma study, localization rates were evaluated for sentinel node radiolocalization biopsy and lymphoscintigraphy. In the head and neck squamous cell carcinoma study, the localization rate of sentinel node radiolocalization biopsy and the predictive value of the sentinel node relative to the remaining lymphatic bed were determined. All results were analyzed statistically. RESULTS: Across the different head and neck tumor types studied, sentinel node radiolocalization biopsy had a success rate approaching 95%. Sentinel node radiolocalization biopsy was more successful than blue-dye mapping or lymphoscintigraphy at identifying the sentinel node, although all three techniques were complementary. There was no instance of a sentinel node-negative patient developing regional lymphatic recurrence. In the head and neck squamous cell carcinoma study, there was no instance in which the sentinel node was negative and the remaining lymphadenectomy specimen was positive. CONCLUSION: In head and neck tumors that spread via the lymphatics, it appears that sentinel node radiolocalization biopsy can be performed with a high success rate. This technique has a low false-negative rate and can be performed through a small incision. In head and neck squamous cell carcinoma, the histological appearance of the sentinel node does appear to reflect the regional nodal status of the patient.

Descriptors: carcinoma, merkel cell secondary, squamous cell carcinoma, head and neck neoplasms, lymphatic system, lymphatic system, secondary melanoma, sentinel lymph node biopsy, skin neoplasms, adult, aged, aged 80 and over, merkel cell carcinoma, radionuclide imaging, cats, dyes, lymphatic metastasis, melanoma radionuclide imaging, middle aged, radiopharmaceuticals diagnostic use, rosaniline dyes diagnostic use, scintillation counting instrumentation, technetium tc 99m sulfur colloid diagnostic use, time factors.

Andaluz, N., M. Zuccarello, and K.R. Wagner (2002). **Experimental animal models of intracerebral hemorrhage.** *Neurosurgery Clinics of North America* 13(3): 385-393. ISSN: 1042-3680.

Abstract: Experimental animal ICH models are able to reproduce the overall important

pathophysiologic events documented in human ICH, including edema development, markedly reduced metabolism, and tissue pathologic responses. Thus, ICH models serve as an important tool for new understanding of the mechanisms underlying brain injury after an intracerebral bleed. Currently, ongoing studies in several laboratories using these models investigating secondary inflammatory responses as well as intracellular signaling and molecular events are expected to provide therapeutic targets for treating ICH. Future studies should also be directed at one aspect of ICH modeling that has received little attention--potential differences in the hemostatic systems and physical and biochemical properties of clots in animals that might make their susceptibility to aspiration and/or fibrinolytic drugs and rates of rehemorrhage different than in human beings. Also, future efforts should be directed toward the development of a model that mimics the pathophysiologic processes that lead to spontaneous ICH, progression of hemorrhage, and the recurrence of bleeding in human beings. This model would not only provide better understanding of the dynamic events leading to ICH and tissue injury but should also lead to the development of highly effective pharmacologic and surgical treatments.
Descriptors: cerebral hemorrhage, animal disease models, brain supply, brain, brain, cats, cerebral hemorrhage, cerebrovascular circulation, dogs, haplorhini, rabbits, rats, swine.

Aoyagi, Y., R.B. Stein, V.K. Mushahwar, and A. Prochazka (2004). **The role of neuromuscular properties in determining the end point of a movement.** *Institute of Electrical and Electronics Engineers Transactions Neural Systems and Rehabilitation Engineering* 12(1): 12-23. ISSN: 1534-4320.
Abstract: How does the activation of several muscles combine to produce reliable multijoint movements? To study this question, we stimulated up to six sites in muscles, nerves, and the spinal cord. Flexion and extension of the hip, knee, and ankle were elicited in anesthetized and decerebrate cats. The movements occurred largely in the sagittal plane against a constant spring load and covered most of the passive range of motion of the cat's limb. The movements of the end-point (foot) were compared with predictions based on vectorial summation of end-point movements elicited by stimulating single electrodes. The lengths of the movements produced by stimulating more than one site exceeded what was expected from linear summation for small movements (<3 cm) and showed a less than linear summation for large movements (>11 cm). The data were compared with muscle and limb models. Since the deviations from linearity were predictable as a function of distance, adjustments might easily be learned by trial and error. The summation was less complete for spinal stimulation, compared to nerve and muscle stimulation, so spinal circuits do not appear to compensate for the nonlinearities. Movements were elicited from positions of the limb not only in a neutral position, but also in front and behind the neutral position. A degree of convergence was seen, even with stimulation of some individual muscles, but the convergence increased as more muscles were stimulated and more joints were actively involved. This suggests that convergence to an equilibrium-point arises at least partly from muscle properties. In conclusion, there are deviations from linear vectorial summation, and these deviations increase when more muscles are stimulated. The convergence to an equilibrium-point may simplify the computations needed to produce movements involving many muscles.
Descriptors: electric stimulation, models, neurological, movement, muscle contraction,

muscle, skeletal, musculoskeletal equilibrium, peripheral nerves, spinal cord, anesthesia, cats, computer simulation, decerebrate state, electric stimulation therapy, hindlimb, muscle, skeletal innervation, range of motion, articular, spinal nerve roots, unconsciousness.

Arts, M., F. Bemelmans, and A. Cools (1998). **Activation of n-methyl-d-aspartate receptors in the feline retrorubral nucleus elicits orofacial dyskinesia**. *European Journal of Pharmacology* 349(1): 23-31. ISSN: 0014-2999.
NAL Call Number: QP901 .E8
Descriptors: neural coordination, orofacial dyskinesia, nervous system disease, feline, model, NMDA, DPI, dopamine receptor agonist, caudate nucleus, retroubral nucleus, dopamine.

Aubin, M.L., C.C. Powell, J.R. Gionfriddo, and A.D. Fails (2003). **Ultrasound biomicroscopy of the feline anterior segment.** *Veterinary Ophthalmology* 6(1): 15-17. ISSN: 1463-5216.
NAL Call Number: SF891 .V47
Abstract: Ultrasound biomicroscopy was performed on enucleated feline globes as a model for use in vivo. Quantitative measurements were obtained from the anterior segment using a 50-MHz transducer. Mean values from 26 feline globes were axial corneal thickness, 0.74 mm; anterior chamber depth, 4.20 mm; distance from the first ciliary process to the limbus, 3.17 mm; angle recess, 0.38 mm; angle opening distance, 1.05 mm; iris base width 0.38 mm; iris middle width 0.52 mm; iris tip width 0.13 mm, and iris-lens overlap, 0.69 mm. Distinctive features of the feline anterior segment include a relatively wide iridocorneal angle and deep anterior chamber.
Descriptors: anterior eye segment, cats, anterior eye segment ultrasonography, reference values.

Avanzini, G., F. Panzica, and M. de Curtis (2000). **The role of the thalamus in vigilance and epileptogenic mechanisms.** *Clinical Neurophysiology* 111(2): S19-S26. ISSN: 1388-2457.
Abstract: OBJECTIVES: The most relevant results of studies on the anatomo-physiological substrate of the thalamic rhythmogenic mechanisms responsible for sleep spindles and spike-wave discharges are reviewed. METHODS: The reviewed experiments have been carried out in cats, rodents and other mammals with either in vivo or in vitro electrophysiological recording. RESULTS: The rhythmic bilateral and synchronous EEG activities underlying sleep spindles and spike-wave discharges have been found to be correlated with oscillatory patterns involving mutually interconnected cortical and thalamic neurons. These rhythmic patterns are generated in thalamic neurons when the membrane potential, which is modulated by aminergic and cholinergic systems, is set to a level where the low threshold calcium current is de-inactivated. The pacemaker structure responsible for the initiation of the thalamo-cortical oscillatory activities has been identified as the reticular thalamic nucleus, a GABAergic structure projecting exclusively to the other thalamic nuclei. Experiments carried out in GAERS (genetic absence epilepsy rat from Strasbourg) demonstrated in this rat model of inherited absence epilepsy an enhancement of the pacemaker properties of the thalamic nucleus, due to a genetically determined increase in the low threshold calcium current, which is responsible for the pathological synchronization underlying spike-wave discharges. CONCLUSIONS: Recent experiments confirm the longstanding hypothesis that spindles

and spike-wave discharges share common mechanisms involving thalamo-cortical circuitry. Due to its unusual anatomic and functional organization the nucleus reticularis thalami plays a crucial role as pacemaker of these rhythmic EEG activities.
Descriptors: arousal, epilepsy, sleep, thalamus.

Avoli, M. (1995). **Feline generalized penicillin epilepsy.** *Italian Journal of Neurological Sciences* 16(1-2): 79-82. ISSN: 0392-0461.
Abstract: Feline generalized penicillin epilepsy represents an experimental model of generalized spike-and-wave discharges occurring during clinical absence attacks. Spike-and-wave discharges of feline generalized penicillin epilepsy also have a pharmacological profile that is similar to that encountered in human absence attacks. Studies on the respective roles played by the thalamus and cortex in the generation of spike-and-wave discharges indicate that both structures are important in the elaboration of such generalized activity. Moreover, GABAA-mediated, intracortical inhibitory mechanisms are preserved and eventually enhanced at a time when generalized spike-and-wave discharges of feline generalized penicillin epilepsy are recorded. A preservation of GABA-mediated mechanisms in pure absence epilepsy might explain the differences in prognostic outlook that characterizes this type of epilepsy from seizures in which GABAergic mechanisms break down (e.g., generalized convulsive and partial epileptic attacks).
Descriptors: epilepsy, absence, cats, animal disease models, electroencephalography, evoked potentials, neural inhibition, penicillins, reproducibility of results, gamma aminobutyric acid.

Aye, M.M., S. Izumo, S. Inada, Y. Isashiki, H. Yamanaka, K. Matsumuro, Y. Kawasaki, Y. Sawashima, J. Fujiyama, K. Arimura, and M. Osame (1998). **Histopathological and ultrastructural features of feline hereditary cerebellar cortical atrophy: a novel animal model of human spinocerebellar degeneration**. *Acta Neuropathologica* 96(4): 379-387. ISSN: 0001-6322.
Descriptors: histopathology, disease models, animal models, atrophy, cerebellum, degeneration, hereditary diseases, electron microscopy, brain diseases, nervous system diseases, cats.

Bakker, J. and M.J. Baum (2000). **Neuroendocrine regulation of GnRH release in induced ovulators.** *Frontiers in Neuroendocrinology* 21(3): 220-262. ISSN: 0091-3022.
Descriptors: gonadorelin, ovulation, follicular pHase, hormones, luteinizing hormone, neurotransmitters, ovary, LH, GnRH.

Baranov, V.M., M.A. Tikhonov, A.N. Kotov, Z. Donina, and I.N. Lavrov (2001). **The effect of complex barometric exposure on hemodynamics during simulation of the physiological impacts microgravity in animals [Vliianie kompleksnogo barovozdeistviia na gemodinamiku u zhivotnykh pri modelirovanii fiziologicheskikh effektov mikrogravitasii]**. *Aviakosmicheskaia i Ekologicheskaia Meditsina [Aerospace and Environmental Medicine]* 35(1): 55-60. ISSN: 0233-528X.
Abstract: In experiments with anesthetized cats effects of breathing under negative pressure (BNP, -5 cm of water column) combined with lower body negative pressure (LBNP, -20 cm of water column) on the cardiorespiratory reactions to postural

simulation of the hemodynamic shifts in microgravity were studied. Evidence was obtained that this complex barometric exposure of tilted animals (-30 degrees) imitated the central and peripheral hemodynamics characteristic of tilt at the calculated inclination of +6 degrees up to +12 degrees. Extrapolation of the experimental data on the orthodox physiological model of microgravity (HDT, -6 degrees) allows an assumption that the protocol of complex barometric exposure tested in this experiment transforms the hemodynamic parameters under study to the levels close to those in the vertical body. Results of the investigation infer an additive character of the complex barometric exposure (LBNP + BNP) and its utility as a model of orthostatic g-loads.
Descriptors: hypokinesia, weightlessness, cats, cerebrovascular circulation, head down tilt, hemodynamic processes, lower body negative pressure.
Language of Text: Russian.

Baratta, R.V., M. Solomonow, G. Nguyen, and R. D'Ambrosia (2000). **Characterization of load-length-velocity relationships of nine different skeletal muscles.** *Journal of Biomechanics* 33(3): 381-5. ISSN: 0021-9290.
NAL Call Number: TA166. J6
Abstract: A three-dimensional characterization of muscle load, length and velocity was obtained from nine muscles in the cat's hind limb through contractions where the muscles shortened against inertial-gravitational loads. A model based on the load-length characteristic and second-order dynamics describes shortening velocity related to load and length under these conditions. We conclude that this model describes well contraction velocity as function of length and load under inertial-gravitational load conditions, with correlation coefficients higher than 0.9 in most of the tested muscles.
Descriptors: muscle, skeletal, biomechanics, cats, electric stimulation, kinetics, biological models, muscle contraction, tibia, weight bearing.

Barr, M.C., S. Huitron Resendiz, M. Sanchez Alavez, S.J. Henriksen, and T.R. Phillips (2003). **Escalating morphine exposures followed by withdrawal in feline immunodeficiency virus-infected cats: a model for HIV infection in chronic opiate abusers.** *Drug and Alcohol Dependence* 72(2): 141-9. ISSN: 0376-8716.
Abstract: Opiate abuse is a risk factor for human immunodeficiency virus (HIV) infection. Because the direct effects of opiates on HIV infection are difficult to determine epidemiologically, animal models of lentivirus infection are relied upon to study the effects of opiates in the absence of confounding factors. Morphine, the predominant metabolite of heroin, is used in most experimental systems examining heroin abuse. In this study, morphine treatment of feline immunodeficiency virus (FIV)-infected cats modeled a typical pattern of escalating drug use interspersed with withdrawals. Plasma cortisol levels were measured for evidence of stress associated with morphine withdrawal. In the morphine-treated cats, cortisol levels peaked at time points corresponding to morphine withdrawal and returned to baseline levels during treatment and several weeks after the final withdrawal. Morphine-treated cats displayed clear behavioral and physical signs of opiate exposure and evidence of withdrawal when the drug was stopped. Morphine-exposed cats did not experience enhanced severity of FIV-related disease; in fact, morphine demonstrated a protective effect on FIV-associated changes in brainstem auditory evoked potentials. Our research suggests that opiate exposure is unlikely to

adversely affect the progression of acute lentivirus infection and might be beneficial in controlling associated neurological disease.
Descriptors: animal disease models, HIV infections, feline immunodeficiency virus, lentivirus infections, lentivirus infections, morphine, opioid related disorders, substance withdrawal syndrome, cats, chronic disease, drug administration schedule, evoked potentials, auditory, brain stem, hydrocortisone, morphine, morphine, severity of illness index, substance withdrawal syndrome, time factors, viremia, viremia.

Barron, B.A. (1999). **Opioid peptides and the heart.** *Cardiovascular Research* 43(1): 13-6. ISSN: 0008-6363.
Abstract: The heart is a complex neuroendocrine (opioids, NPY, VIP) or mechanoendocrine (ANP) organ. Opioid peptides and receptors are present in the heart and nerves such that they can easily modulate cardiac function. Cardiac opioids may have autocrine, paracrine and endocrine function. The challenge is to find the signal that turns them on and then what they do in the face of an overwhelmingly redundant system making knock-out technology hard to interpret. Determining the cardiac release of opioids in an intact system still requires a larger animal model.
Descriptors: myocardium, opioid peptides, receptors, opioid, adrenal medulla, cats, animal disease models, dogs, guinea pigs, opioid peptides biosynthesis, rats, receptors, opioid, swine.

Barthez, P.Y., D.J. Chew, and S.P. DiBartola (2001). **Simplified methods for estimation of 99mTc-pentetate and 131-I-orthoiodohippurate plasma clearance in dogs and cats.** *Journal of Veterinary Internal Medicine* 15(3): 200-8. ISSN: 0891-6640.
NAL Call Number: SF601 .J65
Abstract: The purpose of this study was to evaluate simplified methods for estimation of Technetium Tc 99m (99mTc)-pentetate and orthoiodohippurate I 131 (131I-OIH) plasma clearance in dogs and cats with 1 and 2 blood samples. Plasma clearances were calculated after a bolus injection of 1.85-11.1 MBq of 99mTc-pentetate and 131I-OIH with a 2-compartment model based on a 12-point curve as a reference method in 21 dogs and 18 cats. Three 2-sample and 3 single-sample methods were investigated. The method yielding the smallest standard deviation of the difference between the reference method and the simplified method was selected as the optimal one. Linear regression analysis was performed between the reference method and the simplified method and coefficient of determination (R2) was calculated. For 99mTc-pentetate plasma clearance, the optimal 2-sample method was the one with a mono-compartment model with samples taken at specific times. For 131I-OIH plasma clearance, the estimation was improved slightly by raising the clearance calculated with a mono-compartment model to the power of an empirically determined parameter. The optimal single-sample method was the one with a linear quadratic regression between the volume of distribution of the tracer at a specific time and the clearance calculated with 12 samples. Two-sample methods performed significantly better than did single-sample methods. The conclusion is made that 99mTc-pentetate and 131I-OIH plasma clearances can be estimated in dogs and cats with 1 or 2 blood samples with a reasonable margin of error compared to plasma clearances calculated with a 2-compartment model and 12 blood samples.
Descriptors: cats, dogs, iodine radioisotopes, iodohippuric acid, radiopharmaceuticals,

technetium tc 99m pentetate, area under curve, injections, intravenous, iodine radioisotopes, iodine radioisotopes, iodohippuric acid, metabolic clearance rate, radiopharmaceuticals, radiopharmaceuticals, technetium tc 99m pentetate, technetium tc 99m pentetate.

Baylor, J.E., W.J. Mcfeely, and P.J. Antonelli (1999). **Central nervous system metabolic activity after cochlear implantation in the feline neonatal model.** *Otolaryngology: Head and Neck Surgery* 121(4): 361-366. ISSN: 0194-5998.
Abstract: OBJECTIVE: To determine the effects of deafening and cochlear implant stimulation on central nervous system (CNS) metabolic activity in the feline neonate model. BACKGROUND: Deafening of fetal animals has been shown to result in acute, profound depression of CNS glucose metabolism, in both auditory structures and the cerebral hemispheres. Preliminary studies have suggested that electrical stimulation of the auditory system may increase central nervous metabolic activity after deafening. The purpose of this study was to investigate this possibility. METHODS: This was a prospective, randomized, blinded, and controlled animal study of 13 random-source newborn kittens. It was set in an animal research facility for otologic disorders. OUTCOME: Deoxyglucose metabolism (assessed with autoradiograph densitometry) of brain cross-sections of normal, deafened, and deafened and cochlear-implanted animals after 6 weeks of auditory stimulation or deprivation. RESULTS: Chronic deafening did not result in a profound reduction in CNS metabolic activity. Cochlear implantation and electrical stimulation did not significantly raise the level of CNS metabolic activity within either auditory pathways or the cerebral hemispheres. CONCLUSIONS: Deafening is not associated with significant chronic reduction in CNS metabolic activity. Other parameters of CNS activity and maturation may be necessary to assess the effects of cochlear implantation and stimulation in animal models.
Descriptors: auditory pathways, brain, cochlear implantation, deafness, energy, animals, newborn, audiometry, evoked response, autoradiography, cats, deoxyglucose, sensory deprivation.

Bazhenov, M., I. Timofeev, M. Steriade, and T.J. Sejnowski (1998). **Computational models of thalamocortical augmenting responses**. *Journal of Neuroscience* 18(16): 6444-6465. ISSN: 0270-6474.
Descriptors: computational biology, mathematical biology, nervous system, neural coordination, intracortical inhibition, cortical model, thalamocortical augmenting responses, computational models, in vivo validation, anethetized cats, thalmic cells.

Bertalanffy, H., N. Yamaguchi, M. Ishikawa, T. Kawase, and S. Toya (1994). **A new model for in vivo observation of the feline spinal microcirculation: the closed spinal window.** *Neurosurgery* 34(2): 316-21. ISSN: 0148-396X.
Abstract: A new experimental model is described that uniquely allows the in vivo observation and quantification of vascular caliber changes on the dorsal surface of the feline spinal cord. The model consists of a rectangular Plexiglas window that is sutured to the lumbar dura and is supported by a special holder. Inlet and outlet tubes attached to the window serve for topical applications of mock cerebrospinal fluid or vasoactive agents to the surface of the cord and for continuous monitoring of intrathecal pressure. Pial vessels below the window were observed at 200-fold magnification with the aid of a

microvideo camera. Spinal arterioles reacted to hypercarbia and superfusion with acetylcholine solution in a manner similar to cerebral arterioles. Tests with increased intrathecal pressure showed that the window remained watertight between 25 and 130 mm Hg, with an average leakage pressure of 57.8 +/- 33.5 mm Hg. To promote the use of this model in other laboratories, the authors give a detailed description of the closed spinal window preparation and report their experiences gained from 50 experiments. It is concluded that the closed spinal window is a highly reproducible model, suitable for the study of the feline spinal microcirculation for several hours in vivo.
Descriptors: microcirculation, skin window technique, spinal cord supply, cats, pia mater supply, vascular resistance.

Bhattacherjee, P., C.A. Paterson, J.M. Spellman, G. Graff, and J.M. Yanni (1999). **Pharmacological validation of a feline model of steroid-induced ocular hypertension.** *Archives of Ophthalmology* 117(3): 361-4. ISSN: 0003-9950.
Abstract: OBJECTIVE: To validate pharmacologically the feline model of steroid-induced ocular hypertension. METHODS: Serial studies were conducted in domesticated adult female cats trained to accept topical ocular drug administration and pneumotonometry. To establish intraocular pressure (IOP) values for each study, measurements were performed at the same time of day for 6 consecutive days. Beginning on day 7, cats received either steroid or vehicle administered topically to both eyes three times a day for approximately 28 days. The IOP measurements were performed daily. RESULTS: After 5 to 7 days of treatment with 0.1% dexamethasone or 1.0% prednisolone acetate, IOP began to increase, reaching peak values within 2 weeks. These values were sustained throughout dosing but declined rapidly to baseline upon cessation of treatment. Maximum IOPs for the dexamethasone- and prednisolone-treated groups averaged 4.5 +/- 0.3 mm Hg (n = 12) greater than the mean IOP value obtained in vehicle-treated cats. Cats treated with 0.25% fluorometholone, 1.0% loteprednol etabonate, and 1.0% rimexolone exhibited increases of 0.6, 1.2, and 1.7 mm Hg, respectively. These values were significantly lower than those observed following treatment with dexamethasone or prednisolone. CONCLUSIONS: The ocular hypertensive effects of selected anti-inflammatory topical ocular steroids in this model are consistent with clinical findings. CLINICAL RELEVANCE: This feline model is a useful tool for assessing the potential IOP liability of novel anti-inflammatory steroids.
Descriptors: animal disease models, glucocorticoids, ocular hypertension, topical administration, androstadienes, androstadienes, cats, dexamethasone, dexamethasone, fluorometholone, fluorometholone, glucocorticoids, intraocular pressure, ocular hypertension, ophthalmic solutions, ophthalmic solutions, prednisolone, prednisolone, pregnadienes, pregnadienes, random allocation, reproducibility of results, tonometry, ocular.

Bice, D.E., J. Seagrave, and F.H. Green (2000). **Animal models of asthma: potential usefulness for studying health effects of inhaled particles.** *Inhalation Toxicology* 12(9): 829-62. ISSN: 0895-8378.
Abstract: Asthma is now recognized to be a chronic inflammatory disease that affects the whole lung. Incidence appears to be increasing despite improved treatment regimens. There is substantial epidemiological evidence suggesting a relationship between the

incidence and severity of asthma (e.g., hospitalizations) and exposure to increased levels of air pollution, especially fine and ultrafine particulate material, in susceptible individuals. There have been a few studies in animal models that support this concept, but additional animal studies to test this hypothesis are needed. However, such studies must be performed with awareness of the strengths and weaknesses of the currently available animal models. For studies in mice, the most commonly used animal, a broad spectrum of molecular and immunological tools is available, particularly to study the balance between Th1 and Th2 responses, and inbred strains may be useful for genetic dissection of susceptibility to the disease. However, the mouse is a poor model for bronchoconstriction or localized immune responses that characterize the human disease. In contrast, allergic lung diseases in dogs and cats may more accurately model the human condition, but fewer tools are available for characterization of the mechanisms. Finally, economic issues as well as reagent availability limit the utility of horses, sheep, and primates.
Descriptors: air pollutants, asthma, animal disease models, inhalation exposure, asthma, asthma, cats, dogs, guinea pigs, horses, mice, rabbits, rats, sheep, species specificity.

Bidawid, S., N. Malik, O. Adegbunrin, S.A. Sattar, and J.M. Farber (2003). **A feline kidney cell line-based plaque assay for feline calicivirus, a surrogate for norwalk virus.** *Journal of Virological Methods* 107(2): 163-167. ISSN: 0166-0934.
NAL Call Number: QR355 .J6
Descriptors: cell based plaque assay, bioassay techniques, laboratory techniques, cell culture, tissue culture, feline calcivirus, feline kidney cells, CrFK, Norwalk virus model.

Bidawid, S., N. Malik, O. Adegbunrin, S.A. Sattar, and J.M. Farber (2004). **Norovirus cross-contamination during food handling and interruption of virus transfer by hand antisepsis: experiments with feline calicivirus as a surrogate**. *Journal of Food Protection* 67(1): 103-109. ISSN: 0362-028X.
NAL Call Number: 44.8 J824
Descriptors: disinfectants, food contamination, food handlers, food safety, ham, hands, lettuces, microbial contamination, stainless steel, washing, feline calicivirus, *Lactuca sativa*.

Biourge, V.C., J.M. Groff, R.J. Munn, C.A. Kirk, T.G. Nyland, V.A. Madeiros, J.G. Morris, and Q.R. Rogers (1994). **Experimental induction of hepatic lipidosis in cats.** *American Journal of Veterinary Research* 55(9): 1291-1302. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: The effect of long-term voluntary fasting on hematologic variables, biochemical profiles, and liver histologic findings was assessed in 15 obese cats (> 40% overweight). Clinical signs and laboratory results consistent with hepatic lipidosis were observed in 12 of 15 cats after 5 to 7 weeks of fasting, and were associated with 30 to 35% reduction of initial body weight. Histologic examination of successive liver biopsy specimens revealed that obesity was not associated with liver parenchymal lipid accumulation, but that fasting resulted in lipidosis in all 15 cats. The long-term fast was associated with an early (after 2 to 4 weeks of fasting) and significant ($P < 0.05$) reduction in serum urea, glucose, and albumin concentrations, and RBC mass. Fasting for 5 to 7 weeks was associated with a significant ($P < 0.05$) increase in hepatic-associated enzyme activities and in total and direct serum bilirubin concentrations. Significant ($P < 0.05$)

changes in serum alkaline phosphatase developed as early as 3 weeks before the onset of hyperbilirubinemia. Except for development of hepatic lipidosis, cats appeared to tolerate the fast without other adverse effect. This study confirmed that long-term fasting may induce clinical hepatic lipidosis in obese cats. Fasting appears to induce a syndrome of hepatic lipidosis that is indistinguishable from feline idiopathic hepatic lipidosis and may be an appropriate model to study the pathophysiologic features and treatment of hepatic lipidosis.
Descriptors: cats, lipidosis, disease models, fasting, hematology, liver, histopathology, symptoms, body weight, enzyme activity.

Birder, L.A., A. Wolf-Johnston, C.A. Buffington, J.R. Roppolo, W.C. de Groat, and A.J. Kanai (2005). **Altered inducible nitric oxide synthase expression and nitric oxide production in the bladder of cats with feline interstitial cystitis.** *The Journal of Urology* 173(2): 625-9. ISSN: 0022-5347.
Abstract: PURPOSE: Alterations in nitric oxide (NO) levels have been demonstrated in some humans with interstitial cystitis (IC) as well as in chemically induced animal models of cystitis. Thus, in the current study we investigated whether inducible NO synthase (iNOS) mediated NO production is altered in the bladder of cats with a naturally occurring model of IC termed feline IC (FIC). MATERIALS AND METHODS: We examined iNOS expression using Western immunoblotting and baseline NO production using an NO microsensor from smooth muscle and mucosal bladder strips in 9 healthy cats and 6 diagnosed with FIC. RESULTS: There was a significant increase in baseline NO production in cats with FIC compared with that in healthy cats in smooth muscle and mucosal strips. This production was not ablated in the absence of extracellular Ca (100 microM egtazic acid) or following incubation with the calmodulin antagonist trifluoroperazine (20 microM), indicating iNOS mediated Ca independent NO production. Release was significantly decreased following incubation with the NOS antagonist L-NAME (N-nitro-L-arginine methyl ester) (100 microM). Furthermore, immunoblotting revealed a trend toward increased iNOS expression in smooth muscle and mucosal strips from FIC cats but not from healthy cats. CONCLUSIONS: In light of previous findings that the barrier property of the urothelial surface is disrupted in FIC and iNOS mediated increase in NO alters barrier function in other types of epithelium our findings suggest that iNOS dependent NO production may have a role in epithelial barrier dysfunction in FIC.
Descriptors: bladder, cystitis, interstitial, nitric oxide biosynthesis, nitric oxide synthase biosynthesis, cats.

Blatt, D.R., W.A. Friedman, F.J. Bova, D.P. Theele, and J.P. Mickle (1994). **Temporal characteristics of radiosurgical lesions in an animal model.** *Journal of Neurosurgery* 80(6): 1046-55. ISSN: 0022-3085.
Abstract: To characterize the temporal course of radiosurgical lesions, 19 cats were irradiated in an animal linear accelerator radiosurgical device. The animals were followed clinically and, at 3.5, 6, 12, 18, 23, 29, and 63 weeks, were studied with gadolinium-enhanced magnetic resonance (MR) imaging. They were then sacrificed after Evans blue dye perfusion, and gross pathological and histopathological studies were performed. Mild neurological deficits developed between 3.5 and 4.5 weeks, correlating with the onset of

mass effect both grossly and radiographically and with the maximum amount of white matter edema on T2-weighted MR imaging and microscopic examination. Clinical improvement occurred within several weeks as these resolved. The lesions were of similar size at all time intervals. Gadolinium-enhanced MR imaging demonstrated lesions with peripheral areas of enhancement and central nonenhancing regions which correlated histologically with areas of vascular proliferation and radiation necrosis, respectively. In the early lesions at 3.5 and 6 weeks, necrosis and edema were predominant. From 12 to 29 weeks, an intermediate stage was observed, with resorption of the necrotic debris as evidenced by progressive cavitation and microglial response and by increased perilesional vascularity. At 63 weeks, resorption was still taking place, but gliosis and diminution of the vascular response were seen.
Descriptors: brain surgery, radiation injuries, radiosurgery, brain, brain radiation effects, brain edema diagnosis, brain edema, brain edema, cats, animal disease models, magnetic resonance imaging, necrosis, radiation injuries diagnosis, radiation injuries, time factors.

Bonyhadi, M.L., L. Su, J. Auten, J.M. McCune, and H. Kaneshima (1995). **Development of a human thymic organ culture model for the study of HIV pathogenesis.** *AIDS Research and Human Retroviruses* 11(9): 1073-80. ISSN: 0889-2229.
Abstract: The development of effective therapies for the treatment of AIDS would be facilitated by a better understanding of HIV pathogenesis in vivo. While some aspects of pathogenesis may be assessed by standard tissue culture assays, in vivo animal models may provide clues to other aspects of HIV-mediated progression toward AIDS. Current animal models include primate models for the study of simian immunodeficiency virus (SIV) and HIV, SCID-hu and hu-PBL SCID mouse models for the study of HIV, and feline models for the study of feline immunodeficiency virus (FIV). In general these models are costly and labor intensive. We have developed a simple human fetal thymic organ culture (TOC) system that is permissive for HIV infection and that exhibits pathology similar to that observed in vivo. A key feature of this system is the time-dependent destruction of thymocytes typified by the preferential loss of CD4-expressing cells. HIV-mediated thymocyte destruction occurs by a process involving programmed cell death. We have infected TOC with a panel of HIV isolates and found that the resulting viral replicative and pathogenic profiles are similar to those seen in the SCID-hu Thy/Liv mouse, yet different from profiles observed in standard PHA-blast tissue culture assays. In addition, we find that TOC may be used to assess efficacy of antiviral agents such as AZT (3'-azido-3'-deoxythymidine) and ddI (2',3'-dideoxyinosine) in blocking both viral replication and virus-induced pathology. These results indicate that this model is amenable to the systematic manipulation, analysis, and characterization of a variety of HIV virus isolates and antiviral therapies.
Descriptors: HIV infections, HIV 1 pathogenicity, biological models, thymus gland, antiviral agents, apoptosis, cd4 cd8 ratio, cd4 positive t lymphocytes, cd4 positive t lymphocytes, cats, didanosine, drug evaluation, preclinical, fetus, HIV infections, HIV infections, HIV 1, HIV 1, mice, organ culture techniques, organ culture techniques standards, thymus gland, thymus gland, time factors, virus replication, zidovudine.

Borostyankoi, Z. and K. Senyi (2000). **A szemtengely-beallitodas idobeli lefolyasa muvi kancsal macskakban [Time-course of interocular alignment in artificially**

esotropic cats]. *Orvosi Hetilap* 141(35): 1929-32. ISSN: 0030-6002.
Abstract: Strabismus induced by eye-muscle surgery is a widely accepted experimental model of discordant binocular vision. Up to now, no attention was paid to the progress of strabismus in the postsurgical period, although, the grade of the developing strabismus is strongly influenced by the loss of binocularity in the visual system. Following lateral rectus laminotomy of 2-week-old kittens, the Hirschberg method and prisms were used to assess interocular alignment. The angle of deviation was measured weekly. During the first postoperative weeks, cats fixated still alternally, while by the end of the second postnatal month, when compared to healthy controls, operated cats were unable to align their eyes parallelly. They also showed persistent esotropy (+35 +/- 7 delta) that developed with a characteristic time-course. The interocular misalignment in artificially strabismic kittens develop gradually, and does not simply appear after the operation. The nature of this pathological process resembles the normal development of eye-movements in kittens, as well as in primate infants. Therefore, the surgery for strabismus in experimental animals at the earliest time point during the sensitive period are recommended, in order to provide ample time-window window for the effective development of the "strabismic visual system".
Descriptors: convergence, ocular, strabismus, strabismus surgery, cats, animal disease models, esotropia, esotropia surgery, time factors.
Language of Text: Hungarian.

Boskov, D., M. Jocic, K. Jovanovic, M. Ljubisavljevic, and R. Anastasijevic (1994). **Membrane potential changes of skeletomotor neurons in response to random stretches of the triceps surae muscles in decerebrate cats**. *Biological Cybernetics* 71(4): 333-339. ISSN: 0340-1200.
Descriptors: cell biology, models, simulations, computational biology, muscular system, nervous system, neural coordination, wiener kernel, membrane potential, skelatomotor neurons, triceps surae muscles.

Bragg, D.C., T. Childers, J. Boles, M. Tompkins, W. Tompkins, and R. Meeker (2000). **The choroid plexus and AIDS-related CNS disease**. *Journal of Neurovirology* 6(5): 444. ISSN: 1355-0284.
Descriptors: immune system, infection, nervous system, neural coordination, AIDS, feline, model, viral disease.

Brellou, G., I. Vlemmas, S. Lekkas, and N. Papaioannou (2005). **Immunohistochemical investigation of amyloid beta-protein (Abeta) in the brain of aged cats.** *Histology and Histopathology* 20(3): 725-31. ISSN: 0213-3911.
Abstract: To clarify the immunohistochemical features of amyloid deposits and cerebral amyloid angiopathy (CAA), the distribution of the amyloid beta-protein subtypes Abeta40, Abeta42, Abeta43 and Abeta precursor protein (APP) were examined in the brains of fourteen aged cats (7.5-21 year-old). Two types of plaques were detected. The first type was characterized by ASS positive antigenic material and detected in the cortical layers of the frontal and parietal lobes of all examined cats. The second type was characterized by diffuse positive immune staining representing diffuse plaques, which were detected only in the very aged cats (17-21 years old) and distributed throughout the cortical layers of the parietal lobes. Vascular amyloid and the amyloid deposits were

strongly positive-stained with the antibody Abeta42. APP was exhibited in neurons and axons while the staining was stronger in the very aged cats (17-21 years old). Our findings suggest that the feline forms a spontaneous model for understanding the early changes of normal brain aging and the early stage of amyloid beta-protein deposition.
Descriptors: cats, amyloid deposits, brain, alzheimers, Abeta, angiopathy, plaques.

Briquet, S., J. Richardson, C. Vanhee Brossollet, and C. Vaquero (2001). **Natural antisense transcripts are detected in different cell lines and tissues of cats infected with feline immunodeficiency virus.** *Gene* 267(2): 157-164. ISSN: 0378-1119.
NAL Call Number: QH442 .A1G4
Abstract: Feline immunodeficiency virus (FIV) is a lentivirus inducing an AIDS-like disease in cats, thus providing an interesting model for AIDS study. FIV and HIV-1 possess a similar genomic arrangement of structural and non-structural genes, whose expression is regulated by related genetic mechanisms. On the DNA strand complementary to the HIV-1 envelope messenger, an open reading frame (ORF) has been identified which encompasses the Rev Responsive Element (RRE), a cis-acting element critical to HIV gene expression. This ORF was highly conserved among HIV-1 isolates and had the potential to encode a hydrophobic protein. A corresponding antisense transcript was detected in cells infected with HIV-1, and appeared to encode an antisense protein. In the present study, we have identified a well-conserved antisense ORF, also coincident with the RRE region, in the genome of 21 FIV isolates. The predicted protein, 103 amino acids in length, is highly hydrophobic, as is the case for that of HIV-1. In addition, we have shown that a corresponding transcript, complementary to the transmembrane sequence of the FIV envelope gene, was produced in different cellular and viral contexts, that is, ex vivo and in vivo in FIV infected cell lines and tissues of infected cats, respectively. Expression of antisense transcripts might therefore be of general importance in the natural history of retroviruses.
Descriptors: feline immunodeficiency virus, antisense RNA, amino acid sequence, cats, cell line, gene expression regulation, ENV gene products, lentivirus infections, molecular sequence data, open reading framessequence alignment, tissue distribution, genetic transcription.

Broder, C.C. and R.G. Collman (1997). **Chemokine receptors and hiv**. *Journal of Leukocyte Biology* 62(1): 20-29. ISSN: 0741-5400.
NAL Call Number: QP185 .R4
Descriptors: immune system, cell biology, AIDS, CCR5 gene, chemokine receptor, HIV 1, feline immunodeficiency virus.

Brooks, A.I., C.S. Stein, S.M. Hughes, J. Heth, P.M.J. McCray, S.L. Sauter, J.C. Johnston, D.A. Cory Slechta, H.J. Federoff, and B.L. Davidson (2002). **Functional correction of established central nervous system deficits in an animal model of lysosomal storage disease with feline immunodeficiency virus-based vectors.** *Proceedings of the National Academy of Sciences of the United States of America* 99(9): 6216-6221. ISSN: 0027-8424.
NAL Call Number: 500 N21P
Abstract: Gene transfer vectors based on lentiviruses can transduce terminally differentiated cells in the brain; however, their ability to reverse established behavioral

deficits in animal models of neurodegeneration has not previously been tested. When recombinant feline immunodeficiency virus (FIV)-based vectors expressing beta-glucuronidase were unilaterally injected into the striatum of adult beta-glucuronidase deficient [mucopolysaccharidosis type VII (MPS VII)] mice, an animal model of lysosomal storage disease, there was bihemispheric correction of the characteristic cellular pathology. Moreover, after the injection of FIV-based vectors expressing beta-glucuronidase into brains of beta-glucuronidase-deficient mice with established impairments in spatial learning and memory, there was dramatic recovery of behavioral function. Cognitive improvement resulting from expression of beta-glucuronidase was associated with alteration in expression of genes associated with neuronal plasticity. These data suggest that enzyme replacement to the MPS VII central nervous system goes beyond restoration of beta-glucuronidase activity in the lysosome, and imparts improvements in plasticity and spatial learning.
Descriptors: central nervous system diseases, gene transfer techniques, feline immunodeficiency virus, lysosomal storage diseases, animal behavior, brain, central nervous system, cognition, genetic vectors, glucuronidase, learning, memory, mice, mucopolysaccharidosis vii, oligonucleotide array sequence analysis, phenotype, polymerase chain reaction, transgenes.

Brown, D.E., M.A. Thrall, S.U. Walkley, S. Wurzelmann, D.A. Wenger, R.W. Allison, and C.A. Just (1996). **Metabolic abnormalities in feline Niemann-Pick type C heterozygotes.** *Journal of Inherited Metabolic Disease* 19(3): 319-330. ISSN: 0141-8955.
NAL Call Number: RC627.8J68
Abstract: Niemann-Pick disease type C (NPC) is an autosomal recessive neurovisceral lysosomal storage disorder in which cholesterol lipidosis results from defective intracellular transport of unesterified cholesterol. The primary molecular defect of NPC is unknown; regulatory mechanisms of cholesterol metabolism are impaired, resulting in retarded esterification of exogenous cholesterol with accumulation of unesterified cholesterol in lysosomes and secondary storage of glycolipids and sphingomyelin. In obligate heterozygotes from a feline NPC model, cultured skin fibroblasts challenged with exogenously derived cholesterol exhibited intermediate rates of cholesterol esterification and accumulation of unesterified cholesterol. Liver lipid analyses of obligate heterozygote cats demonstrated intermediate cholesterol and sphingomyelin concentrations. Vacuolated skin fibroblasts were found in 2 of 3 heterozygote cats, and occasional cortical neurons exhibited intracellular inclusions immunoreactive for GM2-ganglioside. Ultrastructural studies provided evidence of storage in liver and brain. We believe these morphological and biochemical findings are the first example of manifestations of CNS abnormalities in a genetic carrier for a neuronal storage disease.
Descriptors: Niemann-Pick diseases, brain, cats, cholesterol, heterozygote, liver.

Brown, I.E. and G.E. Loeb (2000). **Measured and modeled properties of mammalian skeletal muscle: IV. dynamics of activation and deactivation.** *Journal of Muscle Research and Cell Motility* 21(1): 33-47. ISSN: 0142-4319.
NAL Call Number: QP321. J59
Abstract: The interactive effects of length and stimulus frequency on rise and fall times and on sag were investigated in fast-twitch feline caudofemoralis at normal body

temperature. The length and stimulus frequency ranges studied were 0.8 1.2 L0 and 15 60 pps. Isometric rise times were shortest under two sets of conditions: short lengths + low stimulus frequencies and long lengths + high stimulus frequencies. In contrast the isometric fall time relationship showed a single minimum at short lengths + low stimulus frequencies. Velocity was shown to have an additional effect on fall time, but only at higher stimulus frequencies (40 60 pps): fall times were shorter during movement in either direction as compared to isometric. The effects of sag were greatest at shorter lengths and lower stimulus frequencies during isometric stimulus trains. Potential mechanisms underlying this last effect were investigated by comparing isometric twitches elicited prior to and immediately following a sag-inducing stimulus train. Post-sag twitches produced less force, reached peak force earlier and initially decayed more quickly compared to pre-sag twitches. However, the final rate of force decay and the initial rate of force rise (during the first 15 ms) were unaffected by sag. We construct a logical argument based on these findings to hypothesize that the predominant mechanism underlying sag is an increase in the rate of sarcoplasmic calcium ion removal. All of the above findings were used to construct a model of activation dynamics for fast-twitch muscle, which was then extrapolated to slow-twitch muscle. When coupled with a previous model of kinematic dynamics, the complete model produced accurate predictions of the forces actually recorded during experiments in which we applied concurrent dynamic changes in length. velocity and stimulus frequency.
Descriptors: action potentials, muscle contraction, muscle fibers, fast twitch, muscle, skeletal, cats, electric stimulation, biological models, muscle fibers, slow twitch, time factors.

Brown, I.E. and G.E. Loeb (1999). **Measured and modeled properties of mammalian skeletal muscle. I. The effects of post-activation potentiation on the time course and velocity dependencies of force production**. *Journal of Muscle Research and Cell Motility* 20(5-6): 443-456. ISSN: 0142-4319.
NAL Call Number: QP321.J59
Descriptors: muscular system, feline caudofemoralis muscle, myosin regulatory light chain, cross bridge dynamics, force dispotentiation .

Bruninga, K., L. Riedy, A. Keshavarzian, and J. Walter (1998). **The effect of electrical stimulation on colonic transit following spinal cord injury in cats.** *Spinal Cord* 36(12): 847-53. ISSN: 1362-4393.
Abstract: The effect of direct electrical stimulation on colinic transit and manometric recordings following spinal cord injury were assessed in five adult male cats. Intra-colonic catheters were surgically placed, stimulating electrodes were sutured to the colonic serosa and a laminectomy with spinal cord clamping at a T4 level was done to induce spinal cord injury (SCI). Twenty radiopaque markers were inserted through an intra-colonic catheter located 1 cm distal to the cecum and were monitored with daily fluoroscopy as a measure of colonic transit. Transit measurements were compared before SCI, after SCI and after SCI with electrical stimulation of 40 pps, 1 ms, and 0-50 mA. Colonic transit following SCI was significantly prolonged ($P<0.05$) when compared to the transit before SCI. Electrical stimulation following SCI improved colonic transit to values not significantly different from those before SCI. Spontaneous colonic phasic motor activity

was similar both before and after SCI. Manometric defection patterns were also observed to be similar before SCI and after SCI with electrical stimulation. Based on our scoring criteria, the most frequent response to electrical stimulation was an abdominal contraction. These findings demonstrate that colonic transit is prolonged following SCI and that direct electrical stimulation of the colon following SCI improves colonic transit in an animal model.
Descriptors: colon, electric stimulation, gastrointestinal transit, spinal cord injuries, cats, constipation, constipation therapy, electric stimulation therapy.

Buchman, S.R., S.P. Bartlett, I.L.3. Wornom, and L.A. Whitaker (1994). **The role of pressure on regulation of craniofacial bone growth.** *The Journal of Craniofacial Surgery* 5(1): 2-10. ISSN: 1049-2275.
Abstract: The regulatory role of pressure on growth and differentiation of the craniofacial skeleton is largely unknown. We devised an experimental model to determine if the graded application of pressure could exert a trophic influence on craniofacial bone, allowing deliberate alteration and reshaping of the facial skeleton. To examine this question, 18 kittens were used to determine the adverse morphological sequelae after orbital evisceration and to compare the ability to remedy such facial deformity with the use of an inert implant or pressure-induced tissue expansion. In addition to detailed craniometric measurements of the cranial, orbital, and midfacial regions, histological analyses as well as radiographic and gross morphological comparisons were evaluated. Our results demonstrate a severe asymmetry and constriction in the orbital and midfacial regions resulting from orbital evisceration in the growing kitten. Placement of an inert implant will help to ameliorate only some of these adverse sequelae, whereas graded application of pressure appears to direct craniofacial bone growth, resulting in normal bony histology and improved facial form. We affirm that regional growth disturbances can alter normal facial development and that the regulatory role of pressure on bone growth can be exploited to dynamically correct abnormal craniofacial anatomy.
Descriptors: facial asymmetry, maxillofacial development, orbit evisceration, pressure, analysis of variance, cats, cepHalometry, facial bones growth and development, prostheses and implants, tissue expansion.

Buerke, M., A.S. Weyrich, T. Murohara, C. Queen, C.K. Klingbeil, M.S. Co, and A.M. Lefer (1994). **Humanized monoclonal antibody DREG-200 directed against I-selectin protects in feline myocardial reperfusion injury.** *The Journal of Pharmacology and Experimental Therapeutics* 271(1): 134-142. ISSN: 0022-3565.
NAL Call Number: 396.8 J82
Abstract: Polymorphonuclear leukocytes (i.e. neutrophils) significantly mediate damage in myocardial ischemia followed by reperfusion. In the present study, the cardioprotective effects of a humanized form of a monoclonal antibody directed against L-selectin designated monoclonal antibody (mAb) HuDREG-200 were examined in a feline model of 90-min myocardial ischemia followed by 270 min of reperfusion. In preliminary studies, flow cytometric analysis indicated that HuDREG-200 binds to feline neutrophils. In vitro administration of mAb HuDREG-200 significantly inhibited ($P < .01$) adherence of unstimulated neutrophils to ischemic-reperfused coronary endothelium in a concentration-dependent manner. Humanized DREG-200 (2 mg/kg) administered

10 min before reperfusion significantly attenuated myocardial necrosis compared to an isotype-matched humanized control mAb (HuABL364) which does not bind to L-selectin (14 +/- 3 vs. 29 +/- 3% necrosis/area-at-risk, P < .01), representing a 52% reduction in myocardial necrosis. This myocardial preservation also was related to reduced creatine kinase release and improved recovery of cardiac contractility (i.e. left ventricular dP/dtmax). Moreover, endothelial function, as assessed by relaxation to acetylcholine, also was significantly preserved in ischemic-reperfused coronary arteries isolated from cats treated with mAb HuDREG-200 compared to mAb HuABL364 (68 +/- 6 vs. 18 +/- 5, P < .01). Thus, a humanized anti-L-selectin mAb appears to be an effective means of preserving the ischemic myocardium from reperfusion injury and of preserving myocardial contractile function, at least during the early reperfusion period.
Descriptors: monoclonal antibodies, myocardial reperfusion injury, cats, cell adhesion, vascular endothelium, hemodynamic processes, I selectin, leukocyte count, neutrophils.

Buerke, M., A.S. Weyrich, Z. Zheng, F.C. Gaeta, M.J. Forrest, and A.M. Lefer (1994). **Sialyl Lewisx-containing oligosaccharide attenuates myocardial reperfusion injury in cats.** *The Journal of Clinical Investigation* 93(3): 1140-1148. ISSN: 0021-9738.
NAL Call Number: 448.8 J8295
Abstract: Neutrophil (PMN) adhesion to the vascular endothelium is an important mechanism of myocardial reperfusion injury. The adhesion process is initially mediated by selectins (e.g., P- and L-selectin), and monoclonal antibodies directed against these adhesion molecules exert cardioprotective activity in ischemia/reperfusion models. The counterreceptors for these selectins are thought to be carbohydrate-containing moieties. In this connection, we studied the effect of a soluble sialyl Lewisx-containing oligosaccharide (SLex-OS) on PMN-endothelial interactions in a feline model of myocardial ischemia/reperfusion (MI/R). SLex-OS (10 mg/kg), administered 10 min before R, significantly reduced myocardial necrosis compared with its vehicle 270 min after reperfusion (6 +/- 1% vs. 35 +/- 4% of area at risk, P < 0.01). The cardioprotection was confirmed by significantly lower plasma creatine kinase activities in SLex-OS vs. vehicle-treated cats (P < 0.01). Cardiac contractility (dP/dt max) of cats receiving SLex-OS was significantly preserved after 270 min of R (97 +/- 2% vs. 78 +/- 5% of initial, P < 0.01). Furthermore, endothelium-dependent relaxation to acetylcholine in coronary artery rings isolated from MI/R cats treated with SLex-OS was significantly preserved (73 +/- 7% vs. 22 +/- 6% vasorelaxation, P < 0.01). In vitro PMN adherence to coronary vascular endothelium after 270 min of R was significantly attenuated in the SLex-OS-treated group compared with the vehicle group (14 +/- 5 vs. 91 +/- 12 PMN/mm2, P < 0.01). Our results indicate that a SLex-OS is cardioprotective and preserves coronary endothelial function after MI/R, indicating an important role of sialyl Lewisx in PMN accumulation, endothelial dysfunction, and myocardial injury in myocardial ischemia/reperfusion.
Descriptors: CD1 antigens5, myocardial reperfusion injury, oligosaccharides, cats, cell adhesion, coronary vessels, vascular endothelium, hemodynamic processes, leukocytes, neutrophils.

Buhler, B., Y.C. Lin, G. Morris, A.J. Olson, C.H. Wong, D.D. Richman, J.H. Elder, and B.E. Torbett (2001). **Viral evolution in response to the broad-based retroviral protease**

inhibitor TL-3. *Journal of Virology* 75(19): 9502-8. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Abstract: TL-3 is a protease inhibitor developed using the feline immunodeficiency virus protease as a model. It has been shown to efficiently inhibit replication of human, simian, and feline immunodeficiency viruses and therefore has broad-based activity. We now demonstrate that TL-3 efficiently inhibits the replication of 6 of 12 isolates with confirmed resistance mutations to known protease inhibitors. To dissect the spectrum of molecular changes in protease and viral properties associated with resistance to TL-3, a panel of chronological in vitro escape variants was generated. We have virologically and biochemically characterized mutants with one (V82A), three (M46I/F53L/V82A), or six (L24I/M46I/F53L/L63P/V77I/V82A) changes in the protease and structurally modeled the protease mutant containing six changes. Virus containing six changes was found to be 17-fold more resistant to TL-3 in cell culture than was wild-type virus but maintained similar in vitro replication kinetics compared to the wild-type virus. Analyses of enzyme activity of protease variants with one, three, and six changes indicated that these enzymes, compared to wild-type protease, retained 40, 47, and 61% activity, respectively. These results suggest that deficient protease enzymatic activity is sufficient for function, and the observed protease restoration might imply a selective advantage, at least in vitro, for increased protease activity.
Descriptors: evolution, molecular, protease inhibitors, retroviridae, retroviridae, amino acid sequence, cats, genome, viral, molecular sequence data.

Burgi, P.Y. and N.M. Grzywacz (1994). **Model for the pharmacological basis of spontaneous synchronous activity in developing retinas.** *Journal of Neuroscience* 14(12): 7426-39. ISSN: 0270-6474.
Abstract: Spontaneous waves of bursts of action potentials propagate across the ganglion-cell surface of developing retinas. A recent biophysical model postulated that this propagation is mediated by an increase in extracellular K+, following its ejection from ganglion cells during action potentials. Moreover, the model hypothesized that bursts might terminate due to the accumulation of intracellular Ca2+ and the subsequent activation of a Ca(2+)-dependent K+ conductance in the cells' dendrites. Finally, the model proposed that an excitatory synaptic drive causes a neuromodulation of the waves' properties. To test the feasibility of the model, we performed computer simulations of the network of developing ganglion cells under control and pharmacological-manipulation conditions. In particular, we simulated the effects of neostigmine, Cs+ and TEA, low Ca2+ concentrations, and Co2+. A comparison of the simulations with electrophysiological and pharmacological experimental data recently obtained in turtles (Sernagor and Grzywacz, 1993a), and cats and ferrets (Meister et al., 1991; Wong et al., 1993), showed that the model for the most part is consistent with the behavior of developing retinas. Moreover, modifications of the model to allow for GABAergic inputs onto ganglion cells (Sernagor and Grzywacz, 1994) and poor [K+]out buffering (Connors et al., 1982) improved the model's fits. These results lent further support to important roles of extracellular K+ concentration and synaptic drive for the propagation of waves.
Descriptors: aging, models, neurological, retina growth and development, retina, cesium, cobalt, computer simulation, electrophysiology, potassium channel blockers, retina, retinal ganglion cells, tetraethylammonium, tetraethylammonium compounds.

Burkhard, M.J. and G.A. Dean (2003). **Transmission and immunopathogenesis of FIV in cats as a model for HIV.** *Current HIV Research* 1(1): 15-29. ISSN: 1570-162X.
Abstract: The feline immunodeficiency virus (FIV) model provides a system to study lentivirus transmission, virus kinetics, pathogenesis, host responses, and immune dysfunction in a natural, out-bred host, under controlled conditions with specific-pathogen-free animals. The diversity of primary FIV strains can be exploited to mirror the range of disease manifestations associated with HIV infection. FIV is infectious via intravenous, intraperitoneal, intradermal, or subcutaneous injection as well as by atraumatic instillation onto the oral, vaginal, or rectal mucosa. Together, these features allow investigators to model specific aspects of HIV infection in a highly relevant and relatively inexpensive animal model. Well-developed areas of the FIV model include: (1) transmission of cell-associated as well as cell-free virus; (2) mucosal infectivity and immunopathogenesis; (3) vertical transmission; (4) acquired immunodeficiency including defects of the innate immune system; (5) thymic dysfunction; (6) neurotropism and neuropathogenesis; (7) host-virus interactions and the role of specific gene products; (8) efficacy of antiviral therapy; and (9) efficacy and immune correlates of experimental vaccines. This review will encompass areas specific to transmission and immunopathogenesis.
Descriptors: animal disease models, feline acquired immunodeficiency syndrome, feline acquired immunodeficiency syndrome transmission, HIV infections, HIV infections transmission, HIV 1 growth and development, feline immunodeficiency virus growth and development, cats, disease transmission, horizontal, disease transmission, vertical, feline acquired immunodeficiency syndrome, HIV infections, HIV 1, feline immunodeficiency virus, virus replication.

Burns, A.S., M.A. Lemay, and A. Tessler (2005). **Abnormal spontaneous potentials in distal muscles in animal models of spinal cord injury**. *Muscle and Nerve* 31(1): 46-51. ISSN: 0148-639X.
Descriptors: human spinal cord injury, animal models, cats, surgical transections, nervous system disease, stroke, vascular disease, fibrillation potential, spinal cord lesions.

Byers, S., J.D. Nuttall, A.C. Crawley, J.J. Hopwood, K. Smith, and N.L. Fazzalari (1997). **Effect of enzyme replacement therapy on bone formation in a feline model of mucopolysaccharidosis type VI.** *Bone* 21(5): 425-31. ISSN: 8756-3282.
NAL Call Number: RC930 B65
Abstract: A range of skeletal abnormalities are evident in mucopolysaccharidosis type VI (MPS VI, Maroteaux-Lamy syndrome) including short stature and dysostosis multiplex, resulting from a deficiency in the lysosomal hydrolase N-acetylgalactosamine-4-sulphatase (4S). In this article, bone pathology was assessed in a feline model of MPS VI to evaluate the efficacy of enzyme replacement therapy (ERT) as a treatment modality for this genetic disorder. Osteopenia is clearly evident in MPS VI animals, with bone mineral volume (BV/TV) falling well below that of normal animals (4.39% vs. 20.11%, respectively). Trabecular bone architecture was also affected in MPS VI with fewer, thinner, and more widely spaced trabeculae apparent. Bone formation rate (BFR/BS) was also lower in MPS VI animals than controls (0.0011 mm3/mm2 per day vs. 0.008 mm3/mm2 per day, respectively). Vertebral and tibial bone length in MPS VI animals

progressively fell behind normal values with increasing age, as did cortical bone thickness. Vertebral body shape was also altered. ERT with recombinant human 4S (rh4S) resulted in a vertebral BV/TV of 8.23% in animals treated with an intravenous enzyme dose of 1 mg/kg and a BV/TV of 14.33% in animals treated with a dose of 5 mg/kg. BFR/BS also increased to 0.0034 mm3/mm2 per day in animals treated with enzyme doses of either 1.0 or 5.0 mg/kg rh4S. All other affected histomorphometric parameters also improved with ERT to a level intermediate between MPS VI untreated animals and normals. However, individual animals treated with 0.2 mg/kg rh4S intravenously or 1.0 mg/kg rh4S administered subcutaneously did not exhibit an improvement over untreated MPS VI animals. Vertebral and tibial bone lengths, tibial cortical bone thickness, and vertebral body shape also responded to ERT, with a trend away from the untreated group. Thus, ERT had a positive effect on bone development in MPS VI animals that was dependent upon the dose of enzyme administered and the route of administration.
Descriptors: bone density, chondro 4 sulfatase, mucopolysaccharidosis vi, bone density, bone development, metabolic bone diseases, metabolic bone diseases, cats, animal disease models, injections, intravenous, injections, subcutaneous, lumbar vertebrae, lumbar vertebrae, electron microscopy, mucopolysaccharidosis vi, osteoblasts, osteoblasts ultrastructure, osteocytes, osteocytes ultrastructure, recombinant proteins.

Calabrese, E.J. (2001). **Adrenergic receptors: biphasic dose responses.** *Critical Reviews in Toxicology* 31(4-5): 523-38. ISSN: 1040-8444.
Abstract: Agonists and antagonists of the adrenergic receptor system were assessed for their capacity to affect dose-response relationships across biological model, tissue and endpoint. U shaped dose responses were commonly reported, affecting multiple endpoints such as smooth muscle contraction/relaxation, memory, blood pressure, sexual behavior, platelet aggregation, and others. In six of the endpoints studied, mechanistic foundations of the biphasic nature of the dose response were established. The quantitative features of the dose-response relationships indicated that the maximum stimulatory responses, with but one exception, were less than twofold greater than the controls. The range of stimulatory responses was generally within 10- to 1000-fold, except for the platelet aggregation endpoint where the range was 10(3) to 10(5).
Descriptors: adrenergic agonists, adrenergic antagonists, muscle contraction, receptors, adrenergic, receptors, adrenergic, pressure, cats, dose response relationship, drug, memory, biological models, muscle, smooth, muscle, smooth, platelet aggregation, rabbits, rats, sexual behavior.

Campbell, D.J., J.M. Rawlings, S. Koelsch, J. Wallace, J.J. Strain, and B.M. Hannigan (2004). **Age-related differences in parameters of feline immune status.** *Veterinary Immunology and Immunopathology* 100(1-2): 73-80. ISSN: 0165-2427.
NAL Call Number: SF757.2. V38
Abstract: In order to assess age-related differences in feline immune status, 101 domestic short haired cats were assigned to two groups, adult (2-5 years, n=50) and senior (10-14 years, n=51). Analyses of leucocyte populations, lymphocyte subsets, complement activity, serum immunoglobulins and acute-phase proteins were undertaken and revealed significant differences between the two groups. The senior group had significantly lower WBC, lymphocyte and eosinophil counts than the adult group.

Neutrophil, monocyte and basophil counts did not differ between the groups. Flow cytometry analysis, in combination with differential WBC data, revealed that the absolute values (cells/l) of T-cells, B-cells and natural killer (NK) cells were significantly lower in the older animals. While serum immunoglobulins IgA and IgM were higher in the senior group when compared with the adult group, no significant differences were observed in complement activity or in serum acute-phase proteins. Our findings suggest that age-related changes to parameters of immune status in the feline model are likely to follow a similar pattern to those observed in other long-lived mammalian species.
Descriptors: cats, age factors, apolipoproteins, colorimetry, complement, enzyme linked immunosorbent assay, flow cytometry, haptoglobins, immunodiffusion, immunoglobulins, leukocyte count, lymphocyte subsets, serum amyloid a protein, nonparametric statistics.

Cao, Y., P. Xie, and Y. Xing (2001). **Role of endogenous cholinergic nerve in esophageal dysmotility with reflux esophagitis**. *Chinese Journal of Internal Medicine [Zhonghua Nei Ke Za Zhi]* 40(10): 670-2. ISSN: 0578-1426.
Abstract: OBJECTIVE: To study the role of endogenous cholinergic nerve in esophageal dysmotility with reflux esophagitis in a feline model. METHODS: In 16 healthy cats under ketamine anesthesia (20 mg/kg), the abdominal parts of lower esophageal sphincter were cut open to establish the animal model for reflux esophagitis; esophageal motility was measured respectively preoperation and post-esophagitis. The activities of choline acetyltransferase (CHAT) and acetylcholinesterase(ACHE) in medial and distal esophageal body muscle was measured respectively with spectrophotometry, and compared to the normal cats(n = 8). RESULTS: Reflux esophagitis can make distal esophageal peristaltic amplitude decrease, the distal esophageal peristaltic amplitude of cats with reflux esophagitis [above LES 1 cm: (22.65 +/- 16.53) mm Hg; above LES 3 cm:(39.94 +/- 14.78) mm Hg, P < 0.0001] was significantly lower than that of normal cats [above LES 1 cm: (63.71 +/- 21.34) mm Hg; above LES 3 cm: (73.65 +/- 23.42) mm Hg] and the conducting velocity of distal esophagus was slower than that of normal cats [(1.04 +/- 0.36) cm/s vs (1.39 +/- 0.46) cm/s, P < 0.05]. In the esophagus of reflux esophagitis group, CHAT activity was lower in the model, especially in the distal part [(81.01 +/- 22.03) U/g vs (230.13 +/- 30.10) U/g, P < 0.0001] and ACHE activity remains unchanged. CONCLUSION: CHAT activity and pressure level were lower in the distal esophagus with reflux esophagitis compared to the normal cats. This study supported that reflux esophagitis can results in dysmotility of the distal esophagus and the abnormality of endogenous cholinergic innervation is one of the important mechanisms as far as the disorder of esophageal movement in reflux esophagitis.
Descriptors: cholinergic fibers, esophageal motility disorders, esophagitis, gastresophageal reflux, acetylcholinesterase, cats, choline o acetyltransferase, animal disease models, esophageal motility disorders, esophagitis, esophgus, esophgus innervation, esophgus, gastresophageal reflux.
Language of Text: Chinese.

Capra, N.F. and J.Y. Ro (2000). **Experimental muscle pain produces central modulation of proprioceptive signals arising from jaw muscle spindles.** *Pain* 86(1-2): 151-62. ISSN: 1083-0707.

Abstract: The aim of the present study was to investigate the effects of intramuscular injection with hypertonic saline, a well-established experimental model for muscle pain, on central processing of proprioceptive input from jaw muscle spindle afferents. Fifty-seven cells were recorded from the medial edge of the subnucleus interpolaris (Vi) and the adjacent parvicellular reticular formation from 11 adult cats. These cells were characterized as central units receiving jaw muscle spindle input based on their responses to electrical stimulation of the masseter nerve, muscle palpation and jaw stretch. Forty-five cells, which were successfully tested with 5% hypertonic saline, were categorized as either dynamic-static (DS) (n=25) or static (S) (n=20) neurons based on their responses to different speeds and amplitudes of jaw movement. Seventy-six percent of the cells tested with an ipsilateral injection of hypertonic saline showed a significant modulation of mean firing rates (MFRs) during opening and/or holding phases. The most remarkable saline-induced change was a significant reduction of MFR during the hold phase in S units (100%, 18/18 modulated). Sixty-nine percent of the DS units (11/16 modulated) also showed significant changes in MFRs limited to the hold phase. However, in the DS neurons, the MFRs increased in seven units and decreased in four units. Finally, five DS neurons showed significant changes of MFRs during both opening and holding phases. Injections of isotonic saline into the ipsilateral masseter muscle had little effect, but hypertonic saline injections made into the contralateral masseter muscle produced similar results to ipsilateral injections with hypertonic saline. These results unequivocally demonstrate that intramuscular injection with an algesic substance, sufficient to produce muscle pain, produces significant changes in the proprioceptive properties of the jaw movement-related neurons. Potential mechanisms involved in saline-induced changes in the proprioceptive signals and functional implications of the changes are discussed.
Descriptors: central nervous system, muscle spindles, myofascial pain syndromes, proprioception, signal transduction, brain stem, cats, electric stimulation, hypertonic solutions, jaw, masseter muscle, neural pathways, receptors, sensory, stimulation, chemical.

Carlson-Kuhta, P., J.R. Villablanca, and L.D. Loopuijt (1997). **Innervation of the caudate nucleus, thalamus and red nucleus by the remaining sensorimotor cortex in cats with fetal or neonatal unilateral frontal cortex removal.** *Developmental Brain Research* 98(2): 234-46. ISSN: 0165-3806.

Abstract: We studied the projections to the caudate nuclei, thalami and red nuclei from the remaining sensorimotor cortex in adult cats that had sustained a unilateral frontal cortex resection prenatally or neonatally. Four cats had the lesion at age E 50-55 and six animals sustained the ablation at age P 8-14 (seven cats were intact controls). All cats grew to young adulthood and then received injections of tritiated leucine-proline in the remaining sensorimotor cortex. Injection sites and axon terminal fields were reconstructed using autoradiography-processed tissue. In all cats the label filled a similar extent of the right pericruciate cortex. Terminal field densities in the subcortical nuclei were estimated using computer-based video software. Three medial-lateral sectors at five coronal levels were examined in the caudate nucleus. Three nuclear groups were analyzed in the thalamus (intralaminary, ventralis lateralis and ventrobasal complex). For the red nucleus, the four quadrants were examined at four coronal levels. The main goal of the study was to assess possible changes in the cortical innervation of the nuclei ipsilateral to

the lesion. Therefore, the mean particle counts per nucleus (and per area or sector of nuclei) and per animal group were used to calculate percentage values for the decussated (crossed, or contralateral to the injection site) as a function of the non-decussated (uncrossed, or ipsilateral to the injection site) innervation. The percentage values for the crossed projections were: (a) for the entire caudate nucleus, 61.3% for the intact. 56.7% for the fetal-lesioned and 42.7% for the neonatal-lesioned cats, with no statistical differences between groups; (b) for the thalamus the proportion of crossed projections was minimal fluctuating between a low 0.06-0.16% for the nucleus ventralis lateralis and a high of 2.01-3.46% for the intralaminary nuclei, with the highest values belonging to the lesioned groups but with no significant differences between groups: (c) for the entire red nucleus, 1.98%, 12.74% ($P < 0.05$) and 6.76% for the intact, fetal- and neonatal-lesioned cats respectively. In the lesioned cats, the topography of the distribution of the axon terminals was bilaterally the same as in the controls. In conclusion, only the red nucleus of the frontal-lesioned cats showed an increased crossed innervation from the remaining sensorimotor cortex but this was relatively weak and statistically significant only for the fetal-lesioned animals. These results as well as the literature suggest that: (a) the crossed corticorubral projections in fetal cats may represent true reinnervation (i.e., newly originated, no preexisting terminals); (b) the relative paucity of the crossed projections in the present cats as compared to the extensive reorganization of subcortical terminals seen after cerebral hemispherectomy (our original postnatal lesion model) may be due to the much smaller size of the present cortical lesion which presumably induced only a limited amount of subcortical nuclear deafferentation.

Descriptors: brain mapping, caudate nucleus, frontal lobe, red nucleus, somatosensory cortex, thalamus, animals, newborn, cats, embryonic and fetal development, laterality, microinjections, neural pathways, somatosensory cortex embryology, somatosensory cortex growth and development.

Cartee, L.A. (2000). **Evaluation of a model of the cochlear neural membrane. II: comparison of model and physiological measures of membrane properties measured in response to intrameatal electrical stimulation.** *Hearing Research* 146(1-2): 153-66. ISSN: 0378-5955.

Abstract: This study examines existing equation sets describing neural membrane ionic currents, such as the Hodgkin-Huxley (1952) equations, used to define the membrane currents in a numerical model of the auditory neuron and determines their adequacy for modeling the summation and refraction properties of auditory neurons in response to electrical stimulation. Specifically, the summation and refraction time constants of each equation set are compared to physiological measures of these time constants. Since previous studies have shown the cell body and peripheral process of the auditory neuron may influence the measurement of neural time constants, the physiological time constants used for comparison are those which were recorded using intrameatal electrical stimulation. The intrameatal electrode should stimulate the neuron in an area where the axon has a uniform geometry. Accordingly, the neural model used to duplicate this experiment was also of uniform geometry. Of the membrane equation sets evaluated, none was clearly superior for modeling both the refraction and summation properties of the auditory neuron, though some equation sets were capable of accurately modeling either the refraction or the summation properties, provided operating temperatures were

adjusted to provide appropriate kinetics.
Descriptors: cochlea innervation, cochlear nerve, models, neurological, auditory threshold, cats, cell membrane, cochlear implants, electric stimulation, evaluation studies, evoked potentials, auditory, brain stem, neurons.

Carter, T.J. (2004). **Modelling management strategies to improve cat welfare.** *Animal Welfare* 13(Supplement): S239. ISSN: 0962-7286.
NAL Call Number: HV4701 .A557
Descriptors: population studies, models and simulations, computational biology, matrix population model, mathematical and computer techniques, neutering, animal welfare, population growth, population management.

Chiu, Y.T., Y.T. Chen, N.N. Lin, C.C. Cheng, C.L. Gong, F.C. Cheng, S. Hsu, C.S. Chi, and Y.C. Fu (2005). **Sympathetic activity and myocardial damage after stimulation of dorsal medulla and vagotomy in a novel animal model.** *International Journal of Cardiology* 100(3): 401-7. ISSN: 0167-5273.
Abstract: Many kinds of brain lesions cause sympathetic hyperexcitation and myocardial damage. A novel animal model was developed for the correlation of sympathetic excitation with ventricular dysfunction and myocardial damage. Six cats (3.23+/-0.26 kg) under intraperitoneal urethane-chloralose anesthesia were artificially ventilated and bilaterally vagotomized. They underwent an electrical stimulation of unilateral dorsal medulla for 180 min (monopolar square-wave pulses, 10 Hz, 10 V, 0.5 ms). Mean blood pressure, heart rate plasma concentration of norepinephrine and left ventricular size and ejection fraction were measured at 0, 5, 15, 30, 60, 90, 120 and 180 min. Mean blood pressure (mm Hg), heart rate (beats/min) and norepinephrine (pg/ml) increased abruptly from 128+/-15, 203+/-22 and 353+/-123 to 234+/-26, 240+/-13 and 4727+/-2159 at 5 min after electrical stimulation (all $p<0.01$). The left ventricles showed significant dilatation (end-diastolic diameter: from 1.35+/-0.13 to 1.84+/-0.21 cm, $p=0.006$; end-systolic diameter: from 0.65+/-0.20 to 1.54+/-0.24 cm, $p=0.002$) and hypokinesia (ejection fraction: from 88.9+/-6.4% to 37.3+/-8.7%, $p<0.001$). Cardiac pathology revealed myocardial hemorrhage, cardiomyocyte apoptosis and coagulative myocytolysis (contraction band necrosis), characterized by sarcoplasmic coagulation, granulation and disruption. In conclusions, the present experiment develops a novel animal model in which stimulation of the pressor area in the dorsal medulla in vagotomized cats produces sympathetic hyperexcitation accompanied with myocardial dysfunction and damage. This model may be applicable for studying protective effect of drugs on myocardial dysfunction and damage caused by sympathetic hyperexcitation occurring in brain diseases.
Descriptors: cats, myocardial damage, dorsal medulla, vagotomy, electrical stimulation .

Chong, N.H., R.A. Alexander, K.C. Barnett, A.C. Bird, and P.J. Luthert (1999). **An immunohistochemical study of an autosomal dominant feline rod/cone dysplasia (Rdy cats).** *Experimental Eye Research* 68(1): 51-7. ISSN: 0014-4835.
Descriptors: apoptosis, photoreceptors, vertebrate, retina, retinal degeneration, animals, newborn, cats, cell count, animal disease models, glial fibrillary acidic protein, immunohistochemistry, in situ nick end labeling, opsin, photoreceptors, vertebrate, retina, retinal degeneration, rods retina, synaptopHysin, time factors.

Chong, N.H., R.A. Alexander, L. Waters, K.C. Barnett, A.C. Bird, and P.J. Luthert (1999). **Repeated injections of a ciliary neurotrophic factor analogue leading to long-term photoreceptor survival in hereditary retinal degeneration.** *Investigative Ophthalmology and Visual Science* 40(6): 1298-305. ISSN: 0146-0404.
Abstract: PURPOSE: To determine whether ciliary neurotrophic factor (CNTF) or brain-derived neurotrophic factor (BDNF) treatment leads to long-term photoreceptor survival in hereditary retinal degeneration. METHODS: An autosomal dominant feline model of rod-cone dystrophy was used throughout the study with two normal animals. In the first experiment, intravitreal injections of a human CNTF analogue (Axokine; Regeneron Pharmaceuticals, Tarrytown, NY) were administered to one eye of each animal (n = 10) beginning on postnatal day 10 and were repeated every 4 weeks. Clinical and histopathologic examinations were performed at 5.5, 9.5, and 13.5 weeks. In the second experiment, animals (n = 17) were randomly assigned to receive intravitreal injections of either Axokine (at half the initial dose), human BDNF, or the vehicle for Axokine to one eye at 5.5 weeks. The same therapy was repeated every 4 weeks in each group. Clinical and histopathologic examinations were performed at 9.5, 13.5, and 17.5 weeks. Photoreceptor survival was assessed by cell counting. Apoptotic cells were identified by morphology and a modified TdT-dUTP terminal nick-end labeling (TUNEL) technique. In the third experiment, two normal animals were treated with Axokine as in the first experiment. Glial fibrillary acidic protein ((GFAP) immunohistochemistry was performed to assess glial cell reaction. RESULTS: In the first two experiments, Axokine significantly prolonged photoreceptor survival ($P < 0.01$) and reduced the presence of apoptotic cells ($P < 0.05$) and TUNEL-positive cells ($P < 0.05$). In the second experiment, results in the the BDNF- and sham-injected eyes were not significantly different from those in the untreated eyes. Minimal posterior subcapsular cataract and mild retinal folds were found in all Axokine-treated eyes in both dystrophic and normal animals. These complications were milder in the second experiment when injections were started later and at a reduced dose. GFAP immunolabeling was also increased in all Axokine-treated eyes. CONCLUSIONS: Axokine, but not BDNF, delays photoreceptor loss in this hereditary retinal degeneration. Repeated injections maintain the protective effect.
Descriptors: ciliary neurotropHic factor, nerve tissue proteins, photoreceptors, vertebrate, photoreceptors, vertebrate, retinal degeneration, retinal degeneration, brain derived neurotropHic factor, cataract, cats, cell count, cell survival, cell survival, glial fibrillary acidic protein, immunohistochemistry, injections, photoreceptors, vertebrate, retina, retinal degeneration, retinitis pigmentosa, retinitis pigmentosa.

Chow, J.K., H.L. Seldon, and G.M. Clark (1995). **Experimental animal model of intracochlear ossification in relation to cochlear implantation.** *The Annals of Otology, Rhinology and Laryngology* 166: 42-5. ISSN: 0003-4894.
Descriptors: cochlea, cochlear implants, ossification, heterotopic, cats, evoked potentials, auditory, brain stem, ossification, heterotopic.

Chowdhury, V., J.W. Morley, and M.T. Coroneo (2004). **Surface stimulation of the brain with a prototype array for a visual cortex prosthesis.** *Journal of Clinical Neuroscience* 11(7): 750-755. ISSN: 0967-5868.

Abstract: We are developing a neural prosthesis to electrically stimulate the visual cortex to restore basic visual perceptions to blind patients. The effects on cortical excitation of different stimulus configurations using a prototype electrode array are presented. Cats underwent a bilateral craniotomy to expose the cortex. An array for brain stimulation was placed on the surface of the right hemisphere. Cortical stimulation was undertaken in a variety of configurations while measuring the evoked responses that propagated through transcallosal pathways, at a homologous region on the contralateral hemisphere. Cortical excitation elicited by stimulation with a particular paradigm could be assessed by measuring the spatial spread and amplitudes of evoked responses in the contralateral hemisphere. Results from this transcallosal model have allowed us to examine the spatial and amplitude effects of cortical stimulation with our prototype electrode array and will aid in developing a neuroprosthesis for blind patients.
Descriptors: neural prosthesis, visual cortex, vision, blindness.

Chowdhury, V., J.W. Morley, and M.T. Coroneo (2004). **An in-vivo paradigm for the evaluation of stimulating electrodes for use with a visual prosthesis.** *The Australian and New Zealand Journal of Surgery* 74(5): 372-8. ISSN: 1445-1433.
Abstract: BACKGROUND: Electrical stimulation of the visual cortex with surface electrodes is able to elicit basic visual perceptions in blind patients. The development of a visual prosthesis for the blind will require an in-vivo model for the optimization of cortical neurostimulation with multielectrode arrays. METHODS: In anaesthetized cats a bilateral craniotomy was performed and the dura was removed to expose the cerebral cortex. A prototype stimulating electrode array was placed on a gyrus in one hemisphere, and the transcallosal evoked response (TER) to cortical stimulation by this electrode array was recorded at a homologous region in the contralateral hemisphere. RESULTS: The stimulating electrode array elicited TER of short latency (6.9 ms) in the contralateral hemisphere. Bipolar stimulation of adjacent electrodes on the array evoked similar TER regardless of the polarity of stimulation. Electrodes spread apart on the array caused higher amplitude TER than electrodes placed close together. Multielectrode stimulation evoked lower amplitude TER than bipolar stimulation. CONCLUSIONS: This transcallosal model of cortical neurostimulation is a useful method to evaluate electrode arrays and stimulation techniques in the development of a visual prosthesis.
Descriptors: electric stimulation, electrodes, implanted, visual cortex, cats, pHospHenes.

Chung, K.I., T.S. Chung, R.D. White, H.J. Weinmann, T.H. Lim, B.I. Choi, and J.H. Suh (2001). **Viable myocardium in reperfused acute myocardial infarction: rest and stress first-pass mr imaging.** *Journal of Korean Medical Science* 16(3): 294-302. ISSN: 1011-8934.
Abstract: Feasibility of identifying viable myocardium in rest and stress magnetic resonance imaging (MRI) was evaluated using 3 hr occlusion and 30 min reperfusion model of left anterior descending (LAD) coronary artery in 12 felines. At rest MRI, viable myocardium confirmed by 2,3,5-triphenyl tetrazolium chloride (TTC)-staining showed rapid signal intensity (SI) rise followed by gradual decline not significantly different from normal myocardium that the two hyperperfused regions were distinguishable only from the hypoperfused nonviable myocardium. At stress MRI, hyperemia induced perfusion change was most pronounced in normal myocardium with earlier and greater peak

enhancement followed by brisk 'washout' phase while minimally augmented enhancement in viable myocardium was still in 'washin' phase. From these findings, it was concluded that viable myocardium is identified in rest and stress MRI as redistributing hypo- perfusion compared to persistent hyper-perfusion of the normal myocardium and the persistent hypo-perfusion of the nonviable myocardium.
Descriptors: heart radiography, hyperemia radiography, myocardial infarction radiography, myocardial reperfusion injury radiography, cats, magnetic resonance imaging, stress.

Cloak, C.C., L. Chang, T. Ernst, M.C. Barr, S. Huitron Resendiz, M. Sanchez Alavez, T.R. Phillips, and S. Henriksen (2004). **Methamphetamine and AIDS: Proton magnetic resonance studies in a feline model of human disease.** *Journal of Neuroimmunology* 147(1-2): 16-20. ISSN: 0165-5728.
Abstract: Potential interactions between psychostimulant drugs and infection with feline immunodeficiency virus (FIV) on brain metabolism were evaluated. Four groups of cats were studied: control, FIV positive, methamphetamine (MA) exposed, and FIV positive plus MA exposed. Frontal gray matter, frontal white matter, and caudate brain extracts were studied with proton magnetic resonance spectroscopy (1HMRS). In the frontal white matter, FIV-infected cats showed decreases in creatine and choline, while MA-treated cats had elevated gamma-aminobutyric acid (GABA). The decreased glutamate in FIV cats normalized with MA exposure. FIV and MA both affect brain metabolites individually and combined. 1HMRS is useful for evaluating the effects of FIV and drug abuse in the brain.
Descriptors: acquired immunodeficiency syndrome, acquired immunodeficiency syndrome, brain, brain, feline immunodeficiency virus, magnetic resonance spectroscopy, methampHetamine, brain, brain, brain, cats, choline, creatine, animal disease models, infection, random allocation, gamma aminobutyric acid.

Collins, C.A. and J.E. Morgan (2003). **Duchenne's muscular dystrophy: animal models used to investigate pathogenesis and develop therapeutic strategies.** *International Journal of Experimental Pathology* 84(4): 165-72. ISSN: 0959-9673.
Abstract: Duchenne's muscular dystrophy (DMD) is a lethal childhood disease caused by mutations of the dystrophin gene, the protein product of which, dystrophin, has a vital role in maintaining muscle structure and function. Homologues of DMD have been identified in several animals including dogs, cats, mice, fish and invertebrates. The most notable of these are the extensively studied mdx mouse, a genetic and biochemical model of the human disease, and the muscular dystrophic Golden Retriever dog, which is the nearest pathological counterpart of DMD. These models have been used to explore potential therapeutic approaches along a number of avenues including gene replacement and cell transplantation strategies. High-throughput screening of pharmacological and genetic therapies could potentially be carried out in recently available smaller models such as zebrafish and Caenorhabditis elegans. It is possible that a successful treatment will eventually be identified through the integration of studies in multiple species differentially suited to addressing particular questions.
Descriptors: animal disease models, muscular dystrophy, animal, muscular dystrophy,

duchenne, dogs, gene therapy, mice, mice, inbred MDX, muscular dystrophy, animal therapy, muscular dystrophy, duchenne therapy.

Cotter, L.A., H.E. Arendt, S.P. Cass, B.J. Jian, D.F.2. Mays, O.C.J., K.A. Wilkinson, and B.J. Yates (2004). **Effects of postural changes and vestibular lesions on genioglossal muscle activity in conscious cats.** *Journal of Applied Physiology* 96(3): 923-30. ISSN: 8750-7587.
NAL Call Number: 447.8J825
Abstract: Previous studies in humans showed that genioglossal muscle activity is higher when individuals are supine than when they are upright, and prior experiments in anesthetized or decerebrate animals suggested that vestibular inputs might participate in triggering these alterations in muscle firing. The present study determined the effects of whole body tilts in the pitch (nose-up) plane on genioglossal activity in a conscious feline model and compared these responses with those generated by roll (ear-down) tilts. We also ascertained the effects of a bilateral vestibular neurectomy on the alterations in genioglossal activity elicited by changes in body position. Both pitch and roll body tilts produced modifications in muscle firing that were dependent on the amplitude of the rotation; however, the relative effects of ear-down and nose-up tilts on genioglossal activity were variable from animal to animal. The response variability observed might reflect the fact that genioglossus has a complex organization and participates in a variety of tongue movements; in each animal, electromyographic recordings presumably sampled the firing of different proportions of fibers in the various compartments and subcompartments of the muscle. Furthermore, removal of labyrinthine inputs resulted in alterations in genioglossal responses to postural changes that persisted until recordings were discontinued approximately 1 mo later, demonstrating that the vestibular system participates in regulating the muscle's activity. Peripheral vestibular lesions were subsequently demonstrated to be complete through the postmortem inspection of temporal bone sections or by observing that vestibular nucleus neurons did not respond to rotations in vertical planes.
Descriptors: consciousness, posture, tongue, vestibule, cats, pHaryngeal muscles.

Crawley, A.C., D.A. Brooks, V.J. Muller, B.A. Petersen, E.L. Isaac, J. Bielicki, B.M. King, C.D. Boulter, A.J. Moore, N.L. Fazzalari, D.S. Anson, S. Byers, and J.J. Hopwood (1996). **Enzyme replacement therapy in a feline model of Maroteaux-Lamy syndrome**. *The Journal of Clinical Investigation* 97(8): 1864-1873. ISSN: 0021-9738.
NAL Call Number: 448.8 J8295
Descriptors: disease models, recombination, mucopolysaccharidosis, enzymes, mucopolysaccharides, cats.

Crawley, A.C., K.H. Niedzielski, E.L. Isaac, R.C. Davey, S. Byers, and J.J. Hopwood (1997). **Enzyme replacement therapy from birth in a feline model of mucopolysaccharidosis type VI.** *The Journal of Clinical Investigation* 99(4): 651-62. ISSN: 0021-9738.
NAL Call Number: 448.8 J8295
Abstract: We report evidence of a dose responsive effect of enzyme replacement therapy in mucopolysaccharidosis type VI cats from birth, at the clinical, biochemical, and histopathological level. Cats treated with weekly, intravenous recombinant human N-

acetylgalactosamine-4-sulfatase at 1 and 5 mg/kg, were heavier, more flexible, had greatly reduced or no spinal cord compression, and had almost normal urinary glycosaminoglycan levels. There was near normalization or complete reversal of lysosomal storage in heart valve, aorta, skin, dura, liver, and brain perivascular cells. No reduction in lysosomal vacuolation was observed in cartilage or cornea; however, articular cartilage was thinner and external ear pinnae were larger in some treated cats. Degenerative joint changes were not obviously delayed in treated cats. Skeletal pathology was reduced, with more normalized bone dimensions and with more uniform bone density and trabecular pattern clearly visible on radiographs by 5 to 6 mo; however, differences between 1 and 5 mg/kg dose rates were not clearly distinguishable. At a dose of 0.2 mg/kg, disease was not significantly altered in the majority of parameters examined. Lysosomal storage was present in all tissues examined in the midterm mucopolysaccharidosis type VI fetus and increased rapidly in extent and severity from birth.

Descriptors: chondro 4 sulfatase, mucopolysaccharidosis vi, animals, newborn, aorta, thoracic, aorta, thoracic ultrastructure, cats, chondro 4 sulfatase, chondro 4 sulfatase, animal disease models, disease progression, glycosaminoglycans urine, injections, intravenous, mitral valve, mitral valve ultrastructure, mucopolysaccharidosis vi, mucopolysaccharidosis vi radiography.

Crawley, A.C., G. Yogalingam, V.J. Muller, and J.J. Hopwood (1998). **Two mutations within a feline mucopolysaccharidosis type VI colony cause three different clinical phenotypes.** *The Journal of Clinical Investigation* 101(1): 109-19. ISSN: 0021-9738.

NAL Call Number: 448.8 J8295

Abstract: Mucopolysaccharidosis type VI (MPS VI) is a lysosomal storage disease caused by a deficiency of N-acetylgalactosamine-4-sulfatase (4S). A feline MPS VI model used to demonstrate efficacy of enzyme replacement therapy is due to the homozygous presence of an L476P mutation in 4-sulfatase. An additional mutation, D520N, inherited independently from L476P and recently identified in the same family of cats, has resulted in three clinical phenotypes. L476P homozygotes exhibit dwarfism and facial dysmorphia due to epiphyseal dysplasia, abnormally low leukocyte 4S/betahexosaminidase ratios, dermatan sulfaturia, lysosomal inclusions in most tissues including chondrocytes, corneal clouding, degenerative joint disease, and abnormal leukocyte inclusions. Similarly, D520N/D520N and L476P/D520N cats have abnormally low leukocyte 4S/betahexosaminidase ratios, mild dermatan sulfaturia, lysosomal inclusions in some chondrocytes, and abnormal leukocyte inclusions. However, both have normal growth and appearance. In addition, L476P/D520N cats have a high incidence of degenerative joint disease. We conclude that L476P/D520N cats have a very mild MPS VI phenotype not previously described in MPS VI humans. The study of L476P/D520N and D520N/D520N genotypes will improve understanding of genotype to phenotype correlations and the pathogenesis of skeletal dysplasia and joint disease in MPS VI, and will assist in development of therapies to prevent lysosomal storage in chondrocytes.

Descriptors: mucopolysaccharidosis vi, mucopolysaccharidosis vi, mutation, arthrograpHy, cats, chondro 4 sulfatase, dermatan sulfate, animal disease models, genotype, joints, leukocytes, leukocytes, mucopolysaccharidosis vi, mucopolysaccharidosis vi radiography, pedigree, phenotype, beta n acetylhexosaminidase.

Crouser, E.D., M.W. Julian, D.V. Blaho, and D.R. Pfeiffer (2002). **Endotoxin-induced mitochondrial damage correlates with impaired respiratory activity.** *Critical Care Medicine* 30(2): 276-84. ISSN: 0090-3493.

Abstract: OBJECTIVE: This study was designed to determine whether mitochondrial function in a systemic organ is acutely impaired in a resuscitated model of sepsis (endotoxemia, lipopolysaccharide) and the relationship, if any, between this impairment and the extent of mitochondrial ultrastructural damage that occurs. DESIGN: Perspective, controlled laboratory investigation. SETTING: Animal laboratory in a university research institute. SUBJECTS: Adult male cats. INTERVENTIONS: A well-established feline model of acute endotoxemia was used wherein measures were taken to minimize tissue hypoxia. After lipopolysaccharide (3 mg/kg intravenously, n = 9) or isotonic saline vehicle (control, n = 5) administration, liver samples were obtained at 4 hrs posttreatment, and mitochondrial ultrastructure and respiratory function were assessed. Mitochondrial ultrastructural injury was graded on a scale of 0 (no injury) to 5 (severe injury), and mitochondrial respiration was evaluated by using standard techniques. MEASUREMENTS AND MAIN RESULTS: Significant mitochondrial injury was apparent by 4 hrs, but only in the lipopolysaccharide-treated group (2.5 +/- 0.2 vs. 1.3 +/- 0.2, p <.001) and despite maintenance of tissue oxygen availability. In addition, lipopolysaccharide treatment reduced the rate of state 3 (adenosine 5'-diphosphate-dependent) respiration, especially at complex IV (40% inhibition), and increased the rate of state 4 (adenosine 5'-diphosphate-independent) respiration, reflecting partial uncoupling of mitochondrial oxidative phosphorylation. Finally, a significant correlation was demonstrated between the severity of ultrastructural injury and the magnitude of mitochondrial respiratory dysfunction after lipopolysaccharide treatment and despite resuscitation efforts. CONCLUSION: Mitochondrial function is significantly impaired during acute sepsis, and this impairment is strongly associated with the extent of mitochondrial ultrastructural abnormalities present in the tissues. These findings in conjunction with those previously shown suggest that mitochondrial functional impairment may contribute to the pathogenesis of altered oxygen metabolism in systemic organs during sepsis.

Descriptors: mitochondria, liver, mitochondria, liver ultrastructure, mitochondrial diseases, oxidative phosphorylation, sepsis, cats, linear models, lipopolysaccharides, electron microscopy, oxygen, spectropHotometry.

Crouser, E.D., M.W. Julian, D.M. Weinstein, R.J. Fahy, and J.A. Bauer (2000). **Endotoxin-induced ileal mucosal injury and nitric oxide dysregulation are temporally dissociated.** *American Journal of Respiratory and Critical Care Medicine* 161(5): 1705-12. ISSN: 1073-449X.

Abstract: Despite recent investigations, the mechanisms responsible for intestinal epithelial injury during endotoxemia remain unclear. The present study tests the hypothesis that epithelial necrosis and/or apoptosis correlate with nitric oxide (NO) dysregulation in a nonischemic model of sepsis-induced ileal injury. To test this hypothesis, a well-established in situ, autoperfused, feline ileal preparation was employed. After endotoxin (lipopolysaccharide [LPS], 3 mg/ kg, intravenously; n = 9) or vehicle (control; n = 5) treatment, ileal segments were obtained at baseline, 2 and 4 h for simultaneous evaluations of cellular and mitochondrial ultrastructure, immunoprevalence

of inducible nitric oxide synthase (iNOS) and 3-nitrotyrosine (a stable biomarker of peroxynitrite), and histochemical evidence of apoptosis. Epithelial necrosis was prominent by 2 h post-LPS, despite unaltered global ileal tissue oxygen content, blood volume, and blood flow. Significant evidence of apoptosis and increases in the immunoprevalence of iNOS and 3-nitrotyrosine were not evident until 4 h post-LPS. These results suggest that the early ileal mucosal necrosis may be due to LPS-induced activation of inflammatory pathways and/or microcirculatory disturbances, whereas NO dysregulation may participate in later events, including protein nitration and epithelial apoptosis.
Descriptors: ileum, intestinal mucosa, nitric oxide, sepsis, apoptosis, cats, ileum, ileum ultrastructure, immunohistochemistry, intestinal mucosa, lipopolysaccharides, mitochondria ultrastructure, multiple organ failure, multiple organ failure, multiple organ failure, necrosis, nitric oxide synthase analysis, oxygen consumption, sepsis, sepsis, tyrosine, tyrosine analysis.

Crouser, E.D., M.W. Julian, and P.M. Dorinsky (1999). **Ileal vo2-do2 alterations induced by endotoxin correlate with severity of mitochondrial injury**. *American Journal of Respiratory and Critical Care Medicine* 160(4): 1347-1353. ISSN: 1073-449X.
Descriptors: infection, respiratory system, respiration, mitochondrial injury, injury, sepsis, bacterial disease, endotoxin, in situ, feline ileum, cell injury.

Crowe, M.J., Z.P. Sun, J.H. Battocletti, M.Y. Macias, F.A. Pintar, and D.J. Maiman (2003). **Exposure to pulsed magnetic fields enhances motor recovery in cats after spinal cord injury.** *Spine* 28(24): 2660-6. ISSN: 0362-2436.
Abstract: STUDY DESIGN: Animal model study of eight healthy commercial cats was conducted. OBJECTIVE: To determine whether pulsed electromagnetic field (PMF) stimulation results in improvement of function after contusive spinal cord injury in cats. SUMMARY OF BACKGROUND DATA: PMF stimulation has been shown to enhance nerve growth, regeneration, and functional recovery of peripheral nerves. Little research has been performed examining the effects of PMF stimulation on the central nervous system and no studies of PMF effects on in vivo spinal cord injury (SCI) models have been reported. MATERIALS AND METHODS: PMF stimulation was noninvasively applied for up to 12 weeks to the midthoracic spine of cats with acute contusive spinal cord injury. The injury was produced using a weight-drop apparatus. Motor functions were evaluated with the modified Tarlov assessment scale. Morphologic analyses of the injury sites and somatosensory-evoked potential measurements were conducted to compare results between PMF-stimulated and control groups. RESULTS: There was a significant difference in locomotor recovery between the PMF-stimulated and control groups. Although not statistically significant, PMF-stimulated spinal cords demonstrated greater sparing of peripheral white matter and smaller lesion volumes compared to controls. Somatosensory-evoked potential measurements indicated that the PMF-stimulated group had better recovery of preinjury waveforms than the control group; however, this observation also was not statistically significant because of the small sample size. CONCLUSIONS: This preliminary study indicates that pulsed magnetic fields may have beneficial effects on motor function recovery and lesion volume size after acute spinal cord injury.

Descriptors: electromagnetic fields, spinal cord injuries therapy, acute disease, cats, evoked potentials, somatosensory, spinal cord injuries, spinal cord injuries, thoracic vertebrae, walking.

Curran, M.A., M.S. Ochoa, R.D. Molano, A. Pileggi, L. Inverardi, N.S. Kenyon, G.P. Nolan, C. Ricordi, and E.S. Fenjves (2002). **Efficient transduction of pancreatic islets by feline immunodeficiency virus vectors**. *Transplantation* 74(3): 299-306. ISSN: 0041-1337.
Descriptors: endocrine system, immune system, Diabetes Mellitus, pancreas, metabolic disease, feline immunodeficiency virus, immune system disease, islet cell survival, genetic engineering, transduction, green fluorescent protein.

D'Cruz, O.J., B. Waurzyniak, and F.M. Uckun (2004). **Antiretroviral spermicide WHI-07 prevents vaginal and rectal transmission of feline immunodeficiency virus in domestic cats.** *Antimicrobial Agents and Chemotherapy* 48(4): 1082-8. ISSN: 0066-4804.
Abstract: WHI-07 [5-bromo-6-methoxy-5,6-dihydro-3'-azidothymidine-5'-(p-bromophenyl)-methoxy alaninyl phosphate] is a novel dual-function aryl phosphate derivative of zidovudine with potent anti-human immunodeficiency virus (HIV) and spermicidal activities. WHI-07 was active against the feline immunodeficiency virus (FIV). This study evaluated whether topical application of WHI-07 as a single agent and in combination with an organometallic vanadium complex, vanadocene dithiocarbamate (VDDTC), via a nontoxic gel microemulsion can block vaginal as well as rectal transmission of feline AIDS (FAIDS) by chronically FIV-infected feline T cells in the natural host model. Genital transmission of FIV was monitored in recipient cats by the appearance of viral antibodies to FIV Gag proteins and by virus isolation of blood leukocytes as measured by FIV reverse transcriptase activity and FIV-specific PCR. Microbicidal activity was considered effective when the treated cats did not show evidence of FIV infection for up to 18 weeks postchallenge. An aggregate analysis of 46 specific-pathogen-free cats revealed that a single dose of the infected cell inoculum efficiently transmitted FIV infection when delivered into the vagina (100%) or rectum (66%). Pretreatment of the vagina or rectum with 2% WHI-07 alone or in combination with 0.25% VDDTC significantly ($P = 0.004$) protected cats from genital transmission by the highly infectious inoculum (7 million FIV(Bangston)-infected feline T cells). Collectively, using the vaginal and rectal transmucosal model for FAIDS, our studies demonstrated that WHI-07 either alone or in combination with a vanadocene has clinical potential for the development of a dual-function anti-HIV microbicide for sexually active women.
Descriptors: antiviral agents, feline acquired immunodeficiency syndrome, feline acquired immunodeficiency syndrome transmission, feline immunodeficiency virus, rectum, retroviridae, spermatocidal agents, thymidine monophosphate, thymidine monophosphate, vagina, zidovudine, zidovudine, cats,, combination, emulsions, gels, spermatocidal agents, thymidine monophosphate, vanadium compounds, zidovudine.

da Silva, M.C., J.M. Drake, C. Lemaire, A. Cross, and U.I. Tuor (1994). **High-energy phosphate metabolism in a neonatal model of hydrocephalus before and after shunting.** *Journal of Neurosurgery* 81(4): 544-53. ISSN: 0022-3085.
Abstract: The authors studied the effects of hydrocephalus on the high-energy phosphate metabolism of the brain and the impact of ventriculoperitoneal (VP) shunting

on these changes in an experimental model of hydrocephalus. High-energy phosphate metabolism was analyzed using in vivo magnetic resonance (MR) imaging and 31P MR spectroscopy. Hydrocephalus was produced in 34 1-week-old kittens by cisternal injection of 0.05 ml of a 25% kaolin solution. Sixteen litter mates were used as controls. A VP shunt with a distal slit valve was implanted in 17 of the 34 hydrocephalic animals 10 days after induction of hydrocephalus. Both MR imaging and 31P MR spectroscopy were obtained 1 and 3 weeks after either kaolin or distilled water injection. Untreated hydrocephalic animals had marked dilatation of the lateral ventricles and periventricular edema. Magnetic resonance spectroscopy showed a significant decrease in the energy index ratio of phosphocreatine (PCR): inorganic phosphate (PI) and an increase in the PI:adenosine triphosphate (ATP) ratio. There was a direct correlation between the decrease in the energy index and ventricular size. Compared with preoperative scans, shunted animals showed no periventricular edema, and the ventricles decreased in size. Also, PCR:PI and PI:ATP ratios were within the levels of controls. This study suggests that neonatal hydrocephalus results in a mild hypoxic/ischemic insult that is treatable by VP shunting.
Descriptors: adenosine triphosphate, hydrocepHalus, hydrocepHalus surgery, phosphates, phosphocreatine, ventriculoperitoneal shunt, animals, newborn, cats, animal disease models, magnetic resonance spectroscopy.

Dahlem, M.A., R. Engelmann, S. Lowel, and S.C. Muller (2000). **Does the migraine aura reflect cortical organization?** *European Journal of Neuroscience* 12(2): 767-70. ISSN: 0953-816X.
Abstract: Individuals suffering from classical migraine report an astonishing diversity of migraine auras. A frequently reported symptom is a visual hallucination known as fortification illusion (FI). Here we demonstrate that the typical zig-zag pattern of the FI can be reproduced using experimental data of orientation maps of the primary visual cortex (V1) assuming that a continuous excitation front propagates across V1. We put forward a model in which the cortical neurons within this excitation wave are activated sufficiently to contribute to conscious perception. It is shown that the discontinuous repetitive nature of the zig-zag pattern of the FI can reflect the specific layout of visual cortical orientation maps. Additionally, dynamic features of the FI are predicted based on our model.
Descriptors: classic migraine, scotoma, spreading cortical depression, visual cortex, brain mapping, cats, electrophysiology, epilepsy, models, neurological.

Dawson, A.N., B. Walser, M. Jafarzadeh, and C.L. Stebbins (2004). **Topical analgesics and blood pressure during static contraction in humans**. *Medicine and Science in Sports and Exercise* 36(4): 632-638. ISSN: 0195-9131.
Descriptors: cardiovascular system, anlgesic balm, cats, pressure, brachial artery flow, heart rate, static contraction.

de Groot Mijnes, J.D., J.M. van Dun, R.G. van der Most, and R.J. de Groot (2005). **Natural history of a recurrent feline coronavirus infection and the role of cellular immunity in survival and disease.** *Journal of Virology* 79(2): 1036-44. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Abstract: We describe the natural history, viral dynamics, and immunobiology of feline

infectious peritonitis (FIP), a highly lethal coronavirus infection. A severe recurrent infection developed, typified by viral persistence and acute lymphopenia, with waves of enhanced viral replication coinciding with fever, weight loss, and depletion of CD4+ and CD8+ T cells. Our combined observations suggest a model for FIP pathogenesis in which virus-induced T-cell depletion and the antiviral T-cell response are opposing forces and in which the efficacy of early T-cell responses critically determines the outcome of the infection. Rising amounts of viral RNA in the blood, consistently seen in animals with end-stage FIP, indicate that progression to fatal disease is the direct consequence of a loss of immune control, resulting in unchecked viral replication. The pathogenic phenomena described here likely bear relevance to other severe coronavirus infections, in particular severe acute respiratory syndrome, for which multiphasic disease progression and acute T-cell lymphopenia have also been reported. Experimental FIP presents a relevant, safe, and well-defined model to study coronavirus-mediated immunosuppression and should provide an attractive and convenient system for in vivo testing of anticoronaviral drugs.
Descriptors: feline infectious peritonitis, cd8 positive t lymphocytes, cats, coronavirus, feline, feline infectious peritonitis mortality, feline infectious peritonitis, cellular immunity, lymphopenia, virus replication, weight loss.

de Groote, D.H.F., R. Ducatelle, and L. Devriese (1997). **Helicobacter spp. en gastro-intestinale problemen bij dieren [Helicobacter spp. and gastrointestinal diseases in animals]**. *Vlaams Diergeneeskundig Tijdschrift* 66(1): 8-13. ISSN: 0303-9021.
NAL Call Number: 41.8 V84
Abstract: The genus Helicobacter is a relatively new genus that thanks his origin to the discovery of Helicobacter pylori in the human stomach in 1984 by Marshall and Warren. A world-wide scientific interest for H. pylori emerged when the relationship between the presence of this bacterium and the occurrence of peptic ulcers, chronic gastritis and gastric carcinoma was proven. In the search of a suitable animal model, several additional Helicobacter spp. were found in animals (f.i. in cats, dogs, pigs, cows, mice, rats, ferrets, cheetahs, monkeys and chickens). Recent publications have raised the possibility that these animal Helicobacter spp. could also have a pathogenic significance in the onset of gastro-intestinal diseases. Further research is needed to elucidate this issue.This article aims to give an overview on the literature about this subject.
Descriptors: omestic animals, pet animals, bacterioses, gastrointestinal agents, human diseases, zoonoses, Helicobacter.
Language of Text: Dutch with summaries in English and Dutch.

De Maria, R., M. Olivero, S. Iussich, M. Nakaichi, T. Murata, B. Biolatti, and M.F. Di Renzo (2005). **Spontaneous feline mammary carcinoma is a model of HER2 overexpressing poor prognosis human breast cancer.** *Cancer Research* 65(3): 907-12. ISSN: 0008-5472.
NAL Call Number: 448.8 C16
Abstract: Companion animal spontaneous tumors are suitable models for human cancer, primarily because both animal population and the tumors are genetically heterogeneous. Feline mammary carcinoma (FMC) is a highly aggressive, mainly hormone receptor-negative cancer, which has been proposed as a model for poor

prognosis human breast cancer. We have identified and studied the feline orthologue of the HER2 gene, which is both an important prognostic marker and therapeutic target in human cancer. Feline HER2 (f-HER2) gene kinase domain is 92% similar to the human HER2 kinase. F-HER2-specific mRNA was found 3- to 18-fold increased in 3 of 3 FMC cell lines, in 1 of 4 mammary adenomas and 6 of 11 FMC samples using quantitative reverse transcription-PCR. Western blot showed that an anti-human HER2 antibody recognized a protein comigrating with the human p185HER2 in FMC cell lines. The same antibodies strongly stained 13 of 36 FMC archival samples. These data show that feline HER2 overexpression qualifies FMC as homologous to the subset of HER2 overexpressing, poor prognosis human breast carcinomas and as a suitable model to test innovative approaches to therapy of aggressive tumors.
Descriptors: breast neoplasms, breast neoplasms, genes, erbb 2, receptor, erbb 2 biosynthesis, breast neoplasms, breast neoplasms, cats, cell line, tumor, animal disease models, immunohistochemistry, mammary glands, animal, prognosis, RNA, messenger biosynthesis, RNA, messenger, receptor, erbb 2, reverse transcriptase polymerase chain reaction.

DeBoer, D.J. and K.A. Moriello (1994). **Development of an experimental model of Microsporum canis infection in cats.** *Veterinary Microbiology* 42(4): 289-295. ISSN: 0378-1135.
NAL Call Number: SF601. V44
Descriptors: cats, microsporum, ringworm, dermatomycoses, deuteromycotina, fungi, infectious diseases, mycoses, organic diseases, skin diseases.

Delgado Garcia, J.M., A. Gruart, and J.A. Trigo (2003). **Physiology of the eyelid motor system.** *Annals of the New York Academy of Sciences* 1004: 1-9. ISSN: 0077-8923.
NAL Call Number: 500 N484
Abstract: The eyelid motor system represents an excellent experimental model for the study of reflex and learned motor responses. Eyelid responses can be recorded quantitatively with the search coil in a magnetic-field technique. Stimuli able to evoke reflex blinks (air puffs, flashes of light, tones) can also be controlled quantitatively. Eyelid movements can be classified as spontaneous, passive (such as those following eye saccades), reflex, and acquired with classical conditioning procedures. Information is available regarding the firing activity of brainstem motoneuronal pools (abducens, accessory abducens, and facial motoneurons) involved in these types of eyelid response. In particular, facial motoneurons present different encoding properties for the generation of reflex against learned eyelid responses. In cats, accessory abducens motoneurons are involved only in reflex (but not in learned) blinks. The recent description of the complete organization of premotoneuronal pathways related to eyelid motorics opens new experimental possibilities for the study of this particular motor system.
Descriptors: eyelids, motor neurons, ocular, abducens nerve, blinking, conditioning, eyelid, eyelids innervation, oculomotor muscles innervation, oculomotor muscles, proprioception.

Destexhe, A., D. Contreras, T.J. Sejnowski, and M. Steriade (1994). **A model of spindle rhythmicity in the isolated thalamic reticular nucleus.** *Journal of Neurophysiology* 72(2): 803-18. ISSN: 0022-3077.

Abstract: 1. The oscillatory properties of the isolated reticular (RE) thalamus were modeled with the use of compartmental models of RE cells. Hodgkin-Huxley type kinetic models of ionic channels were derived from voltage- and current-clamp data from RE cells. Interactions between interconnected RE cells were simulated with the use of a kinetic model of gamma-aminobutyric acid (GABA) inhibitory synapses. 2. The intrinsic bursting properties of RE cells in the model were due to the presence of a low-threshold Ca2+ current and two Ca(2+)-activated currents. The properties of these model RE cells were compared with RE neurons recorded intracellularly in vivo in cats. 3. Model RE cells densely interconnected with GABAA synapses produced synchronous oscillations at a frequency close to that of spindles (7-14 Hz). Networks of RE neurons organized in a two-dimensional array with only proximal connectivity also exhibited synchronized oscillations in the spindle range. In addition, the proximally connected network showed periods of high and low synchronicity, giving rise to waxing and waning oscillations in the population of RE cells. 4. The spatiotemporal behavior of the network was investigated during waxing and waning oscillations. The waxing and waning emerged as an alternation between periods of desynchronized and synchronized activity, corresponding to periods of irregular and coherent spatial activity. During synchronized periods, the network displayed propagating coherent waves of synchronous activity that had a tendency to form spirals. 5. Networks of model RE neurons fully connected through GABAB synapses exhibited perfectly synchronous oscillations at lower frequencies (0.5-1 Hz), but two-dimensional networks with proximal GABAB connectivity failed to synchronize. 6. These simulations demonstrate that networks of model neurons that include the main intrinsic currents found in RE cells can generate waxing and waning oscillatory activity similar to the spindle rhythmicity observed in the isolated RE nucleus in vivo. The model reveals the interplay between the intrinsic rhythmic properties of RE cells and the fast synaptic interactions in organizing synchronized rhythmicity.

Descriptors: ion channels, neural networks computer, synaptic transmission, thalamic nuclei, afferent pathways, calcium channels, cats, cerebral cortex, electroencephalography, membrane potentials, nerve net, neural inhibition, potassium channels, receptors, gaba b, sleep stages, synapses, gamma aminobutyric acid.

Dithmar, S., D.M. Albert, and H.E. Grossniklaus (2000). **Animal models of uveal melanoma.** *Melanoma Research* 10(3): 195-211. ISSN: 0960-8931.

Abstract: Many attempts have been made to develop a suitable animal model to study more effectively the aetiology, pathogenesis, diagnosis and therapy of intraocular (uveal) melanoma. Uveal melanoma may spontaneously occur in some animals, including dogs, cats, horses, rats, mice, birds and fish. The histological features, metastatic behaviour and unpredictable nature of occurrence of these uncommon spontaneous tumours detract from their suitability as a model. Several methods have been developed to induce intraocular melanoma chemically or by radiation in laboratory animals. Some of these induced tumours resemble human uveal melanoma, although the majority originate from the retinal pigment epithelium. Uveal proliferations have been biologically induced by feline leukaemia/sarcoma virus and simian virus 40, although the presence of virus in tumour cells and extraocular tumours resulting from shed virus detract from the utility of this model. Inoculation of tissue culture hamster, murine or human melanoma cells into

animal eyes has the advantage that the inoculation site and size of inoculum can be controlled. Disadvantages include the immune suppression necessary for tumour growth in some models as well as the fact that many of the melanoma cell lines are of cutaneous origin. Transgenic murine models have been developed using the promoter region of the tyrosinase gene to target expression of oncogenes in melanin-producing cells. Spontaneous intraocular pigmented tumours and distant metastases may occur, although many, if not all, of the intraocular tumours arise in the retinal pigment epithelium.
Descriptors: animal disease models, melanoma, uveal neoplasms, cats, chick embryo, hamsters, mice, transgenic, neoplasm transplantation, rabbits.

Dolgikh, V.G. and V.K. Reshetniak (1994). **Povedencheskie priznaki neiropaticheskoi boli u koshek vsledstvie kompressii infraorbital'nogo nerva. [Behavioral signs of neuropathic pain in cats due to compression of the infraorbital nerve]**. *Patologicheskaia Fiziologiia i Eksperimental'Naia Terapiia*(3): 13-4. ISSN: 0031-2991.
Abstract: The changes in behavioral reactions were studied in cats after incomplete compression of the infraorbital nerve by means of two ligatures as a model of trigeminal neuropathy. It was found that there appeared a behaviour protective the damaged side of the face, sudden standstills of the animals which threw their head back and raised their anterior paws to the face, as well as inhibition of motor activity. Decreases in the nociceptive threshold and the threshold of emotionally affective responses to lip electrostimulation as the sensory threshold increased. These behavioral changes are regarded as signs of spontaneous pain and hyperalgesia in animals with nerve compression, and the used model is considered to be adequate for studying the mechanisms of neuropathic pain.
Descriptors: animal behavior, nerve compression syndromes psychology, orbit innervation, pain psychology, cats.
Language of Text: Russian.

Dominy, B.N. and C.L.I. Brooks (1999). **Methodology for protein-ligand binding studies: application to a model for drug resistance, the hiv/fiv protease system**. *Proteins* 36(3): 318-331. ISSN: 0887-3585.
NAL Call Number: QP551.P698
Descriptors: enzymology, drug resistance, empirical free energy function, validation, protein ligand binding, human immunodeficiency virus feline immunodeficiency virus protease system, model system.

Doppenberg, E.M., J.C. Watson, R. Bullock, M.J. Gerber, A. Zauner, and D.J. Abraham (1997). **The rationale for, and effects of oxygen delivery enhancement to ischemic brain in a feline model of human stroke.** *Annals of the New York Academy of Sciences* 825: 241-57. ISSN: 0077-8923.
NAL Call Number: 500. N484
Abstract: Reduced brain tissue oxygenation is frequently seen in severe head injury and after subarachnoid hemorrhage, and this is considered a major cause of secondary ischemic brain injury. In fact, in a previous study, we found a tight correlation between low brain tissue oxygen tension and poor outcome. Therefore, we tested the hypothesis that an allosteric modifier of hemoglobin, which improves oxygen transport to tissue, could reduce the size of an acute infarct in a feline model of human stroke. This

compound produces a shift in the hemoglobin dissociation curve to the right and therefore facilitates the unloading of oxygen during low oxygen tension. Seventeen adult cats were studied. Ischemic stroke was induced through a transorbital, permanent, middle cerebral artery occlusion. Seven animals received saline, and 10 received the allosteric Hb modifier RSR-13. Three different endpoints were used to determine the effect of the allosteric modifier. Delta p50 values were measured in the arterial blood; the intra-infarct oxygen tension was measured, and finally, the volume of the infarct was assessed using TTC staining. Mean delta p50 changes varied from 10.4 +/- 9.2 mmHg up to 15.0 +/- 6.8 mmHg. Mean intra-infarct oxygen tension was 27 +/- 6 mmHg for the control group and 33 +/- 7 mmHg for the drug-treated animals. The mean infarct size (measured as percentage of hemisphere volume) in the control group was 32 +/- 9% and for the RSR-13 animals 22 +/- 10% ($p < 0.05$). A definitive trend towards improvement in brain oxygen tension was seen, such that animals pretreated with RSR-13 showed a higher infarct oxygen tension. Infarct size was significantly reduced in the drug group. Therefore, RSR-13 is potentially beneficial in the treatment of brain ischemia. Since human studies with this compound are already completed, and other compounds which increase oxygen delivery, such as perfluorocarbons, are already being evaluated, it is likely that oxygen delivery enhancement will rapidly become the first 'neuroprotective' modality, employed in patients with severe brain injury, stroke and subarachnoid hemorrhage.

Descriptors: aniline compounds, brain, brain ischemia, cerebral hemorrhage, oxygen, oxygen consumption, propionic acids, adult, aged, brain, brain injuries, brain injuries radiography, brain injuries surgery, brain ischemia, cats, cerebral hemorrhage radiography, cerebral hemorrhage surgery, cerebral infarction, cerebral infarction, clofibrate, animal disease models, hematoma, subdural, hematoma, subdural radiography, hematoma, subdural surgery, oxyhemoglobins, tomography, x ray computed.

Drici, M.D., W.X. Wang, X.K. Liu, R.L. Woosley, and D.A. Flockhart (1998). **Prolongation of QT interval in isolated feline hearts by antipsychotic drugs.** *Journal of Clinical Psychopharmacology* 18(6): 477-81. ISSN: 0271-0749.

Abstract: Some antipsychotic drugs have been found to prolong the QT interval on electrocardiographic (ECG) recordings, a phenomenon which, when severe, may facilitate the occurrence of complex ventricular arrhythmias such as torsade de pointes. However, the effects of these drugs on the cardiac repolarization process have not been evaluated extensively. This study was designed to examine the potency of five antipsychotic drugs in lengthening the QT interval of the perfused feline heart: haloperidol, risperidone, sertindole, clozapine, and olanzapine. The hearts were infused with increasing concentrations of drugs (0.1-20 micromol/L) for 40-minute intervals at each concentration. ECG recordings were made, with signals amplified and data recorded on a strip chart recorder. Four representative beats from each set of three signal recordings were chosen for QT interval measurement. Our data indicated that all tested drugs prolonged the QT interval in a concentration-dependent manner ($p < 0.01$). Haloperidol and risperidone were significantly more potent than sertindole, clozapine, and olanzapine ($p < 0.001$). At a concentration of 0.5 micromol/L over a 40-minute infusion interval, haloperidol lengthened the interval by 26.2+/-0.7%, risperidone by 19.4+/-2.2%, and sertindole by 8.9+/-3.5% ($p < 0.05$ compared with baseline);

clozapine and olanzapine were less potent. Although species differences may limit extrapolation of our findings to humans, the cardiac potassium channels of felines clearly resemble those of humans. This model may serve as the basis for further studies of drug-induced prolongation of the QT interval and precipitation of ventricular arrhythmias.
Descriptors: antipsychotic agents, electorcardiography, heart, analysis of variance, antipsychotic agents, antipsychotic agents, cats, clozapine, haloperidol, heart, imidazoles, indoles, risperidone.

Eckhorn, R., A. Stett, T. Schanze, F. Gekeler, H. Schwahn, E. Zrenner, M. Wilms, M. Eger, and L. Hesse (2001). **Physiologische Funktionsprufungen von Retinaimplantaten an Tiermodellen [Physiological functional evaluation of retinal implants in animal models]**. *Der Ophthalmologe Zeitschrift Der Deutschen Ophthalmologischen Gesellschaft* 98(4): 369-375. ISSN: 0941-293X.
Abstract: Retinal implants can--by electrical stimulation--create visual impressions in people with certain kinds of degenerative retinal diseases (e.g. Retinitis Pigmentosa). Electrically evoked potentials in the retina must be transferred into the visual cortex in an orderly manner, a prerequisite for any kind of form- and movement-perception. In the current developmental stage the difficult investigations are performed in various animal models: isolated retinae of intact chicken and of RCS-rats (a model for Retinitis Pigmentosa), as well as in anesthetised rabbits, pigs and cats with intact retinae. Our investigations show that spatially selective ganglion-cell responses can be recorded following focal electrical stimulation, in healthy and as well in degenerated retinae. Registration of activities in area 17 of the visual cortex demonstrate that electrical retinal stimulation can indeed activate it.
Descriptors: animal disease models, implants, microcomputers, microelectrodes, prosthesis implantation, retina surgery, retinal degeneration rehabilitation, visual cortex, chickens, evoked potentials, visual, prosthesis design, rabbits, rats, retina, retinal degeneration, swine, synaptic transmission, visual pathways.
Language of Text: German.

Elder, J.H. and T.R. Phillips (1995). **Feline immunodeficiency virus as a model for development of molecular approaches to intervention strategies against lentivirus infections.** *Advances In Virus Research* 45: 225-247. ISSN: 0065-3527.
NAL Call Number: 448.8 Ad9
Descriptors: lentivirinae, mankind, herpetoviridae, models, genomes, animal viruses, proteins, nucleotide sequence, chemical composition, genomes, retroviridae, viruses, long term repeats, open reading frames, human immunodeficiency virus, disease models, amino acid sequences, comparisons .

English, R.V., P. Nelson, C.M. Johnson, M. Nasisse, W.A. Tompkins, and M.B. Tompkins (1994). **Development of clinical disease in cats experimentally infected with feline immunodeficiency virus.** *The Journal of Infectious Diseases* 170(3): 543-52. ISSN: 0022-1899.
NAL Call Number: 448.8 J821
Abstract: Cats naturally infected with feline immunodeficiency virus (FIV) develop an AIDS-like syndrome whereas experimentally infected cats do not. To investigate the role of cofactors in the development of this disease in cats, 7 specific pathogen-free (SPF) and

12 random-source (RS) cats were infected with FIV. Over 4 years, infected cats developed similar phenotypic and functional immune abnormalities characterized by early and chronic inversion of CD4+:CD8+ cell ratios and significantly decreased mitogen responses compared with controls. Beginning 18-24 months after infection, 10 RS cats developed chronic clinical disease typical of feline AIDS, including stomatitis and recurrent upper respiratory disease; 4 SPF cats also developed chronic clinical disease, 2 with neurologic disease and 2 with B cell lymphomas. Thus, immunologic background is important in the type of disease that develops in cats infected with FIV, and FIV represents a promising animal model for studying the immunopathogenesis of AIDS in humans.

Descriptors: feline acquired immunodeficiency syndrome, feline immunodeficiency virus pathogenicity, lymphocyte activation, lymphocyte subsets, antibody formation, b lymphocytes, Southern blot, cd4 cd8 ratio, cats, feline acquired immunodeficiency syndrome, feline acquired immunodeficiency syndrome, feline immunodeficiency virus, polymerase chain reaction, time factors.

Eppihimer, M.J. and R.G. Schaub (2001). **Soluble P-selectin antagonist mediates rolling velocity and adhesion of leukocytes in acutely inflamed venules.** *Microcirculation* 8(1): 15-24. ISSN: 1073-9688.

Abstract: OBJECTIVE: Leukocyte rolling is recognized as an important event in facilitating the extravasation of leukocytes from the vascular to the interstitial compartment, and is mediated by the selectin family of cell adhesion molecules. The aim of this study was to evaluate and characterize the rolling behavior of leukocytes in a model of acute inflammation using a novel soluble selectin ligand directed against P-selectin. METHODS: Feline mesenteric postcapillary venules were visualized using intravital microscopy prior to and following exposure to leukotriene C4 (LTC4) in animals pretreated with vehicle (saline) and the P-selectin antagonist rPSGL-Ig. RESULTS: A concentration of 500 pM LTC4 induced a threefold and sixfold elevation in leukocyte rolling flux and adhesion, respectively, compared to baseline values ($p < 0.05$). Administration of rPSGL-Ig had no effect on LTC4-induced leukocyte rolling flux but significantly attenuated the increase in the fraction of rolling leukocytes ($p < 0.05$). In addition, rPSGL-Ig inhibited the LTC4-induced reductions in leukocyte rolling velocity ($p < 0.001$). Finally, LTC4-induced leukocyte adhesion in animals pretreated with rPSGL-Ig was reduced by 60%, compared to vehicle-treated animals ($p < 0.05$). CONCLUSIONS: LTC4 induces leukocyte rolling and adhesion in feline mesenteric venules in a dose-dependent manner. Administration of rPSGL-Ig inhibits LTC4-induced reductions in leukocyte rolling velocity and attenuates the elevation in the fraction of rolling leukocytes produced by LTC4 stimulation. This suggests that rPSGL-Ig may be used to reduce leukocyte rolling and adhesion, and subsequently attenuate tissue injury during inflammation.

Descriptors: inflammation, leukocytes, p selectin, amino acid sequence, cats, cell adhesion, cell movement, animal disease models, ileukotriene c4, membrane glycoproteins, mesenteric veins, molecular sequence data, phlebitis, recombinant proteins, solubility, venules.

Erickson, C.H., R.L. McLeod, G.G. Mingo, R.W. Egan, O.F. Pedersen, and J.A. Hey (2001). **Comparative oral and topical decongestant effects of phenylpropanolamine and d-pseudoephedrine.** *American Journal of Rhinology* 15(2): 83-90. ISSN: 1050-6586.

Abstract: Nonselective adrenergic alpha-agonists such as phenylpropanolamine and d-pseudoephedrine are widely used as decongestants to treat nasal congestion associated with a variety of nasal diseases. Although the activity of these drugs is well established in clinical studies, a direct comparison of their nasal decongestant effect as determined by changes in nasal cavity dimensions and nasal architecture has not been studied. Using acoustic rhinometry, we evaluated the effects of these drugs on nasal cavity volume, minimum cross-sectional area (Amin), and the distance from the nosepiece to the Amin (Dmin) in a feline, pharmacological model of nasal congestion. Administration of topical compound 48/80 (1%), a mast cell histamine liberator, into the left nasal passageway decreased nasal volume by 66%, reduced Amin by 51%, and increased Dmin by 116%. The congestive responses to compound 48/80 (1%) were reproducible through six weeks. In a subset of cats, the nasal cavity volume effect of repetitive exposure to compound 48/80, given once every two weeks for six weeks, was not different from the nasal responses after the initial exposure to compound 48/80. Pretreatment with oral phenylpropanolamine (10 mg/kg) or oral d-pseudoephedrine (10 mg/kg) attenuated the nasal effects of compound 48/80, but were associated with a pronounced increase in systolic blood pressure of +51 and +82 mmHg, respectively. A similar decongestant profile was observed with phenylpropanolamine (1%) and d-pseudoephedrine (1%) when given topically. Topical phenylpropanolamine (1%) and d-pseudoephedrine (1%) 45 minutes after dosing increased blood pressure +44 and +17 mmHg, respectively, over control animals. We conclude that oral and topical phenylpropanolamine and d-pseudoephedrine display equieffective nasal decongestant activity and produce similar cardiovascular profiles characterized by significant increases in blood pressure.

Descriptors: adrenergic alpha agonists, epHedrine, nasal decongestants, nasal obstruction, pHenylpropanolamine, oral administration, topical administration, pressure, cats, animal disease models, histamine release, nasal cavity, nasal obstruction.

Esteves, M.I., M.D. Schrenzel, R.P. Marini, N.S. Taylor, S. Xu, S. Hagen, Y. Feng, Z. Shen, and J.G. Fox (2000). **Helicobacter pylori gastritis in cats with long-term natural infection as a model of human disease**. *American Journal of Pathology* 156(2): 709-721. ISSN: 0002-9440.

NAL Call Number: 448.8

Descriptors: *Helicobacter pylori* infection, bacterial disease, lymphofollicular atropHic gastritis, digestive system disease, mucosal dysplasia.

Evans, M.D.M., R.Z. Xie, M. Fabbri, M.C. Madigan, H. Chaouk, G.J. Beumer, G.F. Meijs, H.J. Griesser, J.G. Steele, and D.F. Sweeney (2000). **Epithelialization of a synthetic polymer in the feline cornea: a preliminary study**. *Investigative Ophthalmology and Visual Science* 41(7): 1674-1680. ISSN: 0146-0404.

Descriptors: biomaterials, feline corneas, corneal transplant model, eye research, perfluoropolyether polymer, sense organs, implant, sensory reception, lenticules, epithelial growth, adhesion, collagen I, ultrastructure .

Fan, L.L., J. Ma, Y.F. Wang, Y.M. Ruan, and X.K. Zeng (2005). **Effects of oxyphenamone on myocardial ischemia in cats and rats**. *Yao Xue Xue Bao [Acta Pharmaceutica]* 40(2): 122-126. ISSN: 0513-4870.

Abstract: AIM: To study the therapeutic effects of oxyphenamone, a novel inodilator, on myocardial ischemia. METHODS: The cardiac hemodynamic variables in cats with acute myocardial infarction induced by occlusion of the left anterior descending coronary artery (LAD) were recorded with a physiological polygraph and electromagnetic flowmeter. A model of myocardial necrosis induced by subcutaneous injection of isoproterenol was used for evaluating the effects of drugs on myocardial enzymes and morphological change. RESULTS: Intravenous injection of oxyphenamone (2 - 8 mg x kg(-1)) dose-dependently decreased heart rate, mean arterial pressure, vascular resistance and the parameters of myocardial oxygen consumption (tension time index, TTI) in cats with myocardial infarction. It increased myocardial contractile force and cardiac output transiently but showed no influence on the left ventricular pressure and cardiac work. The changes of myocardial morphology, creatine phosphate kinase (CPK), malodialdehyde (MDA) and serum glutamic-oxaloacetic transaminase (GOT) induced by isoproterenol in rats were diminished by intraperitoneal injection of oxyphenamone (4 - 8 mg x kg(-1)). CONCLUSION: By the examination of the cardiac hemodynamics, myocardial enzymes and morphology, it showed that the myocardial damage induced by ischemia or beta-agonist can be antagonized markedly by oxyphenamone, indicating that oxyphenamone may be beneficial for the treatment of myocardial infarction.

Descriptors: oxyphenamone, inodilator, heart, infarction, model, myocardial necrosis, enzymes, malondialdehyde, GOT, CPK, cats.

Language of Text: Chinese.

Federico, S., G. La Rosa, W. Herzog, and J.Z. Wu (2004). **Effect of fluid boundary conditions on joint contact mechanics and applications to the modeling of osteoarthritic joints.** *Journal of Biomechanical Engineering* 126(2): 220-5. ISSN: 0148-0731.

Abstract: The long-term goal of our research is to understand the mechanism of osteoarthritis (OA) initiation and progress through experimental and theoretical approaches. In previous theoretical models, joint contact mechanics was implemented without consideration of the fluid boundary conditions and with constant permeability. The primary purpose of this study was to investigate the effect of fluid boundary conditions at the articular surfaces on the contact mechanics, in terms of load sharing and fluid flow properties using variable permeability. The tested conditions included totally sealed surfaces, open surfaces, and open surfaces with variable permeability. While the sealed surface model failed to predict relaxation times and load sharing properly, the class of open surface models (open surfaces with constant permeability, and surfaces with variable permeability) gave good agreement with experiments, in terms of relaxation time and load sharing between the solid and the fluid phase. In particular, the variable permeability model was judged to be the most realistic of the three models, from a biological and physical point of view. This model was then used to simulate joint contact in the early and late stages of OA. In the early stages of OA, the model predicted a decrease in peak contact pressure and an increase in contact area, while in the late stages of OA, peak pressures were increased and contact areas were decreased compared to normal. These findings agree well with experimental observations.

Descriptors: cartilage, articular, joints, osteoarthritis, synovial fluid, weight bearing, biomechanics, cats, computer simulation, elasticity, biological models, porosity, pressure, surface properties.

Fernandez Guardiola, A., A. Martinez, and R. Fernandez Mas (1995). **Repeated penicillin-induced amygdala epileptic focus in freely moving cats. EEG, polysomnographic (23-h recording), and brain mapping study.** *Epilepsy Research* 22(2): 127-36. ISSN: 0920-1211.

Abstract: The effect of repeated Na-penicillin (PCN) microinjections in the temporal lobe amygdala (AM) of free-moving cats was investigated in order to establish if kindling epileptogenesis is possible with this procedure. The cortical propagation of the PCN-induced post-discharge in AM and the sequence of behavioral changes induced by PCN were similar to those of AM electrical kindling. Nevertheless, the epileptogenic effect of PCN had a different evolution from that of electrical kindling, since some PCN habituation was observed after several doses. Repeated microinjections of PCN did not produce lasting alterations in sleep onset and organization. The only mild changes recorded in the 23 h following PCN microinjections were an increased latency of the first rapid eye movement (REM) sleep episode, a SWS II total time and percentage increase, and, with the highest PCN doses, a not very significant diminution of REM sleep total time. Another finding was the occurrence of REM sleep ponto-geniculo-occipital (PGO) waves, coinciding with a depression of the frequency and amplitude of interictal amygdaloid and cortical spikes. The results showed that a microinjection of PCN in the AM produced a reliable model of interictal spikes, paroxysms and generalized convulsive seizures. Nevertheless, long lasting kindling effect was not observed.

Descriptors: amygdala, brain mapping, electroencephalography, epilepsy, penicillins, polysomnography, amygdala, animal behavior, cats, drug administration schedule, epilepsy psychology, microinjections, penicillins, sleep, sleep.

Fletcher, N.F., D.J. Brayden, B. Brankin, S. Worrall, and J.J. Callanan (2004). **Growth and characterization of a feline in vitro blood-brain barrier**. *Journal of Anatomy* 205(6): 537. ISSN: 0021-8782.

Descriptors: infection, nervous system, HIV 1 infection, immune system disease, nervous system disease, FD4 permeability assay, laboratory techniques, feline in vitro brain barrier model, transendothelial electrical resistance measurement, transmission electron microscopy.

Flynn, J.N., C.A. Cannon, J.A. Beatty, M. Mackett, M.A. Rigby, J.C. Neil, and O. Jarrett (1994). **Induction of feline immunodeficiency virus-specific cytotoxic t cells in vivo with carrier-free synthetic peptide**. *Journal of Virology* 68(9): 5835-5844. ISSN: 0022-538X.

NAL Call Number: QR360. J6

Descriptors: immune system, lentivirus, model system, infection, T cell proliferation in vitro, env gene product gp120, gag capsid protein p24, pathologic response, protection, cats, lymphocytotoxicity .

Foley, J.E., C.M. Leutenegger, J. Stephen Dumler, N.C. Pedersen, and J.E. Madigan (2003). **Evidence for modulated immune response to Anaplasma phagocytophila sensu lato in cats with FIV-induced immunosuppression.** *Comparative Immunology*,

Microbiology and Infectious Diseases 26(2): 103-13. ISSN: 0147-9571.
NAL Call Number: QR180. C62
Abstract: Human granulocytic ehrlichiosis (HGE) is an emerging infectious disease in which some patients experience unusual opportunistic infections. In this study, cats infected with the HGE agent, Anaplasma phagocytophila s.l., had clinical granulocytic ehrlichiosis (GE), anti-nuclear antibodies and increased IFN-gamma mRNA. In FIV-immunosuppressed cats with GE, there was upregulated IL-10 transcription but not IFN-gamma. Cats with FIV had poor response to vaccines, regardless of GE status. This preliminary report demonstrates that cats with FIV-infection make a good model of ehrlichiosis in an immunocompromised host, and that viral immunosuppression may not increase the severity of ehrlichiosis but may attenuate immune responses to the pathogen.
Descriptors: anaplasma pHagocytopHilum, ehrlichiosis, feline acquired immunodeficiency syndrome, feline immunodeficiency virus, anaplasma pHagocytopHilum, antibodies, bacterial, cd4 positive t lymphocytes, cd8 positive t lymphocytes, cats, DNA, bacterial, DNA, bacterial, ehrlichiosis, ehrlichiosis, ehrlichiosis microbiology, feline acquired immunodeficiency syndrome, feline acquired immunodeficiency syndrome, flow cytometry, fluorescent antibody technique, immunocompromised host, interferon type ii biosynthesis, interleukin 10 biosynthesis, polymerase chain reaction, specific pathogen free organisms.

Forslund, K. (1997). **Similarities and differences between animal species and man, with special reference to rheumatoid arthritis and diabetes mellitus.** *Alternatives to Laboratory Animals* 25(2): 183-185. ISSN: 0261-1929.
NAL Call Number: Z7994L3A5
Descriptors: arthritis, diabetes, mankind, dogs, cats, rats, mice, cattle, animal models, experimentation, laboratory animals, legislation, bovidae, bovinae, disorders, domestic animals, joint diseases, livestock, metabolic disorders, organic diseases, rodentia, ruminants, useful animals, rheumatoid arthritis.

Fox, P.R., S.K. Liu, and B.J. Maron (1995). **Echocardiographic assessment of spontaneously occurring feline hypertrophic cardiomyopathy. An animal model of human disease.** *Circulation* 92(9): 2645-2651. ISSN: 0009-7322.
NAL Call Number: RC681 .A1C8
Abstract: BACKGROUND: Necropsy studies in domestic cats have suggested the occurrence of a primary cardiac disease resembling hypertrophic cardiomyopathy (HCM) in humans. We used two-dimensional echocardiography to define morphological and functional features of HCM during life in 46 domestic cats evaluated in a subspecialty veterinary clinic. Cats were 8 months to 14 years old (mean, 6 years). METHODS AND RESULTS: During the follow-up period of as long as 49 months, 18 cats died (or were euthanatized) due to congestive heart failure, peripheral embolization, or both, and 3 other cats experienced out-of-hospital sudden, unexpected death. Echocardiography showed a small left ventricular cavity, associated with a variety of patterns of hypertrophy. Wall thickening was most often diffuse (involving ventricular septum and free wall) in 31 cats (67%) and segmental in 15 (33%), including 12 with thickening confined to anterior septum; wall thickening was judged to be asymmetrical in 42 and symmetrical (concentric) in 4. In 30 cats (65%), marked mitral valve systolic anterior

motion produced dynamic obstruction to left ventricular outflow (Doppler estimated gradients, 25 to 110 mm Hg). Compared with survivors, cats with HCM that died with heart failure had greater left ventricular thickness (8.1 +/- 1.5 versus 7.3 +/- 0.9 mm; P < .05) and larger left atria (20.1 +/- 4.6 versus 16.8 +/- 3.4 mm; P = .01) and more often had the nonobstructive form (89% versus 48%; P < .01). CONCLUSIONS: A spontaneously occurring disease of domestic cats was identified by echocardiography and was similar in its phenotypic expression to HCM in humans; it was characterized by unexplained left ventricular hypertrophy in a variety of patterns with or without evidence of outflow obstruction. Unfavorable prognosis was associated with greater magnitude of hypertrophy and absence of outflow obstruction. Feline HCM may prove to be a valuable animal model of the human disease.
Descriptors: cardiomyopathy, echocardiograpHy, hypertrophic cardiomyopathy, cats, animal disease models.

Foxd, P.R. and B.J. Maron (1994). **Echocardiographic identification of spontaneously occurring feline hypertrophic cardiomyopathy: a potential animal model of human disease**. *Journal of the American College of Cardiology* 0(SPEC. ISSUE): 26A. ISSN: 0735-1097.
Descriptors: cardiovascular system, diagnostic model, feline hypertrophic cardiomyopathy, echocardiogram.

Fukuhara, T., M. Gotoh, M. Kawauchi, S. Asari, and T. Ohmoto (1994). **Superoxide scavenging activity in the extracellular space of the brain in forming edema.** *Neurosurgery* 35(5): 924-8. ISSN: 0147-396X.
Abstract: We carried out a time course study of cerebral superoxide scavenging activity using a modified microdialysis technique. Twelve cats were divided into two groups; six were the reperfusion injury models, and six were cold injury models. In the reperfusion injury model, dialysates were collected during 60 minutes of middle cerebral artery occlusion and at 300 minutes during reperfusion. In the cold injury model, dialysates were collected 240 minutes after the injury. Regional cerebral blood flow on the injured side decreased during occlusion in the reperfusion injury model and 60 minutes after injury in the cold injury model. In the reperfusion model, superoxide scavenging activity, as determined with electron spin resonance, increased in the first 30 minutes and decreased 300 and 330 minutes after occlusion. In the dialysate, albumin increased 180 minutes after cold injury, which may show the progress of vasogenic edema. An increase in water content was observed on the injured side of both models, and a correlation between water content and superoxide scavenging activity was found in the reperfusion injury model. By this technique, a method of detecting the alteration of superoxide scavenging activity in the extracellular space of the brain was established.
Descriptors: blood brain barrier, brain, brain edema, superoxide dismutase, superoxides, cats, extracellular space, serum albumin, water electrolyte balance.

Fyfe, J.C., R.L. Kurzhals, M.E. Lassaline, P.S. Henthorn, P.R.K. Alur, P. Wang, J.H. Wolfe, U. Giger, M.E. Haskins, and D.F. Patterson (1999). **Molecular basis of feline beta-glucuronidase deficiency: an animal model of mucopolysaccharidosis VII.** *Genomics* 58(2): 121-128. ISSN: 0888-7543.
NAL Call Number: QH445.2 .G45

Descriptors: cats, enzyme deficiencies, beta glucuronidase, mucopolysaccharidosis, animal models, complementary DNA, nucleotide sequences, amino acid sequences, mutations, symptoms, gene expression, messenger RNA, segregation, molecular sequence data, genbank, af012423, genbank, af012424, missense mutations.

Garg, H., A. Joshi, and W.A. Tompkins (2004). **Feline immunodeficiency virus envelope glycoprotein mediates apoptosis in activated PBMC by a mechanism dependent on gp41 function.** *Virology* 330(2): 424-436. ISSN: 0042-6822.
NAL Call Number: 448.8 V81
Abstract: Feline Immunodeficiency Virus (FIV) is a lentivirus that causes immunodeficiency in cats, which parallels HIV-1-induced immunodeficiency in humans. It has been established that HIV envelope (Env) glycoprotein mediates T cell loss via a mechanism that requires CXCR4 binding. The Env glycoprotein of FIV, similar to HIV, requires CXCR4 binding for viral entry, as well as inducing membrane fusion leading to syncytia formation. However, the role of FIV Env in T cell loss and the molecular mechanisms governing this process have not been elucidated. We studied the role of Env glycoprotein in FIV-mediated T cell apoptosis in an in vitro model. Our studies demonstrate that membrane-expressed FIV Env induces apoptosis in activated feline peripheral blood mononuclear cells (PBMC) by a mechanism that requires CXCR4 binding, as the process was inhibited by CXCR4 antagonist AMD3100 in a dose-dependent manner. Interestingly, studies regarding the role of CD134, the recently identified primary receptor of FIV, suggest that binding to CD134 may not be important for induction of apoptosis in PBMC. However, inhibiting Env-mediated fusion post CXCR4 binding by FIV gp41-specific fusion inhibitor also inhibited apoptosis. Under similar conditions, a fusion-defective gp41 mutant was unable to induce apoptosis in activated PBMC. Our findings are the first report suggesting the potential of FIV Env to mediate apoptosis in bystander cells by a process that is dependent on gp41 function.
Descriptors: apoptosis, glycoproteins, feline immunodeficiency virus, viral envelope proteins, viral fusion proteins, anti HIV agents, cats, cell fusion, cell survival, glycoproteins, heterocyclic compounds, membrane fusion, tumor necrosis factor.

Gaschen, F. and J.M. Burgunder (2001). **Changes of skeletal muscle in young dystrophin-deficient cats: a morphological and morphometric study.** *Acta Neuropathologica* 101(6): 591-600. ISSN: 0001-6322.
Abstract: Dystrophin deficiency causes Duchenne muscular dystrophy (DMD). Hypertrophic feline muscular dystrophy (HFMD) is a homologous animal model of DMD. Our objective was to investigate the early changes caused by dystrophin deficiency in skeletal muscle of cats of 3-4 and 6-9 months. Obvious histological lesions were already present in the younger cats, and they increased in magnitude over time. They consisted of multifocal areas of degeneration and regeneration with mononuclear infiltration, and a wide variation in myofiber diameter, as evidenced by significantly increased variability coefficients in muscle fiber size, myofiber splitting, central nuclei, and hypercontracted myofibers. Widespread multifocal mineralizations were frequently observed. Endomysial and perimysial fibrosis was not a feature observed in axial or appendicular muscles, but was present in the diaphragm of two cats at necropsy. There was a significant decrease in the number of type 2A myofibers in dystrophin-deficient

cats at both ages. Sarcolemmal dystrophin was mostly absent in all dystrophin-deficient cats; however, a small percentage of fibers stained positive, accounting for a faint residual band in the immunoblot. Carrier females had a mosaic staining pattern with irregular staining in most fibers, or even absent staining in rare fibers. However, no histological lesions were seen. Taken together, these data provide significant baseline information for further studies on the early changes associated with dystrophin deficiency in cats, or use of young dystrophin-deficient cats in therapeutic trials.
Descriptors: dystropHin deficiency, muscle, skeletal, muscular dystrophy, animal, adenosinetriphosphatase, cats, dyes, dystropHin, immunohistochemistry, muscle fibers, muscular dystrophy, animal, sarcolemma.

Gehlbach, P.L. and R.L. Purple (1994). **A paired comparison of two models of experimental retinal ischemia.** *Current Eye Research* 13(8): 597-602. ISSN: 0271-3683.
Abstract: Increased intraocular pressure and vascular ligation models are often used in studies of global ocular ischemia. The purpose of this study is to perform a paired comparison of retinal recovery in these paradigms. Our data indicate that ERG b-wave recovery profiles, following identical periods of ischemia, differ significantly between models. We propose that increased intraocular pressure models induce greater retinal injury than vascular ligation models. We suggest that pressure or another aspect of the increased intraocular pressure model induces injury beyond that caused by ischemia alone and caution against direct comparison of results obtained using these two models.
Descriptors: animal disease models, ischemia, retina, retinal vessels, cats, constriction, pathologic, electroretinograpHy, fluorescein angiograpHy, intraocular pressure, perfusion, reperfusion injury.

Giannecchini, S., P. Isola, O. Sichi, D. Matteucci, M. Pistello, L. Zaccaro, D.d. Mauro, and M. Bendinelli (2002). **AIDS vaccination studies using an ex vivo feline immunodeficiency virus model: failure to protect and possible enhancement of challenge infection by four cell-based vaccines prepared with autologous lymphoblasts**. *Journal of Virology* 76(14): 6882-6892. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: antibodies, epitopes, immune response, immunity, immunization, lymphocyte transformation, potency, vaccination, vaccine development, vaccines, cats, feline immunodeficiency virus.

Giannecchini, S., D.d. Mauro, D. Matteucci, and M. Bendinelli (2001). **AIDS vaccination studies using an ex vivo feline immunodeficiency virus model: reevaluation of neutralizing antibody levels elicited by a protective and a nonprotective vaccine after removal of antisubstrate cell antibodies**. *Journal of Virology* 75(9): 4424-4429. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: acquired immune deficiency syndrome, antibodies, immunization, serum, vaccination, vaccines, virulence, cats, feline immunodeficiency virus.

Giannecchini, S., A. Di Fenza, A.M. D'ursi, D. Matteucci, P. Rovero, and M. Bendinelli (2003). **Antiviral activity and conformational features of an octapeptide derived from the membrane-proximal ectodomain of the feline immunodeficiency virus**

transmembrane glycoprotein. *Journal of Virology* 77(6): 3724-3733. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: feline immunodefieciency virus, cell biology, antiviral activity, peptides, tryptophan residues, feline fibroblastoid kidney cells.

Gibson, M.D., M.T. Omran, and C.R. Young (1995). **Experimental feline *Lyme borreliosis* as a model for testing *Borrelia burgdorferi* vaccines.** *Advances in Experimental Medicine and Biology* 383: 73-82. ISSN: 0065-2598.
NAL Call Number: QP901 A33
Abstract: The feline model investigated establishes that domestic cats may act as an animal model for evaluating the pathogenesis of *Lyme borreliosis*. Specifically this feline model demonstrates: First, that animals seroconvert following either needle injection of, or arthropod delivery of, *Borrelia burgdorferi*. Clinical findings obtained are consistent with those observed in human Lyme disease; histopathological observations are also consistent with those observed in human Lyme disease. Therefore, cats may also be used as a representative animal model for measuring immune protection against *Lyme borreliosis*. Specifically we are exploring the protective capacity of *Borrelia burgdorferi* antigenic compounds in cats, namely OspA, OspB, OspC, heat shock proteins, flagellar antigens and various protective immunological combinations.
Descriptors: bacterial vaccines, borrelia burgdorferi group, animal disease models, lyme disease, cats.

Haghighi, S.S., D.H. York, L. Spollen, J.J. Oro, and M.A. Perez Espejo (1996). **Neurophysiological evidence of spared upper motor neurons after spinal cord injury.** *Paraplegia* 34(1): 39-45. ISSN: 0031-1758.
Abstract: Fourteen cats were subjected to a moderate (100 gm-cm; n = 7) or a severe (600 gm-cm; n = 7) spinal cord injury at the C4-C5 level using a weight drop technique. Somatosensory evoked potentials (SSEPs) were recorded after stimulation of the median nerve in the forearm. The SSEPs were measured in each animal before and after the injury. Motor evoked potentials (MEPs) were recorded from forearm extensor muscles after transcranial magnetic stimulation of the motor cortex. The SSEPs and The MEPs were measured in each animal before and after the injury under ketamine-based anesthesia. After the moderate injury (n = 7), 83% of the animals (6/7) maintained the SSEPs and 100% (7/7) maintained the MEPs. Postoperatively, only one animal who lost the SSEPs post-injury became tetraplegic. The remainder were neurologically intact. In the severely injured animals (n = 7), 5/7 of animals lost SSEPs and subsequently became tetraplegic. The MEPS were maintained in 3/5 (60%) of these tetraplegic animals. Two of seven animals (40%) in this group did not lose SSEPs or MEPs and recovered with no clinical deficit. Our data show a good correlation between the presence of SSEPs and functional recovery in the injured groups. The presence of MEPs in 3/5 (60%) of the tetraplegic animals may imply the existence of functionally active motor fibers after severe spinal trauma.
Descriptors: motor neurons, spinal cord injuries, cats, electric stimulation, evoked potentials, motor, evoked potentials, somatosensory, magnetics, median nerve, muscle, skeletal innervation, muscle, skeletal, neural conduction.

Halstead, S.B., N.T. Lan, T.T. Myint, T.N. Shwe, A. Nisalak, S. Kalyanarooj, S. Nimmannitya, S. Soegijanto, D.W. Vaughn, and T.P. Endy (2002). **Dengue hemorrhagic fever in infants: research opportunities ignored.** *Emerging Infectious Diseases* 8(12): 1474-9. ISSN: 1080-6059.

NAL Call Number: RA648.5.E46

Abstract: The age distribution of cases of dengue hemorrhagic fever and dengue shock syndrome (DHF/DSS) in infants under the age of 1 year are reported from Bangkok, Thailand, and for the first time for Ho Chi Minh City, Vietnam; Yangon, Myanmar; and Surabaya, Indonesia. The four dengue viruses were isolated from Thai infants, all of whom were having a primary dengue infection. Progress studying the immunologically distinct infant DHF/DSS has been limited; most contemporary research has centered on DHF/DSS accompanying secondary dengue infections. In designing research results obtained in studies on a congruent animal model, feline infectious peritonitis virus (FIPV) infections of kittens born to FIPV-immune queens should be considered. Research challenges presented by infant DHF/DSS are discussed.

Descriptors: dengue hemorrhagic fever epidemiology, dengue virus, age distribution, child, child, preschool, dengue virus classification, hospitalization statistics and numerical data, indonesia epidemiology, infant, myanmar epidemiology, research, thailand epidemiology, vietnam epidemiology.

Harrison, J.D., H.M. Fouad, and J.R. Garrett (2001). **Variation in the response to ductal obstruction of feline submandibular and sublingual salivary glands and the importance of the innervation.** *Journal of Oral Pathology and Medicine* 30(1): 29-34. ISSN: 0904-2512.

Abstract: A variable response following ductal ligation of feline salivary glands corresponds to the human condition but contrasts with a predictable atrophy in obstructed salivary glands of rodents popularly used as a model for human salivary problems. The present investigation is concerned with a possible reason for the variable response, namely the preservation of the innervation. Ducts of feline submandibular and sublingual salivary glands were ligated with or without the inclusion of the chorda tympani. Inclusion led to a delayed initial response followed by progressive atrophy until the parenchyma was extremely atrophic, whereas avoidance of the chorda led to the variable response in which variable numbers of acini of a similar form to normal persisted. The results establish the atrophic effect of inclusion of the chorda tympani in ductal ligation and indicate the caution that should be exercised in the extrapolation of the rodent model to the human condition.

Descriptors: chorda tympani nerve, animal disease models, salivary gland diseases, salivary glands innervation, atrophy, cats, chorda tympani nerve surgery, denervation, ligation, electron microscopy, organ size, rodentia, salivary ducts, salivary glands, sublingual gland innervation, sublingual gland, submandibular gland innervation, submandibular gland.

Hasenfuss, G. (1998). **Animal models of human cardiovascular disease, heart failure and hypertrophy.** *Cardiovascular Research* 39(1): 60-76. ISSN: 0008-6363.

Abstract: The progress made in our understanding of the pathophysiology and treatment of congestive heart failure (CHF) would not have been possible without a

number of animal models of heart failure and hypertrophy, each one having unique advantages as well as disadvantages. The species and interventions used to create CHF depends on the scientific question as well as on factors such as ethical and economical considerations, accessibility and reproducibility or the model. How closely the model should mimic the human syndrome of CHF depends on the scientific question under investigation. If the goal is to study pathophysiological processes like remodeling or the function of subcellular systems such as excitation contraction-coupling processes, contractile protein function or energetics, the model of heart failure should mimic the clinical setting as closely as possible. However, if defined causal connections are under investigation such as structure-function analyses or regulation of gene expression, exact reflection of the clinical setting by the animal model may be less important. In this review, animal models of heart failure are discussed with particular focus on similarities between the animal model and the failing human heart regarding myocardial function as well as molecular and subcellular mechanisms. In addition, new models of heart failure and hypertrophy, and finally some recent animal models of myocarditis are reviewed.
Descriptors: cardiovascular diseases, animal disease models, cardiomegaly, cats, cattle, dogs, guinea pigs, hamsters, heart failure, congestive, mesocricetus, rabbits, rats, rats, sprague dawley, sheep, swine, turkeys.

Hayes, K.A., A.J. Phipps, S. Francke, and L.E. Mathes (2000). **Antiviral therapy reduces viral burden but does not prevent thymic involution in young cats infected with feline immunodeficiency virus.** *Antimicrobial Agents and Chemotherapy* 44(9): 2399-405. ISSN: 0066-4804.

Abstract: The thymus is a major target organ in human immunodeficiency virus type 1 (HIV-1)-infected children and feline immunodeficiency virus (FIV)-infected young cats (G. A. Dean and N. C. Pedersen, J. Virol. 72:9436-9440, 1998; J. L. Heeney, Immunol. Today 16:515-520, 1995; S. M. Schnittman et al., Proc. Natl. Acad. Sci. USA 87:7727-7731, 1990; T. A. Seemayer et al., Hum. Pathol. 15:469-474, 1984; H.-J. Shuurn et al., Am. J. Pathol. 134:1329-1338, 1989; J. C. Woo et al., J. Virol. 71:8632-8641, 1997; J. C. Woo et al., AIDS Res. Hum. Retrovir. 15:1377-1388, 1999). It is likely that the accelerated disease process in children and cats is due to infection of the thymus during the time when generation of naive T lymphocytes is needed for development of the mature immune system. Zidovudine (ZDV) monotherapy, which is used to prevent and treat perinatal HIV-1 infection (R. Sperling, Infect. Dis. Obstet. Gynecol. 6:197-203, 1998), previously had been shown to reduce viral burden in FIV-infected young cats (K. A. Hayes et al., J. Acquir. Immune Defic. Syndr. 6:127-134, 1993). The purpose of this study was to evaluate the effect of drug-induced reduction of viral burden in the thymus on virus-mediated thymic involution and peripheral blood CD4 decline using FIV-infected cats as a model for pediatric HIV-1 infection. Eight-week-old cats were randomly assigned to uninfected, saline-treated; uninfected, ZDV-treated; FIV-infected, saline-treated; and FIV-infected, ZDV-treated groups. Parameters measured included blood lymphocyte numbers, viral load in blood and thymic tissue, and thymic histopathology. While the viral burden was significantly reduced by ZDV monotherapy in peripheral blood lymphocytes, plasma, and thymus, thymic lesions were similar for the treated and untreated FIV-infected cats. Further, markedly lowering the viral burden did not increase blood CD4 lymphocyte numbers or prevent their decline. The data suggest

that an inflammatory process continued in spite of reduced virus replication. These observations imply that reducing virus load and limiting thymic inflammation are separate factors that must be addressed when considering therapeutic strategies aimed at preserving thymic function.
Descriptors: anti HIV agents, feline acquired immunodeficiency syndrome, HIV infections, feline immunodeficiency virus, thymus gland, zidovudine, anti HIV agents, cats, animal disease models, feline acquired immunodeficiency syndrome, feline acquired immunodeficiency syndrome, feline immunodeficiency virus, lymphocyte count, lymphocytes, lymphocytes, lymphocytes, phenotype, plasma, plasma, thymus gland, thymus gland, thymus gland, viral load, zidovudine.

He, Q., C. Lowrie, G.D. Shelton, R.J. Castellani, M. Menotti Raymond, W. Murphy, S.J. O'Brien, W.F. Swanson, and J.C. Fyfe (2005). **Inherited motor neuron disease in domestic cats: a model of spinal muscular atrophy.** *Pediatric Research* 57(3): 324-30. ISSN: 0031-3998.
Abstract: Juvenile-onset spinal muscular atrophy was observed in an extended family of purebred domestic cats as a fully penetrant, simple autosomal recessive trait. Affected kittens exhibited tremor, proximal muscle weakness, and muscle atrophy beginning at ~4 mo of age. Apparent loss of function was rapid initially but progressed slowly after 7-8 mo of age, and variably disabled cats lived for at least 8 y. Electromyography and microscopic examination of muscle and nerve biopsies were consistent with denervation atrophy as a result of a central lesion. There was astrogliosis and dramatic loss of motor neurons in ventral but not dorsal horn gray matter of spinal cord and loss of axons in ventral horn nerve roots. These phenotypic findings were similar to mild forms (type III) of spinal muscular atrophy in humans caused by survival of motor neuron mutations, but molecular analysis excluded feline survival of motor neuron as the disease gene in this family. A breeding colony has been established for further investigation of this naturally occurring large-animal model of inherited motor neuron disease.
Descriptors: models, spinal muscular atrophy, biopsies, juvenile-onset, kittens.

He, Q.C., C. Lowrie, G.D. Shelton, R.J. Castellani, M. Menotti Raymond, W. Murphy, S.J. O' Brien, W.F. Swanson, and J.C. Fyfe (2005). **Inherited motor neuron disease in domestic cats: a model of spinal muscular atrophy**. *Pediatric Research* 57(3): 324-330. ISSN: 0031-3998.
Online: http://www.pedresearch.org/
Descriptors: animal models, atrophy, clinical aspects, DNA, hereditary diseases, histopathology, inheritance, molecular, nervous system diseases, neurons, nucleotide sequences, skeletal muscle, spinal cord, spinal diseases, spine, cats.

Hebben, M., V. Duquesne, J. Cronier, B. Rossi, and A. Aubert (2004). **Modified vaccinia virus Ankara as a vaccine against feline coronavirus: immunogenicity and efficacy.** *Journal of Feline Medicine and Surgery* 6(2): 111-8. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Abstract: Feline infectious peritonitis virus (FIPV) is a coronavirus that induces a fatal systemic disease mediated by an inappropriate immune response. Most previous vaccination attempts against FIPV were unsuccessful because IgG antibodies against the surface protein enhance the infection. However, two studies have shown that poxvirus

vectors (vaccinia WR and canarypox) expressing only the FIPV membrane (M) protein can elicit a partially protective immunity which is supposed to be cell-mediated (Virology 181 (1991) 327; International patent WO 97/20054 (1997)). In our study, we report the construction of another poxvirus, the modified vaccinia virus Ankara (MVA), as an expression vector for the FIPV M protein. In this vector, the M gene has been inserted downstream a strong early/late promoter, whereas the two previously described poxviruses expressed the M protein during their early stage only. The immunogenicity of the recombinant MVA-M was evaluated in the murine model which revealed an effect of the vector on the Th1/Th2 balance. The vaccine was then tested in cats to evaluate its efficacy in an FIPV 79-1146 challenge. Vaccinated kittens developed FIPV-specific antibodies after immunization, however, none of them was protected against FIPV. Our results suggest a crucial role for the type of poxviral promoter that must be used to induce an effective immune response against FIPV.
Descriptors: coronavirus, feline, feline infectious peritonitis, vaccinia virus, viral vaccines, cats, mice, mice, inbred balb c, specific pathogen free organisms, treatment outcome, vaccination.

Hein, A., J.P. Martin, and R. Dorries (2001). **In vitro activation of feline immunodeficiency virus in ramified microglial cells from asymptomatically infected cats.** *Journal of Virology* 75(17): 8090-5. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Abstract: Intravenous infection of cats with feline immunodeficiency virus was used as a model system to study activation of virus replication in brain-resident microglial cells in vitro. Virus release by ramified microglial cells isolated from subclinically infected animals was detectable in cell-free tissue culture supernatant only by reverse transcription and nested PCR of gag-specific RNA sequences and not by virion-associated reverse transcriptase activity. In contrast, cocultivation of in vivo-infected microglial cells with mitogen-activated peripheral blood mononuclear cells (PBMC) regularly allows detection of high virus yields in cell-free tissue culture fluid. Besides uptake and multiplication of microglia-derived virus in PBMC, release of virus from microglia is stimulated by cell contact with PBMC. The data suggest that T lymphocytes patrolling the central nervous system could reactivate the semilatent state of lentiviruses in microglial cells in the course of clinically silent central nervous system infection.
Descriptors: feline immunodeficiency virus growth and development, lentivirus infections, microglia, cats, cell line, coculture techniques, leukocytes, mononuclear, leukocytes, mononuclear, lymphocyte activation, microglia, virion, virus activation, virus replication.

Hein, A., H. Schuh, S. Thiel, J.P. Martin, and R. Dorries (2003). **Ramified feline microglia selects for distinct variants of feline immunodeficiency virus during early central nervous system infection.** *Journal of Neurovirology* 9(4): 465-76. ISSN: 1355-0284.
Abstract: It is widely accepted that human immunodeficiency virus (HIV) invades the central nervous system (CNS) shortly after peripheral infection to establish a persistent infection of tissue-resident microglial cells. To what extent this early CNS infection is of pathogenic relevance is a matter of discussion. It is conceivable, however, that infected microglia releases virus variants of enhanced neurotropism and/or neurovirulence

compared to peripheral isolates. Moreover, microglial variants may exhibit high resistance to antiviral therapeutics that poorly penetrate into brain tissue. The molecular basis of these biological properties is suspected to be associated with specific sequences in the viral env gene, particularly within the V3 loop. Therefore, we analyzed in the animal model of feline immunodeficiency virus (FIV) infection of cats lentiviral V3 sequences in highly purified microglial cells and blood from acutely infected animals. Compared to the inoculated virus, nucleotide sequence alterations in serum samples were rarely detectable, if at all. In contrast, up to 19 nucleotide exchanges could be identified within FIV V3 from microglia, resulting in a mutation frequency of up to 14.5% with respect to the deduced amino acid sequence. These findings suggest selection of specific virus variants by brain-resident target cells that might have implications for antiretroviral drug design.
Descriptors: brain diseases, feline acquired immunodeficiency syndrome, feline immunodeficiency virus, feline immunodeficiency virus growth and development, microglia, amino acid sequence, base sequence, brain diseases, cats, feline acquired immunodeficiency syndrome, glycoproteins, feline immunodeficiency virus pathogenicity, molecular sequence data, pHylogeny, polymorpHism, single stranded conformational, viral envelope proteins, virulence.

Heiss, W.D., C. Dohmen, J. Sobesky, L. Kracht, B. Bosche, F. Staub, S. Toyota, M. Valentino, and R. Graf (2003). **Identification of malignant brain edema after hemispheric stroke by PET-imaging and microdialysis.** *Acta Neurochirurgica/ Supplementum* 86: 237-40. ISSN: 0065-1419.
Abstract: Cerebral blood flow (CBF) and extent of irreversible tissue damage as well as the time course of extracellular concentration of amino acids, substrates of energy metabolism, and purine metabolites, intracranial pressure and tissue oxygen tension were assessed in 34 patients with large strokes covering more than 50% of the MCA territory. The results were compared to findings in the experimental model of transient (for 3 hours) MCA occlusion in cats. In the experimental model as well as in the clinical setting development of malignant brain infarcts (due to formation of space occupying brain edema) was predicted by the size of critically hypoperfused tissue and the volume of irreversibly damaged tissue. The course of malignant infarcts was characterized by progressive increase in concentrations of excitatory amino acids, lactate, pyruvate, glycerol, hypoxanthine and in intracranial pressure, while cerebral perfusion pressure and tissue oxygen tension decreased. These results clearly differentiate a malignant from a benign course of large hemispheric infarction. The methods can be used to identify patients at risk for formation of space occupying edema and to select patients who could benefit from invasive therapeutic strategies.
Descriptors: brain edema diagnosis, brain edema, cerebrovascular accident, microdialysis, tomography, emission computed, amino acids, brain edema mortality, brain edema, cats, cerebral infarction, cerebrovascular circulation, flumazenil diagnostic use, flumazenil, infarction, middle cerebral artery, intracranial pressure, prognosis.

Henckaerts, E., H. Geiger, J.C. Langer, P. Rebollo, G. Van Zant, and H.W. Snoeck (2002). **Genetically determined variation in the number of phenotypically defined hematopoietic progenitor and stem cells and in their response to early-acting cytokines**. *Blood* 99(11): 3947-3954. ISSN: 0006-4971.

NAL Call Number: RB145.A1B57
Descriptors: hematopoietic progenitor, stem cells, cytokines, cats, inbred mice, thrombopoietin, epistasis.

Ho, C.M., S.T. Ho, J.J. Wang, S.K. Tsai, and C.Y. Chai (2004). **Dexamethasone has a central antiemetic mechanism in decerebrated cats.** *Anesthesia and Analgesia* 99(3): 734-9. ISSN: 0003-2999.
Abstract: Dexamethasone is an effective antiemetic drug, but its mechanism of action is unclear. We designed this study to investigate the direct antiemetic action of dexamethasone in the medulla of cats. By using an oscillographic vomiting model, decerebrated cats received microinjections of dexamethasone 100 nL (1 microg, n = 7; 0.1 microg, n = 7) into the bilateral nuclei tractus solitarii, which led to a significant prolongation of the latency (1 microg, 6.4 +/- 1.1 min versus 28.2 +/- 4.9 min, P < 0.05; 0.1 microg, 6.7 +/- 1.1 min versus 27.1 +/- 5.0 min, P < 0.05) of the first emetic episode and significantly decreased the frequency of emetic episodes (1 microg, 2.7 +/- 0.8 versus 0.1 +/- 0.4, P < 0.05; 0.1 microg, 2.9 +/- 0.9 versus 0.3 +/- 0.5, P < 0.05) induced by xylazine. Pretreatment with mifepristone, a glucocorticoid receptor antagonist, blocked the antiemetic effect of dexamethasone in the bilateral nuclei tractus solitarii. However, microinjection of dexamethasone into the unilateral nucleus tractus solitarius alone did not alter the latency of the first emetic episode or the frequency of emetic episodes induced by xylazine. Local application of dexamethasone into the area postrema had no effect on the latency of the first emetic episode or the frequency of emetic episodes induced by xylazine. These results suggest that dexamethasone exerts its central antiemetic action through an activation of the glucocorticoid receptors in the bilateral nuclei tractus solitarii in the medulla.
Descriptors: antiemetics, dexamethasone, solitary nucleus, cats, decerebrate state, microinjections, mifepristone, receptors, glucocorticoid, solitary nucleus.

Hope, J. (1999). **Animal models of prion diseases: the old and the new**. *Clinical Chemistry and Laboratory Medicine* 37: S25. ISSN: 1434-6621.
Descriptors: infection, neurology, animal model, bovine spongiform encephalopathy, prion disease, feline spongiform encephalopathy, nervous system disease, scrapie, transmissible mink encephalopathy, Gerstmann Straussler Sheinker syndrome.
Notes: Meeting Information: IFC-WorldLab, International Federation of Clinical and Laboratory Medicine (17th International and 13th European Congress of Clinical Chemistry and Laboratory Medicine, 1st International Congress of Clinical Molecular Biology, 31st National Congress of the Italian Society of Clinical Biochemistry and Clinical Molecular Biology), Florence, Italy; June 6-11, 1999.

Hosie, M.J. (1994). **The development of a vaccine against feline immunodeficiency virus.** *The British Veterinary Journal* 150(1): 25-39. ISSN: 0007-1935.
NAL Call Number: 41.8 V643
Abstract: Feline immunodeficiency virus (FIV) is a retrovirus causing significant disease in cats. The virus has been shown to be similar biologically to the human immunodeficiency virus (HIV), the cause of acquired immunodeficiency syndrome (AIDS) in humans. Much interest has been expressed in the use of FIV as an animal model for HIV vaccination studies. Both FIV and HIV belong to the lentivirus group of

retroviruses. While there are several effective vaccines against feline leukaemia virus (FeLV), a mammalian type C retrovirus, at present there are no effective vaccines against lentiviruses. This review illustrates the obstacles to the production of vaccines against FIV or HIV. FIV vaccine studies conducted in several laboratories are reviewed, the results are compared and factors important for inducing protection from FIV infection are discussed.
Descriptors: feline acquired immunodeficiency syndrome, feline immunodeficiency virus, viral vaccines, cats.

Hosie, M.J. and O. Jarrett (1995). **Feline immunodeficiency virus as a vaccine model.** *North Atlantic Treaty Organization Advanced Study Institute Series* 282(Series A, Life sciences (USA)): 85-95. ISSN: 0258-1213.
NAL Call Number: QH301.N32
Descriptors: cats, lentivirinae, vaccines, vaccination, antigens, antigen antibody reactions, immune response, antibodies, disease control, immune response, immunity, immunization, immunological factors, immunostimulation, immunotherapy, retroviridae, therapy, viruses, alloantigens, neutralizing antibodies, viral antigens, protective antigens, virus neutralization.

Houweling, A.R., M. Bazhenov, I. Timofeev, M. Steriade, and T.J. Sejnowski (2005). **Homeostatic synaptic plasticity can explain post-traumatic epileptogenesis in chronically isolated neocortex.** *Cerebral Cortex* 15(6): 834-45. ISSN: 1047-3211.
Abstract: Chronically isolated neocortex develops chronic hyperexcitability and focal epileptogenesis in a period of days to weeks. The mechanisms operating in this model of post-traumatic epileptogenesis are not well understood. We hypothesized that the spontaneous burst discharges recorded in chronically isolated neocortex result from homeostatic plasticity (a mechanism generally assumed to stabilize neuronal activity) induced by low neuronal activity after deafferentation. To test this hypothesis we constructed computer models of neocortex incorporating a biologically based homeostatic plasticity rule that operates to maintain firing rates. After deafferentation, homeostatic upregulation of excitatory synapses on pyramidal cells, either with or without concurrent downregulation of inhibitory synapses or upregulation of intrinsic excitability, initiated slowly repeating burst discharges that closely resembled the epileptiform burst discharges recorded in chronically isolated neocortex. These burst discharges lasted a few hundred ms, propagated at 1-3 cm/s and consisted of large (10-15 mV) intracellular depolarizations topped by a small number of action potentials. Our results support a role for homeostatic synaptic plasticity as a novel mechanism of post-traumatic epileptogenesis.
Descriptors: brain injuries, epilepsy, models, neurological, neocortex, neuronal plasticity, action potentials, acute disease, brain injuries, cats, chronic disease, denervation, electrodes, implanted, epilepsy, homeostasis, periodicity, research support, n, i, h,, extramural.

Ingles, A.C., D.J. Legare, and W.W. Lautt (1994). **Evaluation of vascular tone in portacaval shunts comparing the index of contractility and resistance in cats.** *Hepatology* 20(5): 1242-6. ISSN: 0270-9139.
Abstract: A model of prehepatic chronic portal hypertension in cats was used to

determine portacaval shunt responses to infused norepinephrine and to possible transmitter overflow into portal blood from nerves supplying the gut. Responses are compared using a new index of contractility. Four weeks after application of a slowly constricting occluder, the portal vein was completely occluded and acute experiments were carried out under pentobarbital anesthesia. Portal pressure was elevated to 15.0 +/- 0.9 mmHg and all portal flow passed through the shunts. In response to intraportal norepinephrine (0.25, 0.5 and 1.25 micrograms.min-1.kg-1) shunt resistance rose by 6% +/- 3%, 19% +/- 4% and 26% +/- 5%, respectively, whereas the index of contractility rose (by 22% +/- 8%, 46% +/- 10% and 89% +/- 20%, respectively), the distending blood pressure also rose (5% +/- 1%, 7% +/- 1% and 14% +/- 3%, respectively). The difference in percentage increase of resistance and the index of contractility is a result of the passive dilator effect of the elevated distending pressure acting on the distensible shunt vessels. Stimulation of mesenteric nerves caused the mesenteric artery to constrict, but the shunt vessels showed no effect. In conclusion, the shunt vessels respond actively to norepinephrine and passively to altered distending pressure. However, transmitter overflow from nerves supplying the intestines is unlikely to play a role in determining resistance in the shunts. Vascular resistance is affected by both active and passive effects, so that the active contractile responses are best evaluated using the index of contractility, which is not altered passively.

Descriptors: portacaval shunt, surgical, vasoconstriction, vasodilation, vasomotor system, cats, dose response relationship, drug, electric stimulation, injections, intra arterial, injections, intravenous, mesenteric arteries innervation, nervous system, norepinephrine.

Ingles, A.C., D.J. Legare, and W.W. Lautt (1994). **Distensibility of portacaval shunts in portal hypertensive cats: index of contractility model.** *Canadian Journal of Physiology and Pharmacology* 72(6): 687-92. ISSN: 1205-7541.

NAL Call Number: 444.8 C16

Abstract: Complete shunting of portal blood flow through portacaval shunts was obtained using a constrictor around the portal vein to gradually produce a total occlusion. After 4 weeks, acute experiments were conducted in anesthetized cats. Blood from the femoral artery was shunted through a pump to supply and control the entire portal blood flow. As shunted portal blood flow was varied over a wide range, the portal shunt resistance showed distensibility. Decreasing portal venous pressure from 15.0 +/- 0.9 to 11.1 +/- 0.6 mmHg (1 mmHg = 133.3 Pa) resulted in elevations of resistance of 58%. The relation between the resistance (R) and the distending pressure (Pd) was a constant, the index of contractility (IC), where IC = R.Pd3. In steady state, the IC was 485 +/- 55 mmHg4.mL-1.min.kg and did not change passively in response to changes in portal blood flow. In conclusion, portacaval shunts are passively distensible, and resistance is altered as a cubic function of the distending pressure. Because resistance is altered both actively and passively, the IC should prove useful to differentiate these alternatives for evaluation of changes in portal hypertensive therapy.

Descriptors: hypertension, portal, muscle, smooth, vascular, portacaval shunt, surgical, pressure, cats, hemodynamic processes, biological models, muscle contraction, perfusion, portal vein, vascular resistance.

Inoue, S., M. Kawaguchi, K. Kurehara, T. Sakamoto, K. Kitaguchi, and H. Furuya (2001). **Effect of mild hypothermia on nicorandil-induced vasodilation of pial arterioles in cats.** *Critical Care Medicine* 29(11): 2162-8. ISSN: 0090-3493.

Abstract: OBJECTIVE: Nicorandil is characterized as hybrid between nitrates and potassium channel activators. Recent evidence suggested that mild hypothermia may alter cerebral vasodilation induced by a nitrate agent and potassium channel opener. However, the effect of mild hypothermia on nicorandil-induced vasodilation is not known. The present study was conducted to investigate whether mild hypothermia could alter nicorandil-induced cerebral vasodilation. In addition, the effects of mild hypothermia on cerebral vasodilation induced by nitroglycerin, a nitrate agent, and cromakalim, a selective adenosine 5'-triphosphate-sensitive potassium channel opener, were assessed in the same model. DESIGN: Prospective, randomized, experimental study with repeated measures. SETTING: Investigational animal laboratory. SUBJECTS: Twenty-four cats. INTERVENTIONS: Animals were anesthetized with pentobarbital. The cranial window technique, combined with microscopic video recording, was used to measure small (50-100 microm) and large (100-200 microm) pial arteriolar diameter in an experiment. Animals were assigned randomly to either a normothermic (37 degrees C) or a hypothermic (33 degrees C) group. Nicorandil, nitroglycerin, or cromakalim at concentrations of 10(-8), 10(-6), or 10(-4) mol/L was applied topically in the cranial window, and the diameter of pial arterioles was measured. MEASUREMENTS AND MAIN RESULTS: Topical administration of nicorandil, nitroglycerin, and cromakalim significantly dilated both small and large pial arterioles in a dose-dependent manner during normothermia. Nicorandil-induced vasodilation of either large or small pial arterioles was not affected by hypothermia. However, hypothermia significantly attenuated nitroglycerine-induced vasodilation in both large and small pial arterioles and enhanced cromakalim-induced vasodilation in both large and small pial arterioles. CONCLUSIONS: Nicorandil-induced vasodilation of cerebral pial arterioles was not affected by mild hypothermia. By contrast, mild hypothermia significantly attenuated nitroglycerin-induced vasodilation and enhanced cromakalim-induced vasodilation.

Descriptors: cerebral arteries, hemodynamic processes, hypothermia, nicorandil, vasodilation, vasodilator agents, topical administration, cats, cromakalim, cromakalim, dose response relationship, drug, nicorandil, nitroglycerin, nitroglycerin, vasodilator agents.

Jackson, M., M. Solomonow, B. Zhou, R.V. Baratta, and M. Harris (2001). **Multifidus EMG and tension-relaxation recovery after prolonged static lumbar flexion.** *Spine* 26(7): 715-23. ISSN: 0362-2436.

Abstract: STUDY DESIGN: The electromyogram (EMG) from the in vivo feline L1 to the L7 multifidus was recorded during the application of a 20-minute static lumbar flexion and after 7 hours of rest. OBJECTIVE: To determine the recovery of tension-relaxation and laxity in the lumbar viscoelastic structures as well as the recovery of reflexive EMG activity in the multifidus after prolonged static flexion. SUMMARY OF BACKGROUND: It has been established that prolonged static flexion of the spine induces creep or tension-relaxation in its viscoelastic structures as well as a sharp decrease in the reflexive activity of the dorsal musculature and initiation of spasms. Epidemiologic studies have pointed out that such static flexion is associated with

unusually high rates of low back disorders. The rate and pattern of recovery of reflexive muscular activity with rest after static flexion is still unknown. METHODS: The lumbar spines of seven in vivo feline preparations were subjected to 20 minutes of passive anterior flexion followed by 7 hours of rest while monitoring flexion tension, EMG from the L1-L7 multifidus muscles, and the strain of the L4/L5 supraspinal ligament. A model describing the pattern of recovery of muscular activity and viscoelastic tension was developed. RESULTS: Twenty minutes of lumbar flexion was associated with an initial sharp decrease of multifidus EMG activity followed by spasms. During rest, EMG activity demonstrated an initial hyperexcitability on flexion, followed by an exponential recovery of muscle activity. Full recovery of residual strain in the L4/L5 supraspinous ligament and multifidus activity was not obtained after 7 hours of rest. CONCLUSIONS: Static flexion of the lumbar spine is an extremely imposing function on its viscoelastic tissues, resulting in spasms and requiring long periods of rest before normal functions are re-established.
Descriptors: muscle contraction, muscle relaxation, muscle, skeletal, recovery of function, cats, electromyogrphy, lumbar vertebrae, lumbar vertebrae, models, animal.

Jergens, A.E. (2002). **Understanding gastrointestinal inflammation--implications for therapy.** *Journal of Feline Medicine and Surgery* 4(3): 179-182. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, dogs, gastrointestinal diseases, inflammation, pathogenesis, intestinal mucosa, immune system, therapeutic diets.

Johnson, C., P.A. Lobelle Rich, A. Puetter, and L.S. Levy (2005). **Substitution of feline leukemia virus long terminal repeat sequences into murine leukemia virus alters the pattern of insertional activation and identifies new common insertion sites.** *Journal of Virology* 79(1): 57-66. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Abstract: The recombinant retrovirus, MoFe2-MuLV (MoFe2), was constructed by replacing the U3 region of Moloney murine leukemia virus (M-MuLV) with homologous sequences from the FeLV-945 LTR. NIH/Swiss mice neonatally inoculated with MoFe2 developed T-cell lymphomas of immature thymocyte surface phenotype. MoFe2 integrated infrequently (0 to 9%) near common insertion sites (CISs) previously identified for either parent virus. Using three different strategies, CISs in MoFe2-induced tumors were identified at six loci, none of which had been previously reported as CISs in tumors induced by either parent virus in wild-type animals. Two of the newly identified CISs had not previously been implicated in lymphoma in any retrovirus model. One of these, designated 3-19, encodes the p101 regulatory subunit of phosphoinositide-3-kinase-gamma. The other, designated Rw1, is predicted to encode a protein that functions in the immune response to virus infection. Thus, substitution of FeLV-945 U3 sequences into the M-MuLV long terminal repeat (LTR) did not alter the target tissue for M-MuLV transformation but significantly altered the pattern of CIS utilization in the induction of T-cell lymphoma. These observations support a growing body of evidence that the distinctive sequence and/or structure of the retroviral LTR determines its pattern of insertional activation. The findings also demonstrate the oligoclonal nature of retrovirus-induced lymphomas by demonstrating proviral insertions at CISs in subdominant

populations in the tumor mass. Finally, the findings demonstrate the utility of novel recombinant retroviruses such as MoFe2 to contribute new genes potentially relevant to the induction of lymphoid malignancy.
Descriptors: leukemia virus, feline, lymphoma, t cell, moloney murine leukemia virus, moloney murine leukemia virus pathogenicity, recombination, genetic, terminal repeat sequences, animals, newborn, cats, DNA, viral, leukemia, leukemia, lymphoma, t cell, mice, oncogenes, proto oncogene proteins, proviruses, retroviridae infections, retroviridae infections, tumor virus infections, tumor virus infections, virus integration.

Johnson, C.M., S.J. Bortnick, P.C. Crawford, and G.P. Papadi (2001). **Unique susceptibility of the fetal thymus to feline immunodeficiency virus infection: an animal model for HIV infection in utero.** *American Journal of Reproductive Immunology* 45(5): 273-88. ISSN: 1046-7408.
Abstract: Human infants infected in utero with HIV develop thymus insufficiency and progress to AIDS sooner than infants infected peripartum. However, direct analysis of the thymus is difficult due to limited tissue access and variable timing of vertical transmission. METHOD OF STUDY: Fetal and neonatal cats were inoculated with feline immunodeficiency virus (FIV) at an equivalent infectious dose. The thymus, blood, and lymph nodes were harvested and compared at 23 and 46 days post-inoculation (p.i.) and also compared to sham-inoculated, age-matched controls. Lymphocyte phenotypes were analyzed by flow cytometry and virus burden was quantified in histologic sections and by virus isolation from plasma. RESULTS: Fetal cats inoculated with FIV had acute thymus atrophy at birth, which coincided with peak viremia. At 46 days p.i., thymus size and cell composition rebounded and supported increased productive infection. In contrast, neonatal cats inoculated with FIV developed chronic thymus atrophy and degeneration, which was associated with decreasing productive infection and low-level viremia. CONCLUSIONS: The fetal thymus is uniquely vulnerable to acute, transient depletion and high-level productive infection. The neonatal thymus is less vulnerable to acute changes, and responds through progressive atrophy and declining productive infection. Reduced immune competence, as reflected by the failure to control virus replication, may contribute to the accelerated progression of FIV and HIV infections in utero.
Descriptors: feline acquired immunodeficiency syndrome, fetus, HIV infections, feline immunodeficiency virus, thymus gland, animals, newborn, atrophy, cats, disease models, animal, feline acquired immunodeficiency syndrome, feline acquired immunodeficiency syndrome, feline acquired immunodeficiency syndrome, fetus, HIV infections, homeostasis, infant, newborn, biological models, pregnancy, infectious, pregnancy, infectious, t lymphocytes, thymus gland, thymus gland, viremia, virus replication.

Johnson, C.M., B.A. Torres, H. Koyama, and J.K. Yamamoto (1994). **Tenth anniversary perspectives on aids: fiv as a model for aids vaccination**. *AIDS Research and Human Retroviruses* 10(3): 225-228. ISSN: 0889-2229.
Descriptors: feline immunodeficiency virus, AIDS model, infection, microbiology, acquired immunodeficiency syndrome, antibody titer, challenge protection.

Jones, S.R., D.J. Pinto, T.J. Kaper, and N. Kopell (2000). **Alpha-frequency rhythms desynchronize over long cortical distances: a modeling study**. *Journal of Computational*

Neuroscience 9(3): 271-291. ISSN: 0929-5313.
Descriptors: nervous system, cats, neural coordination, neocortex, alpha frequency rhythms, desynchronization, cortical distance, local rhythms, modeling study, synchrony .

Joshi, M.S., J.A. Bauer, M.W. Julian, and E.D. Crouser (2004). **Cyclosporin a attenuates left ventricular dysfunction in a feline model of acute sepsis: relation to tlr4 induction, nos2 induction and protein nitration**. *Journal of the Federation of American Societies for Experimental Biology* 18(4-5): Abst. 401.5. ISSN: 0892-6638.
Online: http://www.fasebj.org/
NAL Call Number: QH301. F3
Descriptors: infection, feline model, acute sepsis, bacterial disease, cardiac dysfunction, heart disease, immunohistochemistry, left ventricular dysfunction attenuation, myocardial function.

Judy, K.D., G.B. Bulkley, B.E. Hedlund, and D.M. Long (1994). **Proposed toxic oxidant inhibitors fail to reduce brain edema.** *Acta Neurochirurgica/ Supplementum* 60: 89-93. ISSN: 0065-1419.
Abstract: Toxic oxidants (oxygen free radicals) have been implicated in the formation of brain edema from ischemia-reperfusion injury or tumor growth. We investigated the ability of an iron chelator, a calcium channel blocker, and a xanthine oxidase inhibitor to reduce formation of brain edema following a cold lesion in cats. The agents were given independently of each other in an attempt to inhibit the Haber-Weiss reaction, prevent Ca++ modulated uncoupling of oxidative phosphorylation, and inhibit the generation of toxic oxidants via xanthine oxidase, respectively. Pentastarch-deferoxamine conjugate at a dose of 50 mg/kg was given 15 minutes before and 60 minutes after the cold lesion. Nimodipine was given at a dose of 1 mg/kg 1 hour before and 2 hours after the cold lesion. Allopurinol was given at a dose of 50 mg/kg 24 hours before, at the time of the lesion and, 24 and 48 hours after the lesion. Gravimetric measurements of multiple brain areas were performed at 24 hours post-lesion in the pentastarch-deferoxamine and nimodipine groups and at 72 hours post-lesion in the allopurinol group. None of these agents led to significant reduction in brain edema formation as measured with a gravimetric column of kerosene and bromobenzene. Pentastarch-deferoxamine conjugate was utilized to avoid the confounding effects of arterial hypotension which is seen with intravenous deferoxamine. There was even a suggestion of increased edema in the periventricular white matter in animals treated with nimodipine. Taken together, independent inhibition of the Haber-Weiss reaction, of calcium channels, or of xanthine oxidase does not reduce formation of brain edema in the cold lesion model.
Descriptors: allopurinol, brain edema, brain injuries, calcium, cerebral infarction, deferoxamine, nimodipine, reactive oxygen species, cats, cerebral cortex, cerebral cortex injuries, cerebral cortex, dose response relationship, drug, freezing, water electrolyte balance.

Justus, C. and J.F. Quirke (1995). **Dose-response relationship for the antipyretic effect of meloxicam in an endotoxin model in cats.** *Veterinary Research Communications* 19(4): 321-330. ISSN: 0165-7380.
NAL Call Number: SF601. V38
Descriptors: cats, antipyretics, endotoxins, drugs, toxic substances, toxins .

Kadoi, K., H. Kamata, S. Ohba, T. Satoh, and Y. Inaba (1998). **Experimental infection in spf kittens with a particular calicivirus strain originally isolated from lion**. *Microbiologica* 21(3): 255-258. ISSN: 1121-7138.
NAL Call Number: QR1. M57
Descriptors: infection, kittens, calicivirus, intranasal, lion, vesicular disease, viral infection, viral disease.

Kamata, I., Y. Terai, and T. Ohmoto (2003). **Attempt to establish an experimental animal model of moyamoya disease using immuno-embolic material--histological changes of the arterial wall resulting from immunological reaction in cats.** *Acta Medica Okayama* 57(3): 143-150. ISSN: 0386-300X.
Abstract: In this study, we investigated the relationship between intimal thickening of the internal carotid artery (ICA) and immunological reaction, and between occlusion of the ICA and development of basal collateral vessels in moyamoya disease. Rod-shaped lactic acid-glycolic acid copolymer (LGA-50) and N-acetylmuramyl-L-alanyl-D-isoglutamine (muramyl dipeptide: MDP), and immuno-embolic material, were injected into cats unilaterally via the common carotid artery. Histological changes of duplication of the internal elastic lamina could be seen mainly in the terminal portion of the ICA in the animals injected with rod-shaped LGA-50 containing MDP. No angiographic changes were seen in any of the animals. These findings suggest that the immunological reaction induced by MDP caused histological changes in the intima of the ICA similar to those observed in moyamoya disease. This experimental study, however, could not clarify the development of the basal collateral vessels.
Descriptors: acetylmuramyl alanyl isoglutamine, immunologic adjuvants, carotid arteries, cats, animal disease models, moyamoya disease, carotid arteries, cerebral angiograpHy, drug combinations, intra arterial injections, lactic acid, polyglycolic acid, polymers, tunica intima.

Kaneko, K., H. Ando, Y. Watanabe, T. Seo, and T. Harada (2000). **Pathologic changes in the common bile duct of an experimental model with pancreaticobiliary maljunction without biliary dilatation.** *Pediatric Surgery International* 16(1-2): 26-8. ISSN: 0179-0358.
Abstract: Pancreaticobiliary maljunction (PBM), a congenital anomaly, causes regurgitation of pancreatic juice into the biliary tract, where it exerts a hazardous influence. However, changes in the common bile duct (CBD) remain obscure due to a lack of suitable experimental models. Using cats, we have developed an experimental model of PBM without bile-duct dilatation that allows the pure effects of PBM to be studied. Histologic and cellular kinetic changes in the CBD were analyzed in 6 controls and 9 experimental animals that survived for more than 6 months. CBD sections were stained with hematoxylin and eosin and a monoclonal antibody to the proliferating cell nuclear antigen (PCNA). Invaginations of the bile-duct epithelium or parietal sacculi increased, and peribiliary glands were well-developed. PCNA-positive cells significantly increased in the CBD, especially in the parietal sacculi and glands. It is concluded that PBM increases the cell cycle in CBD epithelium and subsequently developed peribiliary glands. These developed glands may be associated with the formation of protein plugs, often seen in patients with PBM.
Descriptors: biliary tract diseases, common bile duct, cats, common bile duct, dilatation,

pathologic, animal disease models, epithelium, immunohistochemistry, pancreatic diseases, proliferating cell nuclear antigen analysis.

Karanjia, N.D., A.L. Widdison, F.J. Lutrin, and H.A. Reber (1994). **Dopamine in models of alcoholic acute pancreatitis.** *Gut* 35(4): 547-51. ISSN: 0017-5749.
NAL Call Number: RC799 G8
Abstract: Acute oedematous pancreatitis and acute haemorrhagic pancreatitis were studied using the low pressure duct perfusion models of alcoholic pancreatitis in cats. After creating either form over 24 hours, each pancreas was histologically graded and assigned an inflammatory score (0-16; absent-severe). Urinary trypsinogen activation peptide concentrations were also used as a measure of severity. Using the model of acute haemorrhagic pancreatitis, it was previously shown that low dose dopamine (5 micrograms/kg.m) reduced the inflammatory score at 24 hours and that this effect was mediated by a reduction in pancreatic microvascular permeability acting via dopaminergic and beta adrenergic receptors. Further studies were conducted and are reported here. In experiment 1 different doses of dopamine in established alcoholic acute haemorrhagic pancreatitis were studied. In group 1 control cats (no dopamine), the inflammatory score was 10.5 (interquartile range (IQR)4). In groups 2, 3, and 4, haemorrhagic pancreatitis was induced. Twelve hours later dopamine was infused for six hours, in the doses of 2 micrograms/kg.min, 5 micrograms/kg.min, and 50 micrograms/kg.min respectively. The inflammatory score in group 2 was 7 (IQR 0.5, $p < 0.05$ v group 1), in group 3 it was 7 (IQR 2, $p < 0.05$ v group 1), and in group 4 it was 7 (IQR 4, $p < 0.05$ v group 1). This was matched by significantly lower levels of urinary tripsinogen activation peptide at 24 hours. In experiment 2 (group 5) we tried to reduce microvascular permeability further by combining dopamine with antihistamines, but there was no improvement in the inflammatory score. As oedematous pancreatitis is the commoner and milder form of acute pancreatitis in clinical practice, in experiment 3 we looked at the effect of dopamine in this model. In group 6 control cats (no treatment), the inflammatory score was 7 (IQR 3, $p < 0.05$ v group 1). In group 7 cats given dopamine (5 micrograms/kg.min for six hours) from 12 hours after the onset of actue oedematous pancreatitis, the inflammatory score was reduced to 4(IQR 2, $p < 0.05$ v group 6). This was matched by a significant reduction in the 24 hour urinary tripsin activation peptide concentration.
Descriptors: dopamine, pancreatitis, acute disease, cats, animal disease models, dose response relationship, drug, combination, edema, ethanol, hemorrhage, histamine antagonists, pancreatic diseases, pancreatitis.

Kataoka, N. (1994). **Regional differences in seizure threshold following systemic and topical administration of penicillin in cats**. *The Hokkaido Journal of Medical Science, [Hokkaido Igaku Zasshi]* 69(1): 84-94. ISSN: 0367-6102.
Abstract: The regional differences of epileptic seizure susceptibilities in various brain structures were investigated by using the feline model of systemic and local applications of penicillin (PC). After PC application, "repetitive isolated discharges" (RIDs) were observed and thereafter, it developed to "sustained high-frequency discharge" (SHD). The following results were obtained. 1. After the intraperitoneal application of PC, the areas involved by RIDs in order of frequency were cerebral cortex, hippocampus, mesencephalic reticular formation, centro-median nucleus of thalamus, amygdaloid

nucleus, dorsal median nucleus of thalamus and globus pallidus. SHD was firstly arising from cerebral cortex (100%), especially from suprasylvian gyrus of 13 out of 16 cats (18.2%). SHD immediately propagated to either the other cortical areas or subcortical structures. Hippocampus, centro-median nucleus and dorsal median nucleus of thalamus were rapidly involved by SHD from cerebral cortex in comparison with the other subcortical structures. 2. PC was applied topically on the surface of several different cortical areas. RIDs tended to appear in posterior suprasylvian gyrus. On the other hand, SHD arose from posterior ectosylvian gyrus in most cases. The mechanisms of initiation and propagation of epileptic discharge were discussed in conjunction with epileptic seizure susceptibility in various neuronal structures.
Descriptors: brain, epilepsy, penicillins, topical administration, cats, electroencephalography, injections, intraperitoneal, maximum allowable concentration, seizures.
Language of Text: Japanese.

Khan, T., R.M. Havey, S.T. Sayers, A. Patwardhan, and W.W. King (1999). **Animal models of spinal cord contusion injuries.** *Laboratory Animal Science* 49(2): 161-72. ISSN: 0023-6764.
NAL Call Number: 410.9 P94
Abstract: BACKGROUND AND PURPOSE: Traumatic spinal cord injury causes initial mechanical disruption of tissue, leading to a complex secondary sequence of pathophysiologic changes and neurologic impairment. These sequelae depend on the impact force delivered to the spinal cord at the time of injury. Successful clinical evaluation of the efficacy of any therapeutic regimen depends on the reliability and reproducibility of an experimental animal model. We describe a trauma device and the biomechanical parameters required to induce severe or moderate spinal cord contusion injury in cats and rats. METHODS: Recovery after injury was determined by behavioral, electrophysiologic, and histologic evaluations. RESULTS: Behavioral and electrophysiologic tests after injury clearly identified the experimental groups. A stable severe paraplegic state (defined as 6 months for cats and 8 weeks for rats), without evidence of behavioral or electrophysiologic recovery, was induced by a 65-Newton (N) load for cats and a 35-N load for rats. Moderate spinal cord contusion injury, from which cats and rats partially recovered after approximately 3 months and 4 weeks, respectively, was induced by a 45- and 25-N load, respectively. CONCLUSION: Use of these injury conditions provides reliable animal models for studies designed to evaluate potential therapeutic regimens for spinal cord injury.
Descriptors: contusions, animal disease models, spinal cord injuries, spinal cord injuries, spinal cord injuries, animal behavior, biomechanics, cats, electrophysiology, evoked potentials, motor, evoked potentials, somatosensory, paraplegia, rats, rats, sprague dawley, spinal cord, spinal cord, time factors.

Khanna, C. and K. Hunter (2005). **Modeling metastasis in vivo**. *Carcinogenesis* 26(3): 513-523. ISSN: 0143-3334.
NAL Call Number: RC268.5 .C38
Descriptors: animal models, cat, computational biology, tumor biology, metastasis,

neoplastic disease, in vivo modelling, mathematical and computer techniques, grave prognosis, xenografts.

Kiroi, V.N. and E.I. Belova (1998). **Spektral'nye kharakteristiki EKoG koshki v modeli emotsional'nogo stressa [Spectral EEG characteristics in emotional stress model in cats]**. *Rossiiskii Fiziologicheskii Zhurnal Imeni I/M/ Sechenova Rossiiskaia Akademiia Nauk* 84(12): 1377-85. ISSN: 0869-8139.
NAL Call Number: QP1.F58
Abstract: Emotional stress induced a global activation of the brain electrical activity: a decrease in the power of the theta-, alpha-, and beta-1-frequency bands in animals with active behaviour, and a decrease in the power of the theta- and alpha-frequency bands in animals with behavioural inhibition. The findings suggest that two forms of emotional behaviour correspond to different patterns of the brain activity. Appearance of spindle-like activity in passive animals' parietal and occipital leads suggests a hypothetical suppression in associative parietal and visual neocortical areas involved in processing the sensory information.
Descriptors: electroencephalography, psychological stress, brain mapping, cats, heart rate, motor activity.
Language of Text: Russian.

Kittleson, M.D., K.M. Meurs, M.J. Munro, J.A. Kittleson, S.K. Liu, P.D. Pion, and J.A. Towbin (1999). **Familial hypertrophic cardiomyopathy in maine coon cats: An animal model of human disease.** *Circulation* 99(24): 3172-3180. ISSN: 0009-7322.
NAL Call Number: RC681 .A1C8
Abstract: BACKGROUND: A naturally occurring animal model of familial hypertrophic cardiomyopathy (FHCM) is lacking. We identified a family of Maine coon cats with HCM and developed a colony to determine mode of inheritance, phenotypic expression, and natural history of the disease. METHODS AND RESULTS: A proband was identified, and related cats were bred to produce a colony. Affected and unaffected cats were bred to determine the mode of inheritance. Echocardiography was used to identify affected offspring and determine phenotypic expression. Echocardiograms were repeated serially to determine the natural history of the disease. Of 22 offspring from breeding affected to unaffected cats, 12 (55%) were affected. When affected cats were bred to affected cats, 4 (45%) of the 9 were affected, 2 (22%) unaffected, and 3 (33%) stillborn. Findings were consistent with an autosomal dominant mode of inheritance with 100% penetrance, with the stillborns representing lethal homozygotes that died in utero. Affected cats usually did not have phenotypic evidence of HCM before 6 months of age, developed HCM during adolescence, and developed severe HCM during young adulthood. Papillary muscle hypertrophy that produced midcavitary obstruction and systolic anterior motion of the mitral valve was the most consistent manifestation of HCM. Cats died suddenly (n=5) or of heart failure (n=3). Histopathology of the myocardium revealed myocardial fiber disarray, intramural coronary arteriosclerosis, and interstitial fibrosis. CONCLUSIONS: HCM in this family of Maine coon cats closely resembles the human form of FHCM and should prove a valuable tool for studying the gross, cellular, and molecular pathophysiology of the disease.
Descriptors: cats, animal disease models, hypertrophic cardiomyopathy,

echocardiograpHy, hypertropHy, muscle fibers, myocardium, papillary muscles, pedigree, phenotype.

Klinke, R., R. Hartmann, S. Heid, J. Tillein, and A. Kral (2001). **Plastic changes in the auditory cortex of congenitally deaf cats following cochlear implantation.** *Audiology and Neuro Otology* 6(4): 203-206. ISSN: 1420-3030.
Descriptors: auditory cortex, cochlear implantation, deafness congenital, deafness surgery, neuronal plasticity, brain stem, cats, electric stimulation, neurons, postoperative period, reflex.

Kobelt, F., U. Schreck, and H.A. Henrich (1994). **Involvement of liver in the decompensation of hemorrhagic shock.** *Shock* 2(4): 281-8. ISSN: 1073-2322.
Abstract: In a hemorrhagic shock model without adequate volume resuscitation we investigated the question whether a biochemical stabilization of liver function by applying 2-mercaptopropionyl-glycine (2MPG) may influence the shock dynamics especially the transition from compensated to decompensated shock and the development of multiple organ failure (MOF). The application of a bolus of 10 mg/kg 2MPG just after hemorrhage had significantly beneficial effects on shock dynamics. All measured blood parameters demonstrate a less severe liver dysfunction. We found a decisive recovery of systemic pH, prolonged high levels of blood glucose, a better ammonia detoxification, arterial ketone ratios (acetoacetate/beta-OH-butyrat) above about 0.25, and a significantly increased survival time from 200 +/- 10 min to more than 240 min after hemorrhage. Decompensation of the 2MPG group started about 60 min after decompensation of the shock group. The transition to decompensation was combined in the shock group as well as in the 2MPG group with a severe liver dysfunction indicated by an arterial ketone ratio below .25. Decreasing levels of blood thiobarbituric reactive material in compensated shock of both groups demonstrate that production of free radicals did not primarily cause decompensation, but increasing levels of thiobarbituric reactive material during decompensation seems to be one of the factors mediating MOF. Our data support the hypothesis of the liver being a barrier against decompensation of shock and MOF.
Descriptors: blood pressure, liver, mitochondria, liver, shock, hemorrhagic, thiopronine, acetoacetates, ammonia, glucose, cats, diastole, hydroxybutyrates, liver, liver, liver circulation, mitochondria, liver, biological models, oxidation reduction, perfusion, shock, hemorrhagic, splanchnic circulation, systole, thiobarbituric acid reactive substances analysis, uric acid.

Koirala, T.R., K. Nakagaki, T. Ishida, S. Nonaka, S. Morikawa, and T. Tabira (2001). **Decreased expression of MAP-2 and GAD in the brain of cats infected with feline immunodeficiency virus.** *The Tohoku Journal of Experimental Medicine* 195(3): 141-51. ISSN: 0040-8727.
Abstract: HIV-1 infection is often complicated by the dysfunction of central nervous system (CNS). Degenerative neuronal changes as well as neuronal loss have been documented in individuals with acquired immunodeficiency syndrome. Feline immunodeficiency virus (FIV) causes similar CNS manifestation and FIV infected cats provide an animal model for human immunodeficiency virus infection in humans. In this study, we examined the brain of FIV-infected cats and controls with

immunohistochemical techniques using antibodies to microtubule-associated protein 2 (MAP-2) and glutamic acid decarboxylase (GAD). We found a significant decrease in expression of MAP-2 and GAD in neurons of infected animals compared to controls. In contrast, the expression of neurofilaments and glial fibrillary acidic protein was rather increased. The changes observed in the brain were similar to those seen in humans undergoing the normal aging process as well as those suffering from neurological diseases like Alzheimer's disease and other dementing disorders. These changes in the feline brain give insight into the deleterious effects of FIV on the CNS.
Descriptors: brain, feline acquired immunodeficiency syndrome, glutamate decarboxylase, microtubule associated proteins, cats, glial fibrillary acidic protein, immunohistochemistry, neurofilament proteins, neurons, reference values.

Kotter, R. and F.T. Sommer (2000). **Global relationship between anatomical connectivity and activity propagation in the cerebral cortex.** *Philosophical Transactions of the Royal Society of London/ Series B Biological Sciences* 355(1393): 127-34. ISSN: 0962-8436.
NAL Call Number: 501 L84Pb
Abstract: Anatomical connectivity is a prerequisite for cooperative interactions between cortical areas, but it has yet to be demonstrated that association fibre networks determine the macroscopical flow of activity in the cerebral cortex. To test this notion, we constructed a large-scale model of cortical areas whose interconnections were based on published anatomical data from tracing studies. Using this model we simulated the propagation of activity in response to activation of individual cortical areas and compared the resulting topographic activation patterns to electrophysiological observations on the global spread of epileptic activity following intracortical stimulation. Here we show that a neural network with connectivity derived from experimental data reproduces cortical propagation of activity significantly better than networks with different types of neighbourhood-based connectivity or random connections. Our results indicate that association fibres and their relative connection strengths are useful predictors of global topographic activation patterns in the cerebral cortex. This global structure-function relationship may open a door to explicit interpretation of cortical activation data in terms of underlying anatomical connectivity.
Descriptors: cerebral cortex, computer simulation, models, neurological, nerve net, brain mapping, cats, convulsants, epilepsy, neural pathways, strychnine.

Krebs, F.C., H. Ross, J. McAllister, and B. Wigdahl (2000). **HIV-1-associated central nervous system dysfunction.** *Advances in Pharmacology* 49: 315-385. ISSN: 0568-0123.
Abstract: Despite more than 15 years of extensive investigative efforts, a complete understanding of the neurological consequences of HIV-1 CNS infection remains elusive. Although the resources of numerous investigators have been focused on studies of HIV-1-associated CNS disease, the complex nature of the disease processes that underlie the clinical, pathological, and cellular manifestations of HIV-1 CNS infection have required a larger volume of studies than was initially envisioned. Several major areas remain as the focus of current research efforts. One of the more pressing issues facing researchers and clinicians alike is the search for correlates to the development of HIV-1-associated CNS neuropathology and the onset of HIVD. Although numerous parameters have been studied, none have been shown to be absolute predictors or markers of HIV-

1-related CNS dysfunction. The identification of solid correlates of HIVD is an important goal that would permit clinical identification of individuals at risk for developing potentially crippling, life-threatening CNS abnormalities and would facilitate early treatment of nascent neurological problems. A more complete comprehension of the cellular foundations of CNS dysfunction and HIVD is also a fundamental part of strategies designed to treat or prevent HIV-1-associated CNS disease. Future investigations will strive to expand the body of knowledge concerning the complex interactions between infected and uninfected neuroglial cells and the roles of numerous cytokines, chemokines, and other soluble agents that are deregulated during HIV-1 CNS infection. In particular, a thorough understanding of the mechanisms of neurotoxicity may facilitate the development of new therapies that alleviate or eliminate the clinical consequences of CNS infection. Finally, investigators will continue to study HIVD within the context of single and combination drug therapies used in the treatment of HIV-1 infection and AIDS. As newer and more effective systemic treatments for HIV-1 infection and AIDS are introduced, the effects of these treatments on the onset, incidence, and severity of HIVD will also require intensive study. The impact of drug therapies on the ability of the CNS to act as an HIV-1 reservoir will also need to be addressed. Introduction of each new drug or drug combination will necessitate studies of drug penetration into the CNS and efficacy against the development of CNS abnormalities. Furthermore, as more effective treatments prolong the lifespan of individuals infected with HIV-1, the impact of extended survival on the occurrence and severity of HIVD will also require further investigations. The quest for answers to these and other questions will be complicated by the diversity of experimental systems used to study different aspects of HIV-1 CNS infection and HIVD. Each system has its own unique strengths and weaknesses. Clinical observations provide a continuous spectrum of symptomatic findings but reveal little about the underlying mechanisms of disease. In vivo imaging techniques, such as CT and MRI, also provide a continuum of observations, but the images are limited in their resolution. Neuropathological examinations of postmortem HIV-1-infected brains offer gross, cellular, and molecular views (including phenotypic and genotypic analyses of CNS viral isolates) of the diseased brain, but only provide a snapshot of the end-stage neurologic dysfunction. Studies that rely on animal surrogates for HIV-1, including SIV, simian-HIV (SHIV), feline immunodeficiency virus (FIV), visna virus, and HIV-1 SCID-hu models, permit experimental protocols that cannot be carried out in humans, but are limited by the fidelity with which each virus and animal model emulates the conditions and events observed in the human host. Finally, in vitro techniques, which include the use of primary cells and cell lines, adult or fetal human cell cultures, and BBB barrier model systems, are also convenient means by which aspe

Descriptors: AIDS dementia complex, acquired immunodeficiency syndrome, brain diseases, HIV 1 pathogenicity, AIDS dementia complex, acquired immunodeficiency syndrome, antiretroviral therapy, highly active, astrocytes, brain, brain, brain diseases, ccaat enhancer binding protein beta, gene expression regulation, viral, HIV 1, magnetic resonance imaging, microglia, receptors, chemokine, tomography, x ray computed, transcription factor, sp1.

Kriebel, R.M. and J.P.2. McAllister (2000). **Pathology of the hippocampus in experimental feline infantile hydrocephalus.** *Neurological Research* 22(1): 29-36. ISSN: 0161-6412.
Abstract: Hydrocephalus is responsible for many pediatric neurological deficits presumed to be caused by neocortical pathophysiology. Relatively little is known about the role of non-neocortical CNS structures in this condition. In the present work experimental infantile hydrocephalus produced by intracisternal kaolin injection was studied in a neonate kitten model. The hippocampal formation was processed for electron microscopy, and the neuropil of the CA3 region was examined in untreated, severely hydrocephalic and age-matched normal animals. Both macroscopically and microscopically the thickness of the hippocampus was not decreased. Hippocampal pyramidal neurons were found in varying stages of cytoplasmic densification, and dendritic and axonal processes exhibited hydropic cellular deterioration. The number of synaptic contacts was decreased. However, there was no indication of edematous extracellular space and the ependymal covering of the hippocampus was intact. The macroscopic structural integrity of the hippocampus, as well as the dendritic, axonal and synaptic alterations, suggest that the dark pyramidal neurons are the result of deafferentation, which may have profound effects on learning and memory.
Descriptors: hippocampus, hydroceph alus, pyramidal cells, animals, newborn, axons, axons ultrastructure, cats, dendrites, dendrites ultrastructure, hippocampus ultrastructure, neuropil, neuropil ultrastructure, pyramidal cells ultrastructure.

Kuriakose, M., D. Banks, and B. Matthews (1994). **Behavioural responses to tooth-pulp stimulation in cats**. *Society for Neuroscience Abstracts* 20(1-2): 762. ISSN: 0190-5295.
NAL Call Number: QP351. S6
Descriptors: behavior, cats, tooth pulp, nervous system, sense organs, behavioral response, nociception model, pain .

Laser, M., C.D. Willey, W. Jiang, G. Cooper, D.R. Menick, M.R. Zile, and D. Kuppuswamy (2000). **A potential mechanism for focal complex formation in hypertrophying myocardium**. *Circulation* 102(18 Supplement): II.290. ISSN: 0009-7322.
NAL Call Number: RC681. A1C8
Descriptors: cardiovascular system, circulation, myocardial hypertropHy, Cardiomegaly, heart disease, arginyl glycyl aspartic acid induced, mechanism, right ventricular pressure overload.
Notes: Meeting Information: Abstracts from American Heart Association Scientific Sessions 2000, New Orleans, Louisiana, USA; November 12-15, 2000.

Lee, A. (2000). **Animal models of gastroduodenal ulcer disease.** *Clinical Gastroenterology* 14(1): 75-96. ISSN: 0192-0790.
Abstract: Animal models have played a significant role in research that aims to understand peptic ulceration. Firstly, they have helped define basic mechanisms of gastric mucosal defence and repair. The basis for gastric injury following NSAID administration was facilitated by animal models that correlated well with disease in humans. In early studies, ulceration was induced by grossly damaging insults to the gastric mucosa that were unphysiological. With refinement these models provided a clearer appreciation of stress ulceration. The discovery of Helicobacter pylori (H. pylori), as the cause of most ulcers, resulted in a need to re-evaluate the early literature and to look for new models.

To date, these have contributed little to our understanding of the pathogenesis of H. pylori-induced ulcer. A major aim of this chapter is to suggest that thorough understanding of the animal models of Helicobacter infection may provide important new insights, in particular the factors controlling gastritis, the essential precursor lesion of ulceration. Available models include primates, cats, guinea pigs, ferrets and pigs. The mouse models provide opportunity for identifying both essential bacterial and host factors. The most severe pathologies are seen in the H. pylori-infected Mongolian gerbil with ulcers being formed in most animals. This is likely to become the standard animal model for investigation of peptic ulcer disease.
Descriptors: animal disease models, duodenal diseases, duodenal diseases microbiology, stomach ulcer, stomach ulcer microbiology, cats, ferrets, gerbillinae, helicobacter infections, helicobacter pylori, mice, swine.

Lee, A. (1998). **Animal models for host-pathogen interaction studies.** *British Medical Bulletin* 54(1): 163-73. ISSN: 0007-1420.
Abstract: There is no model of *Helicobacter pylori* infection that exactly mimics the human diseases. In a particular, there are no good models of ulceration or gastric adenocarcinoma. Patterns of gastritis induced in the animals tend to be lymphocytic and lack the neutrophil infiltration typical of *H. pylori* infection in the adult. However, the animal models are starting to provide valuable information with respect to factors involved in the colonisation of the gastric mucosa and the importance of host factors in the development of gastric atrophy, as well as making possible the screening of potential therapeutic agents and vaccine candidates. Models include gnotobiotic piglets, primates, cats, dogs, ferrets and a range of rodents. Recent advances in the mouse models mean that they will allow us to dissect bacterial host interactions in a novel manner due to the availability of a wide range of immunological reagents and numerous mutant or transgenic strains.
Descriptors: animal disease models, helicobacter infections microbiology, helicobacter pylori, stomach diseases microbiology, cats, dogs, ferrets, mice, mice, mutant strains, mice, transgenic, swine.

Lee, S.K., D.I. Kim, S.Y. Kim, D.J. Kim, J.E. Lee, and J.H. Kim (2004). **Reperfusion cellular injury in an animal model of transient ischemia.** *American Journal of Neuroradiology* 25(8): 1342-7 . ISSN: 0195-6108.
Abstract: BACKGROUND AND PURPOSE: Early thrombolytic therapy is encouraged in hyperacute stroke, although this might result in delayed reperfusion injury. Our purpose was to investigate the serial changes in cerebral perfusion following transient ischemia by means of MR imaging and to correlate them with the histologic findings obtained by using the TdT-mediated dUTP-biotin nick-end labeling (TUNEL) assay. METHODS: One-hour transient occlusion of the middle cerebral artery was produced in 10 cats. Serial perfusion-weighted MR imaging was performed for 3 days after reperfusion. The reperfusion characteristics in each region of the brain were classified into four groups according to the serial perfusion MR imaging status: normal perfusion (N), continuous hyperperfusion (I), early hyperperfusion and gradual decrease (II), and persistent hypoperfusion (III). After the last imaging session, a specimen was obtained, and TUNEL staining was performed. TUNEL-positive cells were counted

under a high-power-field (HPF) light microscope (x200). The degree of TUNEL positivity was compared among the four reperfusion groups classified on the basis of serial perfusion-weighted imaging findings. RESULTS: Group N had 16.8 +/- 5.1 TUNEL-positive cells per HPF. Groups I and II had a statistically significant increase in TUNEL positivity (39.5 +/- 13.4 and 43.6 +/- 16.7 cells per HPF; P < .01, one-way analysis of variance), whereas group III had a statistically insignificant increase in TUNEL positivity (23.3 +/- 6.9 cells per HPF). CONCLUSION: Reperfusion followed by hyperperfusion induced cellular damage, although the initial MR imaging findings were normal. The inclusion of anti-reperfusion injury therapy should be considered in thrombolytic treatment.
Descriptors: animal disease models, ischemic attack, transient diagnosis, reperfusion injury diagnosis, cats, in situ nick end labeling, ischemic attack, transient, ischemic attack, transient, reperfusion injury, reperfusion injury.

Lefer, A.M., A.S. Weyrich, and M. Buerke (1994). **Selectin blockade in myocardial ischemia-reperfusion injury**. *Journal of Cellular Biochemistry Supplement* 0(18D): 262. ISSN: 0733-1959.
NAL Call Number: QH504 .J67
Descriptors: circulation, cardiovascular system, immune system, cardioprotective agents, cardiovascular agents, cell adhesion, coronary angioplasty, feline model, immunologic agents, monoclonal antibodies, therapy potential, thrombolysis .

Leung, J.W., E.D. Libby, D.W. Morck, S.G. McKay, Y. Liu, K. Lam, and M.E. Olson (2000). **Is prophylactic ciprofloxacin effective in delaying biliary stent blockage?** *Gastrointestinal Endoscopy* 52(2): 175-82. ISSN: 0016-5107.
Abstract: BACKGROUND: Late stent blockage is a major complication of endoscopic stent insertion for malignant obstructive jaundice. Stents block as a result of bacterial infection and biofilm formation. We report a randomized but unblinded study using an animal model to evaluate the effect of prophylactic ciprofloxacin, which selectively suppresses gram-negative bacteria, in an attempt to prolong stent patency. METHOD: Ten adult cats underwent surgical implantation of 5F polyethylene stents through common bile duct strictures created around the choledochotomy, with the tip of the stent left in the duodenum. Five animals received intravenous ciprofloxacin perioperatively and were then maintained on oral ciprofloxacin 25 mg twice daily. Control cats were not given antibiotics. The animals were sacrificed when signs of biliary obstruction or cholangitis persisted for more than 3 days or at the end of the 16-week study period. Stents were removed and examined for patency. In addition, the stents were cultured to recover the adherent bacteria. RESULTS: All control animals developed stent blockage within 4 weeks. Two ciprofloxacin-treated cats developed stent blockage at 21 and 42 days, respectively, whereas the other 3 cats had patent stents for the entire study period. There was a significant difference between the median stent patency of 112 days for the ciprofloxacin group versus 16 days for the control group ($p < 0.02$). Bacteriologic cultures showed that the bile and blocked stents from the control group had predominantly gram-negative bacteria, whereas the bile and stents of the ciprofloxacin group had gram-positive and anaerobic bacteria, with an absence of gram-negative bacteria ($p < 0.01$). CONCLUSION: Ciprofloxacin prophylaxis eliminates gram-negative

bacterial infection in bile and minimizes sludge formation and may have a potential benefit in delaying stent blockage.
Descriptors: anti infective agents, antibiotic prophylaxis, ciprofloxacin, common bile duct diseases surgery, postoperative, stents, oral administration, cats, animal disease models, drug administration schedule, equipment safety, follow up studies, infusions, intravenous, random allocation, reference values, nonparametric statistics.

Levine, D.F., D.E. Witherspoon, J.L. Gutmann, and A.M. Iacopino (2001). **Interleukin-1beta production in periradicular lesions in a human immunodeficiency virus/acquired immune deficiency syndrome model compared with a noninfected host.** *Journal of Endodontics* 27(8): 499-502. ISSN: 0099-2399.
Abstract: This study elucidates the role of interleukin-1 (IL-1) in developing periradicular lesions in immunocompetent and immunocompromised (human immunodeficiency virus/acquired immune deficiency syndrome) hosts. Eight cats were immunosuppressed with steroids before infection with feline immunodeficiency virus (FIV). Eight uninoculated cats served as controls. Periradicular lesions were induced around the canine teeth. At 1 and 4 wk periradicular exudate was sampled via the root canals. IL-1beta levels were measured with ELISA. Data were analyzed using the Mann-Whitney U test and the Wilcoxon signed rank test. Statistically significant differences existed in cytokine levels between the FIV and non-FIV groups ($p < 0.001$). Cytokines were below detectable levels in the FIV group. A significant decrease in IL-1beta levels at 4 wk compared with 1 wk occurred in the non-FIV group ($p < 0.05$). In conclusion decreased IL-1beta production was obtained in the FIV group. In the non-FIV group decreases in IL-1beta levels were encountered at the chronic stage of the periradicular lesion compared with the acute stage.
Descriptors: feline acquired immunodeficiency syndrome, interleukin 1 biosynthesis, periapical periodontitis, acute disease, cats, chronic disease, animal disease models, enzyme linked immunosorbent assay, feline acquired immunodeficiency syndrome, immunocompromised host, nonparametric statistics.

Lewis, G.P., C.S. Sethi, D.G. Charteris, K.A. Linberg, K.C. Talaga, and S.K. Fisher (2002). **Repeated retinal detachment and reattachment in an animal model as an experimental paradigm for complex detachments in humans.** In: *Annual Meeting Abstract Search and Program Planner: Annual Meeting of the Association For Research in Vision and Ophthalmology, May 5, 2002-May 10, 2002, Fort Lauderdale, Florida, USA;* Vol. 2002, p. Abstract No. 4540.
Online: http://www.faseb.org/arvo/
Descriptors: feline model, sense organs, sensory reception, retinal detachment, Retinal Detachment, eye disease, immunocytochemical analysis, immunologic techniques, laboratory techniques, retinal reattachment, clinical techniques, cellular response, visual recovery.

Lexa, F.J., R.I. Grossman, and A.C. Rosenquist (1994). **Dyke Award paper. MR of wallerian degeneration in the feline visual system: characterization by magnetization transfer rate with histopathologic correlation.** *American Journal of Neuroradiology* 15(2): 201-12. ISSN: 0195-6108.
Abstract: PURPOSE: To examine the utility of measuring magnetization transfer ratio

for for delineating the dynamic changes of wallerian degeneration which occur after controlled injury in a feline model in which anatomic pathways are well understood. METHODS: Using standard neurosurgical techniques, discrete lesions were made to ablate the visual cortex. Gradient imaging was performed serially at 1.5 T, with and without a saturation pulse to create a magnetization transfer effect. At varying intervals, the animals were killed for histologic analysis. RESULTS: Within the first 2 weeks there is a statistically significant increase in magnetization transfer ratio relative to the control hemisphere within the white matter connections between the lateral geniculate nucleus and the visual cortex at a time when no effects are visually detectable on spin-echo images. Between 16 and 28 days, this reverses to a decrease in magnetization transfer ratio in both the lateral geniculate nucleus itself and the adjacent superolateral white matter. More remote white matter tracts remained stable, without significant change. CONCLUSIONS: Magnetization transfer ratio seems to be more sensitive for early detection of degeneration than conventional spin-echo imaging. Moreover, temporal changes in magnetization transfer ratio seem to correspond well with known histologic phases of wallerian degeneration.
Descriptors: geniculate bodies, magnetic resonance imaging instrumentation, visual cortex, wallerian degeneration, brain mapping instrumentation, cats, dominance, cerebral, electron microscopy, neuroglia ultrastructure, neurons ultrastructure, stereotaxic techniques instrumentation, visual pathways.

Li, P., K.F. Pitsillides, S.V. Rendig, H.L. Pan, and J.C. Longhurst (1998). **Reversal of reflex-induced myocardial ischemia by median nerve stimulation: a feline model of electroacupuncture.** *Circulation* 97(12): 1186-94. ISSN: 0009-7322.
NAL Call Number: RC681. A1C8
Abstract: BACKGROUND: Acupuncture is reported to reduce myocardial ischemia, arrhythmias, and hypertension. To investigate the physiological mechanisms underlying these observations, a model of reflex-induced, reversible myocardial ischemia was developed to test the effects of median nerve stimulation as a surrogate for electroacupuncture. METHODS AND RESULTS: Chloralose-anesthetized cats were instrumented to measure arterial blood pressure, left ventricular pressure, left ventricular dP/dt, heart rate, left anterior descending (LAD) coronary blood velocity, and regional wall motion. The LAD artery either was partially occluded or a small diagonal branch was ligated. Subsequently, transient reflex activation of the cardiovascular system was evoked by application of bradykinin (typically 1 microg/mL) to the gallbladder, which significantly increased myocardial oxygen demand (double product), left ventricular dP/dt, and coronary blood velocity and caused ischemia-induced regional dysfunction, evidenced by significant (P<.05) reduction in normalized wall thickening (10.7+/-4.2% versus -23.6+/-2.9%; control versus ischemia; n=7). However, when median nerves were stimulated with low frequency (5 Hz) to mimic electroacupuncture, bradykinin-induced change in normalized wall thickening was significantly improved (-23.6+/-2.9% versus 9.8+/-4.9%; ischemia versus median nerve stimulation, P<.05) and remained augmented > or = 1 hour. Results were similar in partial and complete occlusion groups. Significant improvement in wall thickening was associated with unchanged increment of coronary blood velocity and significantly diminished increments of double product and diastolic blood pressure. CONCLUSIONS: These results suggest that stimulation of the median

nerve to mimic electroacupuncture diminishes regional myocardial ischemia triggered by a sympathetically mediated increase in cardiac oxygen demand. The mechanism of this effect is related to reduction in cardiac oxygen demand, secondary to a diminished pressor response. These data provide the first documentation of the physiological mechanisms underlying the possible beneficial effect of electroacupuncture in the context of restricted coronary blood flow and augmented myocardial oxygen demand.
Descriptors: electroacupuncture, median nerve, myocardial ischemia, reflex, arterial occlusive diseases, arterial occlusive diseases therapy, arterial occlusive diseases ultrasonography, bradykinin, cats, coronary vessels, coronary vessels, electric stimulation, heart innervation, median nerve, myocardial ischemia ultrasonography, neurons, afferent.

Li, R., N. Fujitani, J.T. Jia, and H. Kimura (1998). **Immunohistochemical indicators of early brain injury: an experimental study using the fluid-percussion model in cats.** *The American Journal of Forensic Medicine and Pathology* 19(2): 129-36. ISSN: 0195-7910.
Abstract: To detect early changes in neurons and astrocytes by immunohistochemical methods using antibodies against the neuron-specific enolase (NSE), neurofilament, glial fibrillary acid protein (GFAP), and S-100 protein, a fluid-percussion injury model in cats was chosen, in which a severe grade of injury (3.5-5.5 atm) was produced. Neuropathologic changes were produced through brain deformation by pressure gradients at the time of injury. The neuronal NSE immunoreactivity in the parietal cortex and the brain stem began to decrease at 1 to 2 hours after injury and were reduced markedly or even lost 4 hours after injury. Axons in the cerebral white matter and corpus callosum and in the hemorrhage regions at the brain stem were waved and enlarged <4 hours after injury. From 4 hours after injury, retraction balls were found after staining by antibody for the neurofilament. The GFAP-positive astrocytes appeared in the impact site in the parietal cortex and in the brain stem from 4 hours after injury, whereas S-100-positive astrocytes were not markedly changed, indicating that early after the injury, astrocytes manifested reactive hypertrophy without proliferation. These results suggest that immunochemical studies on NSE, neurofilament, GFAP, and S-100 are useful in pathologic and forensic practice in a patient who survives for a short time after a fatal head injury but without obvious focal damage.
Descriptors: brain injuries, glial fibrillary acidic protein, neurofilament proteins, phosphopyruvate hydratase, s100 proteins, astrocytes, astrocytes, biological markers, brain injuries, brain stem, brain stem, cats, cerebral cortex, cerebral cortex, animal disease models, hemorrhage, immunoenzyme techniques, neurons, neurons.

Li, Z., A. Phadke, E.A. Weaver, J.M. Ball, and E.W. Collisson (2005). **Feline CD8(+) cells induced with FIV infected, irradiated T cells produce multiple anti-FIV factors.** *Developmental and Comparative Immunology* 29(9): 809-24. ISSN: 0145-305X.
Abstract: Feline immunodeficiency virus (FIV) infection in cats is the only non-primate, small animal model for HIV-AIDS. Replication of FIV has been shown to be optimally suppressed by soluble factors produced by inducer cell-stimulated feline CD8(+) cells from FIV-infected cats. The nature of this dose-dependent suppression of FIV was examined. Antiviral factors, produced in serum-free medium, were shown to be either heat stable or heat labile. Suppressing activity was identified in a heparin-bound fraction and the non-bound fraction and in fractions separated by reverse-phase HPLC. The FIV

suppression could not be correlated with IFN type I or II. Neither alpha nor beta chemokines were likely candidates because molecular size exclusion centrifugation indicated that the major factors were larger than 50kD. Identified qualitative differences in the properties of the soluble suppressive activity generated from feline lymphocytes indicated that multiple factors are responsible for the non-cytolytic CD8(+) T cell suppression of FIV replication.

Lin, S., F. Gaschen, and J.M. Burgunder (1998). **Utrophin is a regeneration-associated protein transiently present at the sarcolemma of regenerating skeletal muscle fibers in dystrophin-deficient hypertrophic feline muscular dystrophy.** *Journal of Neuropathology and Experimental Neurology* 57(8): 780-90 . ISSN: 0022-3069.
Abstract: Utrophin, an autosomal homologue of dystrophin, has been suggested as a possible therapeutic replacement of dystrophin in Duchenne or Becker muscular dystrophies (DMD/BMD). We have undertaken this study to examine the expression of utrophin in the skeletal muscle of dystrophin-deficient cats, a spontaneous animal model for dystrophinopathy. Dystrophin was normal in size, but very low in quantity by immunohistochemistry and Western blot. Utrophin was heterogeneously overexpressed at extrajunctional sarcolemma of regenerating muscle fibers, as defined by overexpression of the myogenic markers: vimentin, desmin, and developmental isoform of myosin heavy chain (MHCd). Muscle regeneration occurred in 6 stages as assessed by fiber size, and immunolabeling of desmin, vimentin, and MHCd. Differential developmental patterns of utrophin, alpha-sarcoglycan, and beta-dystroglycan expression were seen with an increase followed by a decrease and with changes in their respective location. These results suggest that utrophin is a regeneration-associated protein. It can functionally replace dystrophin in anchoring dystrophin-associated proteins (DAPs). However, the expression of utrophin and its anchored DAPs is restricted to the period of muscle regeneration and tends to decrease in late stages. This study therefore suggests a novel role of utrophin during skeletal muscle regeneration.
Descriptors: cytoskeletal proteins analysis, membrane proteins analysis, muscle fibers, muscle, skeletal, muscular dystrophy, animal, nerve tissue proteins analysis, regeneration, Western blot, cats, dystropHin deficiency, hypertropHy, immunohistochemistry, muscle fibers, muscle proteins analysis, muscle, skeletal, muscular dystrophy, animal, muscular dystrophy, animal, sarcolemma, time factors, utropHin.

Lin, Y.L., D. Noel, C. Mettling, B. Reant, J. Clot, C. Jorgensen, and P. Corbeau (2004). **Feline immunodeficiency virus vectors for efficient transduction of primary human synoviocytes: application to an original model of rheumatoid arthritis.** *Human Gene Therapy* 15(6): 588-96. ISSN: 1043-0342.
Abstract: The potential of gene therapeutics is hindered by the limitations of the delivery systems presently available. Recently, human immunodeficiency virus (HIV) vectors have been developed that allow the efficient and stable transduction of primary nondividing cells in vivo. Because of the safety concerns raised by HIV vectors, we developed a gene delivery system derived from the ungulate lentivirus feline immunodeficiency virus (FIV). We describe in the present study the optimization of the safety and efficiency of this system that proved to be as potent as HIV vectors to transduce nondividing cells, with titers over 10(8) transducing units per ml. We used this

tool to transduce TNF-alpha into human primary synoviocytes, and showed a high efficiency of transduction. TNF-alpha-transduced synoviocytes injected into the knee joints of severe combined immunodeficient (SCID) mice induced cell proliferation, as well as cartilage and bone erosion as soon as day 7, creating a standardized, humanized animal model relevant for rheumatoid arthritis. FIV vectors appear to be promising tools for biologic research and gene therapy.
Descriptors: arthritis, rheumatoid, animal disease models, genetic vectors, feline immunodeficiency virus, synovial membrane, transduction, genetic, tumor necrosis factor alpha, arthritis, rheumatoid therapy, bone and bones, cartilage, cell proliferation, mice, mice, scid, synovial membrane, synovial membrane, tumor necrosis factor alpha.

Linenberger, M.L. and J.L. Abkowitz (1995). **Haematological disorders associated with feline retrovirus infections.** *Bailliere's Clinical Haematology* 8(1): 73-112. ISSN: 0950-3536.
Abstract: Feline oncornavirus and lentivirus infections have provided useful models to characterize the virus and host cell factors involved in a variety of marrow suppressive disorders and haematological malignancies. Exciting recent progress has been made in the characterization of the viral genotypic features involved in FeLV-associated diseases. Molecular studies have clearly defined the causal role of variant FeLV env gene determinants in two disorders: the T-lymphocyte cytopathicity and the clinical acute immunosuppression induced by the FeLV-FAIDS variant and the pure red cell aplasia induced by FeLV-C/Sarma. Variant or enFeLV env sequences also appear to play a role in FeLV-associated lymphomas. Additional studies are required to determine the host cell processes that are perturbed by these variant env gene products. In the case of the FeLV-FAIDS variant, the aberrant env gene products appear to impair superinfection interference, resulting in accumulation of unintegrated viral DNA and cell death. In other cases it is likely that the viral env proteins interact with host products that are important in cell viability and/or proliferation. Understanding of these mechanisms will therefore provide insights to factors involved in normal lymphohaematopoiesis. Similarly, studies of FeLV-induced haematological neoplasms should reveal recombination or rearrangement events involving as yet unidentified host gene sequences that encode products involved in normal cell growth regulation. These sequences may include novel protoncogenes or sequences homologous to genes implicated in human haematological malignancies. The haematological consequences of FIV are quite similar to those associated with HIV. As with HIV, FIV does not appear to directly infect myeloid or erythroid precursors, and the mechanisms of marrow suppression likely involve virus, viral antigen, and/or infected accessory cells in the marrow microenvironment. Studies using in vitro experimental models are required to define the effects of each of these microenvironmental elements on haematopoietic progenitors. As little is known about the molecular mechanisms of FIV pathogenesis, additional studies of disease-inducing FIV strains are needed to identify the genotypic features that correlate with virulent phenotypic features. Finally, experimental FIV infection in cats provides the opportunity to correlate in vivo virological and haematological changes with in vitro observations in a large animal model that closely mimics HIV infection in man.
Descriptors: feline acquired immunodeficiency syndrome, feline acquired immunodeficiency syndrome transmission, feline immunodeficiency virus, leukemia virus, feline, leukemia, feline, leukemia, feline transmission, antibodies, viral biosynthesis,

antibodies, viral, bone marrow, bone marrow, cats, genes, viral, cellular immunity, feline immunodeficiency virus, feline immunodeficiency virus, leukemia virus, feline classification, leukemia virus, feline, leukemia virus, feline, lymphoma epidemiology, lymphoma, lymphoma, myelodysplastic syndromes, myelodysplastic syndromes, red cell aplasia, pure, red cell aplasia, pure, retroviridae classification, retroviridae proteins, retroviridae proteins, spumavirus pathogenicity.

Liu, B. (2003). **Effects of nitric oxide synthase inhibitor to esophagus in a feline esophagitis model.** *Diseases of the Esophagus* 16(4): 312-4 . ISSN: 1120-8694.
Abstract: The present study explores the effects of nitric oxide synthase inhibitor on esophageal motility in a feline model with esophagitis. Perfusion of the esophagus with acid produced inflammatory changes of esophageal mucosa. The esophageal motility was measured before and after the perfusion. One group of cats was given nitric oxide inhibitor orally at the same time as the perfusion of acid. The control group was given water instead. Esophagitis impairs the motility of the esophagus. However, the esophageal motility of the cats that were given nitric oxide synthase inhibitor decreased less than that of the control group. The results suggested that during esophagitis there is an alteration of the nitric oxide synthase/nitric oxide pathway in the esophagus, which may be one of the important mechanisms of esophageal motility dysfunction.
Descriptors: enzyme inhibitors, esophagitis, esopHagogastric junction, nitric oxide synthase, nitroarginine, cats, esophagitis, esophagitis, esopHagogastric junction, esopHagogastric junction, gastrointestinal motility, gastrointestinal motility, hydrochloric acid, models, animal.

Liu, B., X. Liu, C. Tang, J. Liu, H. Wang, and P. Xie (2002). **Esophageal dysmotility and the change of synthesis of nitric oxide in a feline esophagitis model.** *Diseases of the Esophagus* 15(3): 193-8. ISSN: 1120-8694.
Abstract: The present study explores the changes of nitric oxide synthesis and esophageal dysmotility in a feline model of esophagitis. Perfusion of the esophagus with acid produced inflammatory changes of esophageal mucosa. The esophageal motility was measured before and after the perfusion. The nitric oxide synthase activity, the l-arginine uptake, and the content of cyclic guanine monophosphate of the muscle and the mucous membrane were determined and the NADPH-diaphorase was stained. Esophagitis impairs the motility of the esophagus. The nitric oxide synthase activity, the content of cyclic guanine monophosphate, the NADPH-diaphorase stain and the maximum velocity of l-arginine uptake of lower esophageal sphincter of the cats in the acid perfusion group were higher than those of the control group. The maximum velocity of l-arginine transport and the content of cyclic guanine monophosphate of the mucosa in the acid perfusion group were lower than those of the control group. The results suggested that during esophagitis there is an alteration of the l-arginine/nitric oxide synthase/nitric oxide pathway in the esophagus, which may be one of the important mechanisms of esophageal motility dysfunction.
Descriptors: esophageal motility disorders, esophagitis, esophagitis, nitric oxide biosynthesis, nitric oxide synthase, arginine analysis, cyclic gmp analysis, animal disease models, esophageal motility disorders, nitric oxide analysis, nitric oxide synthase analysis, probability, random allocation, reference values, sensitivity and specificity.

Liu, S.K. (2002). **Animal hypertrophic cardiomyopathy: ideal model of human disease**. *Chinese Journal of Veterinary Science* 22(6): 626-635. ISSN: 1005-4545.
NAL Call Number: SF604 .C58
Descriptors: animal models, arteries, cardiomyopathy, clinical aspects, fibrosis, heart, human diseases, lesions, myocardium, cats, dogs, man.
Language of Text: Chinese; Summary in English.

Lloyd, J., L. Askie, J. Smith, and W. Tarnow-Mordi (2003). **Supplemental oxygen for the treatment of prethreshold retinopathy of prematurity.** *Cochrane Database of Systematic Reviews*(2): 3482.
Online: http://www.cochrane.org
Abstract: Oxygen has long been implicated in the pathogenesis of retinopathy of prematurity (ROP) and is rigorously monitored in today's neonatal intensive care units. Recent research using a feline model has shown an improvement in ROP outcome of kittens treated with supplemental oxygen. Current treatment for ROP by retinal ablation is not without complications so a non-invasive method of treatment is preferred. The possible effects of long term oxygen supplementation on chronic lung disease, length of hospital stay and growth and development are, however, unknown. OBJECTIVES: To determine whether, in preterm or low birth weight infants with prethreshold ROP, targeting higher as compared to normal transcutaneous oxygen levels or pulse oximetry levels when using supplemental oxygen reduces the progression of ROP to threshold disease and improves visual outcome without any adverse effects. SEARCH STRATEGY: The standard search strategy of the Cochrane Neonatal Review Group was used. This included searches of the Oxford Database of Perinatal Trials, MEDLINE, previous reviews including cross references, abstracts, conferences and symposia proceedings, expert informants and journal handsearching. An additional literature search of the MEDLINE (1966-June 2002), EMBASE (1980-April 2002), and CINAHL (1982-April 2002) databases was conducted in order to locate any trials in addition to those provided by the Cochrane Controlled Trials Register (CENTRAL/CCTR, The Cochrane Library Issue 2, 2002). SELECTION CRITERIA: All randomised or quasi randomised studies comparing higher versus normal target oxygen levels in preterm or low birthweight infants with prethreshold ROP were eligible for inclusion. DATA COLLECTION AND ANALYSIS: The methodological quality of the one eligible trial was assessed independently by two authors for the degree of selection, performance, attrition and detection bias. Data regarding clinical outcomes including progression to threshold ROP, blindness or severe visual impairment, mortality, respiratory morbidities and long term growth were extracted and reviewed independently by two authors. Results were compared and differences resolved as required. Data analysis was conducted according to the standards of the Cochrane Neonatal Review Group. MAIN RESULTS: The one trial included in this review enrolled 649 infants. There was a trend for supplemental oxygen to reduce the progression to threshold ROP, however this did not reach statistical significance (RR 0.84, 95% CI 0.70, 1.02). A subgroup analysis of those infants without plus disease showed significantly fewer infants progressing to threshold ROP in infants treated with supplemental oxygen. However this analysis was not pre-specified so these results should be interpreted with caution. No significant effects were detected on blindness or severe visual function at three months corrected age, mortality,

pneumonia, chronic lung disease or weight gain. Adverse pulmonary events were more common in the higher oxygen saturation group and these infants were in hospital and on supplemental oxygen for longer. Longer term visual outcomes were not reported. REVIEWER'S CONCLUSIONS: The results of this systematic review do not show a statistically significant reduction in the rate of progression to threshold ROP with supplemental oxygen treatment, but reveal increased adverse pulmonary sequelae with higher oxygen targeting in this group of preterm infants. Future research needs to be directed towards the question of whether infants without plus disease are more likely to respond to supplemental oxygen therapy than those with plus disease.
Descriptors: infant, low birth weight, infant, premature, oxygen, retinopathy of prematurity, infant, newborn, randomized controlled trials.

Lu, D., M. Solomonow, B. Zhou, R.V. Baratta, and L. Li (2004). **Frequency-dependent changes in neuromuscular responses to cyclic lumbar flexion.** *Journal of Biomechanics* 37(6): 845-55. ISSN: 0021-9290.
NAL Call Number: TA166. J6
Abstract: Repetitive lifting in the workplace has been identified to be a cause of low back disorders. Epidemiologic data further supports an hypothesis that higher repetition rate (i.e. frequency) is an added risk factor. The objective of this study was to provide experimental data testing the above hypothesis. An in vivo feline model was subjected to 20-min of cyclic lumbar loading at frequencies of 0.1 Hz and 0.5 Hz while monitoring the EMG from the L-3/4-L-5/6 multifidus muscles and the creep at the L-4/5 level. Seven hours of rest were allowed after the cyclic flexion/extension was terminated. During this rest period, a single test cycle was performed every hour to assess recovery of EMG and lumbar creep. The results demonstrate that cyclic lumbar flexion elicits a transient neuromuscular disorder consisting of EMG spasms during the cyclic loading and initial and delayed muscular hyperexcitabilities during the rest period. Cyclic loading at 0.5 Hz resulted in significant ($p<0.05$) increase in the hyperexcitability magnitude and duration during the recovery period. It was concluded that repetitive lumbar loading at fast rates is indeed a risk factor as it induces larger creep in the lumbar viscoelastic tissues which in turn intensify the resulting neuromuscular disorder.
Descriptors: cumulative trauma disorders, low back pain, lumbar vertebrae, cats, electromyogrphy, models, animal, neuromuscular junction, united states, workplace.

Maitland, M.E., T. Leonard, C.B. Frank, N.G. Shrive, and W. Herzog (1998). **Method to assess in vivo knee stability longitudinally in an animal model of ligament injury.** *Journal of Orthopaedic Research* 16(4): 441-7. ISSN: 0736-0266.
Abstract: The purpose of this study was to develop a method to prospectively quantify passive knee stability in an animal model of joint injury over time. Knee stability is defined here as the amount of translation or rotation of the tibia relative to the femur for a given application of force or moment, respectively. Five animals that had undergone transection of the anterior cruciate ligament and three control animals that had undergone a sham operation were anaesthetized and positioned in a stereotaxic frame. Motion of the tibia relative to the femur was quantified with use of reflective markers secured to modified bone pins and a three-dimensional motion analysis system. External forces and moments in the transverse plane of the tibia were measured with use of force

transducers based on a strain-gauge design. Longitudinal measurements of knee stability were made before either sham surgery (control animals) or transection of the ligament (experimental animals), immediately after surgery, and at 2 and 4 months after transection. The results showed that the animals tolerated the procedures well and that systematic measurements could be obtained. The method described here has the practical advantage over cross-sectional experimental designs in that the number of subjects can be decreased while maintaining statistical power and has the further conceptual advantage that individual changes can be accounted for over time.
Descriptors: anterior cruciate ligament injuries, joint instability, knee injuries, knee joint, anterior cruciate ligament, anterior cruciate ligament surgery, cats, animal disease models, equipment design, knee joint surgery, longitudinal studies, range of motion, articular, videotape recording, weight bearing.

Makarova, L.P. and V.E. Pogorelyi (2004). **Neuroprotector action of an asparagic acid derivative during the model reperfusive cerebral damage in cats**. *Eksperimental'Naia I Klinicheskaia Farmakologiia* 67(5): 13-16. ISSN: 0869-2092.
Abstract: Neuroprotector properties of a new phosphorylated derivative of asparagic acid (PIR 87-65-0) were studied on a model of acute brain ischemia in cats. PIR 87-5-0 has proved to be more effective than the reference drug vinpocetin in preventing the reperfusive damage, which was manifested by decreased postischemic hypergycemia, activated utilization of oxygen and glucose in the brain, and suppressed postischemic metabolic lactate acidosis.
Descriptors: asparagic acid, brain ischemia model, reperfusive damage, PIR 87 65 0, vinpocetin .
Language of Text: Russian.

Manganiello, P.D., B.L. Sueoka, D.R. Valentine, and T.P. Hoopes (1998). **A bipolar radiofrequency catheter fails to occlude a feline uterine horn: A model for fallopian tube occlusion.** *The Journal of the American Association of Gynecologic Laparoscopists* 5(3): 269-73. ISSN: 1074-3804.
Abstract: We developed a retrograde transvaginal-transcervical-transuterine sterilization technique capable of causing occlusive fibrosis and stricture in the human fallopian tube. The procedure is required to induce a lesion at the intramural-isthmic portion of the tube at sufficient depth to damage epithelium underlying the submucosa and inner muscular layer, without acute damage to the outer muscular layer and serosal surface. Nineteen nulliparous purpose-bred cats were induced and maintained in an anestrus state with testosterone cypionate 5 mg/kg intramuscularly and a 6-18-hour light-dark cycle. After laparotomy, all animals had focal radiofrequency lesioning of uterine horns. Ten of 30 treated uterine horns appeared grossly occluded at the time of sacrifice; however, histologic assessment demonstrated only 6 complete occlusions, and 4 horns showed lack of complete lumen occlusion with or without evidence of recanalization. Although no complications were encountered, bipolar radiofrequency failed to provide a consistent obstructive lesion in a tubular structure similar in size and morphology to the human fallopian tube.
Descriptors: catheter ablation, sterilization, tubal, cats, biological models, pilot projects.

Maniglia, A.J., H. Abbass, T. Azar, M. Kane, P. Amantia, S. Garverick, W.H. Ko, W. Frenz, and T. Falk (1999). **The middle ear bioelectronic microphone for a totally implantable cochlear hearing device for profound and total hearing loss**. *American Journal of Otology* 20(5): 602-611. ISSN: 0192-9763.
Descriptors: equipment, instrumentation, sensory reception, profound hearing loss, ear disease, bioelectronic middle ear micropHone, efficacy, totally implantable cochlear hearing device, prosthetic .

March, P.A., M.A. Thrall, D.E. Brown, T.W. Mitchell, A.C. Lowenthal, and S.U. Walkley (1997). **GABAergic neuroaxonal dystrophy and other cytopathological alterations in feline Niemann-Pick disease type C.** *Acta Neuropathologica* 94(2): 164-72. ISSN: 0001-6322.
Abstract: Feline Niemann-Pick disease type C (NPC) is an autosomal recessive lysosomal storage disease which shares many of the clinical, biochemical and pathological features of the corresponding human disorder. Cytopathological alterations in distinct neuronal cell populations were investigated in this animal model to gain a better understanding of the pathogenesis of brain dysfunction. Golgi and immunocytochemical methods were employed to characterize the cell architectural changes occurring in neuronal somata, dendrites and axons at different stages of disease progression. Cortical pyramidal neurons in laminae II, III, and V exhibited various degrees of meganeurite and/or swollen axon hillock formation with or without ectopic dendritogenesis. Enlarged axon hillock regions with neuritic processes and spines were recognized early in the progression of feline NPC but were less prevalent in mid to late stages of the disease. Glutamic acid decarboxylase (GAD) immunocytochemistry demonstrated immunoreactive spheroids in numerous GABAergic axons in neocortex, subcortical areas, and cerebellum. Parvalbumin-immunoreactive axonal spheroid distribution in brain closely mirrored results from the GAD studies, whereas calbindin D-28k-immunoreactive spheroids were conspicuously absent in most cortical and subcortical areas examined. Purkinje cell axonal spheroid formation progressed in a distal to proximal direction, with eventual involvement of recurrent axon collaterals. Purkinje cell death and a concomitant decrease in the numbers of spheroids in the cerebellum were observed late in the disease course. Clinical neurological signs in feline NPC occur in parallel with neuronal structural alterations and suggest that GABAergic neuroaxonal dystrophy is a contributor to brain dysfunction in this disease.
Descriptors: neuroaxonal dystropHies, niemann pick diseases, age factors, brain diseases, brain diseases, cats, child, preschool, animal disease models, golgi apparatus, golgi apparatus ultrastructure, immunohistochemistry, neuroaxonal dystropHies, neuroaxonal dystropHies, neurons, neurons ultrastructure, niemann pick diseases, gamma aminobutyric acid.

Marinelli, E.R., R. Neubeck, B. Song, T. Wagler, R.S. Ranganathan, K. Sukumaran, P. Wedeking, A. Nunn, V.M. Runge, and M.F. Tweedle (2000). **Synthesis, characterization, and imaging performance of a new class of macrocyclic hepatobiliary MR contrast agents.** *Investigative Radiology* 35(1): 8-24. ISSN: 0020-9996.
Abstract: RATIONALE AND OBJECTIVES: To investigate the effect of substituent lipophilicity, substituent position, and overall charge on the hepatobiliary clearance and tolerance of a series of aromatic ring-containing macrocyclic Gd chelates to select a

candidate compound for evaluation as a hepatobiliary imaging agent. METHODS: Hepatobiliary clearance was studied in rats. Tissue distribution and tolerance were studied in mice. Imaging was performed in cats, rabbits, and Rhesus monkeys using T1-weighted pulse sequences or T1-weighted breath-hold pulse sequences. RESULTS: All the compounds were excreted bimodally. Gd-2,5-BPA-DO3A (15d) was found to have the optimal combination of hepatobiliary clearance (47% in rats, 29% in mice) and tolerance (minimum lethal dose 5.0 mmol/kg). Initial imaging studies in cats demonstrated the feasibility of Gd-2,5-BPA-DO3A for hepatic imaging. In rabbits with implanted VX-2 adenocarcinoma as a model for metastatic liver disease, Gd-2,5-BPA-DO3A provided sustained hepatic signal intensity (SI) enhancement and lesion conspicuity over a 120-minute imaging time course. In Rhesus monkeys with normal liver function, Gd-2,5-BPA-DO3A afforded sustained hepatic SI enhancement and a time-dependent increase in gallbladder SI over the entire 90-minute imaging time course. CONCLUSIONS: Gd-2,5-BPA-DO3A provides dramatic and sustained SI enhancement of hepatic tissue in cats, rabbits, and Rhesus monkeys that was superior in all respects to the extracellular space MRI agent, Gd-HP-DO3A, that was employed as a control.
Descriptors: contrast media chemical synthesis, contrast media, magnetic resonance imaging, biliary tract, cats, gadolinium, heterocyclic compounds diagnostic use, liver, liver neoplasms, Macaca mulatta, mice, organometallic compounds chemical synthesis, organometallic compounds, organometallic compounds diagnostic use, rabbits, rats, tissue distribution.

Marks, S.L., A.K. Cook, R. Reader, P.H. Kass, A.P. Theon, C. Greve, and Q.R. Rogers (1999). **Effects of glutamine supplementation of an amino acid-based purified diet on intestinal mucosal integrity in cats with methotrexate-induced enteritis.** *American Journal of Veterinary Research* 60(6): 755-63. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To determine effects of glutamine-supplemented and glutamine-free amino acid-based purified diets, compared with a dry expanded diet, on intestinal structure and function in a model that used cats with methotrexate-induced enteritis. ANIMALS: 18 adult specific-pathogen-free cats. PROCEDURE: 12 cats were given intragastric feedings of an amino acid-based purified diet supplemented with glutamine (7% [wt:wt]) or an isonitrogenous amount of glycine and alanine; 6 cats consumed a dry expanded diet. After 21 days, cats received methotrexate (MTX; 11 mg/kg of body weight, IV). Intestinal permeability testing was performed immediately before and 66 hours after MTX administration. Celiotomy was performed 72 hours after MTX administration for aseptic removal of mesenteric lymph nodes, collection of full-thickness intestinal biopsy specimens, determination of intestinal cellular proliferation, and collection of aortic and portal venous blood samples for determination of arteriovenous amino acid concentrations across the intestine. RESULTS: Administration of MTX was associated with severe enterotoxicosis manifested as diarrhea (8/12 cats), vomiting (12/12), and positive results for bacterial culture of mesenteric lymph nodes (12/12) in cats receiving the purified diets, independent of glutamine supplementation. Diet did not affect villus tip length and villus surface area in the small intestine or cellular proliferation. Administration of MTX was associated with significantly increased intestinal permeability, which was not attenuated by glutamine supplementation.

CONCLUSIONS: Feeding of a glutamine-supplemented amino acid-based purified diet was unable to preserve intestinal function in cats with MTX-induced enteritis. CLINICAL RELEVANCE: Intestinal morphologic alterations correlate poorly with intestinal function as measured by means of bacterial translocation and intestinal permeability.
Descriptors: enteritis, glutamine, intestinal mucosa, methotrexate toxicity, amino acids, analysis of variance, animal feed, cats, cell division, dietary supplements, duodenum, duodenum, glutamine, intestinal mucosa, lymph nodes.

Martin Jimenez, T. and J.E. Riviere (2001). **Mixed effects modeling of the disposition of gentamicin across domestic animal species.** *Journal Veterinary Pharmacology and Therapy* 24(5): 321-332. ISSN: 0140-7783.
NAL Call Number: SF915. J63
Abstract: An interspecies pharmacokinetic model for gentamicin was developed using the mixed effects modeling approach and serum disposition data obtained from the Food Animal Residue Avoidance Databank (FARAD). Data that met a priori quality criteria was obtained from the database and analysed using the traditional double logarithmic analysis and the mixed effects modeling approach. Body weight, brain weight and fever were the covariates of interest in our study. Population pharmacokinetic models across species were developed and validated with swine data. The parameter volume of distribution was modeled as a function of body weight. The total clearance was initially modeled as a function of body weight. The predictability performance of the model improved dramatically when the parameter brain weight was included in the covariate model for clearance. This was a surprising finding worthy of further study. The covariate fever seemed to influence the magnitude of the volume of distribution, although the scarcity of data pertaining to diseased animals makes this finding uncertain. We conclude that the pharmacokinetic characteristics of drugs such as gentamicin, can be predicted across species using a population pharmacokinetics modeling approach, and that clinical features that affect species in a similar manner can be also explored in this fashion.
Descriptors: gentamicin, models, prediction, species differences, rabbits, cats, dogs, goats, sheep, horses, body weight, brain, fever.

Martin, W.J. and R.T. Glass (1995). **Acute encephalopathy induced in cats with a stealth virus isolated from a patient with chronic fatigue syndrome.** *Pathobiology Journal of Immunopathology, Molecular and Cellular Biology* 63(3): 115-8. ISSN: 1015-2008.
NAL Call Number: RB125.P37
Abstract: A simian cytomegalovirus-related stealth virus, isolated from a patient with the chronic fatigue syndrome, induced an acute neurological illness when inoculated into cats. Histological examination of brain tissue showed foci of cells with cytoplasmic vacuolization and an absence of any inflammatory reaction. Electron microscopy confirmed the presence of herpes-like viral particles and viral-like products in the brain of an inoculated animal. These findings support the role of stealth viruses in the pathogenesis of human neurological diseases and provide an animal model to evaluate potential antiviral therapy.
Descriptors: brain diseases, cytomegalovirus, fatigue syndrome, chronic, acute disease, cats, cytomegalovirus infections.

Matteucci, D., M. Pistello, P. Mazzetti, S. Giannecchini, D.L.I. Mauro, L. Zaccaro, C. Pollera, S. Specter, and M. Bendinelli (1997). **Studies of AIDS vaccination using and ex vivo feline immunodeficiency virus model: protection conferred by a fixed-cell vaccine against cell-free and cell-associated challenge differs in duration and is not easily boosted.** *Journal of Virology* 71(11): 8368-8376. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: vaccination, immune response, cell mediated immunity, immunity, immunization, immunostimulation, immunotherapy, therapy, lymphocyte transformation.

Matteucci, D., M. Pistello, P. Mazzetti, S. Giannecchini, P. Isola, A. Merico, L. Zaccaro, A. Rizzuti, and M. Bendinelli (1999). **Aids vaccination studies using feline immunodeficiency virus as a model: immunisation with inactivated whole virus suppresses viraemia levels following intravaginal challenge with infected cells but not following intravenous challenge with cell-free virus**. *Vaccine* 18(1-2): 119-130. ISSN: 0264-410X.
NAL Call Number: QR189.V32
Descriptors: infection, AIDS, acquired immunodeficiency syndrome, immune system disease, feline acquired immunodeficiency syndrome, intravaginal virus challenge, WIV immunisation.

Maulik, S.K., R. Kumari, M. Maulik, S.C. Manchanda, and S.K. Gupta (2001). **Captopril and its time of administration in myocardial ischaemic-reperfusion injury.** *Pharmacological Research* 44(2): 123-8. ISSN: 1043-6618.
NAL Call Number: RS122
Abstract: The present study was designed to investigate the role of captopril in an in vivo model of myocardial ischaemic-reperfusion injury with respect to its time of administration. In open-chest pentobarbitone anaesthetized cats, the left anterior descending coronary artery was occluded for 15 min followed by 60 min of reperfusion. Vehicle (saline) or captopril (4 mg kg(-1)) was administered 10 min before instituting ischaemia (pre-treatment) or 5 min before reperfusion (post-treatment). In the vehicle-treated group, ischaemic-reperfusion injury (IRI) was evidenced by enhanced plasma renin activity, depression of global haemodynamic function (mean arterial pressure, left ventricular-end-diastolic-pressure, peak positive and negative dP/dt) along with depletion of myocardial high energy phosphate (HEP) compounds. Oxidant stress in IRI was evidenced by raised levels of myocardial thiobarbituric acid reactive substances (TBARS) and depletion of endogenous myocardial antioxidants (glutathione, superoxide dismutase and catalase). Pre-treatment with captopril prevented (i) loss of myocardial haemodynamic function, (ii) rise in TBARS and (iii) depletion of myocardial HEP compounds. However, in the post-treatment group, only partial recovery of myocardial haemodynamic function, with no significant reduction in TBARS, was observed. Glutathione, superoxide dismutase and catalase were unaffected by either treatment schedules. The results of the present study suggest that captopril is more effective in attenuating ischaemic-reperfusion injury when administered before ischaemia rather than before reperfusion.
Descriptors: angiotensin converting enzyme inhibitors, captopril, myocardial reperfusion injury, adenosine triphosphate, angiotensin converting enzyme inhibitors,

pressure, captopril, catalase, cats, creatine kinase, glutathione, heart rate, lactates, myocardial reperfusion injury, myocardial reperfusion injury, phosphocreatine, superoxide dismutase, thiobarbituric acid reactive substances, time factors, left ventricular function.

Mazzetti, P., S. Giannecchini, D. Del Mauro, D. Matteucci, P. Portincasa, A. Merico, C. Chezzi, and M. Bendinelli (1999). **Aids vaccination studies using an ex vivo feline immunodeficiency virus model: detailed analysis of the humoral immune response to a protective vaccine.** *Journal of Virology* 73(1): 1-10. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: cats, immune response, antibodies, antigens, immunity, immunological factors, epitopes, viral antigens.

McCall, C.A., K.E. Stedman, D.E. Bevier, G.A. Kunkle, C.S. Foil, and L.D. Foil (1997). **Correlation of feline IgE, determined by FceRI alpha-based ELISA technology, and IDST to Ctenocephalides felis salivary antigens in a feline model of flea bite allergic dermatitis.** *Compendium on Continuing Education for the Practicing Veterinarian* 19(11): 29-32. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, hypersensitivity, arthropoda, ctenocepHalides felis, saliva, allergens, dermatitis, immunoglobulins, elisa, skin tests, diagnosis, heat, temperature resistance, antigens, body fluids, body parts, ctenocepHalides, glycoproteins, immunoenzyme techniques, immunological diseases, immunological factors, immunological techniques, insecta, organic diseases, proteins, pulicidae, resistance to injurious factors, siphonaptera, skin diseases, temperature, arthropod allergies, heat stability.

McIntyre, J.A. and J. Castaner (2003). **Efaproxiral sodium. Allosteric hemoglobin modifier radiosensitizer.** *Drugs of the Future* 28(12): 1159-1167. ISSN: 0377-8282.
Descriptors: feline models, oncology, human medicine, brain metastasis, neoplastic disease, cardiac ischemia, heart disease, cerebral ischemia, vascular disease, glioblastoma multiforme, nervous system disease, non small cell lung cancer, respiratory system disease, radiotherapy, tissue oxygen .

Megyesi, J.F., B. Vollrath, D.A. Cook, and J.M. Findlay (2000). **In vivo animal models of cerebral vasospasm: a review.** *Neurosurgery* 46(2): 448-61. ISSN: 0148-396X.
Abstract: BACKGROUND: Cerebral vasospasm is delayed-onset cerebral arterial narrowing in response to blood clots left in the subarachnoid space after spontaneous aneurysmal subarachnoid hemorrhage (SAH). Ideally, studies on the pathogenesis and treatment of cerebral vasospasm in humans should be conducted using human cerebral arteries. Because in vivo experiments using human vessels are not possible, and postmortem pathological examination of human arteries in vasospasm provides only a limited amount of information, a number of animal models of vasospasm have been developed. METHODS: The literature was searched to find all references to in vivo animal models of SAH and vasospasm. An online search of the medical database MEDLINE was initially performed using the key words "cerebral," "vasospasm," "subarachnoid," "hemorrhage," "animal," and "model." References were checked to determine the first description of each in vivo animal model. RESULTS: Fifty-seven

models of SAH and vasospasm were identified. These models used one of three techniques to simulate SAH: 1) an artery was punctured allowing blood to escape and collect around the artery and its neighbors; 2) an artery was surgically exposed, and autologous blood obtained from another site was placed around the artery; or 3) blood from another site was injected into the subarachnoid space and was allowed to collect around arteries. Each technique has advantages and disadvantages. The majority of animal models of SAH and vasospasm use intracranial arteries; however, extracranial arteries have also been used recently in vasospasm experiments. These studies seem easier and less costly to perform, but concerns exist regarding the physiological dissimilarity between systemic and cerebral arteries. CONCLUSION: The model of SAH and vasospasm used most frequently is the canine "two-hemorrhage" model, in which two injections of blood into the dog's basal cistern performed 48 hours apart result in greater arterial vasoconstriction than that effected by a single injection of blood. On the basis of its ability to accurately predict what occurs in human SAH, the best model of vasospasm seems to be the primate model in which a blood clot is surgically placed around the large cerebral vessels at the base of the monkey's brain.
Descriptors: animal disease models, vasospasm, intracranial, cats, cerebral arteries, dogs, haplorhini, rabbits, rats, subarachnoid hemorrhage, swine, vasoconstriction.

Mijnes, J.D.F. and R.J. De Groot (1999). **Structure-function analysis of the feline herpesvirus virulence factors gE and gI**. *Veterinary Microbiology* 69(1-2): 89-91. ISSN: 0378-1135.
NAL Call Number: SF601. V44
Descriptors: feline herpesvirus, infection, heterologous expression, cloned genes, disulfide bonded gI, cell to cell transmission.

Miller, C.A., P.J. Abbas, and B.K. Robinson (2001). **Response properties of the refractory auditory nerve fiber.** *Journal of the Association for Research in Otolaryngology* 2(3): 216-32. ISSN: 1525-3961.
Abstract: The refractory characteristics of auditory nerve fibers limit their ability to accurately encode temporal information. Therefore, they are relevant to the design of cochlear prostheses. It is also possible that the refractory property could be exploited by prosthetic devices to improve information transfer, as refractoriness may enhance the nerve's stochastic properties. Furthermore, refractory data are needed for the development of accurate computational models of auditory nerve fibers. We applied a two-pulse forward-masking paradigm to a feline model of the human auditory nerve to assess refractory properties of single fibers. Each fiber was driven to refractoriness by a single (masker) current pulse delivered intracochlearly. Properties of firing efficiency, latency, jitter, spike amplitude, and relative spread (a measure of dynamic range and stochasticity) were examined by exciting fibers with a second (probe) pulse and systematically varying the masker-probe interval (MPI). Responses to monophasic cathodic current pulses were analyzed. We estimated the mean absolute refractory period to be about 330 micros and the mean recovery time constant to be about 410 micros. A significant proportion of fibers (13 of 34) responded to the probe pulse with MPIs as short as 500 micros. Spike amplitude decreased with decreasing MPI, a finding relevant to the development of computational nerve-fiber models, interpretation of gross evoked potentials, and models of more central neural processing. A small mean decrement in

spike jitter was noted at small MPI values. Some trends (such as spike latency-vs-MPI) varied across fibers, suggesting that sites of excitation varied across fibers. Relative spread was found to increase with decreasing MPI values, providing direct evidence that stochastic properties of fibers are altered under conditions of refractoriness.
Descriptors: cochlear nerve, nerve fibers, cats, cochlear implantation, electric stimulation instrumentation, evoked potentials, auditory, perceptual masking, sensory thresholds, time factors.

Mitchell, D.E., G. Gingras, and P.C. Kind (2001). **Initial recovery of vision after early monocular deprivation in kittens is faster when both eyes are open.** *Proceedings of the National Academy of Sciences of the United States of America* 98(20): 11662-7. ISSN: 0027-8424.
NAL Call Number: 500 N21P
Abstract: A comparison was made of the speed of visual recovery in the deprived eye of kittens after a 6-day period of monocular deprivation imposed at 5-9 weeks of age in two postdeprivation conditions. In one condition, binocular recovery (BR), both eyes were open, whereas in the other condition, reverse lid-suture (RLS), the formerly nondeprived eye was closed to force the animal to use the originally deprived eye. In littermate pairs, BR kittens began to recover form vision 12 to 30 h before those subjected to RLS. The vision of the deprived eye of the BR animals remained superior to that of their RLS littermates for 4-8 days. Although this finding is difficult to reconcile with competitive mechanisms of synaptic plasticity, it supports a prediction of an alternative model of synaptic plasticity [Bienenstock, E. L., Cooper, L. N. & Munro, P. W. (1982) J. Neurosci. 2, 32-48] for slower initial recovery with RLS because of the time required to reset the modification threshold.
Descriptors: sensory deprivation, visual acuity, visual perception, aging, cats, time factors, vision, binocular, vision, monocular.

Mitchell, R.W., P. Cozzi, I.M. Ndukwu, S. Spaethe, A.R. Leff, and P.A. Padrid (1998). **Differential effects of cyclosporine A after acute antigen challenge in sensitized cats in vivo and ex vivo.** *British Journal of Pharmacology* 123(6): 1198-204. ISSN: 0007-1188.
Abstract: 1. We determined the effect of cyclosporine A (CsA) treatment on mast cell degranulation and lung resistance (R(L)) in vivo, and tracheal smooth muscle (TSM) contraction ex vivo after antigen challenge in sensitized cats. We also determined the direct effects of addition of CsA to the tissue bath on antigen-induced responses of TSM in vitro. 2. Cats (n=10) were sensitized by i.m. injection of Ascaris suum antigen (AA); 5 cats (CsA+) received CsA twice daily for 2 weeks before acute antigen challenge in doses sufficient to suppress interleukin-2 secretion from feline peripheral blood mononuclear cells ex vivo. 3. Lung resistance increased comparably within 10 min of exposure to AA (P<0.03). Histamine content in bronchoalveolar lavage fluid from both groups increased comparably within 30 min of antigen challenge, from undetectable levels to 542+/-74 pg ml(-1) post AA for CsA+ and from 74+/-19 pg ml(-1) at baseline, to 970+/-180 pg ml(-1) post AA CsA- (P<0.05; P=NS vs CsA+). 4. In excised TSM, active tension elicited by exposure to AA in vitro was 107+/-38% KCl in the CsA+ group vs 144+/-56% KCl in the CsA- group (P=NS). However, contraction of TSM (n=4) harvested from both groups was abolished or greatly diminished after AA challenge when tissues were pre-

incubated with 1 microM CsA in vitro (8+/-8% KCl, P<0.05 vs CsA+ and CsA-). This was associated with inhibited release of 5-hydroxytryptamine into the organ bath fluid of tissues treated with CsA in vitro only. 5. We demonstrated that CsA treatment in vivo does not inhibit the early phase asthmatic response or mast cell degranulation following antigen challenge in sensitized cats. Additionally, the effects of CsA on mast cell function ex vivo do not reflect lack of effects of CsA on mast cell function in vivo in this animal model of atopic asthma.

Descriptors: antigens, helminth, cyclosporine, ascaris suum, asthma, cats, cell degranulation, mast cells, muscle, smooth, muscle, smooth, muscle, smooth, serotonin, trachea, trachea, trachea.

Mitsikostas, D.D. and M. Sanchez del Rio (2001). **Receptor systems mediating c-fos expression within trigeminal nucleus caudalis in animal models of migraine.** *Brain Research* 35(1): 20-35. ISSN: 0926-6410.

Abstract: In intracranial structures unmyelinated C- and Adelta-fibers of the trigeminal nerve transmit pain stimuli from meninges to the trigeminal nucleus caudalis (Sp5C). Peripheral nerve endings surround meningeal vessels (the so-called trigeminovascular system) and contain vasoactive neuropeptides (calcitonin gene-related peptide, substance P and neurokinin A). Activation of the trigeminovascular system promotes a meningeal sterile inflammatory response through the release of neuropeptides by peripheral endings. Orthodromic conduction along trigeminovascular fibers transmits information centrally with induction of immediate early c-fos gene within post-synaptic Sp5C neurons, as a marker of neuronal activity within central nociceptive pathways. In laboratory animals the system is activated by either electrical stimulation of the TG, chemical stimulation of the meninges, electrical or mechanical stimulation of the superior sagittal sinus or by induction of cortical spreading depression. All these techniques induce c-fos within Sp5C and are used as a rodent/feline model of vascular headache in humans. Up-to-date there is evidence that at least ten receptors (5-HT(1B), 5-HT(1D), 5-HT(lF), 5-HT(2B), NK-1, GABA(A), NMDA, AMPA, class III metabotropic glutamate receptors, and opioids mu receptors) modulate c-fos expression within Sp5C. These receptors represent potential targets for anti-migraine drugs as shown by triptans (5-HT(1B/1D/1F)) and ergot alkaloids (5-HT(1A1B/1D/1F)). This review discusses the importance of c-fos expression within Sp5C as a marker of cephalic nociception, the different cephalic pain models that induce c-fos within Sp5C, the receptors involved and their potential role as targets for anti-migraine drugs.

Descriptors: migraine, proto oncogene proteins c fos, receptors, cell surface, trigeminal caudal nucleus, animal disease models.

Miyabe, M., J.R. Kirsch, S. Mori, P.C.M. Van Zijl, R.C. Koehler, and R.J. Traystman (1994). **Magnetic resonance imaging of water diffusion constants in a reversible middle cerebral artery occlusion model in cats**. *Anesthesiology* 81(3A): A896. ISSN: 0003-3022.

Descriptors: effect of heat processing, Maillard reaction, antibiotics, diets, taurine, adult cats, cardiovascular system, ischemia, meeting abstract.

Notes: Meeting Information: Annual Meeting of the American Society of Anesthesiologists, San Francisco, California, USA; October 15-19, 1994.

Miyazawa, T. (2002). **Infections of feline leukemia virus and feline immunodeficiency virus**. *Frontiers in Bioscience* 7: 504-518. ISSN: 1093-4715.
Online: http://www.bioscience.org/
Descriptors: feline retrovirus infection, infectious disease, viral disease, immunodeficiency, immune system disease, retroviral persistance.

Moon, D.G., H.S. Byun, and J.J. Kim (1999). **Akatp-channel opener as a potential treatment modality for erectile dysfunction**. *British Journal of Urology International* 83(7): 837-841. ISSN: 1464-4096.
Descriptors: pharmacology, urology, human medicine, feline model, erectile dysfunction, reproductive system disease, male, diagnosis, treatment, intracavernosal pressure, pinacidil, acetylcholine, PGE1, L arginine.

Moon, D.G., H.S. Byun, and J.J. Kim (1999). **A KATP-channel opener as a potential treatment modality for erectile dysfunction.** *British Journal of Urology International* 83(7): 837-41. ISSN: 1464-4096.
Abstract: OBJECTIVES: To assess the effects of pinacidil (a KATP-channel opener) for the treatment of penile erectile dysfunction and to examine the role of the K+-channel in cavernosal smooth muscle contractility. MATERIALS AND METHODS: Using a feline model, the magnitude of penile erection caused by pinacidil was compared with that caused by erectogenic drugs, e.g. acetylcholine, prostaglandin E1 (PGE1) and L-arginine. The effects of K+-channel blockers (4-aminopyridine, glibenclamide and tetraethylammonium) and pinacidil on penile erections induced by the drugs were investigated. RESULTS: The intra-arterial injection of pinacidil caused a dose-dependent increase in intracavernosal pressure (ICP) and the increase in ICP induced by pinacidil with acetylcholine, PGE1 or L-arginine was more pronounced than with the compounds alone. Furthermore, pinacidil (1 mmol/L) effectively reversed the inhibitory effects of the K+-channel blockers on the cavernosal relaxation induced by acetylcholine, PGE1 or L-arginine ($P<0.01$). Notably, pinacidil induced cavernosal relaxation after injecting the drugs even in cases refractory to higher concentrations (0.1 mol/L) of the drugs ($n=11$, $P<0.01$). CONCLUSIONS: These results suggest that pinacidil is effective in relaxing feline erectile tissue in vivo, probably via increased K+ permeability and subsequent hyperpolarization. Further comparative studies with erectogenic compounds on human erectile tissue and clinical testing are required to determine whether K+-channel openers can be used in the diagnosis and treatment of erectile dysfunction. However, pinacidil seems promising as an intracavernosal agent combined with PGE1 to produce synergistic effects.
Descriptors: impotence, vasculogenic, pinacidil, vasodilator agents, cats, dose response relationship, drug, muscle contraction, muscle, smooth, penile erection, potassium channels.

Moriello, K.A., D.J. Deboer, R. Schenker, J.L. Blum, and L.M. Volk (2004). **Efficacy of pre-treatment with lufenuron for the prevention of *Microsporum canis* infection in a feline direct topical challenge model.** *Veterinary Dermatology* 15(6): 357-362. ISSN: 0959-4493.
NAL Call Number: SF901 .V47
Descriptors: feline, *Microsporum canis*, lufenuron, pre-treatment, topical, dermatology.

Muller, T., M. Stetter, M. Hubener, F. Sengpiel, T. Bonhoeffer, I. Godecke, B. Chapman, S. Lowel, and K. Obermayer (2000). **An analysis of orientation and ocular dominance patterns in the visual cortex of cats and ferrets.** *Neural Computation* 12(11): 2573-95. ISSN: 0899-7667.

Abstract: We report an analysis of orientation and ocular dominance maps that were recorded optically from area 17 of cats and ferrets. Similar to a recent study performed in primates (Obermayer & Blasdel, 1997), we find that 80% (for cats and ferrets) of orientation singularities that are nearest neighbors have opposite sign and that the spatial distribution of singularities deviates from a random distribution of points, because the average distances between nearest neighbors are significantly larger than expected for a random distribution. Orientation maps of normally raised cats and ferrets show approximately the same typical wavelength; however, the density of singularities is higher in ferrets than in cats. Also, we find the well-known overrepresentation of cardinal versus oblique orientations in young ferrets (Chapman & Bonhoeffer, 1998; Coppola, White, Fitzpatrick, & Purves, 1998) but only a weak, not quite significant overrepresentation of cardinal orientations in cats, as has been reported previously (Bonhoeffer & Grinvald, 1993). Orientation and ocular dominance slabs in cats exhibit a tendency of being orthogonal to each other (Hubener, Shoham, Grinvald, & Bonhoeffer, 1997), albeit less pronounced, as has been reported for primates (Obermayer & Blasdel, 1993). In chronic recordings from single animals, a decrease of the singularity density and an increase of the ocular dominance wavelength with age but no change of the orientation wavelengths were found. Orientation maps are compared with two pattern models for orientation preference maps: bandpass-filtered white noise and the field analogy model. Bandpass-filtered white noise predicts sign correlations between orientation singularities, but the correlations are significantly stronger (87% opposite sign pairs) than what we have found in the data. Also, bandpass-filtered noise predicts a deviation of the spatial distribution of singularities from a random dot pattern. The field analogy model can account for the structure of certain local patches but not for the whole orientation map. Differences between the predictions of the field analogy model and experimental data are smaller than what has been reported for primates (Obermayer & Blasdel, 1997), which can be explained by the smaller size of the imaged areas in cats and ferrets.

Descriptors: brain mapping, cats, ferrets, vision, binocular, visual cortex, visual pathways, algorithms, cats, ferrets, nephelometry and turbidimetry, oxygen consumption, species specificity, visual cortex, visual cortex.

Murao, K., K. Shingu, E. Miyamoto, S. Ikeda, S. Nakao, M. Masuzawa, and M. Yamada (2002). **Anticonvulsant effects of sevoflurane on amygdaloid kindling and bicuculline-induced seizures in cats: comparison with isoflurane and halothane.** *Journal of Anesthesia* 16(1): 34-43. ISSN: 0913-8668.

Abstract: PURPOSE: We compared the anticonvulsant effects of sevoflurane with those of isoflurane and halothane in amygdaloid kindling and bicuculline-induced seizures in cats. METHODS: In a crossover design, the effects of 70% nitrous oxide, and 0.3, 0.6, and 1.5 minimum alveolar concentration (MAC) of volatile anesthetics were studied in five cats in which the amygdala was electrically stimulated at the current used for establishing the kindled state. The effects of 0.6 and 1.5 MAC of volatile anesthetics were studied in another five cats, in which 0.2 mg.kg(-1) of bicuculline was administered

i.v.. RESULTS: In the amygdaloid kindling model, all four anesthetics decreased the duration of after-discharge (AD), the rise of multiunit activity in midbrain reticular formation (R-MUA), and the behavior scores compared with findings without anesthetics. Halothane, at 1.5 MAC, significantly decreased the number of cats showing AD ($P < 0.05$). In the bicuculline-induced seizure model, all five cats showed repetitive spikes during 1.5 MAC of sevoflurane, whereas only two and three cats, respectively, showed the repetitive spikes during 1.5 MAC of isoflurane and halothane. All three volatile anesthetics decreased the rise of R-MUA, the duration of the repetitive spikes, and the behavior scores. The suppression of the rise in R-MUA and the behavior scores with 1.5 MAC of sevoflurane was significantly less than that with 1.5 MAC of isoflurane. CONCLUSION: The anticonvulsant effects of sevoflurane were less potent than those of halothane in the amygdaloid kindling model and less potent than those of isoflurane in the bicuculline-induced seizure model.
Descriptors: cat, amygdaloid kindling model, seizure model, halothane, sevoflurane, anticonvulsant, isoflurane, anesthetics.

Murao, K., K. Shingu, K. Tsushima, K. Takahira, and S. Ikeda (1995). **Anticonvulsant effects of volatile anesthetics on a penicillin-induced epilepsy model in cats**. *Anesthesiology* 83(3A): A321. ISSN: 0003-3022.
Descriptors: animal care, nervous system, toxicology, cats, anesthetic drug, isoflurane, sevoflurane, penicillin induced, epilepsy model .

Murohara, T., M. Buerke, and A.M. Lefer (1996). **Cardioprotective actions of oligotide, a single stranded polydeoxyribonucleotide complex, in myocardial ischaemia and reperfusion injury.** *British Journal of Pharmacology* 117(6): 1000-8. ISSN: 0007-1188.
Abstract: 1. The efficacy of oligotide, a single stranded polydeoxyribonucleotide complex, was examined in a feline model of myocardial ischaemia (MI: 90 min) and reperfusion (R: 270 min). Oligotide (15 mg kg-1 bolus) was administered intravenously 80 min after occlusion of the left anterior descending (LAD) coronary artery (i.e., 10 min prior to R) and continued for an additional 280 min (10 mg kg-1 h-1 infusion). 2. Oligotide-treated cats showed significantly smaller myocardial necroses and lower cardiac myeloperoxidase activities (significantly lower neutrophil infiltration) in the necrotic zone as compared to MI+R cats receiving only vehicle. 3. LAD coronary arteries isolated from MI+R cats exhibited a significant endothelial dysfunction (i.e., reduced endothelium-dependent relaxation), and significantly increased adherence of polymorphonuclear neutrophils (PMNs) ex vivo. However, oligotide significantly preserved endothelial function and attenuated PMN adherence in ischaemic LAD coronary arteries. 4. Oligotide attenuated P-selectin expression on thrombin-stimulated platelets as well as PMN adherence to thrombin-stimulated coronary endothelium. Immunohistochemical examination in vivo revealed that oligotide treatment also significantly inhibited coronary endothelial P-selectin expression after 90 min MI and 20 min R. 5. Oligotide exerted a significant cardioprotection in MI+R injury. The mechanism appears to be related to attenuation of PMN-endothelial interaction and eventual infiltration into the ischaemic myocardium.
Descriptors: coronary vessels, heart, myocardial reperfusion injury, oligodeoxyribonucleotides, acetylcholine, cats, endothelium, vascular, flow cytometry,

neutrophils, oligodeoxyribonucleotides, p selectin analysis, peroxidase analysis, thrombin, vasodilation.

Murphy, K.M., K.R. Duffy, and D.G. Jones (2004). **Experience-dependent changes in NMDAR1 expression in the visual cortex of an animal model for amblyopia.** *Visual Neuroscience* 21(4): 653-670. ISSN: 0952-5238.

Abstract: When normal binocular visual experience is disrupted during postnatal development, it affects the maturation of cortical circuits and often results in the development of poor visual acuity known as amblyopia. Two main factors contribute to the development of amblyopia: visual deprivation and reduced binocular competition. We investigated the affect of these two amblyogenic factors on the expression of the NMDAR1 subunit in the visual cortex because activation of the NMDA receptor is a key mechanism of developmental neural plasticity. We found that disruption of binocular correlations by monocular deprivation promoted a topographic loss of NMDAR1 expression within the cortical representations of the central visual field and the vertical and horizontal meridians. In contrast, binocular deprivation, which primarily affects visual deprivation, promoted an increase in NMDAR1 expression throughout the visual cortex. These different changes in NMDAR1 expression can be described as topographic and homeostatic plasticity of NMDA expression, respectively. In addition, the changes in NMDA expression in the visual cortex provide a greater understanding of the neural mechanisms that underlie the development of amblyopia and the potential for visual recovery.

Descriptors: amblyopia, n methyl d aspartate receptors, vision, visual cortex, amblyopia, cats, animal disease models, homeostasis, immunohistochemistry, neuronal plasticity, sensory deprivation, staining and labeling, tissue distribution, monocular vision.

Mushahwar, V.K., D.M. Gillard, M.J. Gauthier, and A. Prochazka (2002). **Intraspinal micro stimulation generates locomotor-like and feedback-controlled movements.** *Institute of Electrical and Electronics Engineers Transactions on Neural Systems and Rehabilitation Engineering* 10(1): 68-81. ISSN: 1534-4320.

Abstract: Intraspinal microstimulation (ISMS) may provide a means for improving motor function in people suffering from spinal cord injuries, head trauma, or stroke. The goal of this study was to determine whether microstimulation of the mammalian spinal cord could generate locomotor-like stepping and feedback-controlled movements of the hindlimbs. Under pentobarbital anesthesia, 24 insulated microwires were implanted in the lumbosacral cord of three adult cats. The cats were placed in a sling leaving all limbs pendent. Bilateral alternating stepping of the hindlimbs was achieved by stimulating through as few as two electrodes in each side of the spinal cord. Typical stride lengths were 23.5 cm, and ample foot clearance was achieved during swing. Mean ground reaction force during stance was 36.4 N, sufficient for load-bearing. Feedback-controlled movements of the cat's foot were achieved by reciprocally modulating the amplitude of stimuli delivered through two intraspinal electrodes generating ankle flexion and extension such that the distance between a sensor on the cat's foot and a free sensor moved back and forth by the investigators was minimized. The foot tracked the displacements of the target sensor through its normal range of motion. Stimulation through electrodes with tips in or near lamina IX elicited movements most suitable for

locomotion. In chronically implanted awake cats, stimulation through dorsally located electrodes generated paw shakes and flexion-withdrawals consistent with sensory perception but no weight-bearing extensor movements. These locations would not be suitable for ISMS in incomplete spinal cord injuries. Despite the complexity of the spinal neuronal networks, our results demonstrate that by stimulating through a few intraspinal microwires, near-normal bipedal locomotor-like stepping and feedback-controlled movements could be achieved.
Descriptors: electric stimulation, hindlimb, implants, locomotion, spinal cord, cats, electromyogrphy, feedback, lumbar vertebrae surgery, microelectrodes, movement, sacrum surgery, stress, mechanical.

Nagashima, G. (1994). **Cumulative effect of repetitive ischemia: pathophysiological findings.** *The Bulletin of Tokyo Medical and Dental University* 41(2): 23-36. ISSN: 0040-8921.
Abstract: The cumulative effect of ischemia on the brain was investigated in cats using a repetitive transient global ischemia model. The cats were submitted to three series of repetitive ischemia of 5.0, 7.5 and 10.0-minute durations at 1-hour intervals by intrathoracic clamping of the innominate and subclavian arteries. Pathophysiological changes during and after the ischemic episodes were evaluated by monitoring the electroencephalograms (EEG), cerebral blood flow (CBF), specific gravity and 31P-MR spectroscopy (MRS). Transient 5.0, 7.5, and 10.0-minute ischemias appeared to produce a slightly more severe energy failure on the 31P MRS measurement in the animals that had previously experienced an ischemic injury than those that had not. Additionally, repetition of ischemic episodes at 1-hour intervals led to a progressive lengthening of the duration of the spontaneous electrocortical suppression that followed each ischemic episode. However, preischemic hypoxia (5% O2 for 5 minutes) resulted in minor changes in the levels of phosphocreatine and intracellular inorganic phosphate on the MRS measurement, otherwise the EEG activity declined progressively. This shut-down response of the EEG can be concluded to serve in preserving the energy state of the brain although it is not capable of preventing the development of postischemic brain edema and neuronal death.
Descriptors: ischemic attack, transient, adenosine triphosphate, anoxia, brain edema, cats, cerebrovascular circulation, electroencephalography, energy, hydrogen ion concentration, ischemic attack, transient, magnetic resonance spectroscopy, recurrence.

Nakagaki, K., K. Nakagaki, K. Takahashi, D. Schols, E. De Clercq, and T. Tabira (2001). **CXCR4 is the primary receptor for feline immunodeficiency virus in astrocytes.** *Journal of Neurovirology* 7(5): 487-92. ISSN: 1355-0284.
Abstract: Feline astrocytes were productively infected with the Crandell feline kidney (CrFK) cell-adapted feline immunodeficiency virus (FIV) Petaluma strain in a primary culture. They expressed mRNA of CXCR4, and the FIV infection was blocked by stromal cell-derived factor 1alpha (SDF-1alpha), SDF-1beta, or the bicyclam AMD3100 in a dose-dependent manner. These observations suggest that, like FIV infection in CrFK cells and lymphocytes, the virus uses CXCR4 as a primary receptor for infecting astrocytes and this can be a possible natural model for AIDS dementia complex.
Descriptors: astrocytes, feline immunodeficiency virus, nerve tissue proteins, receptors, virus, AIDS dementia complex, astrocytes, cats, cells, cultured, chemokines, cxc,

cytokines, animal disease models, dose response relationship, drug, gene products, gag biosynthesis, gene products, gag, heterocyclic compounds, microglia, microglia, RNA, messenger biosynthesis, biosynthesis, receptors, CXCR4, receptors, virus biosynthesis, receptors, virus, specific pathogen free organisms.

Nakagama, H., T. Saito, and S. Tanaka (2000). **Effect of imbalance in activities between on- and off-center lgn cells on orientation map formation**. *Biological Cybernetics* 83(2): 85-92. ISSN: 0340-1200.
Descriptors: models and simulations, computational biology, cats, nervous system, neural coordination, computer simulation, orientation map formation, activity imbalance, spatial periodicity, self organization model, visual cortex.

Nakao, M., T. Takizawa, K. Nakamura, N. Katayama, and M. Yamamoto (2001). **An optimal control model of 1/f fluctuations in heart rate variability.** *Institute of Electrical and Electronics Engineers :Engineering in Medicine and Biology Magazine* 20(2): 77-87. ISSN: 0739-5175.
Descriptors: heart rate, models, cardiovascular, analysis of variance, biomedical engineering, pressure, cats, computer simulation, nonlinear dynamics, pressoreceptors, sympathetic nervous system.

Nedrud, J.G. (1999). **Animal models for gastric Helicobacter immunology and vaccine studies.** *Federation of European Microbiological Societies : Immunology and Medical Microbiology* 24(2): 243-50. ISSN: 0928-8244.
NAL Call Number: QR180.F46
Abstract: Over the last decade animal models have been used extensively to investigate disease processes and therapy for Helicobacter pylori infections. The H. pylori animal models which have been used in pathogenesis and vaccine studies include the gnotobiotic pig, non-human primates, cats, dogs, and several species of rodents including mice, rats, gerbils and guinea pigs. H. felis infection of mice and H. mustelae infection of ferrets have also been used. Recently, investigators have begun using transgenic mice and gene-targeted 'knock-out' mice to investigate Helicobacter infections. Each of these animal models has distinct advantages and disadvantages which are discussed in this minireview. The choice of an animal model is dictated by factors such as cost and an understanding of how each model will or will not allow fulfillment of experimental objectives.
Descriptors: bacterial vaccines, animal disease models, helicobacter, helicobacter infections, stomach diseases, cats, dogs, guinea pigs, helicobacter infections, mice, rats, stomach diseases.

Neilsen, M.E., M. Buse, D.R. Menick, and G.I. Cooper (2001). **Role of microtubules in the trafficking of the insulin-responsive glucose transporter, glut4, in cardiocytes**. *Federation of American Societies for Experimental Biology Journal* 15(5): A1118. ISSN: 0892-6638.
NAL Call Number: QH301 .F3
Descriptors: cardiovascular system, transport and circulation, cardiac hypertropHy, feline cardiocytes, nocodazole, heart disease, model, microtubule based protein trafficking, glucose transporter, GLUT1, GLUT4, cardiac isoforms, insulin.

Nemzek, J.A., S.P. Arnoczky, and C.L. Swenson (1994). **Retroviral transmission by the transplantation of connective-tissue allografts. An experimental study.** *The Journal of Bone and Joint Surgery/ American Volume* 76(7): 1036-41. ISSN: 0021-9355.
Abstract: The transmission of a retrovirus by the transplantation of allografts of connective tissues was studied in a feline model with use of the feline leukemia virus, a retrovirus with a replication cycle and pathological characteristics similar to those of the human immunodeficiency virus. The retrovirus was used to infect four specific-pathogen-free cats that were subsequently used as tissue donors. Fresh allografts of menisci, patellar ligaments, and patellar ligament and bone composites were harvested from infected donors and were transplanted into the knee joints of twelve specific-pathogen-free cats. A fresh cancellous-bone allograft was transplanted into the proximal part of the tibia of four additional specific-pathogen-free cats, which served as positive control animals. Additional grafts from infected donors were harvested and were stored at -80 degrees Celsius for ten weeks. A fresh-frozen graft was then transplanted into the knee of twelve other specific-pathogen-free cats. Samples of plasma were obtained weekly from all twenty-eight cats and were tested with both an enzyme-linked immunosorbent assay to detect the presence of viral antigen and an immunofluorescent antibody assay to determine exposure to the virus. All types of fresh and fresh-frozen connective-tissue allografts from the infected donors resulted in transmission of the retrovirus to the recipient cats. The recipients had evidence of viral antigen or rising antibody titers as early as two weeks after the transplantation. Histological examination of specimens of the allografts revealed normal incorporation of the transplanted tissues, with no sign of rejection of the graft.
Descriptors: connective tissue microbiology, connective tissue transplantation, leukemia virus, feline, leukemia, feline transmission, viral antigens, bone transplantation, cats, enzyme linked immunosorbent assay, fluorescent antibody technique, freezing, leukemia, feline microbiology, menisci, tibial microbiology, menisci, tibial transplantation, patellar ligament microbiology, patellar ligament transplantation, specific pathogen free organisms, tissue preservation, transplantation, homologous.

Nicoll, R.G., M.W. Jackson, B.S. Knipp, J.A. Zagzebski, H. Steinberg, and R.T. O' Brien (1998). **Quantitative ultrasonography of the liver in cats during obesity induction and dietary restriction**. *Research in Veterinary Science* 64(1): 1-6. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Descriptors: ultrasonography, liver, obesity, disease models, diagnostic techniques, ultrasonic diagnosis, nutritional disorders, cats.

Nilsson, B., E. Theodorsson, L. Jivegard, A. Thune, S. Friman, and J. Svanvik (1994). **Vasoactive intestinal peptide-antiserum inhibits fluid secretion by the inflamed gallbladder mucosa.** *Regulatory Peptides* 49(3): 179-84. ISSN: 0167-0115.
NAL Call Number: QP552 .P4
Abstract: The inflammatory fluid secretion by the gallbladder mucosa in experimental cholecystitis is induced by an increased prostaglandin formation and is mediated by intramural nerves. In the present study the effect of VIP-antiserum on the inflammatory fluid secretion in the gallbladder was tested in a validated experimental model in cats. The animals were studied in acute experiments 6 weeks after a procedure when the cystic duct

was tied and gallstones were implanted in the gallbladder. During basal conditions there was a continuous secretion of fluid into the lumen of the inflamed gallbladder averaging 0.43 +/- 0.18 ml/h. Injection of VIP antiserum, obtained from immunized rabbits and diluted with saline 1:10 in a bolus of 4 ml into the coeliac artery reversed this secretion into an absorption of 1.72 +/- 0.44 ml h-1 (P < 0.001). VIP-antiserum did not affect the fluid adsorption in control animals with an intact gallbladder and injection of control serum from rabbits not immunized to VIP did not affect fluid secretion in the inflamed gallbladders. The results support the idea that the inflammatory fluid secretion in the gallbladder mucosa is mediated by VIP-ergic nerve fibres.
Descriptors: cholecystitis, exudates and transudates secretion, gallbladder secretion, vasoactive intestinal peptide, bile secretion, cats, animal disease models, immune sera, mucous membrane secretion, rabbits, vasoactive intestinal peptide.

Nishimura, T. (1997). **Comparative study of neurons in the rabbit and feline parasympathetic ganglia**. *Journal of the Autonomic Nervous System* 65(2-3): 126. ISSN: 0165-1838.
Descriptors: cell biology, nervous system, urinary system, chemical coordination, animal model, electrophysiology, excretory system, morphology, nervous system, feline parasympathetic ganglion, urinary bladder.

Nonaka, I. (1998). **Animal models of muscular dystrophies.** *Laboratory Animal Science* 48(1): 8-17. ISSN: 0023-6764.
NAL Call Number: 410.9 P94
Abstract: Recent advances in molecular biology have indicated that many mutant animal models of muscular dystrophy share common genetic and protein abnormalities similar to those of the human disease. The best example is a model of Duchenne muscular dystrophy (DMD), the mdx mouse. Similar to dystrophic muscle in DMD patients, dystrophin protein is not expressed along the surface membrane, even though the mdx mouse has no apparent signs of muscular dysfunction. Because clinical and pathologic findings in the dystrophic (mxd) dog are similar to those in DMD patients, it also has been regarded as a good model for therapeutic trials. The best known and most extensively studied dy+dy+ mouse lacks merosin (laminin alpha2), which is one subunit of a basement membrane protein, laminin. Because approximately half of all patients with the classical form of congenital muscular dystrophy also lack merosin, availability of this animal has revived interest in the study of the pathologic mechanism of fiber necrosis resulting from this membrane defect. The dystrophic hamster is a model of limb-girdle muscular dystrophy with sarcoglycan deficiency in which one of the dystrophin-associated glycoproteins, delta-sarcoglycan, is defective. Because these animal models have common protein and genetic defects similar to those seen in people with muscular dystrophies, they have been widely used to examine the effectiveness of gene therapy and the administration of pharmacologic and trophic factors.
Descriptors: animal disease models, muscular dystrophy, animal, cats, chickens, dogs, dystrophin, hamsters, laminin deficiency, laminin, mice, mice, knockout, mice, mutant strains.

Norris, C.R., J.R. Byerly, K.C. Decile, R.D. Berghaus, W.F. Walby, E.S. Schelegle, D.M. Hyde, and L.J. Gershwin (2003). **Allergen-specific IgG and IgA in serum and**

bronchoalveolar lavage fluid in a model of experimental feline asthma. *Veterinary Immunology and Immunopathology* 96(3/4): 119-127. ISSN: 0165-2427.
NAL Call Number: SF757.2. V38
Descriptors: allergens, allergic reactions, asthma, bronchoalveolar lavage, IgA, IgG, mucosa, cats.

North, T.W. and R.A. LaCasse (1995). **Testing anti-HIV drugs in the FIV model**. *Nature Medicine* 1(5): 410-411. ISSN: 1078-8956.
Descriptors: HIV infections, animal models, acquired immune deficiency syndrome, therapy, treatment, analogues, enzyme inhibitors, zidovudine, drug resistance, nucleosides, nucleoside analogues, reverse transcriptase inhibitors, Retroviridae, Lentivirus, human immunodeficiency virus, cats, man.

Nuttall, J.D., L.K. Brumfield, N.L. Fazzalari, J.J. Hopwood, and S. Byers (1999). **Histomorphometric analysis of the tibial growth plate in a feline model of mucopolysaccharidosis type VI.** *Calcified Tissue International* 65(1): 47-52. ISSN: 0171-967X.
Abstract: Mucopolysaccharidosis type VI (MPS VI) is a genetically inherited lysosomal storage disorder. Severely affected children exhibit a range of skeletal abnormalities including short stature, facial dysmorphia, and dysostosis multiplex. Naturally occurring and transgenic animal models of MPS VI are also found which exhibit pathology similar to the human disorder. In this paper we have characterized the formation of trabecular bone from growth plate cartilage in a feline model of MPS VI. Tibial trabecular bone was shown to be osteopenic in MPS VI animals with a bone mineral volume (BV/TV) of 4.51% compared with a BV/TV of 15.64% in normal animals. In addition to osteopenia, a rearrangement of trabecular bone architecture was also observed in MPS VI tibiae, with fewer, thinner trabeculae noted; bone formation rate was also decreased. These observations support those previously made in the L5 vertebrae of MPS VI animals. When the sequential formation of growth plate cartilage structural elements, their transition into primary bone spongiosa, and remodeling into secondary bone spongiosa was characterized, no difference between normal and MPS VI could be detected in the number of cartilage septae and their arrangement in the proliferative and hypertrophic regions of the growth plate or trabecular elements in the primary spongiosa. However, a deviation from normal was observed in the resting zone of the growth plate and in the secondary spongiosa of bone. Thus, the osteopenia observed in MPS VI bone appears to arise primarily from a defect in bone production within the metaphysis and diaphysis rather than the creation of an abnormal template in the preceding growth plate cartilage.
Descriptors: animal disease models, growth plate, mucopolysaccharidosis vi, tibia, bone density, metabolic bone diseases, metabolic bone diseases, cats, growth plate, mucopolysaccharidosis vi, osteogenesis, tibia.

Ohkura, T., Y.S. Shin, N. Wakamiya, N. Iwa, and T. Kurimura (1997). **Detection of proviruses and viral RNA in the early stages of feline immunodeficiency virus infection in cats: a possible model of the early stage of HIV infection.** *Experimental Animals: Japanese Association for Laboratory Animal Science* 46(1): 31-9. ISSN: 1341-1357.
NAL Call Number: QL55.J55
Abstract: Feline immunodeficiency virus (FIV) infection in cats has been reported to be

a useful animal model for human AIDS studies, especially in the early stages of infection. We examined the temporal changes in provirus detection in peripheral blood mononuclear cells (PBMC) and the distribution of FIV-DNA and RNA in feline tissues by the polymerase chain reaction at 10, 35, 70 days after intravenous inoculation of FIV. Viral DNA in the PBMC was detected three to four weeks after infection and its fluctuation was demonstrated for the first time. Ten days after infection, before seroconversion, proviruses were detected only in the mesenteric lymph nodes and intestines. At 35 and 70 days after infection, after seroconversion, proviruses were detected in most lymphoid organs and the salivary glands, but the expression of FIV-RNA was limited to the thymus at 70 days after infection. These results show that FIV-RNA is transcribed from proviral DNA exclusively in the thymus at this stage. We suggest that the quantitative changes in detectable proviruses in the PBMC depend on the relation between the decrease in infected cells caused by cytolytic T lymphocytes and/or apoptosis and their increase caused by the release of a new supply of lymphocytes from the thymus.
Descriptors: cats, animal disease models, feline acquired immunodeficiency syndrome, feline immunodeficiency virus, feline immunodeficiency virus, proviruses, RNA, viral analysis, antibodies, viral, DNA, viral analysis, kinetics, leukocytes, mononuclear, polymerase chain reaction, tissue distribution.

Oreskovic, D., M. Klarica, M. Vukic, and J. Marakovic (2003). **Evaluation of ventriculo-cisternal perfusion model as a method to study cerebrospinal fluid formation.** *Croatian Medical Journal* 44(2): 161-4. ISSN: 0353-9504.
Abstract: AIM: To evaluate ventriculo-cisternal perfusion as a method for measuring cerebrospinal fluid formation rate, calculated by means of the Heisey et al equation. Method. All experiments were carried out on anesthetized domestic cats fixed in the sphinx position in a stereotaxic frame. Ventriculo-cisternal perfusion was used at an intracranial pressure of -10 cm H2O at different perfusion rates (32.0, 65.5, 125.0, and 252.0 microL/min). Dextran blue was applied as an indicator substance and the concentration of the indicator was measured with a spectrophotometer at a wavelength of 635 nm. Cerebrospinal fluid formation rate was calculated with the equation of Heisey et al. Results. The indicator substance was less diluted at a higher perfusion rate, and the calculated cerebrospinal fluid formation rate was lower. The increase in perfusion rate from 65.5 to 125.0 to 252.0 microL/min increased the concentration of indicator substance from 0.75 to 0.89 to 0.97 mg/mL and decreased calculated cerebrospinal fluid formation rate from 21.8 to 15.4 to 7.8 microL/min. This reduction was linear and an increase in the perfusion rate by 1.0 microL/min decreased the cerebrospinal formation rate by 0.05 microL/min. Conclusion. The calculated cerebrospinal fluid formation rate depends on different perfusion rates. The increase in the perfusion rate diminishes the calculated formation rate. Ventriculo-cisternal perfusion may not be a suitable method to calculate the cerebrospinal fluid formation rate according to the equation of Heisey et al.
Descriptors: cerebral ventricles, cerebrospinal fluid, intracranial pressure, biological models, cats, croatia, perfusion, spectropHotometry, stereotaxic techniques.

Orton, E.C. (1995). ***Small Animal Thoracic Surgery***, Williams and Wilkins: Baltimore, Maryland, USA, 256 p. ISBN: 0683066706.

NAL Call Number: SF991.O88 1995
Descriptors: dogs, cats, cardiopulmonary pathophysiology, anesthesia and analgesia, disorders of the thoracic wall, pnuemothroax, digestive system, esophgus, hiatal hernia, respiratory system, cardiovascular system.

Pan, J., C. Zhong, Z. Chang, and P. Roy Burman (2003). **A potential therapeutic strategy to combat leukemia virus infection.** *Cancer Biology and Therapy* 2(1): 92-9. ISSN: 1538-4047.
Abstract: To test the concept that a replication-competent retrovirus carrying a suicide gene could have potential utility in the control of the natural virus infection in mammalian species, we constructed derivatives of a feline leukemia virus (FeLV) that is commonly associated with leukemia-lymphomas in this species. The FeLV, Rickard strain, subgroup A (FRA) genome contained at the 3' end of the envgene, an insert of an internal ribosomal entry site (IRES) linked to cDNA sequence of either herpes simplex virus thymidine kinase (HSV-TK) or a truncated HSV-TK (HSV-ATK) or yeast cytosine deaminase (CD). These constructs were transfected into feline fibroblast cells (H927). The viruses produced were determined to be replication-competent. The stable propagation of the full-length transgene was, however, dependent on the size of the insert, IRES-CD being the smallest in size (1031 bp) exhibiting maximal stability for at least up to six months. The protein products of the transgenes could be detected, despite the appearance of deleted proviruses at late passages. The transduced cells were susceptible to cytotoxic killing when the appropriate prodrug, ganciclovir (GCV), acyclovir (ACV) or 5-fluorocytosine (5-FC) was added to the culture medium. H927 cells, infected with another subgroup of FeLV, namely, FeLV-B or FeLV-C, could be superinfected by the FRA-suicide gene viruses and thus, subjected to killing. Interestingly, at an early stage of infection by the parental FRA, H927 cells could also be reinfected by the same subgroup FRA constructs to induce the suicide effect. Among the three constructs, the vector with the CD gene was determined to be superior to others in terms of stability, therapeutic index and bystander effect in the cell culture test system. While the in vivo correlates of the therapeutic effect in the feline model remain to be determined, our results do encourage investigation of the same concept in the control of HTLV and, perhaps even, HIV infection in humans.
Descriptors: leukemia virus, feline, retroviridae infections therapy, retroviridae proteins, oncogenic, tumor virus infections therapy, viral envelope proteins, virus replication, acyclovir, Western blot, cats, cells, cultured, cytosine deaminase, DNA primers, fibroblasts, flucytosine, ganciclovir, gene expression regulation, viral, genetic vectors, luminescent proteins, nucleoside deaminases, nucleoside deaminases, polymerase chain reaction, prodrugs, retroviridae infections, retroviridae proteins, oncogenic, ribosomes, saccharomyces cerevisiae, simplexvirus, thymidine kinase, thymidine kinase, thymidine kinase, transfection, transgenes, tumor virus infections, viral envelope proteins.

Parodi, A.L., F. Femenia, A. Moraillon, F. Crespeau, and J.J. Fontaine (1994).
Histopathological changes in lymph nodes of cats experimentally infected with the feline immunodeficiency virus (fiv). *Journal of Comparative Pathology* 111(2): 165-174. ISSN: 0021-9975.
NAL Call Number: 41.8 J82

Descriptors: blood and lymphatics, cell biology, feline immunodeficiency virus, immune system, animal model, kittens, HIV, cd4 lymphocyte, cd8 lymphocyte, follicular hyperplasia, generalized lymphadenopathy, hyperactive follicular center, immunocytochemistry, interfollicular proliferation, lymphocytic mantle cell, medullary plasmacytosis.

Pascal, J., A. Bourgeade, M. Lagier, and C. Legros (1998). **Linear and nonlinear model of the human middle ear**. *Journal of the Acoustical Society of America* 104(3 PART 1): 1509-1516. ISSN: 0001-4966.
Descriptors: mathematical biology, computational biology, cats, acoustic field, eardrum impedance, linear model: mathematical model, middle ear transfer function data, nonlinear model, sound pressure levels.

Patel, A.G., M.T. Toyama, C. Alvarez, T.N. Nguyen, P.U. Reber, S.W. Ashley, and H.A. Reber (1995). **Pancreatic interstitial pH in human and feline chronic pancreatitis.** *Gastroenterology* 109(5): 1639-45. ISSN: 0016-5085.
NAL Call Number: RC799. G37
Abstract: BACKGROUND & AIMS: Advanced chronic pancreatitis is associated with a reduction in pancreatic blood flow. To determine the physiological significance of this decrease, pancreatic interstitial pH was measured in a model of obstructive chronic pancreatitis in cats and in patients with chronic pancreatitis. METHODS: In cats, pancreatic interstitial pH and blood flow were measured serially under basal conditions and after secretory stimulation as chronic pancreatitis evolved. Basal pancreatic interstitial pH was also measured in patients undergoing an operation for chronic pancreatitis or periampullary cancer (controls). RESULTS: In normal cats, pancreatic interstitial pH was 7.41 +/- 0.01 and blood flow was 124 mL.min-1.(100 g pancreas-1). With the evolution of chronic pancreatitis, interstitial pH and blood flow progressively decreased to 7.21 +/- 0.04 ($P < 0.007$) and 75 +/- 11 ($P < 0.007$), respectively. From 1 to 2 weeks, secretory stimulation reduced pancreatic interstitial pH and blood flow further, but as secretory function was lost, this effect disappeared. In patients with chronic pancreatitis, the interstitial pH was lower (7.02 +/- 0.06) than in controls (7.25 +/- 0.04; $P < 0.05$). CONCLUSIONS: These observations are consistent with the hypothesis that, in chronic pancreatitis, acidic metabolites associated with pancreatic secretion accumulate within the pancreas, probably because of impaired blood flow.
Descriptors: pancreas, pancreatitis, adult, aged, cats, chronic disease, hydrogen ion concentration, middle aged, pancreas supply, pancreatitis.

Persidsky, Y., H.S. Nottet, V.G. Sasseville, L.G. Epstein, and H.E. Gendelman (1995). **The development of animal model systems for HIV-1 encephalitis and its associated dementia.** *Journal of Neurovirology* 1(3-4): 229-43. ISSN: 1355-0284.
Abstract: The human immunodeficiency virus (HIV) is neuroinvasive and can be neurovirulent. Indeed, 20-30% of individuals with the acquired immune deficiency syndrome (AIDS) develop cognitive and motor dysfunction (termed the AIDS dementia complex or HIV dementia) coincident with advanced immunosuppression. Despite massive research efforts to discern viral neuropathogenic mechanisms, much remains incompletely understood. Recently, we and others developed animal model systems to elucidate how HIV infection within the brain can lead to impairment of central nervous

system function. In this report, we evaluate each of the published animal models for their ability to mirror HIV dementia. Ease of handling and expense were also under consideration. Ultimately, studies in animal systems should permit a better understanding of the nature of HIV-1-induced neurological injury and aid in the development of effective treatments for this dreaded complication of HIV infection.
Descriptors: AIDS dementia complex, encephalitis, viral, HIV 1, cats, animal disease models, haplorhini, mice.

Pistello, M., D. Matteucci, F. Bonci, P. Isola, P. Mazzetti, L. Zaccaro, A. Merico, D. Mauro del, N. Flynn, and M. Bendinelli (2003). **AIDS vaccination studies using an ex vivo feline immunodeficiency virus model: protection from an intraclade challenge administered systemically or mucosally by an attenuated vaccine**. *Journal of Virology* 77(20): 10740-10750. ISSN: 0022-538X.
NAL Call Number: QR360. J6
Descriptors: acquired immune deficiency syndrome, animal models, disease models, immune response, immunity, immunization, live vaccines, vaccination, vaccine development, cats, feline immunodeficiency virus.

Plechner, A.J. (2003). **An effective veterinary model may offer therapeutic promise for human conditions: roles of cortisol and thyroid hormones.** *Medical Hypotheses* 60(3): 309-14. ISSN: 0306-9877.
Abstract: For nearly three decades, the author has treated multiple serious diseases of cats and dogs by correcting an unrecognized endocrine-immune imbalance originating with a deficiency or defect of cortisol. The cortisol abnormality creates a domino effect on feedback loops involving the hypothalamus-pituitary-adrenal axis. In this scenario estrogen becomes elevated, thyroid hormone becomes bound, and B and T cells become deregulated. Diseases with this aberration as a primary etiological component range from allergies and strange behavior to severe cases of autoimmunity and cancer. Successful treatment and control, even in critical cases, have been consistently achieved with a long-term physiologic (not pharmacologic) replacement with cortisone along with thyroid hormone (in dogs). The treatment represents a major healing modality for many seemingly unrelated chronic diseases of animals. In humans, this endocrine-immune dysfunction appears to exist and, as in veterinary medicine, has been overlooked by researchers and clinicians. Testing and treatment patterned after the animal model may offer significant clinical benefits for challenging human afflictions.
Descriptors: animal disease models, hydrocortisone, hydrocortisone, thyroid hormones, cats, dogs, biological models, models, theoretical, thyroid hormones.

Plotnikov, M.B., V.I. Smol'iakova, G.A. Chernysheva, and A.D. Avdoshin (1999). **Effect of Polyosm preparation on the viscoelastic properties of the craniospinal system in the model of acute hypertensive encephalopathy [Vliianie preparata Poliosm na viazkoelasticheskie svoistva kraniospinal'noi sistemy na modeli ostroi gipertonicheskoi entsefalopatii]**. *Biulleten' Eksperimental'Noi Biologii i Meditsiny* 127(5): 499-502 . ISSN: 0007-4888.
NAL Call Number: 442.8 B87AE
Descriptors: brain edema, cerebrospinal fluid, hypertension, polyethylene glycols, acute disease, pressure, brain edema, brain edema, brain edema, cats, cerebrospinal fluid,

elasticity, hypertension, hypertension, hypertension, intracranial pressure, norepinephrine, venous pressure, viscosity.
Language of Text: Russian.

Podell, M., M. Hadjiconstantinou, M.A. Smith, and N.H. Neff (2003). **Proton magnetic resonance imaging and spectroscopy identify metabolic changes in the striatum in the MPTP feline model of parkinsonism.** *Experimental Neurology* 179(2): 159-66. ISSN: 0014-4886.
NAL Call Number: RC321. E96
Abstract: We administered 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) to adult, male cats to model Parkinson's disease (PD), and utilized proton magnetic resonance imaging (MRI) and spectroscopy (MRS) at a field strength of 1.5 T to identify metabolic degenerative changes in the striatum in vivo. Neurologic status and somatosensory-evoked potentials in vivo, as well as postmortem striatal histopathological and immunohistochemical parameters, were examined. Nine cats were equally divided into three groups and treated daily for 10 days as follows: saline, MPTP, and pargyline (a monoamine oxidase inhibitor) plus MPTP. The MPTP-treated cats displayed bradykinesia, head tremor, and reduced oculovestibular reflex activity. MRI showed a diffuse increase of the T2-weighted signal in the striatum of two MPTP-treated cats. Analysis of the MRS spectra indicated significantly lower N-acetylaspartate/creatine (CR) and glutamine-glutamate complex/CR ratios than the control baseline. Two MPTP-treated cats had low choline-containing compounds/CR ratio, whereas a lactate peak was present in all MPTP-treated cats. In the striatum of the MPTP-treated cats, there was a significant decline of tyrosine hydroxylase immunoreactivity and histological evidence for a diffuse cytotoxic reaction. Pretreatment with pargyline attenuated the MPTP-induced clinical signs, MRI and MRS changes, and the histopathological and immunoreactivity alterations. We conclude that proton MRI/MRS is a sensitive, noninvasive measure of neural toxicity and biochemical alteration of the striatum in a feline model of PD.
Descriptors: aspartic acid, corpus striatum, magnetic resonance imaging, magnetic resonance spectroscopy diagnostic use, parkinsonian disorders diagnosis, parkinsonian disorders, 1 methyl 4 pHenyl 1,2,3,6 tetrahydropyridine, aspartic acid, aspartic acid, brain, brain, brain, cats, choline analysis, choline, corpus striatum, corpus striatum, creatine analysis, creatine, animal disease models, disease progression, inositol analysis, inositol, neurologic examination, pargyline, parkinsonian disorders, predictive value of tests, protons, tyrosine 3 monooxygenase biosynthesis.

Poirier, P., F.K. Samson, and T.J. Imig (2003). **Spectral shape sensitivity contributes to the azimuth tuning of neurons in the cat's inferior colliculus.** *Journal of Neurophysiology* 89(5): 2760-77. ISSN: 0022-3077.
Abstract: We recorded high-best-frequency single-unit responses to free-field noise bursts that varied in intensity and azimuth to determine whether inferior colliculus (IC) neurons derive directionality from monaural spectral-shape. Sixty-nine percent of the sample was directional (much more responsive at some azimuths than others). One hundred twenty-nine directional units were recorded under monaural conditions (unilateral ear plugging). Binaural directional (BD) cells showed weak monaural directionality. Monaural directional (MD) cells showed strong monaural directionality,

i.e., were much more responsive at some directions than others. Some MD cells were sensitive to both monaural and binaural directional cues. MD cells were monaurally nondirectional in response to tone bursts that lack direction-dependent variation in spectral shape. MD cells were unresponsive to noise bursts at certain azimuths even at high intensities showing that particular spectral shapes inhibit their responses. Two-tone inhibition was stronger where MD cells were unresponsive to noise stimulation than at directions where they were responsive. According to the side-band inhibition model, MD cells derive monaural directionality by comparing energy in excitatory and inhibitory frequency domains and thus should have stronger inhibitory side-bands than BD cells. MD and BD cells showed differences in breadth of excitatory frequency domains, strength of nonmonotonic level tuning, and responsiveness to tones and noise that were consistent with this prediction. Comparison of these data with previous findings shows that strength of spectral inhibition increases greatly between the level of the cochlear nucleus and the IC, and there is relatively little change in strength of spectral inhibition among the IC, auditory thalamus, and cortex.
Descriptors: form perception, inferior colliculus, inferior colliculus, neurons, acoustic stimulation, cats, electrophysiology, laterality, sound localization.

Ponti, W., T. Rubino, M. Bardotti, G. Poli, and D. Parolaro (2001). **Cannabinoids inhibit nitric oxide production in bone marrow derived feline macrophages.** *Veterinary Immunology and Immunopathology* 82(3-4): 203-14. ISSN: 0165-2427.
NAL Call Number: SF757.2. V38
Abstract: Feline immunodeficiency virus (FIV) infection causes a widespread natural immunodeficiency syndrome in cats that is considered a suitable animal model for studying human immunodeficiency virus (HIV) infection and pathogenesis. Short term cultures of bone marrow derived feline macrophages stimulated with recombinant feline interferon-gamma (r-IFN-gamma) and lipopolysaccharide (LPS) were shown to produce nitric oxide. Feline macrophages were shown to express cannabinoid receptors, and nitric oxide production decreased after in vitro exposure to synthetic cannabinoid CP-55940. Both cannabinoid receptors, CB1 and CB2, were involved in this process, since the inhibition was reversed by selective cannabinoid antagonists for both of these receptors.
Descriptors: bone marrow cells, cannabinoids, feline acquired immunodeficiency syndrome, macrophages, nitric oxide biosynthesis, bornanes, cats, cyclohexanols, animal disease models, histocytochemistry, immunosuppressive agents, macrophages, nitric oxide, phagocytosis, piperidines, pyrazoles, receptors, cannabinoid, receptors, drug.

Post, R.M. (2004). **Neurobiology of seizures and behavioral abnormalities.** *Epilepsia* 45(Suppl 2): 5-14. ISSN: 0013-9580.
Abstract: Seizures are both caused by and induce a complex set of neurobiological alterations and adaptations. The animal model of amygdala kindling provides insight into the spatiotemporal evolution of these changes as a function of seizure development and progression. Intracellular, synaptic, and microstructural changes are revealed as related to both the primary pathophysiology of kindled seizure evolution and compensatory secondary, or endogenous anticonvulsant adaptations. At the level of gene expression, the balance of these pathological and adaptive processes (as augmented by exogenous medications) probably determines whether seizures will be manifest or suppressed and

could account for aspects of their intermittency. As anxiety and emotion modulation are subserved by many of the same neuroanatomic substrates involved in the evolution of complex partial seizures, particularly those of the medial temporal lobe, it is readily conceptualized how vulnerability to a range of psychiatric disorders could be related to the primary or secondary neurochemical alterations associated with seizure disorders. The discrete and methodologically controlled elucidation of the cascades and spatiotemporal distributions of neurobiological alterations that accompany seizure evolution in the kindling model may help resolve some of the difficulty and complexity of elucidating these biobehavioral relationships in the clinic.
Descriptors: animal behavior, kindling neurology, seizures, amygdala, anticonvulsants, anticonvulsants, animal behavior, bipolar disorder, brain, brain, cats, cocaine, cocaine, animal disease models, drug tolerance, mental disorders, rats, seizures, seizures.

Potts, J.T., I.E. Fuchs, J. Li, B. Leshnower, and J.H. Mitchell (1999). **Skeletal muscle afferent fibres release substance p in the nucleus tractus solitarii of anaesthetized cats**. *Journal of Physiology* 514(3): 829-841. ISSN: 0022-3751.
NAL Call Number: 447.8 J82
Descriptors: nervous system, anesthesia, chloralose, substance P, mean arterial pressure, vagal nerves, carotid sinus nerves, neurones, neural coordination, barorecepters, nucleus tractus solitarii, tachykininergic modulation .

Power, C., K. Zhang, and G. van Marle (2004). **Comparative neurovirulence in lentiviral infections: The roles of viral molecular diversity and select proteases.** *Journal of Neurovirology* 10(Suppl 1): 113-7. ISSN: 1355-0285.
Abstract: All lentiviruses infect the brain, causing chronic neurological disease in their respective hosts. To examine the relationship(s) between lentivirus molecular diversity and the development of neurological disease, we examined in vitro and in vivo models of lentivirus neurovirulence using different recombinant viruses derived from human (HIV-1) and feline (FIV) immunodeficiency viruses. Both in vitro and in vivo studies of FIV neurovirulence showed that the FIV envelope derived from a neurovirulent strain was a principal determinant of neuropathogenesis, although systemic immunosuppression was also an integral feature of FIV neurovirulence. Studies of HIV-1 envelope sequences derived from brain or blood indicate that molecular diversity is greater in viruses from patients with HIV-associated dementia (HAD), compared to nondemented individuals. Moreover, the hypervariable V3 domain of HIVgp120, regardless of the HIV-1 clade from which it was derived, was an important region for mediating neurotoxicity in vitro but the level of viral replication did not influence neurotoxicity. For both the HIV-1 and FIV envelopes and HIV-1 Tat, induction of matrix metalloproteinase (MMP)-2 in macrophages was a consistent finding. Neurotoxicity caused by supernatants from HIV-infected or transfected macrophages, containing MMP-2, was greater than direct neurotoxicity levels caused by direct exposure of neurons to virus in assays of total neuronal death, but not in assays of neuronal apoptosis. Proteinase-activated receptor (PAR)-1 and its ligand thrombin were also induced during HIV infection, chiefly on astrocytes. PAR-1 activation resulted in gliosis and neurobehavioral changes in an animal model and resulted in N-methyl-D-aspartate (NMDA) receptor-mediated neuronal death. These findings suggest that the lentivirus envelope, which is a domain of extensive

molecular diversity in brain-derived lentivirus isolates, directly influences neuropathogenesis through the activation of select proteases, underscoring the importance of concentrating on individual viral genes and proteases in the development of neuroprotective agents for HIV-related neurological disease.
Descriptors: feline acquired immunodeficiency syndrome, HIV infections, HIV 1 pathogenicity, feline immunodeficiency virus pathogenicity, matrix metalloproteinases, cats, feline acquired immunodeficiency syndrome, HIV infections, HIV 1, feline immunodeficiency virus, receptors, proteinase activated, variation, virulence.

Preuss, T.M. (2000). **Taking the measure of diversity: comparative alternatives to the model-animal paradigm in cortical neuroscience.** *Brain, Behavior and Evolution* 55(6): 287-299. ISSN: 0006-8977.
Descriptors: cerebral cortex, biological models, cats, cerebral cortex, haplorhini, rats, species specificity.

Prochazka, A. and V.K. Mushahwar (2001). **Activation of paralyzed muscles with intraspinal microstimulation after chronic spinal transection**. *Society for Neuroscience Abstracts* 27(2): 2482. ISSN: 0190-5295.
NAL Call Number: QP351. S6
Descriptors: spinal cord injury, animal model, cats, nervous system, muscle paralysis, muscle disease, chronic spinal transection, surgical method, intraspinal microstimulation, stimulation method, amplitude modulated pulse train, neural firing rate.
Notes: Meeting Information: 31st Annual Meeting of the Society for Neuroscience, San Diego, California, USA; November 10-15, 2001.

Prospero Garcia, O., N. Herold, T.R. Phillips, J.H. Elder, F.E. Bloom, and S.J. Henriksen (1994). **Sleep patterns are disturbed in cats infected with feline immunodeficiency virus.** *Proceedings of the National Academy of Science of the United States of America* 91(26): 12947-12951. ISSN: 0027-8424.
NAL Call Number: 500 N21P
Abstract: Human immunodeficiency virus (HIV)-related sleep disturbances have been reported early in AIDS. Likewise, the feline immunodeficiency virus (FIV), a natural lentivirus pathogen of cats, produces a similar immunodeficiency syndrome with neurological sequelae. To identify the neurophysiological substrate of FIV infection in brain, pathogen-free cats were infected with the Maryland strain of FIV. Eight weeks after inoculation, all FIV-infected cats seroconverted and virus was detected in the cerebrospinal fluid and in the mononuclear cells of peripheral blood. Ten to 12 months after the FIV inoculation, inoculated and control cats were surgically implanted with electrodes to record the sleep/wake cycle. These sleep recordings were obtained under conditions controlling for environmental variables and instrumental adaptation. FIV-infected cats spent 50% more time awake than the sham-inoculated controls and exhibited many more sleep/waking stage shifts--i.e., 40% more than controls. In addition, FIV-infected cats showed approximately 30% of rapid eye movement (REM) sleep reduction compared to controls. The latency to sleep and REM sleep onset was also significantly delayed in FIV-infected cats. In addition, a remarkable increase in cortically recorded spindle activity (8-13 Hz) was observed during slow-wave sleep in some infected subjects, similar to changes described in HIV-infected humans. Moreover,

infected cats exhibited no overt signs of systemic morbidity, such as hyperpyrexia or body weight loss. These results indicate that FIV-infected cats exhibit sleep abnormalities similar to the sleep disturbances previously described in AIDS patients and further support the feline preparation as a.
Descriptors: cats, feline immunodeficiency virus, infections, sleep, neurophysiology, electrophysiology, electroencephalography, rapid eye movement, latency to sleep.

Prost, C. (1998). **Allergy diagnosis in companion animals: clinical experience with the basophil activation model.** *Veterinary Dermatology* 9(3): 213-215. ISSN: 0959-4493.
NAL Call Number: SF901 .V47
Descriptors: diagnosis, pet animals, hypersensitivity, granulocytes, cats, dogs, immunoglobulins, *Dermatophagoides farinae*, *Dermatophagoides pteronyssinus*, pollen, allergens, acarina, antigens, arachnida, astigmata, cells, dermatophagoides, gametes, glycoproteins, immunological diseases, immunological factors, leukocytes, pyroglyphidae, basophils, assays, IGE .

Quattrochi, J.J., J. Shapiro, R.L. Verrier, and J.A. Hobson (2000). **Transient cardiorespiratory events during NREM sleep: a feline model for human microarousals.** *Journal of Sleep Research* 9(2): 185-91. ISSN: 0962-1105.
Abstract: Microarousals (MAs) are brief transient events that occur during normal sleep in humans and with increased frequency in disordered sleep, especially in association with sleep apnoea. In a feline model, we discovered transient cardiorespiratory events during nonrapid eye movement (NREM) sleep that exhibited consistent features with similarities to human MAs. It was observed that MAs have two distinct phases. Phase I (MAI) is characterized by an abrupt increase in electromyogram (EMG) amplitude (> 50%), increased electrooculogram (EOG) activity and accelerated frequency of hippocampal electroencephalographic (EEG) activity. MAI lasts 4.1 +/- 0.3 s. Phase II (MAII), lasting 9.8 +/- 0.8 s, is characterized by high frequency EEG activity, but EMG, EOG and hippocampal activity remain at baseline levels. Mean inspiratory rate begins to increase 15 s before the onset of the MA, followed 10 s later by the increase in mean heart rate. Mean respiratory rate decreases sharply through MAII, and returns to baseline levels 15 s after the MA. During MAII mean heart rate decreases quickly; there is increased respiratory irregularity, followed by a prolonged ventilatory overshoot. The abrupt shift in heart rate is coincident with the change in breath timing seen during MAII. Heart rate returns to baseline levels 10 s following the MA. Integrating our findings with those described previously in humans, we propose that MAs may serve as a homeostatic mechanism which is designed to restore cardiorespiratory function allowing the continuity of sleep.
Descriptors: arousal, brain, heart rate, biological models, respiration, sleep, rem, cats, electroencephalography, electromyogrphy, electrooculography, homeostasis, polysomnography, time factors.

Reading, S.A. and J.K. Barclay (2002). **The inotropic effect of nitric oxide on mammalian papillary muscle is dependent on the level of beta1-adrenergic stimulation**. *Canadian Journal of Physiology and Pharmacology* 80(6): 569-577. ISSN: 0008-4212.
NAL Call Number: 444.8 C16

Descriptors: nitric oxide, cAMP, cGMP, Krebs Henseleit bicarbonate buffer, inotropic effects, cardiovascular system, feline ventricular papillary muscle.

Reber, P.U., A.G. Patel, M.T. Toyama, S.W. Ashley, and H.A. Reber (1999). **Feline model of chronic obstructive pancreatitis: effects of acute pancreatic duct decompression on blood flow and interstitial pH.** *Scandinavian Journal of Gastroenterology* 34(4): 439-44. ISSN: 0036-5521.

Abstract: BACKGROUND: The mechanism by which duct decompression (DD) relieves pain in patients with chronic pancreatitis (CP) is unknown. CP is associated with increased tissue pressure (IP), low pancreatic microvascular blood flow (PMBF), and interstitial pH (pH(I)). The aims of this study were to examine the effects of acute DD on PMBF, increased IP, and pH(I) in cats with CP. METHODS: The main pancreatic duct was partially obstructed. At 6 weeks PMBF (ml/min/100g H2 gas clearance), IP (mmHg needle electrode), and pH(I) (microelectrode) were measured before and after secretin stimulation. The duct was then opened, and the studies were repeated. RESULTS: PMBF normally increased with secretin stimulation (118 +/- 20 versus 271 +/- 52, P < 0.05). IP was unaltered, and pH(I) decreased as hydrogen ions produced during bicarbonate secretion were dissipated (7.41 +/- 0.01 versus 7.38 +/- 0.01, P < 0.05). In CP, basal PMBF was lower than normal (51 +/- 6 versus 118 +/- 20, P < 0.05) and decreased with stimulation (51 +/- 3.5 versus 31 +/- 3.5, P < 0.05). Basal pancreatic IP was increased (3.47 +/- 0.7 versus 0.05 +/- 0.3, P < 0.05) and increased further with secretory stimulation (3.47 +/- 0.7 versus 4.41 +/- 0.7, P < 0.05) (a compartment syndrome). The low basal pancreatic pH(I) (7.23 +/- 0.02) did not change with secretin stimulation, since bicarbonate secretion was minimal. DD decreased IP (3.66 +/- 0.5 versus 2.81 +/- 0.5, P < 0.05) and increased PMBF (50 +/- 6 versus 79 +/- 6, P < 0.05) and pH(I) (7.24 +/- 0.02 versus 7.34 +/- 0.02, P < 0.05). The normal increase in PMBF after stimulation was restored (79 +/- 6 versus 218 +/- 54, P < 0.05). pH(I) now increased with stimulation (7.34 +/- 0.002 versus 7.37 +/- 0.002, P < 0.05), perhaps due to the marked hyperaemic response. CONCLUSIONS: DD acutely restored basal and stimulated PMBF and IP towards normal. Basal pancreatic pH(I) also improved and reflects the underlying ischaemia.

Descriptors: pancreas supply, pancreatitis, cats, chronic disease, decompression, surgical, hydrogen ion concentration, pancreatic ducts surgery, pancreatitis, pancreatitis.

Rials, S.J., Y. Wu, N. Ford, F.J. Pauletto, S.V. Abramson, A.M. Rubin, R.A. Marinchak, and P.R. Kowey (1995). **Effect of left ventricular hypertrophy and its regression on ventricular electrophysiology and vulnerability to inducible arrhythmia in the feline heart.** *Circulation* 91(2): 426-30. ISSN: 0009-7322.

NAL Call Number: RC681.A1C8

Abstract: BACKGROUND: Left ventricular hypertrophy (LVH) is associated with an increased risk of death, susceptibility to ventricular arrhythmia, and multiple electrophysiological abnormalities. The purpose of the present study was to determine whether the susceptibility to arrhythmia and electrical abnormalities persists after regression of hypertrophy in an animal model of LVH. METHODS AND RESULTS: We placed constricting bands on the ascending aorta of cats (n = 9) or performed sham operations (n = 9). Serial cardiac echocardiography was performed to measure left

ventricular wall thickness. After LVH had developed in the banded animals, the constricting bands were removed and serial echocardiograms were used to monitor for regression of hypertrophy. Electrophysiological studies were performed in cats that showed regression of LVH (Regress, n = 5), those that showed no change in LV wall thickness (No Regress, n = 4), and in the sham-operated animals (Sham). Cats with persistent LVH had a higher incidence of inducible polymorphic ventricular tachycardia (4 of 4) compared with Regress (1 of 5) or Sham (1 of 9) cats (P < .05) and had lower ventricular fibrillation thresholds (9 +/- 2 mA) than Regress (17 +/- 4 mA) or Sham (16 +/- 3 mA) cats (P < .05). Persistent LVH in the No Regress group was associated with prolongation of epicardial monophasic action potential duration (MAPD) in the left but not the right ventricle. Dispersion of refractoriness was greater in the No Regress group (P < .05 versus Regress or Sham). Regress cats were identical to Sham cats in having a low incidence of inducible polymorphic ventricular arrhythmia, high fibrillation threshold, and MAPD measurements (P = NS versus Sham). CONCLUSIONS: LVH produces multiple electrophysiological abnormalities and increased vulnerability to inducible polymorphic ventricular arrhythmia in this model of LVH. Cats that show regression of hyperthrophy have normal ventricular electrophysiology and have the same low vulnerability to inducible ventricular arrhythmia as Sham animals.
Descriptors: arrhythmia, heart, hypertropHy, left ventricular, action potentials, cats, echocardiograpHy, electrophysiology, heart ventricles, hypertropHy, left ventricular ultrasonography, tachycardia, ventricular, ventricular fibrillation diagnosis, ventricular fibrillation.

Rivo, J., E. Zeira, E. Galun, and I. Matot (2004). **Activation of A3 adenosine receptors attenuates lung injury after in vivo reperfusion.** *Anesthesiology* 101(5): 1153-9. ISSN: 0003-3022.
Abstract: BACKGROUND: A3 adenosine receptor (AR) activation worsens or protects against renal and cardiac ischemia-reperfusion (IR) injury, respectively. The aims of the current study were to examine in an in vivo model the effect of A3AR activation on IR lung injury and investigate the mechanism by which it exerts its effect. METHODS: The arterial branch of the left lower lung lobe in intact-chest, spontaneously breathing cats was occluded for 2 h and reperfused for 3 h (IR group). Animals were treated with the selective A3 receptor agonist IB-MECA (300 microg/kg intravenously) given 15 min before ischemia or with IB-MECA as described, with pretreatment 15 min earlier with the selective A3AR antagonist MRS-1191, the nonsulfonylurea adenosine triphosphate-sensitive potassium channel-blocking agent U-37883A, or the nitric oxide synthase inhibitor N-nitro-l-arginine benzyl ester. RESULTS: IB-MECA markedly (P < 0.01) reduced the percentage of injured alveoli (IR, 48 +/- 4%; IB-MECA, 18 +/- 2%), wet:dry weight ratio (IR, 8.2 +/- 0.4; IB-MECA, 4 +/- 2), and myeloperoxidase activity (IR, 0.52 +/- 0.06 U/g; IB-MECA, 0.17 +/- 0.04 U/g). This protective effect was completely blocked by pretreatment with the selective A3AR antagonist MRS-1191 and the adenosine triphosphate-sensitive potassium channel blocking agent U-37883A but not the nitric oxide synthase inhibitor N-nitro-l-arginine benzyl ester. CONCLUSIONS: In the feline lung, the A3AR agonist IB-MECA confers a powerful protection against IR lung injury. This effect is mediated by a nitric oxide synthase-independent pathway and involves opening of adenosine triphosphate-sensitive potassium channels. Therefore,

selective activation of A3AR may be an effective means of protecting the reperfused lung.
Descriptors: adamantane, adenosine, lung, receptor, adenosine a3 agonists, reperfusion injury, reperfusion injury, adamantane, adenosine, cats, dihydropyridines, enzyme inhibitors, hemodynamic processes, histamine, morpholines, nitric oxide synthase, nitroarginine, potassium channel blockers, potassium channels, pulmonary artery, pulmonary artery, receptor, adenosine a3.

Robinson, W. (1996). **The use of FIV infection as an animal model for HIV infection**. *Australian and New Zealand Council for the Care of Animals in Research and Teaching News* 9(2): 4-5. ISSN: 1322-1779.
Online: www.adelaide.edu.au/ANZCCART/
NAL Call Number: SF405.5.A3
Descriptors: HIV infections, human diseases, disease models, animal models, animal diseases, human immunodeficiency virus, feline immunodeficiency virus.

Rubinstein, J.T., C.A. Miller, H. Mino, and P.J. Abbas (2001). **Analysis of monophasic and biphasic electrical stimulation of nerve.** *Institute of Electrical and Electronics Engineers Transactions on Bio Medical Engineering* 48(10): 1065-70. ISSN: 0018-9294.
Abstract: In an earlier study, biphasic and monphasic electrical stimulation of the auditory nerve was performed in cats with a cochlear implant. Single-unit recordings demonstrated that spikes resulting from monophasic and biphasic stimuli have different thresholds and latencies. Monophasic thresholds are lower and latencies are shorter under cathodic stimulation. Results from stochastic simulations of a biophysical model of electrical stimulation are similar. A simple analysis of a linear, "integrate to threshold" membrane model accounts for the threshold and latency differences observed experimentally and computationally. Since biphasic stimuli are used extensively in functional electrical stimulation, this analysis greatly simplifies the biophysical interpretation of responses to clinically relevant stimuli by relating them to the responses obtained with monophasic stimuli.
Descriptors: nerve fibers, vestibulocochlear nerve, action potentials, auditory threshold, cats, electric stimulation, models, neurological, reaction time, stochastic processes.

Rudolph, K.K., V.P. Ferrera, and T. Pasternak (1994). **A reduction in the number of directionally selective neurons extends the spatial limit for global motion perception.** *Vision Research* 34(24): 3241-3251. ISSN: 0042-6989.
Abstract: Dynamic random-dot targets were used to study neural mechanisms underlying motion perception. Performance of cats with severely reduced numbers of cortical directionally selective neurons (reduced DS) was compared to that of normal animals. We assessed the spatial properties of the residual motion mechanism by measuring direction discriminations at various dot displacements. At small displacements, reduced DS cats' motion integration thresholds for opposite direction discrimination were nearly normal. At larger displacements, their thresholds surpassed those of normal cats and their upper displacement limit (dmax) was increased by 0.35 deg. The accuracy of direction discrimination was reduced at small displacements, but at larger displacements direction difference thresholds of reduced DS cats approached or surpassed those of normals. These data were compared to the performance of humans

who showed an extension of dmax for peripherally viewed targets. The data support the hypothesis that expansion in spatial scale of the motion mechanism may contribute to extension of dmax. Additional support for this hypothesis is provided by a modified direction discriminating line-element model. The model also suggests that changes in sampling of motion mechanisms in the reduced DS system may play a role.
Descriptors: motion perception, visual pattern recognition, visual cortex, cats, discrimination psychology, biological models, psychophysics, sensory deprivation, sensory thresholds, time factors, visual fields.

Sahani, M., U.D. Parashar, R. Ali, P. Das, M.S. Lye, M.M. Isa, M.T. Arif, T.G. Ksiazek, and M. Sivamoorthy (2001). **Nipah virus infection among abattoir workers in malaysia, 1998-1999**. *International Journal of Epidemiology* 30(5): 1017-1020. ISSN: 0300-5771.
Descriptors: Nipah virus encephalitis, nervous system disease, viral disease, 1998-1999 study period, abattoir worker occurrence.

Sakamoto, N., T. Yamashita, T. Takebayashi, M. Sekine, and S. Ishii (2001). **An electrophysiologic study of mechanoreceptors in the sacroiliac joint and adjacent tissues.** *Spine* 26(20): E468-71. ISSN: 0362-2436.
Abstract: STUDY DESIGN: The somatosensory afferent units in the sacroiliac joint of an animal model were investigated using an electrophysiologic technique. OBJECTIVES: To identify the mechanosensitive receptive fields in the sacroiliac joint, and to determine their distribution and characteristics. SUMMARY OF BACKGROUND DATA: The sacroiliac joint is considered to be a source of lower back pain. Although there have been clinical studies on the diagnosis of sacroiliac joint pain, no satisfactory diagnostic method other than joint blocks has been reported. It still is not clear whether the sacroiliac joints actually transmit pain to the central nervous system. The sensory innervation of the sacroiliac joint has not been fully characterized neurophysiologically. METHODS: Experiments were performed on 10 adult cats weighing 2.6 to 4 kg. The animals were anesthetized with intravenous sodium pentobarbital. An L4-L7 laminectomy was performed. The L4-L6 dorsal roots were cut at their proximal ends, split, and draped over a bipolar recording electrode. Glass probes were used to search the sacroiliac joint and adjacent tissues for mechanosensitive units. When units were identified, they were stimulated electrically to obtain conduction velocities and by Semmes-Weinstein monofilaments to determine mechanical thresholds. RESULTS: In the sacroiliac joint and adjacent muscles, 29 discrete mechanosensitive units were identified. Of these 29 units, 26 were found in the posterior sacroiliac ligament and the remaining 3 in the adjacent muscles. Also, 16 units (55%) were identified in the proximal third of the sacroiliac joint. Conduction velocities of the units ranged from 3.1 to 22 m/second (average, 9.2 m/second), and 26 units were group III. Mechanical thresholds of the units ranged from 4.6 to 164.3 g (average, 69.7 g). Whereas 28 units (96.6%) had thresholds higher than 7 g, one unit (3.4%) had a threshold lower than 7 g. CONCLUSIONS: Group III units with mechanical thresholds higher than 7 g may serve as nociceptors, and units with thresholds of lower than 7 g may serve as proprioceptors. The current study showed that most of the units in the sacroiliac joint were high-threshold group III units that perhaps had a nociceptive function. This result suggests that the sacroiliac joint may be a source of lower back pain in humans. This study also showed that the sacroiliac

joint has little proprioceptive function.
Descriptors: mechanoreceptors, sacroiliac joint, cats, electrophysiology, ganglia, spinal, ganglia, spinal surgery, laminectomy, lumbar vertebrae surgery, models, animal, neural conduction, nociceptors, pain threshold, sacroiliac joint innervation.

Sandmeyer, L.S., C.L. Keller, and D. Bienzle (2005). **Culture of feline corneal epithelial cells and infection with feline herpesvirus-1 as an investigative tool.** *American Journal of Veterinary Research* 66(2): 205-9. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To isolate and characterize pure cultures of feline corneal epithelial cells and to assess the extent and nature of feline herpesvirus (FHV)-1 infection in these cells. SAMPLE POPULATION: Healthy eyes from 23 recently euthanatized cats. PROCEDURE: Stroma and epithelium of the rostral portion of the cornea were surgically isolated, and epithelial cells were detached from the stroma by enzymatic incubation. Epithelial cells were cultured in hormone-supplemented media. Cells were passaged, and cytokeratin expression was assessed. Cells were then infected with FHV-1, and cytopathic effects were determined. RESULTS: Cell cultures were readily established from samples obtained from each eye and could be maintained through 6 passages. Cultured cells expressed cytokeratins 3 and 12 but not other cytokeratins. Infection with FHV-1 was rapid and caused widespread cytopathic effects. CONCLUSIONS AND CLINICAL RELEVANCE: Feline corneal cells cultured in vitro during multiple passages maintain consistent morphologic characteristics and intermediate filament expression. They are susceptible to infection with FHV-1 and may provide a useful in vitro model for investigation of ocular drugs.
Descriptors: epithelium, corneal, epithelium, corneal, herpesviridae, cats, cell culture techniques, cytopathogenic effect, viral, epithelium, corneal, immunohistochemistry, keratin.

Sargan, D.R., P.J. Clements, A. Sohal, C.Y. Gregory, S.S. Bhattacharya, and S.M. Petersen Jones (1994). **Progressive retinal atrophy: a model for retinitis pigmentosa in companion animals.** *Gene Therapy* 1(Suppl 1): S89. ISSN: 0969-7128.
Abstract: The generalised progressive atrophies (PRA's) are a heterogeneous group of inherited retinopathies in dogs and cats. They show marked similarities to the retinitis pigmentosas (RP) in man, as well as to a number of inherited retinal degenerations of laboratory rodents. Of the various recessively inherited forms of PRA in the dog, that in the Irish setter is due to a nonsense mutation in the gene encoding cGMP-PDE-beta subunit. Mutations at this locus are also known to cause a proportion of human RP cases. We are interested in applying gene therapy to these diseases.
Descriptors: retinitis pigmentosa, 3',5' cyclic GMP phosphodiesterase, animals, domestic, cats, animal disease models, dogs, gene therapy, retinitis pigmentosa, retinitis pigmentosa.

Sbriccoli, P., K. Yousuf, I. Kupershtein, M. Solomonow, B.H. Zhou, M.P. Zhu, and Y. Lu (2004). **Static load repetition is a risk factor in the development of lumbar cumulative musculoskeletal disorder.** *Spine* 29(23): 2643-53. ISSN: 0362-2436.
Abstract: STUDY DESIGN: In vivo feline model subjected to variable number of repetitions of a short static lumbar flexion followed by an equally long rest period.

OBJECTIVES: The purpose of this study was to determine the influence of the number of repetitions as a risk factor in promoting a cumulative low back disorder in the feline model. SUMMARY OF BACKGROUND DATA: Epidemiologic data point out that the increased number of repetitions of static lumbar loading is a major risk factor in the development of cumulative low back disorder. Biomechanical and physiologic confirmation of the epidemiology is lacking. Recent work demonstrated that repetitive static loading results in accumulation of creep in the lumbar viscoelastic tissues, resulting in a neuromuscular disorder consisting of spasms during loading and hyperexcitability of lumbar muscles during following rest. It was also shown that the load magnitude is a major risk factor. It is hypothesized that increased number of repetitions of static load periods result in increased severity of the resulting neuromuscular disorder. METHODS: Static lumbar flexion of 10 minutes duration followed by 10 minutes rest was repeated three times in one experimental group, six times in the second, and nine times in the third group. In all groups, the creep developing in the lumbar viscoelastic tissues as well as the reflexive EMG from the multifidus were monitored during the flexion/rest periods and throughout a 7-hour recovery period after the repetitions. RESULTS: Creep developed and accumulated during each of the flexion/rest periods in the three experimental protocols, with larger residual creep at the end of the nine repetitions. A residual creep was still present at the end of the 7 hours of recovery allowed in each of the three groups. During the flexion/rest sessions, EMG spasms were present, and the presence of an initial hyperexcitability was detected during the 7 hours of recovery in all the preparations. The presence of a delayed hyperexcitability was revealed only in the group subjected to nine flexion/rest periods, while it was not observed in the groups subjected to three and six flexion/rest repetitions. The statistical analysis (post hoc Fisher test) performed on the normalized integrated EMG and displacement data during the recovery phase showed a significant difference between the nine repetitions group and the other two groups ($P < 0.0001$). The two-way ANOVA analysis revealed a significant effect of time ($P < 0.005$) and number of repetitions ($P < 0.0001$) on all considered parameters. CONCLUSIONS: It was concluded that a cumulative neuromuscular disorder develops because of repetition of static lumbar flexion, and the severity of the disorder provoked is magnified by the number of repetitions. Despite the highly favorable 1:1 work-to-rest ratio and the 7-hour post loading rest period, a full recovery of creep was not obtained in this study.
Descriptors: feline lumbar, static load, EMG, neuromuscular disorder.

Schlichtenbrede, F.C., G.M. Sarra, R.R. Ali, P. Wiedemann, and M.B. Reichel (2002).
Fortschritte in der somatischen Gentherapie von Netzhautdegenerationen am Tiermodell. [Progress in somatic gene therapy of retinal degeneration in the animal model]. *Der Ophthalmologe Zeitschrift Der Deutschen Ophthalmologischen Gesellschaft* 99(4): 259-65. ISSN: 0941-293X.

Abstract: More than 60 genes responsible for human retinal dystrophies have already been identified. Most of them are either expressed in the photoreceptor or in the retinal pigment epithelium (RPE). Therefore these cells have become the target of new therapeutical strategies on a molecular level. The most promising approach at present is somatic gene therapy, which has been developed over the last years and the principle has now been established in animal models. For gene therapy of inherited retinal

degeneration, as for gene therapy in general, gene transfer has to be proven to be not only efficient but also safe. This has recently been achieved using the adeno-associated virus (AAV) as a vector to express a therapeutic gene within the photoreceptor cell. It could be demonstrated in mouse and dog models of retinal degeneration that expression of the therapeutic transgene leads to anatomical and functional restitution of degenerating photoreceptors. A significant immune response to AAV has not been detected so far. In this paper the recent success of gene therapy of retinal degeneration in animal models is reviewed.
Descriptors: gene therapy, retinal degeneration therapy, adenoviridae, cats, animal disease models, dogs, gene transfer techniques, mice, photoreceptors, pigment epithelium of eye, retinal degeneration, retinal degeneration, swine.
Language of Text: German.

Schmanke, T.D. and J.R. Villablanca (2001). **A critical maturational period of reduced brain vulnerability to injury. A study of cerebral glucose metabolism in cats.** *Brain Research/ Developmental Brain Research* 131(1-2): 127-41. ISSN: 0006-8993.
Abstract: We have developed a feline cerebral hemispherectomy model as an analog to the surgical procedure used in pediatric intractable epilepsy. Previous work with this model has shown a remarkable plasticity associated with an early period of brain development, which we have defined using morphological, cerebral metabolic and behavioral methods. However, the important functional-metabolic bracketing of this period has not yet been performed. We have conducted the present study to answer questions raised by our previous findings using [14C] 2-deoxy-D-glucose autoradiography but only including animals lesioned at day 10 postnatally (P10) or in adulthood. The questions were; (a) is there any age better than P10 for an optimal metabolic outcome?, and (b) can we determine a cutoff point for the beneficial effects of the young age-at-lesion? Twenty-one adult cats were studied. Seven cats served as intact controls, five received a left hemineodecortication at P30, three at P60, three at P90 and three at P120, respectively. Histological analysis indicated that the extent of the lesion was similar between the age groups. Local glucose metabolic rates (LCMR(glc)) were measured in 50 structures bilaterally and used to calculate overall LCMR(glc) for seven grouped sites within the cerebral cortex, thalamus, basal ganglia, mesencephalic tegmentum (and tectum), limbic system and cerebellum. Results indicated a widespread bilateral depression of LCMR(glc) in all age-at-lesion groups. The depression in overall LCMR(glc) across all structures measured in each hemisphere was significant ($P<0.05$) for the P120 group relative to intacts for both ipsilateral (left) and contralateral (right) sides of the brain. The ipsilateral thalamus was the region most effected by the injury, with significant losses for all age-at-lesion groups. In addition, while there were widespread depressions for all lesion groups, these losses were significant for the P120 group in five groups of structures ipsilaterally (thalamus, basal ganglia, tectum, limbic system, cerebellum) and in three contralaterally (thalamus, tectum, cerebellum). In contrast, significant depressions for the earlier age-at-lesion groups (P30, P60, P90) were found only in the ipsilateral thalamus and bilaterally in the tectum. These results, together with our previous results for the P10 group, indicate a relative sparing of LCMR(glc) after hemineodecortication during the first 60 days of life, with gradually decreasing plasticity thereafter, such that there is some residual sparing at 90 days of age, and afterwards an

almost complete loss of metabolic plasticity, with lesions at P120 producing a dismal outcome. These results complement earlier morphological and behavioral studies and support the concept of a 'Critical Maturational Period' of reduced vulnerability to developmental injury.
Descriptors: brain growth and development, brain, brain injuries, critical period psychology, glucose, antimetabolites, basal ganglia growth and development, basal ganglia, brain stem growth and development, brain stem, cats, cerebellum growth and development, cerebellum, cerebral decortication, deoxyglucose, epilepsy, limbic system growth and development, limbic system, neocortex growth and development, neocortex, neuronal plasticity, thalamus growth and development, thalamus.

Schneider, J.H., J.H. Peters, E. Kirkman, C.G. Bremner, and T.R. DeMeester (1999). **Are the motility abnormalities of achalasia reversible? An experimental outflow obstruction in the feline model.** *Surgery* 125(5): 498-503. ISSN: 0039-6060.
Abstract: BACKGROUND: Experimental and clinical evidence suggests that the loss of esophageal body function in achalasia may be a result of the outflow obstruction of a nonrelaxing, hypertensive lower esophageal sphincter. The reversibility of such abnormalities has implications to the timing of therapeutic interventions. This study was designed to evaluate the evolution and reversibility of motility abnormalities resulting from esophageal outflow obstruction in cats. METHODS: Twenty adult cats were divided into 2 groups. Group 1 consisted of 4 cats that underwent laparotomy as a sham procedure. Group 2 consisted of 16 cats that underwent surgical placement of a loose Gore-tex expanded polytetrafluoroethylene (W. L. Gore, Elkton, Md) band calibrated to 110% of the circumference of the gastroesophageal junction. The band was removed from 4 randomly selected cats each at 1, 2, 4, and 6 weeks after placement. Esophageal manometry was performed before placement of the band, at weekly intervals after placement of the band, and after removal of the band. The resting pressure and percent relaxation of the lower esophageal sphincter (LES), in addition to amplitude, duration, and propagation of esophageal body contractions, were measured at each interval. Data are expressed as median and interquartile range and compared with use of the Mann-Whitney U test for independent samples. RESULTS: The LES resting pressure remained unchanged after placement of the band, but sphincter compliance was reduced, as manifested by a significant reduction in the percent of sphincter relaxation (98% prebanding, 65% postbanding, $P < .05$). The median amplitude of esophageal contraction decreased significantly after banding. By 6 weeks after banding the esophagus was markedly dilated and exhibited aperistaltic, low-amplitude esophageal motility typical of that seen in clinical achalasia. Importantly, removal of the bands resulted in a prompt return of both peristalsis and amplitude of contraction. CONCLUSIONS: Loss of compliance of the lower esophageal sphincter produces outflow obstruction with the resultant loss of esophageal contraction amplitude and peristaltic waveform typical of achalasia in humans. These abnormalities were reversible after relief of obstruction in the feline model and may indicate that early relief of outflow obstruction in clinical achalasia may preserve esophageal function in patients.
Descriptors: esophageal achalasia, esophgus, cats, compliance, muscle contraction, pressure.

Sekine, M., T. Yamashita, T. Takebayashi, N. Sakamoto, Y. Minaki, and S. Ishii (2001). **Mechanosensitive afferent units in the lumbar posterior longitudinal ligament.** *Spine* 26(14): 1516-21. ISSN: 0362-2436.

Abstract: STUDY DESIGN: The mechanosensitive afferent units in the lumbar posterior longitudinal ligament were investigated in an animal model using an electrophysiologic technique. OBJECTIVES: The objectives of this study were to identify the mechanosensitive receptive fields in the lumbar posterior longitudinal ligament and to investigate their distribution and characteristics. SUMMARY OF BACKGROUND DATA: The lumbar posterior longitudinal ligament has a nerve network originating from the sinuvertebral nerve. These fibers are thin, and most of their terminals are free nerve endings. Some immunohistochemical studies have indicated that they are immunoreactive to calcitonin gene-related peptide and/or substance P, suggesting a nociceptive function. Most of these studies investigated morphologic aspects, and there have been few studies employing electrophysiologic techniques to examine mechanosensitive units. METHODS: We used 13 adult cats. They were anesthetized and then laminectomy was performed. The L5 and L6 dorsal rootlets were draped over a recording electrode. To investigate the receptive fields in the posterior longitudinal ligament, afferent impulses were evoked by mechanical stimulation with a glass probe. When the receptive fields were located, they were stimulated electrically to obtain conduction velocity and were stimulated with a set of 17 nylon filaments to determine their mechanical thresholds. RESULTS: Thirteen units were identified in the lumbar posterior longitudinal ligament. The majority of the units were located around the intervertebral disc level of the posterior longitudinal ligament. The mean mechanical threshold was 47.04 +/- 15.25 g. According to the conduction velocities of the units, 12 units were classified into Group III (0.5-2.5 m/sec) and one unit into Group IV (2.5-20 m/sec). CONCLUSION: Mechanosensitive units classified into Group III or Group IV and with a high mechanical threshold (>7.0 g) were thought to act as nociceptive units. All units identified in this study satisfied these criteria. Our result suggests that afferent fibers from the lumbar posterior longitudinal ligament have a principally nociceptive function.

Descriptors: afferent pathways, longitudinal ligaments innervation, lumbar vertebrae, mechanoreceptors, afferent pathways, cats, electric conductivity, longitudinal ligaments, mechanoreceptors, models, animal.

Shaker, R., B.K. Medda, J. Ren, S. Jaradeh, P. Xie, and I.M. Lang (1998). **Pharyngoglottal closure reflex: identification and characterization in a feline model.** *American Journal of Physiology* 275(3 Pt 1): G521-525. ISSN: 0002-9513.

NAL Call Number: 447.8 AM3

Abstract: Earlier studies in humans have shown that pharyngeal stimulation by water at a threshold volume induces a brief vocal cord adduction, i. e., pharyngoglottal closure reflex. The present study was undertaken to 1) develop a suitable animal model for physiological studies of this reflex and 2) delineate its neural pathway and effector organs. Studies were done in cats by concurrent videoendoscopy and manometry followed by electromyographic studies. At a threshold volume (0.3 +/- 0.06 ml), injection of water into the pharynx resulted in a brief closure of the vocal folds, closing the introitus to the trachea. Duration of this closure averaged 1.1 +/- 0.1 s. Bilateral transection of the

glossopharyngeal nerve completely abolished this reflex but not swallows induced by pharyngeal water stimulation. The pharyngoglottal closure reflex is present in the cats. The glossopharyngeal nerve is the afferent pathway of this reflex, and the interarytenoid and lateral cricoarytenoid muscles are among its target organs.
Descriptors: glossopHaryngeal nerve, glottis, pharynx, reflex, cats, electromyogrphy, kinetics, microscopy, video, trachea.

Shaker, R., J. Ren, B. Medda, I. Lang, V. Cowles, and S. Jaradeh (1994). **Identification and characterization of the esophagoglottal closure reflex in a feline model.** *American Journal of Physiology* 266(1 Pt 1): G147-53. ISSN: 0002-9513.
NAL Call Number: 447.8 AM3
Abstract: To identify a suitable animal model and to delineate the neural pathway and target organs of the esophagoglottal closure reflex we studied three species. Study showed the existence of an esophagoglottal closure reflex in cats. The presence of this reflex could not be documented in the opossum. In monkeys, because of the inadequacy of the available recording devices, its presence could not be ascertained. In the feline model, the closure response of the vocal folds to the abrupt generalized and segmental distension of the esophagus was similar to that of the humans. Study findings indicate that among glottal adductor muscles at least interarytenoid and lateral cricoarytenoid muscles are involved as target organs of the esophagoglottal closure reflex. Decerebration did not change the frequency of glottal closure response to esophageal distension, supporting the notion that this reflex is completely under brain stem control. Bilateral cervical vagotomy abolished the glottal closure induced by esophageal distension indicating that this reflex is mediated by the vagus nerve. Upper esophageal sphincter (UES) pressure response to esophageal distension by air was variable, suggesting that glottal and UES response to esophageal distension, although closely coordinated, are not dependent on one another. In summary, an esophagoglottal closure reflex exists in feline species, and many similarities in the elicitation and mediation of this reflex have been found with that of humans. This model could be used for further physiological studies.
Descriptors: esophgus, glottis, reflex, air, balloon dilatation, cats, electromyogrphy, endoscopy, esopHagogastric junction, esophgus, glottis, injections, macaca, opossums, television.

Shardonofsky, F.R., J. Sato, and D.H. Eidelman (1994). **Frequency dependence of pulmonary and chest wall mechanics in young and adult cats.** *Journal of Applied Physiology* 76(5): 2037-46. ISSN: 8750-7587.
NAL Call Number: 447.8 J825
Abstract: The frequency (f) dependence of pulmonary and chest wall mechanics was assessed in nine kittens and four cats. Kittens and cats were anesthetized, paralyzed, and mechanically ventilated at various f between 0.13 and 1.6 Hz and 0.09 and 0.79 Hz, respectively. Resistance and dynamic compliance pertaining to the respiratory system (Rrs and Cdyn,rs), lungs (RL and Cdyn,L), and chest wall (RW and Cdyn,W) were estimated by fitting a single-compartment model to data obtained from regular ventilation. Static lung and chest wall compliances (Cst,L and Cst,W) were computed from quasi-static pressure-volume data. Lung tissue resistance (Rti) was estimated with alveolar capsules in open-chest animals. The f dependence of the two-compartment viscoelastic model of the

respiratory system was assessed by computing the effective resistance [Rmod,rs(omega)] and compliance [Cmod,rs(omega)] from data obtained at the lowest experimental f. Both Cdyn,L and Cdyn,W decreased with increasing f in all animals. Cdyn,L/Cst,L and Cdyn,W/Cst,W were lower in kittens than in cats. RL and RW decreased markedly with f in all animals. Rti/RL showed a marked f dependence, its values being similar in both young and adult cats at their respective resting f. CstW/Cst,L ratio was higher in kittens than in cats. A better agreement was found between Cmod,rs(omega) and Cdyn,rs than between Rmod,rs(omega) and Rrs.
Descriptors: aging, lung, respiratory mechanics, thorax, air pressure, airway resistance, cats, lung compliance, lung volume measurements, biological models, plethysmograpHy, pulmonary alveoli, respiration, artificial.

Shevelev, O.A., G.V. Bugorskii, I.L. Privalova, and N.A. Khodorovich (1994). **Vliianie ostrogo povrezhdeniia na afferentnye reaktsii zheludka i dvenadtsatiperstnoi kishki [Effect of an acute lesion on afferent reactions of the stomach and duodenum]**. *Patologicheskaia Fiziologiia i Eksperimental'Naia Terapiia*(4): 46-7. ISSN: 0031-2991.
Abstract: By recording the evoked potentials in the cortex and thalamic nuclei, afferent reactions of gastroduodenal components were studied early after acute gastroduodenal lesion in acute feline experiments. A model of acute ulcer in various gastric portions and the duodenal bulb gave rise to inhibition of their afferentation. This phenomenon was most pronounced in pyloric ulcer. It is concluded that the inhibition of the afferent reactions of gastroduodenal components in early periods after their acute lesion is a specific protective reaction of the viscera and appears mainly at the intraorgan level.
Descriptors: duodenal ulcer, duodenum innervation, stomach innervation, stomach ulcer, acute disease, afferent pathways, cats.
Language of Text: Russian.

Shimada, Y. (1995). **Experimental study on effects of omental transposition in cats with spinal cord injury**. *No to Shinkei [Brain and Nerve]* 47(9): 863-873. ISSN: 0006-8969.
Abstract: The effects of autogenous omental transposition on spinal cord injury in cats were examined using a cord crush injury model produced by a modification of Allen's weight-dropping technique. Twenty-three cats were divided into two groups: an omental transposition group, and a control group. The animals were sacrificed at 1, 2, 3, and 4 weeks after injury. The injured cords were examined histologically using India ink perfusion, morphometry of the spinal cord cavities and also by somatosensory evoked potential (SEP) studies. After 1 week, hemorrhagic necrosis, cavitation and demyelination of almost the same extent and severity were noted in both groups. These changes diminished with time in the omental transposition group, but tended to persist in the control group. In the omental transposition group, fibrous coats of Goldsmith were newly formed on the injured cord between the incised dura edges. After 3 weeks, the fibrous coat was thickened with active proliferation of fibroblasts and collagen fibers. India ink particles were noticed within the fine vessels of the omentum, fibrous coat and injured cord at 4 weeks. No India ink particles were found in the control group even after 4 weeks. In the somatosensory evoked potentials, biphasic or triphasic waves noted before injury were absent immediately after trauma. At 3 and 4 weeks, 3 of 5 cats with the omentum showed reappearance of the waves, whereas no wave-reappearance was

noted in the controls. These results suggest that autogenous omental transposition helps to accelerate the healing process after crush injury to the spinal cord.
Descriptors: omentum transplantation, spinal cord injuries surgery, cats, evoked potentials, somatosensory, spinal cord, spinal cord, spinal cord injuries, spinal cord injuries, wound healing.
Language of Text: Japanese.

Shouse, M.N., P.R. Farber, and R.J. Staba (2000). **Physiological basis: how NREM sleep components can promote and REM sleep components can suppress seizure discharge propagation.** *Clinical Neurophysiology* 111(Suppl 2): S9-S18. ISSN: 1388-2457.
Abstract: OBJECTIVES: To describe how the neural generators of different sleep components can provoke seizure discharge propagation during NREM sleep and can suppress it during REM sleep. METHODS: Experimental manipulations of discrete physiological components were conducted in feline epilepsy models (n=64), mostly in the systemic penicillin epilepsy model of primary generalized epilepsy and the amygdala kindling model of the localization-related seizure disorder, temporal lobe epilepsy. Procedures included seizure induction as well as quantifying norepinephrine concentrations (microdialysis) and the sleep-waking state distribution of seizures before and after lesions, systemic and localized drug administration and/or photic stimulation. RESULTS: (1) Neural generators of synchronous EEG oscillations, including tonic background slow waves and phasic 'arousal' events (sleep EEG transients such as sleep spindles, k-complexes), can combine to promote electrographic seizure propagation during NREM and drowsiness; anti-gravity muscle tone permits seizure-related movement. (2) Neural generators of asynchronous neuronal discharge patterns can reduce electrographic seizures during alert waking and REM sleep; skeletal motor paralysis blocks seizure-related movement during REM. (3) Etiology of the seizure disorder can interact with sleep and arousal mechanisms to determine sleep-waking state distribution of interictal and ictal events. CONCLUSIONS: Differential effects of NREM versus REM sleep components on seizure discharge propagation are to some extent non-specific and in other ways specific to seizure etiology.
Descriptors: brain, epilepsy, sleep, rem, cats, animal disease models, electroencephalography.

Shouse, M.N., J.C. Scordato, and P.R. Farber (2004). **Sleep and arousal mechanisms in experimental epilepsy: epileptic components of NREM and antiepileptic components of REM sleep.** *Mental Retardation and Developmental Disabilities Research Reviews* 10(2): 117-21. ISSN: 1080-4013.
Abstract: Neural generators related to different sleep components have different effects on seizure discharge. These sleep-related systems can provoke seizure discharge propagation during nonrapid eye movement (NREM) sleep and can suppress propagation during REM sleep. Experimental manipulations of discrete physiological components were conducted in feline epilepsy models, mostly in the systemic penicillin epilepsy model of primary generalized epilepsy and the amygdala kindling model of the localization-related seizure disorder, temporal lobe epilepsy. The sleep-wake state distribution of seizures was quantified before and after discrete lesions, systemic and localized drug administration, and/or photic stimulation, as well as in relation to

microdialysis of norepinephrine. We found that (1) neural generators of synchronous EEG oscillations--including tonic background slow waves and phasic "arousal" events (sleep EEG transients such as sleep spindles and k-complexes)--combine to promote electrographic seizure propagation during NREM and drowsiness, and antigravity muscle tone permits seizure-related movement; (2) neural generators of asynchronous neuronal discharge patterns reduce electrographic seizures during alert waking and REM sleep, and skeletal motor paralysis blocks seizure-related movement during REM; (3) there are a number of similarities between amygdala-kindled kittens and children with Landau-Kleffner Syndrome (LKS) that suggest a link among seizures, sleep disorders, and behavioral abnormalities/regression.
Descriptors: arousal, epilepsy, sleep, rem, amygdala, cats, electroencephalography, kindling neurology, landau kleffner syndrome, muscle, skeletal, rats, sleep stages.

Silvotti, L., A. Corradi, G. Brandi, A. Cabassi, M. Bendinelli, M. Magnan, and G. Piedimonte (1997). **FIV induced encephalopathy: early brain lesions in the absence of viral replication in monocyte/macrophages. A pathogenetic model.** *Veterinary Immunology and Immunopathology* 55(4): 263-271. ISSN: 0165-2427.
NAL Call Number: SF757.2. V38
Abstract: FIV induced encephalopathy represents a model for the study of the neuropathogenesis of AIDS. It has yet to be determined whether massive viral replication is a prerequisite for the development of early brain lesions. Using a drug delivery system developed by us, we have shown that early encephalic lesions appear in FIV infected subjects even when viral transport within the brain has been markedly reduced or blocked.
Descriptors: feline immunodeficiency virus, cats.

Simon, J.C., K. Saker, and E. Thomas (2000). **Sensitivity of specific immune function tests to acute nutrient deprivation as indicators of nutritional status in a feline model.** *Nutrition Research* 20(1): 79-89. ISSN: 0271-5317.
NAL Call Number: QP141.A1N88
Descriptors: cats, starvation, immune function, feline model, nutrition.

Sokov, E.L. and O.A. Shevelev (1994). **Osteogennyi mekhanizm vertebrogennykh radikulopatii. [The osteogenic mechanism of vertebrogenic radiculopathies]**. *Zhurnal Nevropatologii i Psikhiatrii Imeni* 94(2): 62-64. ISSN: 0044-4588.
Abstract: Intraosteal block was conducted in 86 patients with pronounced neurological symptoms of lumbar osteochondrosis. To clarify the role of the intraosteal receptors in pathogenesis of the above symptoms and to evaluate the efficacy of the blocks, series of experiments were made on 8 cats. The authors studied evoked potentials in the cerebral cortex and thalamus in response to irritation of the sciatic nerve under the exposure of the sciatic receptors to electrostimulation, intraosteal introduction of physiologic salt solution and trimecaine, electrostimulation following the introduction of the above substances. The pilot experience has been gained on facilitation of afferent current passage from the sciatic nerve under conditions of intraosteal receptor irritation as well as on inhibition of the above effect under anesthetic block of intraosteal receptors. Basing on the above findings, the authors explain osteogenic mechanism of radiculopathy and pathogenicity of the intraosteal blocks.

Descriptors: lumbar vertebrae, nerve compression syndromes, osteochondritis, spinal nerve roots, spondylitis, cats, dexamethasone, electric stimulation, evoked potentials, nerve block, nerve compression syndromes, nociceptors, trimecaine.
Language of Text: Russian.

Solomonow, M., S. Hatipkarasulu, B.H. Zhou, R.V. Baratta, and F. Aghazadeh (2003). **Biomechanics and electromyography of a common idiopathic low back disorder.** *Spine* 28(12): 1235-48. ISSN: 0362-2436.
Abstract: STUDY DESIGN: In vivo feline preparation groups loaded into lumbar flexion at different magnitudes and an unloaded control group. OBJECTIVE: To demonstrate that a static, constant load flexion of the lumbar spine results in a complex neuromuscular disorder. SUMMARY OF BACKGROUND DATA: Epidemiology suggests that static lumbar flexion is a cause of low back disorders. There is little direct experimental evidence describing the physiologic and biomechanical processes that elicit the disorder. Recent evidence shows that static flexion of the spine under constant displacement results in muscular spasms and a prolonged recovery period. The response of the spine to flexion under constant load of various magnitudes (as opposed to constant displacement) is not known. It was hypothesized that static lumbar flexion under constant load may elicit creep in spinal ligaments, discs, etc., causing microdamage and development of a neuromuscular disorder. METHODS: The lumbar spine of the feline was subjected to 20 minutes of constant load static flexion at physiologic load intensities from light to heavy while creep of lumbar viscoelastic tissues and EMG from the multifidus muscles of L3-L4 to L5-L6 were recorded. Recordings were continued over a 7-hour rest period after the static flexion was terminated. RESULTS: Spasms and decreasing reflexive EMG were evident during the loading period, and a transient surge of EMG activity occurred at the beginning of the rest period. A second surge of EMG activity was seen 3-4 hours later. The four components of the neuromuscular disorder were present regardless of the load magnitude. A model was developed to quantify the disorder. CONCLUSION: A four-component neuromuscular disorder was elicited by a 20-minute constant load static flexion even when very light loads were applied. The disorder was elicited by creep of the viscoelastic tissues, which resulted in spasms and muscular hyperexcitability lasting for >24 hours. Although the disorder was transient, the physiologic and biomechanical principles associated with its development could also explain cumulative trauma disorders.
Descriptors: low back pain, lumbar vertebrae, neuromuscular diseases, biomechanics, cats, animal disease models, electromyogrphy, muscle contraction, muscle relaxation, stress, mechanical.

Solomonow, M., B. He Zhou, R.V. Baratta, Y. Lu, M. Zhu, and M. Harris (2000). **Biexponential recovery model of lumbar viscoelastic laxity and reflexive muscular activity after prolonged cyclic loading.** *Clinical Biomechanics* 15(3): 167-75. ISSN: 0268-0033.
Abstract: OBJECTIVES: To determine the rest duration required for full recovery of reflexive muscular activity and laxity/creep induced in the lumbar viscoelastic structures (e.g., ligaments, discs, etc.) after 50 min of cyclic loading, and to develop a model describing such recovery. BACKGROUND: It is well established that steady, cyclic or vibratory loading of the lumbar spine induces laxity/creep in its viscoelastic structures. It

was also shown that such viscoelastic creep does not fully recover when subjected to rest equal in duration to the loading period. Rest periods of 24 h, however, were more than sufficient to allow full recovery. The exact period of time allowing full recovery of viscoelastic laxity/creep, and its pattern is not known. It is also not known what is the duration required for full recovery of reflexive muscular activity lost due to the laxity/creep induced in the spine during cyclic loading. METHODS: The lumbar spine of 'in vivo' feline preparations was subjected to 50 min of 0.25 Hz cyclic loading applied v ia the L4/5 supraspinal ligament. At the end of the loading period the spine was subjected to prolonged rest, interrupted by a single cycle loading applied hourly for measurement purposes until the laxity was fully recovered (>90%). Reflexive EMG activity was recorded with wire electrodes from the L-1-L-7 multifidus muscles. A biexponential model was fitted to the load and EMG recorded in the recovery period in order to represent viscous and elastic components of structures with different architecture (e.g., disc vs. ligament). RESULTS: Full recovery of the laxity induced by 50 min of cyclic loading at 0.25 Hz required 7 h and was successfully fitted with a biexponential model. Similarly, EMG activity was fully recovered in 4 hours, and often exceeded its initial value during the following 3 h. CONCLUSIONS: Full recovery of laxity induced in the lumbar viscoelastic structures by a given period of cyclic loading requires rest periods, which are several folds longer than the loading duration. Similarly, reflexive muscular activity requires 4 h of rest in order to be restored. Meanwhile, significant laxity can be present in the joints, exposing the spine to potential injury and low back pain. Increased EMG activity at the end of the recovery period may indicate that pain was possibly induced in the spinal structures, inducing hyperexcitability of the muscles during passive loading. RELEVANCE: Although the data was derived from a feline model, and its extrapolation to the human model is not straightforward, the general pattern of decreasing reflexive muscular activity with cyclic loading is expected in both species. Therefore, workers who subject their spine to periods of cyclic loading may be exposed to prolonged periods of laxity beyond the neutral zone limits, without protection from the muscles and therefore the risk of possible injury and low back pain. Pain and muscle hyperexcitability could also be a factor associated with cyclic loading, being expressed several hours after work was completed.

Descriptors: intervertebral disk, longitudinal ligaments, lumbar vertebrae, muscle, skeletal, reflex, weight bearing, cats, animal disease models, elasticity, electromyogrphy, follow up studies, joint instability, low back pain, lumbar vertebrae injuries, biological models, recovery of function, sprains and strains, stress, mechanical, time factors, vibration, viscosity.

Solomonow, M., B. Zhou, R.V. Baratta, M. Zhu, and Y. Lu (2002). **Neuromuscular disorders associated with static lumbar flexion: a feline model.** *Journal of Electromyography and Kinesiology* 12(2): 81-90. ISSN: 1050-6411.

Abstract: Static flexion of the lumbar spine with constant load applied to the viscoelastic structures for 20 minutes and for 50 minutes resulted in development of spasms and inhibition in the multifidus muscles (e.g., deep erector spinae) and in creep of the supraspinous ligament in the feline model. The development of spasms and inhibition was not dependent on load magnitude. It is suggested that occupational and sports activities which require prolonged static lumbar flexion within the physiological

range can cause a "sprain"-like injury to the ligaments, which in turn reflexively induce spasms and inhibition in some erector spinae muscles. Such disorder may take a long time to recover, in the order of days to weeks, depending on the level of creep developed in the tissues.
Descriptors: muscle, skeletal, spasm, stress, cats, animal disease models, electromyogrphy, lumbosacral region, spasm.

Solomonow, M., B.H. Zhou, R.V. Baratta, and E. Burger (2003). **Biomechanics and electromyography of a cumulative lumbar disorder: response to static flexion.** *Clinical Biomechanics* 18(10): 890-8. ISSN: 0268-0033.
Abstract: OBJECTIVE: To assess the mechanical and neurological processes active in the development of a cumulative trauma disorder (CTD) associated with repetitive exposure to periods of static lumbar flexion. METHODS: The spine of the feline model was subjected to a series of three 10 min sessions of static lumbar flexion with each session followed by a 10 min rest. A 7 h rest period was implemented after the series of three flexion-rest sessions while monitoring viscoelastic (disks, ligaments, etc.) creep and multifidus EMG. A model was fitted to the experimental data from the flexion-rest period and the 7 h recovery period. RESULTS: The creep developed in each 10 min static flexion period did not fully recovery during the following 10 min rest, resulting in a large cumulative creep at the end of the flexion-rest period. The cumulative creep did not fully recover over the following 7 h rest period. A neuromuscular disorder consisting of reduced muscular activity superimposed by spasms during static flexion periods and hyperexcitability during the 7 h recovery was evident. Comparison of the data to previous tests of continuous static flexion for 20 min reveal that the neuromuscular disorder elicited by the series of three 10 min flexion-rest was substantially attenuated when compared to a single 20 min static flexion although the overall work time was 50% larger. CONCLUSIONS: Frequent rest periods are highly beneficial in attenuating the development of a CTD, yet not able to prevent it, as viscoelastic tissues residual creep accumulates and its recovery is of extremely long duration. RELEVANCE: The data provides direct biomechanical and physiological evidence that explain the development of a CTD due to prolonged exposure to static lumbar flexion as well as confirms the epidemiological data correlating such work conditions with substantial increase in symptoms of low back disorders. The benefit of frequent rest periods in attenuating the risk of such a disorder is validated as an effective intervention.
Descriptors: back pain, cumulative trauma disorders, biomechanics, cats, elastic tissue, electromyogrphy, lumbar vertebrae.

Song, J.M., J.H. Kim, Y.H. Kim, S.W. Lee, Y.J. Yoon, J. Kim, D.H. Kang, and J.K. Song (2003). **Temporal changes and histologic relation of postsystolic thickening in an animal model of acute ischemia and reperfusion.** *Journal of the American Society of Echocardiography* 16(5): 409-14. ISSN: 0894-7317.
Abstract: BACKGROUND: We investigated the incidence and temporal changes of postsystolic thickening (PST) during myocardial ischemia and reperfusion to determine factors associated with PST. METHODS: The inferoposterior wall infarction was induced by coronary artery ligation (L) in 22 male cats. Epicardial echocardiographic examination including 2-dimensional, M-mode, and pulsed wave myocardial Doppler

imaging of inferoposterior wall was performed at short-axis view before L, and regularly repeated during L until PST was not detected by myocardial Doppler image. Reperfusion (R) was done immediately after PST disappeared, and epicardial echocardiographic examination was repeated for 1 hour. Transmural extent of myocardial necrosis was morphometrically analyzed with triphenyltetrazolium chloride staining. RESULTS: PST measured by myocardial Doppler image was well correlated with that by M-mode (r = 0.63, P <.001). Immediately after L, all 22 cats showed akinesia in 2-dimensional imaging; among them PST was present in 13 cats (59%) and absent in the other 9 cats. The extent of ischemia by perimetric measurement with 2-dimensional imaging was smaller in cats with PST compared with those without (32 +/- 10% vs 47 +/- 5%, P <.001). In 13 cats with PST, the occlusion time until disappearance of PST (90-270 minutes, 160 +/- 70) and transmural extent of myocardial necrosis (0%-72%, 22 +/- 24) were quite variable. After R, PST promptly reappeared in all 13 cats. PST persisted until 1 hour after R in 5 cats, whereas it disappeared in 8 cats as systolic thickening became predominant; occlusion time was significantly longer (220 +/- 40 vs 120 +/- 40 minutes, P <.005) and transmural extent of myocardial necrosis was larger (43 +/- 17% vs 8 +/- 15%, P <.005) in cats with persistent PST until 1 hour after R. CONCLUSION: In acute ischemia and R, we observed variable patterns of PST genesis and maintenance, and different factors were related with these phenomena in each stage. PST could be used not only as a marker of acute ischemia but also as a marker of successful myocardial R, and further study is necessary to test whether PST represents different status of myocardial mechanics according to the extent of myocardial ischemia and necrosis in the clinical setting.

Descriptors: myocardial ischemia, myocardial reperfusion, myocardium, cats, animal disease models, heart, hemodynamic processes, myocardial ischemia, necrosis.

Sourvinos, G., C. Tsatsanis, and D.A. Spandidos (2000). **Mechanisms of retrovirus-induced oncogenesis**. *Folia Biologica* 46(6): 226-232. ISSN: 0015-5500.

NAL Call Number: 442.8 F712

Descriptors: molecular, feline retrovirus, infection, tumor biology, leukemia, and lymphatic disease, neoplastic disease, mammary tumor, neoplastic disease, reproductive system disease, female, skin cancer, integumentary system disease, neoplastic disease, insertional mutagenesis, retrovirus induced oncogenesis, mechanisms .

Staats, S., L. Pierfelice, C. Kim, and R. Crandell (1999). **A theoretical model for human health and the pet connection.** *Journal of the American Veterinary Medical Association* 214(4): 483-487. ISSN: 0003-1488.

NAL Call Number: 41.8 AM3

Descriptors: attitude to health, human pet bonding, health behavior, health status, adult, cats, dogs, factor analysis, likelihood functions, questionnaires.

Starr, R.M. (1998). **Vaccine-associated feline sarcoma task force: a new model for problem solving in veterinary medicine.** *Journal of the American Veterinary Medical Association* 213(10): 1428-1429. ISSN: 0003-1488.

NAL Call Number: 41.8 Am3

Descriptors: cats, vaccines, vaccination, sarcoma, side effects, medicine, advisory

officers, america, immunization, immunostimulation, immunotherapy, neoplasms, north america, occupations, organic diseases, therapy, advisory committees.

Stein, R.D., S.B. Backman, B. Collier, and C. Polosa (1997). **Bradycardia produced by pyridostigmine and physostigmine.** *Canadian Journal of Anaesthesia* 44(12): 1286-1292. ISSN: 0832-610X.

Abstract: PURPOSE: The bradycardia produced by pyridostigmine and physostigmine in an animal model of acute cardiac denervation was examined according to its relation to cholinesterase inhibition and sensitivity to block by cholinergic receptor antagonists. METHODS: Cats were anaesthetised, vagotomised and propranolol-treated. Heart rate was continuously recorded. Erythrocyte cholinesterase activity of arterial blood was measured using a radiometric technique. Nicotinic and muscarinic M1 receptors were blocked with hexamethonium and pirenzepine, respectively. M2 receptors were blocked with gallamine, pancuronium and AFDX-116. RESULTS: With pyridostigmine and physostigmine the dose-response relationship for the decrease in heart rate (ED50 1.05 +/- 0.25 and 0.198 +/- 0.03 mg.kg-1, respectively) was shifted to the right of that for the inhibition of cholinesterase activity (ED50 0.094 +/- 0.03 and 0.032 +/- 0.01 mg.kg-1, respectively). The decrease in cholinesterase activity reached a plateau at a cumulative dose of 0.56 +/- 0.08 and 0.32 +/- 0.08 mg.kg-1, respectively. In contrast, there did not appear to be a plateau in the bradycardic effect. The bradycardia produced by pyridostigmine and physostigmine was blocked by hexamethonium (ED50 10 +/- 1.3 and 15.3 +/- 2.4 mg.kg-1, respectively), pirenzepine (ED50 68 +/- 16 and 138 +/- 32 micrograms.kg-1, respectively), gallamine (56 +/- 11 and 67 +/- 17 micrograms.kg-1, respectively), pancuronium (32 +/- 10 and 30 +/- 4 micrograms.kg-1, respectively), and AFDX-116 (31 +/- 4 and 28 +/- 4 micrograms.kg-1, respectively). CONCLUSION: The bradycardia produced by reversible anticholinesterase drugs containing a carbamyl group is not clearly related to the degree of cholinesterase activity, and has a low sensitivity to nicotinic and muscarinic M1 and a high sensitivity to muscarinic M2 receptor antagonists.

Descriptors: bradycardia, cholinesterase inhibitors toxicity, physostigmine toxicity, pyridostigmine bromide toxicity, bradycardia, cats, cholinesterases, drug-dose response relationship, electric stimulation, erythrocytes, erythrocytes, heart rate, muscarinic antagonists, nicotinic antagonists, vagotomy.

Steriade, M. and F. Amzica (2003). **Sleep oscillations developing into seizures in corticothalamic systems.** *Epilepsia* 44(12): 9-20. ISSN: 0013-9580.

Abstract: PURPOSE: The aim of this article is to discuss the neuronal substrates of sleep oscillations leading to seizures consisting of spike-wave (SW) complexes at 2-4 Hz, mimicking those seen in absence epilepsy, or SW and polyspike-wave (PSW) complexes at 1.5-2.5 Hz, often associated with fast runs at 10-15 Hz, as in the Lennox-Gastaut syndrome. METHODS: Extracellular recordings were done in permanently implanted animals during the natural waking-sleep cycle. Single and dual simultaneous recordings from cortical neurons, cortical and thalamic neurons, or cortical neurons and glial cells were performed in cats under ketamine-xylazine anesthesia. RESULTS: (a) The minimal substrate of SW seizures is the neocortex because such seizures may occur in thalamectomized animals, in which spindles are absent. In intact-brain animals, SW seizures are initiated in neocortex and spread to the thalamus after a few seconds. The

majority of thalamocortical (TC) neurons are steadily hyperpolarized throughout the cortical SW seizures. (b) In the Lennox-Gastaut syndrome, the paroxysmal depolarizing shifts (PDSs) associated with the EEG "spike" of SW/PSW complexes contain an important inhibitory component, whereas the hyperpolarization during the EEG "wave" component is not due to gamma-aminobutryic acid (GABA)ergic inhibitory postsynaptic potentials (IPSPs) but is ascribed to a mixture of disfacilitation and K+ currents. As is also the case with seizures consisting of pure SW complexes, the majority of TC neurons are hyperpolarized during the cortical paroxysms and disinhibited after the cessation of cortical seizures. CONCLUSIONS: Seizures with SW complexes and of the Lennox-Gastaut type preferentially evolve from sleep oscillations. They are initiated in neocortex and spread to the thalamus after a few seconds. The majority of TC neurons are inhibited during these seizures.

Descriptors: cerebral cortex, seizures diagnosis, seizures, thalamus, cats, cerebral cortex, diagnosis, differential, electroencephalography, epilepsy, absence diagnosis, excitatory postsynaptic potentials, hippocampus, neural inhibition, neuroglia, neurons, seizures, sleep, thalamic nuclei, thalamic nuclei, thalamus, wakefulness, gamma aminobutyric acid.

Stetter, M., H. Bartsch, and K. Obermayer (2000). **A mean-field model for orientation tuning, contrast saturation, and contextual effects in the primary visual cortex.** *Biological Cybernetics* 82(4): 291-304. ISSN: 0340-1200.

Abstract: Orientation-selective cells in the primary visual cortex of monkeys and cats are often characterized by an orientation-tuning width that is invariant under stimulus contrast. At the same time their contrast response function saturates or even super-saturates for high values of contrast. When two bar stimuli are presented within their classical receptive field, the neuronal response decreases with the intersection angle. When two stimuli are presented inside and outside the classical receptive field, the response of the cell increases with the intersection angle. Both cats and monkeys show iso-orientation suppression, which has sometimes been reported to be combined with cross-orientation facilitation. This property has previously been described as sensitivity to orientation contrast. We address the emergence of these effects with a model that describes the processing of geniculocortical signals through cortical circuitry. We hypothesize that short intracortical fibers mediate the classical receptive field effects, whereas long-range collaterals evoke contextual effects such as sensitivity to orientation contrast. We model this situation by setting up a mean-field description of two neighboring cortical hypercolumns, which can process a nonoverlapping center and a (nonclassical) surround stimulus. Both hypercolumns interact via idealized long-range connections. For an isolated model hypercolumn, we find that either contrast saturation or contrast-invariant orientation tuning emerges, depending on the strength of the lateral excitation. There is no parameter regime, however, where both phenomena emerge simultaneously. In the regime where contrast saturation is found, the model also correctly reproduces suppression due to a second, cross-oriented grid within the classical receptive field. If two model hypercolumns are mutually coupled by long-range connections that are iso-orientation specific, nonclassical surround stimuli show either suppression or facilitation for all surround orientations. Sensitivity to orientation contrast is not observed. This property requires excitatory-to-excitatory long-range couplings that are less orientation specific than those targeting inhibitory neurons.

Descriptors: contrast sensitivity, models, neurological, neural networks computer, orientation, visual cortex, cats, computer simulation, haplorhini, photic stimulation.

Straubinger, R.K., A. Greiter, S.P. McDonough, A. Gerold, E. Scanziani, S. Soldati, D. Dailidiene, G. Dailide, D.E. Berg, and K.W. Simpson (2003). **Quantitative evaluation of inflammatory and immune responses in the early stages of chronic Helicobacter pylori infection.** *Infection and Immunity* 71(5): 2693-703. ISSN: 0019-9567.
NAL Call Number: QR1.I57
Abstract: The early consequences of Helicobacter pylori infection and the role of bacterial virulence determinants in disease outcome remain to be established. The present study sought to measure the development of host inflammatory and immune responses and their relationship to the putative bacterial virulence factors cag pathogenicity island (cagPAI), vacA allele, and oipA in combination with bacterial colonization density in a feline model of the early stages of H. pylori infection. Gastric tissues obtained from infected and uninfected cats were evaluated for H. pylori ureB, cagPAI, vacA allele, and oipA and colonization density (urease, histology, and real-time PCR). Inflammation was assessed by measuring mRNA upregulation of gamma interferon (IFN-gamma), interleukin (IL)-1 alpha, IL-1 beta, IL-4, IL-6, IL-8, IL-10, and IL-12 p40 and histopathology. The mucosal immune response was characterized by morphometric analysis of lymphoid follicles and by differentiating lymphocyte populations with antibodies against surface markers. Infecting H. pylori strains were positive for vacAs1 but lacked cagPAI and an active oipA gene. Colonization density was uniform throughout the stomach. Upregulation of IFN-gamma, IL-1 alpha, IL-1 beta, and IL-8 and increased severity of inflammatory infiltrates and fibrosis were observed in infected cats. The median number and total area of lymphoid aggregates were 5 and 10 times greater, respectively, in the stomachs of infected than uninfected cats. Secondary lymphoid follicles in uninfected cats were rare and positive for BLA.36 and B220 but negative for CD3 and CD79 alpha, whereas in infected cats they were frequent and positive for BLA.36, CD79 alpha, and CD3 but negative for B220. Upregulation of IFN-gamma, IL-1 alpha, IL-1 beta, and IL-8 and marked hyperplasia of secondary lymphoid follicles are early consequences of H. pylori infection in cats. The response appears to be similar to that of infected people, particularly children, can develop independently of the pathogenicity factors cagPAI and oipA, and is not correlated with the degree of colonization density or urease activity.
Descriptors: helicobacter infections, antigens, bacterial proteins analysis, cats, chronic disease, cytokines biosynthesis, cytokines, gastric mucosa, helicobacter infections, helicobacter pylori, helicobacter pylori pathogenicity, hyperplasia, immunopHenotyping, lymphocytes, polymerase chain reaction, RNA, messenger analysis, TH1 cells, TH2 cells.

Takauchi, Y., T. Yamazaki, and T. Akiyama (2000). **Tyramine-induced endogenous noradrenaline efflux from in situ cardiac sympathetic nerve ending in cats.** *Acta Physiologica Scandinavica* 168(2): 287-93. ISSN: 0001-6772.
NAL Call Number: QP1.A2
Abstract: With the use of dialysis technique, the effects of tyramine on in situ cardiac sympathetic nerve endings were examined in anaesthetized cats. Dialysis probes were implanted in the left ventricular myocardium, and the concentration of dialysate

noradrenaline (NA) served as an indicator of NA output at the cardiac sympathetic nerve ending. Locally applied tyramine (600 microM) increased dialysate NA levels from 17 +/- 1 (pg mL-1) to 3466 +/- 209 (pg mL-1). Pretreatment with reserpine (vesicle transport NA blocker 1 microM) did not affect tyramine-induced NA efflux. The tyramine-induced NA efflux was augmented by pretreatment with pargyline (1 mM) but suppressed by pargyline (10 mM). Pretreatment with alpha-methyl-tyrosine suppressed NA efflux evoked by tyramine. These pretreatments did not affect the time course of NA efflux but only altered peak height of NA efflux. The efflux of NA evoked by tyramine was not associated with any reduction of dihydroxyphenylglycol (DHPG). In contrast, in the pretreatment with reserpine, the efflux of NA was associated with a reduction of DHPG. This result suggests that NA graduation between axoplasm and stored vesicle contributes to maintaining the axoplasmic NA level during carrier-mediated outward NA transport. The tyramine-induced NA efflux provides a close reflection of the NA content at the nerve ending. With the use of dialysis, this experimental model is suitable for studying the mechanism of sympathomimetic amine-induced neurotransmitter efflux.
Descriptors: heart innervation, nerve endings, norepinephrine, sympathetic nervous system, tyramine, cats, chromatography, high pressure liquid, dialysis, electrochemistry, heart, kinetics, methoxyhydroxypHenylglycol, methoxyhydroxypHenylglycol, nerve endings, sympathetic nervous system.

Takeshima, R., J.R. Kirsch, R.C. Koehler, and R.J. Traystman (1994). **Tirilazad treatment does not decrease early brain injury after transient focal ischemia in cats.** *Stroke* 25(3): 670-6. ISSN: 0039-2499.
Abstract: BACKGROUND AND PURPOSE: We tested the hypothesis that administration of the antioxidant tirilazad mesylate improves electrophysiological recovery and decreases infarct volume after transient focal cerebral ischemia in cats. METHODS: Halothane-anesthetized cats underwent 90 minutes of left middle cerebral artery and bilateral common carotid artery occlusion followed by 180 minutes of reperfusion. Cats were assigned to receive tirilazad (1.5 mg/kg plus 0.2 mg/kg per hour IV infusion) either at the beginning (n = 9) or conclusion (n = 9) of ischemia. Control cats received an equal volume of diluent (citrate buffer, pH 3.0; n = 7) at the beginning and conclusion of ischemia in a blinded fashion. Infarct volume was measured by 2,3,5-triphenyltetrazolium chloride staining. RESULTS: Blood flow to the left temporoparietal cortex decreased to less than 10 mL/min per 100 g with ischemia but was minimally affected on the right side. Blood flow distribution during ischemia or reperfusion was not different in the tirilazad-treated groups. No group demonstrated postischemic hyperemia or delayed hypoperfusion. Somatosensory evoked potential recorded over the left cortex was ablated during ischemia and recovered to less than 15% of baseline amplitude at 180 minutes of reperfusion in all groups. There were no differences among groups in infarct volume of left hemisphere (pretreatment, 25 +/- 6% [mean +/- SE]; posttreatment, 33 +/- 5%; control, 28 +/- 8% of hemisphere) or caudate nucleus (pretreatment, 46 +/- 7%; posttreatment, 41 +/- 10%; control, 55 +/- 13% of hemisphere). CONCLUSIONS: In an experimental model of focal ischemia involving severe reductions of blood flow followed by reperfusion in cats, administration of tirilazad at the onset of either ischemia or reperfusion does not ameliorate infarct volume assessed during early reperfusion. Our study does not address potential efficacy of tirilazad in the setting of a different dosing

strategy or duration of reperfusion.
Descriptors: ischemic attack, transient, lipid peroxidation, pregnatrienes, analysis of variance, carotid arteries surgery, cats, cerebrovascular circulation, ischemic attack, transient, ligation, random allocation, time factors.

Tamura, K., Y. Kuge, Y. Miyake, and N. Hashimoto (1999). **Application of pet to verification of animal models of human disease and drug evaluation**. *Japanese Journal of Pharmacology* 79(SUPPL. 1): 26P. ISSN: 0021-5198.
Descriptors: nervous system, neural coordination, cerebral infarction, nervous system disease, vascular disease, ischemia, middle cerebral artery occlusion, nervous system disease, positron emission tomography, high resolution imaging method, regional cerebral flow.

Tanase, D., H.A. Baghdoyan, and R. Lydic (2001). **Microinjection of an adenosine a1 agonist into feline medial pontine reticular formation (mprf) increases tail flick latency (tfl) to thermal stimulation**. *Society for Neuroscience Abstracts* 27(1): 1376. ISSN: 0190-5295.
NAL Call Number: QP351. S6
Descriptors: behavior, nervous system, thermal stimulation, stimulation method, supraspinal nociceptive behavior: modulation, tail flick latency, adenosine A1 receptor agonist, feline pontine regions, tail flick latency.

Teppema, L., E. Sarton, A. Dahan, and C.N. Olievier (2000). **The neuronal nitric oxide synthase inhibitor 7-nitroindazole (7-NI) and morphine act independently on the control of breathing.** *British Journal of Anaesthesia* 84(2): 190-6. ISSN: 0007-0912.
Abstract: Inhibitors of nitric oxide synthase (NOS) have analgesic properties and reduce opioid tolerance and dependency. To investigate a possible interaction of NOS inhibitors with the respiratory depressant action of morphine, we determined the effects of the neuronal NOS inhibitor 7-nitroindazole (7-NI) on the ventilatory carbon dioxide response curve; subsequently, we studied the effects of additional morphine application. Finally, using naloxone, we investigated a possible interaction (at the opioid receptor) between the effects of 7-NI and morphine. The effects of 7-NI 50 mg kg-1 i.p., morphine 0.1 mg kg-1 i.v. and naloxone 0.1 mg kg-1 i.v. were studied using dynamic end-tidal carbon dioxide forcing in eight cats under alpha-choralose-urethane anaesthesia. Data analysis was performed using a two-compartment model comprising a fast peripheral and a slow central component characterized by carbon dioxide sensitivities and a single offset B (apnoeic threshold). 7-NI decreased the mean apnoeic threshold from 4.27 (SD 0.87) to 2.59 (1.71) kPa. Peripheral and central carbon dioxide sensitivities were reduced from 0.56 (0.22) to 0.26 (0.09) litre min-1 kPa-1 and from 0.09 (0.05) to 0.04 (0.03) litre min-1 kPa-1, respectively. Morphine increased the apnoeic threshold by 0.5 kPa and reduced carbon dioxide sensitivity by a further 35%. Naloxone reversed the ventilatory effects of morphine but not those induced by 7-NI. We conclude that the respiratory effects of 7-NI and morphine are mediated independently and that the effects of 7-NI do not result from interaction with opioid receptors.
Descriptors: analgesics, enzyme inhibitors, indazoles, morphine, nitric oxide synthase, respiration, analgesics, carbon dioxide, cats, drug interactions.

Thompson, J.T., M.S. Rackley, and T.X. O'brien (1998). **Upregulation of the cardiac homeobox gene Nkx2-5 (CSX) in feline right ventricular pressure overload**. *American Journal of Physiology* 274(5 PART 2): H1569-H1573. ISSN: 0002-9513.
NAL Call Number: 447.8 Am3
Descriptors: cardiac hypertropHy, heart disease, ventricular hypertropHy, right ventricular pressure overload, feline pulmonary artery banding model, alpha cardiac actin.

Tomita, H., U. Ito, K. Ohno, and K. Hirakawa (1994). **Chronological changes in brain edema induced by experimental intracerebral hematoma in cats.** *Acta Neurochirurgica/ Supplementum* 60: 558-60. ISSN: 0065-1419.
Abstract: To investigate the temporary profile of changing perifocal brain edema around an intracerebral hematoma (ICH), we developed an experimental ICH model using cats. The developing perifocal edema in the white matter around the hematoma was measured by means of a gravimetric technique. Edema was more severe near the ICH, and declined with increasing distance. Edema was mild 2 hours after the onset of the ICH, and was most severe in all the regions examined 3 days later. Edema decreased but still existed in all regions 7 days after the onset of the ICH. The results suggest that the mechanism of the development of edema associated with ICH seems to differ from that associated with a cold injury. This experimental ICH model proved to be useful for the study of formation, expansion, and resolution of edema associated with ICH.
Descriptors: brain edema, cerebral hemorrhage, brain barrier, cats, cerebral cortex, evans blue diagnostic use, specific gravity.

Topolnik, L., M. Steriade, and I. Timofeev (2003). **Hyperexcitability of intact neurons underlies acute development of trauma-related electrographic seizures in cats in vivo.** *The European Journal of Neuroscience* 18(3): 486-96. ISSN: 0953-816X.
Abstract: Cortical trauma can lead to development of electrographic paroxysmal activities. Current views of trauma-induced epileptogenesis suggest that chronic neuronal hyperexcitability and extensive morphological reorganization of the traumatized cortex are required for the generation of electrographic seizures. However, the mechanisms responsible for the initiation of electrographic seizures shortly after cortical injury are poorly understood. Here we show that, in the experimental model of partially deafferented (undercut) cortex, an increase in intrinsic and synaptic excitability of neurons in areas adjacent to the undercut cortex is sufficient for the generation of electrographic paroxysmal activity within few hours after partial cortical deafferentation. Locally increased and spatially restricted neuronal excitability arose from the increased incidence of intrinsically bursting neurons, enhanced intrinsic and synaptic neuronal responsiveness, and slight disinhibition. These mechanisms only operate in neurons located in the vicinity of partially deafferented sites because, after the cortical injury, partially deafferented neurons are mostly silent and hypoexcitable. Our results suggest that trauma-induced electrographic seizures first arise in cortical fields that are closest to the site of injury and such seizures do not require long-term neuronal reorganization.
Descriptors: brain injuries, cerebral cortex injuries, epilepsy, neurons, cats, denervation, electroencephalography, electrophysiology, epilepsy, neural inhibition, synapses.

Torterolo, P., J. Yamuy, S. Sampogna, F.R. Morales, and M.H. Chase (2003). **Hypocretinergic neurons are primarily involved in activation of the somatomotor system.** *Sleep*

26(1): 25-8. ISSN: 0161-8105.
Abstract: The hypocretinergic system has been implicated in the generation and/or maintenance of wakefulness. Our results challenge this hypothesis. Utilizing cats as an animal model and immunocytochemical procedures for the simultaneous detection of hypocretin and Fos, we determined that hypocretinergic neurons are activated during wakefulness but only when somatomotor activity is present. These neurons are not activated during alert or quiet wakefulness in the absence of motor activity or during quiet sleep. We conclude that the hypocretinergic system is not responsible for the generation and/or maintenance of wakefulness, per se; on the contrary, we suggest that hypocretinergic neurons are primarily involved in motor functions irrespective of the animal's behavioral state.
Descriptors: carrier proteins, intracellular signaling peptides and proteins, locomotion, neurons, neuropeptides, wakefulness, cats, electroencephalography, electromyogrphy, electrooculography, hypothalamus, sleep, rem.

Toyota, S., R. Graf, C. Dohmen, M. Valentino, M. Grond, K. Wienhard, and W.D. Heiss (2001). **Elevation of extracellular glutamate in the final, ischemic stage of progressive epidural mass lesion in cats.** *Journal of Neurotrauma* 18(12): 1349-57. ISSN: 0897-7151.
Abstract: Epidural mass lesions may cause ischemia due to progressive intracranial hypertension. In order to investigate the impact of intracranial pressure on accumulation of neuroactive substances, we gradually raised intracranial pressure in five halothane anesthetized cats by inflation of an epidural balloon. We evaluated in the parietal cortex contralateral to the site of balloon inflation, alterations of extracellular glutamate and purine catabolites and of the lactate/pyruvate ratio in relation to changes of intracranial, cerebral perfusion and mean arterial blood pressure. In a complementary experiment, regional cerebral blood flow was assessed by sequential positron emission tomography. In this simplified mass lesion model, extracellular glutamate increased in all cats at a late, critical stage after tentorial herniation, when intracranial pressure had increased to more than 90 mm Hg, cerebral perfusion pressure had decreased below 40-50 mm Hg. Positron emission tomography assessments revealed that the ischemic threshold for glutamate accumulation was in the range of 15-20 mL/100 g/min. Purine catabolites and the lactate/pyruvate ratio increased somewhat earlier than glutamate, but also after reaching the critical, terminal stage. We conclude that in this model of progressive epidural compression, glutamate-mediated excitotoxic processes at sites remote from the initial focal lesion depend on processes such as delayed ischemia in combination with tentorial herniation and systemic hypotension. These processes seem to be initiated by a decrease of cerebral perfusion pressure below a threshold of 40-50 mm Hg.
Descriptors: brain ischemia, epidural space, extracellular space, glutamic acid biosynthesis, intracranial hypertension, brain ischemia radiography, cats, epidural space, extracellular space radiography, intracranial hypertension radiography, parietal lobe supply, parietal lobe, parietal lobe radiography, tomography, emission computed statistics and numerical data.

Toyota, S., R. Graf, M. Valentino, T. Yoshimine, and W.D. Heiss (2002). **Malignant infarction in cats after prolonged middle cerebral artery occlusion: glutamate elevation related to decrease of cerebral perfusion pressure.** *Stroke* 33(5): 1383-91. ISSN: 0039-

2499.
Abstract: BACKGROUND AND PURPOSE: To study the putative role and predictive significance of glutamate elevation in space-occupying ischemic stroke, we investigated the correlation between perfusional disturbances and glutamate alterations in a transient ischemia model in cats that is susceptible to secondary deterioration after reperfusion. METHODS: In 10 halothane-anesthetized cats, the left middle cerebral artery was occluded for 3 hours, followed by 6 hours of reperfusion. Laser-Doppler flowmetry (LDF) probes, microdialysis/high-performance liquid chromatography, and pressure sensors measured simultaneously regional cerebral blood flow (CBF), extracellular amino acids, mean arterial blood pressure, and intracranial pressure, respectively. Cerebral perfusion pressure (CPP) was calculated. In complementary experiments (n=2), regional CBF was assessed by sequential positron emission tomography. RESULTS: Middle cerebral artery occlusion reduced LDF-measured CBF in all animals to <25% of control. In 5 of 10 cats, glutamate rose approximately 30-fold during ischemia. LDF-measured CBF and glutamate primarily recovered after reperfusion. Glutamate rose again in the late reperfusion phase, when CPP decreased to <60 mm Hg, and symptoms of transtentorial herniation were recognized. Positron emission tomography revealed ischemic thresholds of 15 to 20 mL/100 g per minute for secondary deterioration. In the other 5 cats, ischemic elevation of glutamate was significantly smaller, and signs of secondary deterioration were not recognized. CONCLUSIONS: Glutamate determinations during ischemia predict fatal outcome, as do intracranial pressure and CPP measurements during early reperfusion. Secondary amino acid elevation during reperfusion is presumably caused by a drastic decrease of CPP to <50 mm Hg in the final stage of space-occupying, malignant focal ischemia. At this stage, a further progression of injury due to increased glutamate may be irrelevant with respect to fatal outcome.
Descriptors: blood pressure, brain, glutamic acid, flow velocity, brain supply, brain radionuclide imaging, brain edema, brain edema radionuclide imaging, cats, cerebral infarction, cerebral infarction radionuclide imaging, cerebrovascular circulation, animal disease models, disease progression, infarction, middle cerebral artery radionuclide imaging, intracranial pressure, laser doppler flowmetry, microdialysis, predictive value of tests, tomography, emission computed.

Trerotola, S.O., M.S. Johnson, and D.S. Schauwecker (1997). **Like cats and dogs: no perfect animal model for thrombolysis.** *Radiology* 202(1): 31-2. ISSN: 1527-1315.
Descriptors: animal disease models, thrombolytic therapy, thrombolytic therapy, thrombosis, cats, dogs, pulmonary embolism.

Trigo, J.A., L. Roa, A. Gruart, and J.M. Delgado Garcia (2003). **A kinetic study of blinking responses in cats.** *The Journal of Physiology* 549(Pt 1): 195-205. ISSN: 0022-3751.
NAL Call Number: 447.8 J82
Abstract: Reflexively evoked and eye-related eyelid responses were recorded using the search coil in a magnetic field technique in alert cats. The downward phase of a blink was a large (up to 21 deg), fast (up to 2000 deg s-1) eyelid displacement in the closing direction, with an almost fixed rise time duration (15-20 ms); its maximum velocity was achieved in ~10 ms. Upward eyelid motion was separated into two phases. The first phase consisted of a fast eyelid displacement, with a short duration (approximately 30

ms) and a maximum velocity up to 900 deg s-1. The second phase had an exponential-like form, lasting for 200-400 ms, and a maximum velocity ranging between 30 and 250 deg s-1. Maximum blink velocity in the downward direction was linearly related to maximum velocity of the first upward phase. The first phase in the upward direction was never observed if the eyelid stayed closed for a long period (> 50 ms) or moved slowly in the closing direction before it started to open. In these two cases, the upswing motion of the blink reflex contained only the exponential-like movement characteristic of the second upward phase, and maximum velocity in the downward direction was not related to that of the eyelid upward displacement. Mean duration of eyelid downward saccades was approximately 130 ms, and their peak velocities ranged between 50 and 440 ms. A physiological model is presented explaining the active and passive forces involved in both reflex and saccadic eyelid responses. A second-order system seems to be appropriate to describe the postulated biomechanical model.
Descriptors: blinking, eyelids, biological models, movement, air, biomechanics, cats, kinetics, magnetics, saccades.

Tsagarakis, C., T. Marchal, J.P. Magnol, C. Fournel, C. Dezutter Dambuyant, and D. Schmitt (1994). **Contribution des cellules de Langerhans felines au modele du FIV feline immunodeficiency virus [Contribution of the feline Langerhans cell to the FIV model,feline immunodeficiency virus.]**. *Research in Virology* 145(3-4): 245-249. ISSN: 7112-2923.
Descriptors: cats, animal viruses, immunosuppression, cells, skin, mucous membrane, antigens, animal morphology, animal tissues, disease control, epithelium, immunological factors, immunotherapy, integument, therapy .

Tsorin, I.B. and G.G. Chichkanov (2004). **[O protivoishemicheskom i antiaritmicheskom deistvii preperata ezafosfina] Antiischemic and antiarrhythmic effect of esafosfina**. *Eksperimental'Naia I Klinicheskaia Farmakologiia* 67(4): 16-8. ISSN: 0869-2092.
Abstract: Esafosfina, a new preparation based on fructose 1,6-diphosphate, supported the pumping ability of the heart in experiments with a 40-min occlusion followed by 60-min reperfusion of the anterior descending branch of the left coronary artery in anesthetized cats. Esafosfina also exhibited a pronounced antifibrillatory and antiarrhythmic action in anesthetized rats with ventricular fibrillation model.
Descriptors: anti arrhythmia agents, cardiotonic agents, fructosediphosphates, myocardial reperfusion injury, ventricular fibrillation, cats, heart, heart rate, rats.
Language of Text: Russian.

Tsutsui, H., H. Tagawa, R.L. Kent, P.L. McCollam, K. Ishihara, M. Nagatsu, and G.4. Cooper (1994). **Role of microtubules in contractile dysfunction of hypertrophied cardiocytes.** *Circulation* 90(1): 533-55. ISSN: 0009-7322.
NAL Call Number: RC681 .A1C8
Abstract: Cardiac hypertrophy in response to systolic pressure overloading frequently results in contractile dysfunction, the cause for which has been unknown. Since, in contrast, the same degree and duration of hypertrophy in response to systolic volume overloading does not result in contractile dysfunction, we postulated that the contractile dysfunction of pressure hypertrophied myocardium might result from a direct effect of stress as opposed to strain loading on an intracellular structure of the hypertrophied

cardiocyte. The specific hypothesis tested here is that the microtubule component of the cytoskeleton is such an intracellular structure, which, forming in excess, impedes sarcomere motion. The feline right ventricle was either pressure overloaded by pulmonary artery banding or volume overloaded by atrial septotomy. The quantity of microtubules was estimated from immunoblots and immunofluorescent micrographs, and their mechanical effects were assessed by measuring sarcomere motion during microtubule depolymerization. We show here that stress loading increases the microtubule component of the cardiac muscle cell cytoskeleton; this apparently is responsible for the entirety of the cellular contractile dysfunction seen in our model of pressure-hypertrophied myocardium. No such effects were seen in right ventricular cardiocytes from normal or volume-overloaded cats or in left ventricular cardiocytes from any group of cats. Importantly, the linked microtubule and contractile abnormalities are persistent and thus may be found to have significance for the deterioration of initially compensatory cardiac hypertrophy into the congestive heart failure state.
Descriptors: cardiomegaly, cardiomegaly, microtubules, myocardial contraction, cats, cytoskeleton, heart, motion, myocardium, sarcomeres, tubulin.

Turner, A.S. (2001). **Animal models of osteoporosis--necessity and limitations.** *European Cells and Materials* 1: 66-81. ISSN: 1473-2262.
NAL Call Number: R857.M3E97
Abstract: There is a great need to further characterise the available animal models for postmenopausal osteoporosis, for the understanding of the pathogenesis of the disease, investigation of new therapies (e.g. selective estrogen receptor modulators (SERMs)) and evaluation of prosthetic devices in osteoporotic bone. Animal models that have been used in the past include non-human primates, dogs, cats, rodents, rabbits, guinea pigs and minipigs, all of which have advantages and disadvantages. Sheep are a promising model for various reasons: they are docile, easy to handle and house, relatively inexpensive, available in large numbers, spontaneously ovulate, and the sheep's bones are large enough to evaluate orthopaedic implants. Most animal models have used females and osteoporosis in the male has been largely ignored. Recently, interest in development of appropriate prosthetic devices which would stimulate osseointegration into osteoporotic, appendicular, axial and mandibular bone has intensified. Augmentation of osteopenic lumbar vertebrae with bioactive ceramics (vertebroplasty) is another area that will require testing in the appropriate animal model. Using experimental animal models for the study of these different facets of osteoporosis minimizes some of the difficulties associated with studying the disease in humans, namely time and behavioral variability among test subjects. New experimental drug therapies and orthopaedic implants can potentially be tested on large numbers of animals subjected to a level of experimental control impossible in human clinical research.
Descriptors: cats, animals, osteoporosis models, postmenopausal, therapies, lumbar vertebrate, SERMs .

Uchiyama, T., H. Johansson, and U. Windhorst (2003). **A model of the feline medial gastrocnemius motoneuron-muscle system subjected to recurrent inhibition.** *Biological Cybernetics* 89(2): 139-51. ISSN: 0340-1200.
Abstract: Recurrent inhibition in the mammalian spinal cord is complex, and its

functions are not yet well understood. Skeletomotoneurons (alpha-MNs) excite, via recurrent axon collaterals, inhibitory Renshaw cells (RCs), which in turn inhibit alpha-MNs and other neurons. The anatomical and functional structure of the recurrent inhibitory network is nonhomogeneous, and the gain and filtering characteristics of RCs are modulated by inputs circumventing alpha-MNs. This complex organization is likely to play important roles for the discharge and recruitment properties of alpha-MNs. Modeling this system is a way of investigating hypothesized roles for normal functioning including muscle fatigue and different forms of physiological pathological tremor. In this paper, a detailed model including alpha-MNs, RCs, and the muscle fibers innervated by the alpha-MNs is presented. Outlines of the experimental data underlying the model and the modeling philosophy and procedure are presented. Then the behavior of a RC model is compared with experimental data reported in the literature. Model and experimental data agree well for burst responses elicited by synchronous single-pulse activation of different numbers of motor axons. In addition, the static relation between motor-axon activation rate and RC firing rate agree fairly well in model and experiment, and the same applies to the dynamic responses to step changes in motor-axon rate. The ultimate objective is to use this model in probing the role of recurrent inhibition in the control and stability of (isometric) muscular force under normal and altered conditions occurring during fatigue and muscle pain.
Descriptors: interneurons, models, neurological, motor neurons, muscle, skeletal, neural inhibition, recruitment neurology, biofeedback psychology, cats, electric stimulation, membrane potentials, muscle contraction, numerical analysis, computer assisted, reaction time, time factors.

Ulman, L.G., E.K. Potter, and D.I. McCloskey (1994). **Functional effects of a family of galanin antagonists on the cardiovascular system in anaesthetised cats.** *Regulatory Peptides* 51(1): 17-23. ISSN: 0167-0115.
NAL Call Number: QP552 .P4
Abstract: Previous studies have shown that injection of galanin (GAL: 6.2 nmol/kg) causes prolonged inhibition of cardiac vagal action in anaesthetised cats. Stimulation of the cardiac sympathetic nerve (16 Hz for 5 min) also produces inhibition of cardiac vagal action, an effect which has been proposed to be due to the release of endogenous GAL from sympathetic nerves. In a previous study we tested galantide (M15) and in this study we compared galantide with two other GAL antagonists for their GAL antagonist activity in our experimental model. Each of these incorporate the N-terminal fragment GAL 1-13 and a C-terminal portion of another bioactive peptide and all are C-terminally amidated. GAL 1-13 Substance P 5-11 amide (galantide: M15: 62 nmol/kg and 156 nmol/kg), GAL 1-13 Spantide amide (C7: 156 nmol/kg) and GAL 1-13 NPY 24-36 amide (M32a: 62 nmol/kg) all significantly reduced the cardiac vagal inhibitory effect of exogenous GAL and also reduced the effect of sympathetic stimulation on subsequent cardiac vagal slowing, giving strong support to our hypothesis that GAL is involved in this phenomenon. No antagonist reduced the depressor effect of GAL. This study demonstrates the GAL antagonist properties of these agents on autonomic neuroeffector functions making them useful tools in elucidating further functions of endogenous GAL.
Descriptors: heart conduction system, neuropeptides, peptide fragments, peptides, peptides, substance p, analysis of variance, aortic bodies, pressure, cats, electric

stimulation, galanin, heart innervation, substance p, sympathetic nervous system, vagus nerve, vagus nerve.

Usta, M.F., J. Sanabria, T.J. Bivalacqua, and W.J. Hellstrom (2004). **Feline penile erection induced by topical glans penis application of combination alprostadil and SEPA (Topiglan).** *International Journal of Impotence Research* 16(1): 73-7. ISSN: 0955-9930.
Abstract: The objective of this study was to evaluate the efficacy of topically applied prostaglandin E1 (PGE(1))+5% SEPA (soft enhancement of percutaneous absorption) on the glans penis in a feline erection model. Erectile response after glans penis administration of PGE(1)+5% SEPA cream (Topiglan, MacroChem Co., Lexington, MA, USA) was compared to the erectile response after intracavernosal administration of the triple-drug combination (1.65 mg papaverine, 25 microg phentolamine, and 0.5 microg PGE(1)). The placebo cream and increasing concentrations (0.25%, 2.5 mg/ml; 0.5%, 5 mg/ml; and 1%, 10 mg/ml) of PGE(1)+5% SEPA were applied in a total volume of 0.1 ml via a plastic needle-less syringe. The control triple-drug combination was administrated intracavernosally via a 30-gauge needle at the completion of each experiment to serve as a control reference. With each application of placebo, PGE(1)+SEPA, and the triple-drug combination, changes in intracavernosal pressure and systemic blood pressure were continuously monitored. Topical application of PGE(1)+SEPA induced increases in intracavernosal pressure in a dose-dependent manner, with minimal effects on systemic blood pressure. The increases obtained with 1% PGE(1) Topiglan cream were similar to the intracavernosal pressure values elicited by the standard intracavernosal triple-drug combination. These data demonstrate that topical glans penis application of PGE(1)+SEPA can induce an erectile response in cats with minimal systemic adverse effects. Oral pharmacological agents are the first-line treatment for male ED. Studies investigating the effectiveness of noninvasive modalities such as topical therapy should continue, because these agents have the potential to avoid the systemic effects commonly seen with oral therapies. Additionally, topical therapy may also benefit patients who are unresponsive to oral agents or have explicit contraindications. Topical PGE(1) application to the glans penis may become an important treatment option in selected patients suffering from erectile dysfunction.
Descriptors: adjuvants, pHarmaceutic, alprostadil, dioxolanes, penile erection, vasodilator agents, topical administration, pressure, cats, gels, models, animal, muscle, smooth.

Vahlenkamp, T.W., M.E. Bull, J.L. Dow, E.W. Collisson, B.J. Winslow, A.P. Phadke, W.A.F. Tompkins, and M.B. Tompkins (2004). **B7+CTLA4+ T cells engage in T-T cell interactions that mediate apoptosis: a model for lentivirus-induced T cell depletion**. *Veterinary Immunology and Immunopathology* 98(3/4): 203-214. ISSN: 0165-2427.
NAL Call Number: SF757.2. V38
Descriptors: apoptosis, disease models, immune response, lymph nodes, T lymphocytes, cats, feline immunodeficiency virus, Lentivirus.

van Gelderen, P., M.H. de Vleeschouwer, D. DesPres, J. Pekar, P.C. van Zijl, and C.T. Moonen (1994). **Water diffusion and acute stroke.** *Magnetic Resonance in Medicine* 31(2): 154-163. ISSN: 0740-3194.
Abstract: The occlusion of the middle cerebral artery was used as an experimental acute

stroke model in 30 cats. The diffusion of water was followed by diffusion-sensitized MRI between 1 and 15 h after induction of stroke. It is demonstrated that images representing the trace of the diffusion tensor provide a much more accurate delineation of affected area than images representing the diffusion in one direction only. The reason is that the strong contrast caused by the anisotropy and orientation of myelin fibers is completely removed in the trace of the diffusion tensor. The trace images show a small contrast between white and gray matter. The diffusion coefficient of white matter is decreased in acute stroke to approximately the same extent as gray matter. It is further shown that the average lifetime of water in extra and intracellular space is shorter than 20 ms both for healthy and ischemic tissue indicating that myelin fibers are permeable to water. The anisotropy contrast did not change before or after induction of stroke, nor after sacrifice. Together, these observations are consistent with the view that the changes in water diffusion during acute stroke are directly related to cytotoxic oedema, i.e., to the change in relative volume of intra- and extracellular spaces. Changes in membrane permeability do not appear to contribute significantly to the changes in diffusion.
Descriptors: body water, cerebrovascular disorders, acute disease, brain edema, brain ischemia, cats, cerebral infarction, diffusion, extracellular space, intracellular fluid, magnetic resonance imaging, magnetic resonance spectroscopy, biological models, myelin sheath, permeability.

Vanzetta, I., R. Hildesheim, and A. Grinvald (2005). **Compartment-resolved imaging of activity-dependent dynamics of cortical blood volume and oximetry.** *The Journal of Neuroscience* 25(9): 2233-44. ISSN: 0270-6474.
Abstract: Optical imaging, positron emission tomography, and functional magnetic resonance imaging (fMRI) all rely on vascular responses to image neuronal activity. Although these imaging techniques are used successfully for functional brain mapping, the detailed spatiotemporal dynamics of hemodynamic events in the various microvascular compartments have remained unknown. Here we used high-resolution optical imaging in area 18 of anesthetized cats to selectively explore sensory-evoked cerebral blood-volume (CBV) changes in the various cortical microvascular compartments. To avoid the confounding effects of hematocrit and oximetry changes, we developed and used a new fluorescent blood plasma tracer and combined these measurements with optical imaging of intrinsic signals at a near-isosbestic wavelength for hemoglobin (565 nm). The vascular response began at the arteriolar level, rapidly spreading toward capillaries and venules. Larger veins lagged behind. Capillaries exhibited clear blood-volume changes. Arterioles and arteries had the largest response, whereas the venous response was smallest. Information about compartment-specific oxygen tension dynamics was obtained in imaging sessions using 605 nm illumination, a wavelength known to reflect primarily oximetric changes, thus being more directly related to electrical activity than CBV changes. Those images were radically different: the response began at the parenchyma level, followed only later by the other microvascular compartments. These results have implications for the modeling of fMRI responses (e.g., the balloon model). Furthermore, functional maps obtained by imaging the capillary CBV response were similar but not identical to those obtained using the early oximetric signal, suggesting the presence of different regulatory mechanisms underlying these two

hemodynamic processes.
Descriptors: cortical blood, cats, PET, fMRI, brain, cerebral blood volume.

Villablanca, J.R. and D.A. Hovda (2000). **Developmental neuroplasticity in a model of cerebral hemispherectomy and stroke.** *Neuroscience* 95(3): 625-37. ISSN: 1471-2202.
Abstract: Cerebral hemispherectomy, a last resort treatment for childhood epilepsy, is a standard procedure which dramatically illustrates the resilience of the brain to extensive damage. If this operation, also mimicking long-term, extensive unilateral capsular stroke, is performed in postnatal cats of up to 60 days of age, there is a remarkable recovery/sparing of neurological functions that is not seen when the lesion occurs during late fetal life or in adulthood. A long-term effect at all ages is loss of neurons in bilateral brain areas remote from the resection site. This is pronounced in adult cats and shows intriguing, paradoxical features in fetal animals, but is substantially attenuated in neonatal cats. Similarly, large-scale reinnervation of subcortical sites (sprouting) by neurons of the remaining, intact hemisphere is prominent in young cats, but not in fetal or adult animals. These and other restorative processes (described herein) in young postnatal animals are matched by relatively higher rates of local cerebral glucose utilization, supporting the notion that they underlie the improved behavioral outcome. Thus, during a critical, defined stage of maturation, presumably common to higher mammals including humans, the brain entirely remodels itself in response to extensive but focal injury. Perhaps the molecular environment allowing for rescue of neurons and enhanced reinnervation at a specific developmental stage could be recreated in subjects with brain lesions at less favorable ages, thereby helping to restore circuitry and spare neurons. However, replacement via transplantation of neurons eliminated by the damage appears to be crucial in attempts to further preserve cells located remotely but yet destined to die or decrease in size. This article presents abundant evidence to show that there is a surprisingly comprehensive long-term morphological remodeling of the entire brain after extensive unilateral damage and that this occurs preferentially during a discrete period of early life. Additional evidence strongly suggests that the remodeling underlies the outstanding behavioral and functional recovery/sparing following early cerebral hemispherectomy. We argue that this period of reduced brain vulnerability to injury also exists in other higher mammals, including man, and suggest ways to enhance restorative processes after stroke/hemispherectomy occurring at other ages.
Descriptors: animals, newborn, brain surgery, cerebrovascular accident, neuronal plasticity, aging, brain embryology, brain, fetus, postoperative period.

Villablanca, J.R., T.D. Schmanke, H.A. Crutcher, A.C. Sung, and K. Tavabi (2000). **The growth of the feline brain from fetal into adult life. II. A morphometric study of subcortical nuclei.** *Brain Research/ Developmental Brain Research* 122(1): 21-33. ISSN: 0006-8993.
Abstract: As a continuation of the morphometric studies on the preceding paper, here we report on the rate of growth of the caudate nucleus (n.), thalamus, red n., and the substantia (s.) nigra using, with few exceptions, the same cohort of cats. The same previously used brains (n=64 cats) were allocated to the following age groups: fetal (E) 59 days, postnatal (P) days 1, 7, 15, 30, 45, 60, 90, 120, and 180. Sixteen additional cats, interspersed within the groups, were substituted for the red n. and s. nigra studies. There

were six subjects per group (except for E59, n=4). Using a projection microscope and cytochrome oxidase-stained coronal sections, a combined (left plus right sides) total of 4693, 3822, 1636, and 1180 sections were drawn for the caudate, thalamus, s. nigra, and red n., respectively. With computer assistance, the drawings were digitized to calculate mean cross-sectional areas and then the mean volume of each structure per group. The growth time tables for the caudate n., thalamus and s. nigra were fairly synchronous. In terms of percentage of the adult volume, for the left side (both sides grew at a similar rate), the three structures grew at a fast pace between E59 and P30. Thus, at E59 their respective percentages relative to adult volume were 23.7, 29.8 and 22.6% and by P30 the percentages were within adult range (85.2, 115.1 and 87.5%, respectively). Starting at P30, for the thalamus and at P45 for the caudate n., there was a consistent tendency to an overgrow which ranged between 4.3 and 30.9% (at P180, P<0.5) for the caudate and between 0.3 and 15.1% for the thalamus. In addition, starting at P30, the right thalamus tended to be consistently larger than the left by a margin ranging between 0.5 and 11.2% (P120, P<0.05). The red n. grew at a different, slower pace. Starting from a fetal volume equivalent to an 18.6% of adult size, its volume was only a 61.0% of the adult value at P30 and came within range of adulthood size only by P60 (81. 3%). Neither the s. nigra nor the red n. showed any consistent tendency to overgrow or to asymmetry. These findings are discussed in the context of the literature. Furthermore, we discuss general conclusions and considerations pertaining to both papers as well as draw comparisons with the maturational time tables of other developmental landmarks in cats. Finally, in a comparison with growth of human brain structures, we point at the limitations and complexities involved in studying human material and, noting interspecies similarities, we propose that the present data from an advanced gyrencephalic mammal may form the bases for a model of structures maturation in humans.
Descriptors: caudate nucleus growth and development, red nucleus growth and development, substantia nigra growth and development, thalamus growth and development, cats, caudate nucleus, caudate nucleus embryology, laterality, organ size, red nucleus, red nucleus embryology, substantia nigra, substantia nigra embryology, thalamus, thalamus embryology.

Volkov, V.F., A.F. Meshcheriakov, and I.A. Fadeev (1994). **Eksperimental'naia model' formirovaniia vlecheniia k priemu narkotikov u koshek na osnove pishchevoi motivatsii. [An experimental model of developing a desire for using narcotics in cats based on a food motivation]**. *Biulleten' Eksperimental'Noi Biologii i Meditsiny* 118(8): 156-60. ISSN: 0365-9615.
NAL Call Number: 442.8 B87
Descriptors: cocaine, feeding behavior, motivation, substance related disorders, cats.
Language of Text: Russian.

Vollmer, M., R.E. Beitel, and R.L. Snyder (2001). **Auditory detection and discrimination in deaf cats: psychophysical and neural thresholds for intracochlear electrical signals.** *Journal of Neurophysiology* 86(5): 2330-43. ISSN: 0022-3077.
Abstract: More than 30,000 hearing-impaired human subjects have learned to use cochlear implants for speech perception and speech discrimination. To understand the basic mechanisms underlying the successful application of contemporary speech

processing strategies, it is important to investigate how complex electrical stimuli delivered to the cochlea are processed and represented in the central auditory system. A deaf animal model has been developed that allows direct comparison of psychophysical thresholds with central auditory neuronal thresholds to temporally modulated intracochlear electrical signals in the same animals. Behavioral detection thresholds were estimated in neonatally deafened cats for unmodulated pulse trains (e.g., 30 pulses/s or pps) and sinusoidal amplitude-modulated (SAM) pulse trains (e.g., 300 pps, SAM at 30 Hz; 300/30 AM). Animals were trained subsequently in a discrimination task to respond to changes in the modulation frequency of successive SAM signals (e.g., 300/8 AM vs. 300/30 AM). During acute physiological experiments, neural thresholds to pulse trains were estimated in the inferior colliculus (IC) and the primary auditory cortex (A1) of the anesthetized animals. Psychophysical detection thresholds for unmodulated and SAM pulse trains were virtually identical. Single IC neuron thresholds for SAM pulse trains showed a small but significant increase in threshold (0.4 dB or 15.5 microA) when compared with thresholds for unmodulated pulse trains. The mean difference between psychophysical and minimum neural thresholds within animals was not significant (mean = 0.3 dB). Importantly, cats also successfully discriminated changes in the modulation frequencies of the SAM signals. Performance on the discrimination task was not affected by carrier rate (100, 300, 500, 1,000, or 1,500 pps). These findings indicate that 1) behavioral and neural response thresholds are based on detection of the peak pulse amplitudes of the modulated and unmodulated signals, and 2) discrimination of successive SAM pulse trains is based on temporal resolution of the envelope frequencies. Overall, our animal model provides a robust framework for future studies of behavioral discrimination and central neural temporal processing of electrical signals applied to the deaf cochlea by a cochlear implant.
Descriptors: auditory perception, cochlea, deafness, deafness psychology, discrimination psychology, cats, cochlear implants, differential threshold, electric stimulation, electrophysiology, inferior colliculus, inferior colliculus, neurons, afferent, psychopHysics, sensory thresholds.

Wade, T.V., D.S. Rothblat, and J.S. Schneider (2001). **Changes in striatal dopamine D3 receptor regulation during expression of and recovery from MPTP-induced parkinsonism.** *Brain Research* 905(1-2): 111-9. ISSN: 0006-8993.
Abstract: Striatal dopamine (DA) D3 receptor density (measured by quantitative receptor autoradiography) and mRNA expression (measured by reverse transcriptase-polymerase chain reaction) were analyzed in cats symptomatic for and recovered from 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-induced parkinsonism. In symptomatic cats, D3 receptor density was significantly decreased in all regions of the caudate nucleus (CD) (66--77%), the nucleus accumbens (NACC) (52--83%) and the islands of calleja (IC) (67%), all of which returned to normal values in recovered cats. In contrast, D3 receptor mRNA expression was slightly elevated in symptomatic cats, and significantly increased above normal in recovered cats (45% increase in the CD and 91% in the NACC). Thus, reduction of parkinsonian signs was related to normalization of striatal D3 receptor number. These alterations in D3 receptor expression may play an important role in the recovery process observed in this model of parkinsonism.
Descriptors: down regulation, gene expression regulation, neostriatum, parkinsonian

disorders, receptors, dopamine d2, receptors, dopamine d2, recovery of function, up regulation, autoradiography, base sequence, cats, DNA, complementary, DNA, complementary, dopamine, down regulation, gene expression regulation, molecular sequence data, neostriatum, neostriatum, neurons, neurons, neurons, parkinsonian disorders, parkinsonian disorders, RNA, messenger, RNA, messenger, recovery of function, reverse transcriptase polymerase chain reaction, up regulation.

Wagenaar, M., L.J. Teppema, A. Berkenbosch, C.N. Olievier, and H.T. Folgering (2000).
Medroxyprogesterone acetate with acetazolamide stimulates breathing in cats. *Respiration Physiology* 119(1): 19-29. ISSN: 0034-5687.
NAL Call Number: QP121. A1R4
Abstract: Both medroxyprogesterone acetate (MPA) and acetazolamide (ACET) increase ventilation. Combined administration of these agents could result in an additional improvement of blood gases, for example in patients with chronic obstructive pulmonary diseases. The aim of this study in anaesthetized female (ovariohysterectomized, pre-treated with 17-beta-estradiol) cats was to compare the effects on the CO2 response curve of MPA alone (4 microg kg(-1), i.v.) with those after MPA followed by ACET (4 mg kg(-1) i.v.). We performed dynamic end-tidal CO2 forcing and analysed the data with a two-compartment model comprising a fast peripheral and slow central compartment, characterized by CO2 sensitivities (Sp and Sc, respectively) and a single offset (the apnoeic threshold B). MPA reduced Sp from 0.22 +/- 0.09 (mean +/- S.D.) to 0.13 +/- 0.06 L min(-1) kPa(-1) (P < 0.01) and Sc from 1.01 +/- 0.38 to 0.88 +/- 0.32 L min(-1) kPa(-1) (P < 0.01). B decreased from 4.02 +/- 0.27 to 3.64 +/- 0.42 kPa (P < 0.01). Subsequent administration of ACET reduced Sp and Sc further to 0.09 +/- 0.06 and to 0.70 +/- 0.49 L min(-1) kPa(-1) (P < 0.01), respectively. The apnoeic threshold decreased further to 2.46 +/- 1.50 kPa (P < 0.01). Because both treatments reduced ventilatory CO2 sensitivity, we conclude that a simulating effect on ventilation is due to a decrease in the apnoeic threshold. Combined administration of MPA and ACET may lead to larger increases in ventilation than treatment with either drugs alone.
Descriptors: acetazolamide, carbonic anhydrase inhibitors, medroxyprogesterone 17 acetate, progesterone congeners, respiration, carbon dioxide, cats, drug combinations.

Walter, J.S., M.P. Fitzgerald, J.S. Wheeler, B. Orris, A. McDonnell, and R.D. Wurster (2005).
Bladder-wall and pelvic-plexus stimulation with model microstimulators: Preliminary observations. *Journal of Rehabilitation Research and Development* 42(2): 251-60. ISSN: 0748-7711.
Abstract: Severe urinary retention is not a common condition, but may occur following some pelvic surgeries or other medical conditions. Electrical stimulation of the bladder has been examined as a means of managing this difficult problem. We conducted preliminary investigations in cats to prove the hypothesis that pelvic-plexus (bladder-neck) stimulation would produce greater micturition response with reduced side effects, such as animal movement or discomfort, than bladder-wall stimulation with electrodes implanted higher on the bladder wall. We used model microstimulators that mimic the look and function of commercial microstimulators, but that we constructed. We instrumented four female cats during a survival surgery. Animals recovered well and

studies were conducted over a 1-month period in the conscious animal and under anesthesia. We performed a variety of studies with different stimulation parameters and electrode locations to evaluate our hypothesis. In the active animal, we supplied only low currents, but two animals responded to stimulation with bladder contractions and voiding. Following anesthesia, higher stimulating currents resulted in greater bladder contractions during stimulation in two of the three animals. In two cases, pelvic-plexus (bladder-neck) stimulation induced greater micturition responses than direct bladder-wall stimulation. In conclusion, we learned from these preliminary observations that stimulation at the pelvic plexus (bladder neck) may induce a better micturition response than stimulation higher on the bladder-wall. Newly available commercial microstimulators should be further studied for the treatment of urinary retention.
Descriptors: cats, urine retention, anesthesia, electrical stimulation, micturition, bladder.

Walter, J.S., J.S. Wheeler, W. Cai, W.W. King, and R.D. Wurster (1999). **Evaluation of a suture electrode for direct bladder stimulation in a lower motor neuron lesioned animal model.** *Institute of Electrical and Electronics Engineers Transactions on Rehabilitation Engineering* 7(2): 159-66. ISSN: 1063-6528.
Abstract: The purpose of this study was to evaluate a "suture" type electrode for direct bladder stimulation in an animal model of a lower motor neuron lesion. During an initial surgery, five male cats were instrumented under anesthesia using multistranded, 316 LVM, stainless-steel, wire electrodes implanted on the bladder wall serosa above the trigone area. Electrodes were constructed with a needle attached to the end that was removed after suturing the electrode in place. Additional instrumentation included urinary bladder catheters (tubes) for pressure recording and filling, and hook type electrodes for leg and pelvic floor electromyography recording. Chronic bladder filling and stimulation studies were conducted in tethered animals three to four weeks following surgery. To test these electrodes in a spinal cord injury model, a lower motor neuron lesion was performed including the sacral cord and complete nerve roots at L6 and below. These animals were evaluated during weeks 3 and 10 after injury. Direct bladder stimulation induced active contractions and voiding both before and after spinal cord injury. Effective stimulation parameters consisted of 40 pulses per s, 300 micros to 1 ms pulse duration, a stimulation period from 3 to 4 s, and a stimulation current from 10 to 40 mA. Fluoroscopy revealed an open membranous urethra during stimulation and following stimulation. A small diameter penile urethra was observed to limit flow. Postmortem evaluation of the suture electrode revealed no abnormalities such as corrosion, migration into the bladder lumen or displacement. These findings indicate that suture electrodes are suitable and effective for short-term implantation in the lower motor neuron animal model.
Descriptors: neurogenic bladder therapy, electric stimulation therapy, spinal cord injuries therapy, neurogenic bladder, cats, animal disease models, evaluation studies, suture techniques, urodynamics.

Walter, J.S., J.S. Wheeler, M.P. Fitzgerald, A. McDonnell, and R.D. Wurster (2005). **Chronic instrumentation with model microstimulators in an animal model of the lower urinary tract.** *The Journal of Spinal Cord Medicine* 28(2): 114-20. ISSN: 1079-0268.
Abstract: BACKGROUND: Microstimulators are a new type of neuroprosthetic device

that should be considered for applications such as micturition control after spinal cord injury (SCI). These devices are small (less than 25 mm by 5 mm) and the electrodes are located on the ends of the stimulator. The aim of the current study was to develop methods for chronic implantation of model microstimulators (M-Micro) on the bladder wall and pelvic plexus of female cats. A postmortem evaluation of the effects of 3 months of implantation is reported. METHODS: Techniques to produce the M-Micro are described. Four of these devices were implanted in 4 female cats and maintained after the initial instrumentation surgery and a second survival surgery for SCI (at T10). Using a single suture tied around the M-Micro, these devices were secured to the bladder wall or the fat pads adjacent to the pelvic plexus. Additional instrumentation was implanted, including 2 catheters in the bladder, 1 abdominal balloon, and electromyography electrodes in the urethral and anal sphincters. Postmortem observations of the location of the M-Micro on the bladder wall were conducted after fixation. RESULTS: The animals' conditions were good. One animal was sacrificed early because of a skin infection. A single suture was sufficient to anchor the M-Micro. However, during the surgical implantation the pelvic plexus M-Micro ended up close to the bladder neck. Extensive fibrous connective tissue formed around the M-Micro and implanted catheters on the bladder wall. This appeared to result, in part, from multiple devices implanted on or near the bladder wall. CONCLUSIONS: These pilot studies showed that the M-Micro could be easily constructed and secured to the bladder wall or fat pads close to the pelvic plexus. There was a concern that the pelvic plexus location for the M-Micro ended near the bladder neck during the surgical implantation; however, these devices did not appear to migrate over this short, 3-month implantation period. The extensive connective tissue responses of the bladder wall to the tubes, wires, and M-Micro was a major concern. The M-Micro appears to be a good device to assess the potential of commercial microstimulators for use in micturition control.

Descriptors: bladder surgery, neurogenic bladder therapy, electric stimulation therapy instrumentation, hypogastric plexus surgery, bladder, bladder, neurogenic bladder, neurogenic bladder, cats, animal disease models, electrodes, implanted, feasibility studies, follow up studies, hypogastric plexus, hypogastric plexus, spinal cord injuries, spinal cord injuries, spinal cord injuries, urodynamics.

Walter, J.S., J.S. Wheeler, R.D. Wurster, J. Sacks, and R. Dunn (2003). **Preliminary observations of a synergistic bladder-sphincter relationship following spinal cord injury in a quadruped animal.** *The Journal of Spinal Cord Medicine* 26(4): 372-9. ISSN: 1079-0268.

Abstract: BACKGROUND/OBJECTIVES: High urethral resistance or detrusor-sphincter dyssynergia (DSD) is characterized by obstructed voiding during bladder contractions. DSD is caused by an exaggerated pelvic floor reflex resulting from sensory input from elevated pressure in the bladder that produces reflex constriction of the urethral sphincter. The objective of this study was to determine whether sensory input from the bladder produced synergistic or dyssynergic pelvic floor reflexes following SCI in an animal model. METHODS: A pelvic floor reflex that shares the same motor pathway with DSD is the bulbocavernosus (BC) reflex. The BC reflex was elicited with electrical stimulation in 4 male cats with T1 spinal injury, and recorded as an anal sphincter contraction. Recordings were obtained during control and elevated bladder

pressures. Increased bladder pressure was induced with either manual pressure (Crede procedure) or spontaneous contractions resulting from bladder filling. RESULTS: During the control period, the BC reflex indicated by the peak anal pressure response was 23 +/- 6 cmH2O. During elevated bladder pressure of 34 +/- 18 cmH2O, the BC response decreased to 10 +/- 3 cmH2O (not significant), showing a synergistic relationship. Anal sphincter tone between BC reflex tests showed a dyssynergic response. All 4 animals showed increased tone during elevated bladder pressures that averaged 9 +/- 5 cmH2O. Because abdominal pressure was not recorded, the significance is not clear. However, there was further support of a dyssynergic relationship based on increases in the anal and urethral electromyography recordings and some pelvic floor spasms during the elevated bladder pressure. CONCLUSIONS: Because 2 different pelvic floor activities were observed during increased bladder pressures, this animal model may be described best as a mixed model. This model shows both synergistic and dyssynergic relationships between the bladder and the BC contractions. Although observed changes were not significant, the unique observations of synergistic bladder-sphincter activity shown by the inhibited BC reflex is in marked contrast to the strictly dyssynergic bladder-sphincter relationship seen in SCI patients.
Descriptors: anus innervation, neurogenic bladder, motor neurons, muscle hypertonia, pelvic floor innervation, reflex, abnormal, spinal cord injuries, urethra innervation, urodynamics, bladder innervation, cats, hydrostatic pressure, isometric contraction, neural inhibition.

Walter, J.S., P. Zaszczurynski, W. Cai, J.S. Wheeler, L. Riedy, and V.E. Scarpine (1995). **Direct bladder stimulation with percutaneous electrodes and impedance monitoring of volume in an SCI animal model.** *The Journal of Spinal Cord Medicine* 18(2): 98-102. ISSN: 1079-0268.
Abstract: Bladder responses to percutaneous electrodes were investigated with stimulation in three male spinal cats. The animals had been spinalized (T1 level lesion) 10 weeks prior to these studies and had been instrumented with chronic bladder had been spinalized (T1 level lesion) 10 weeks prior to these studies and had been instrumented with chronic bladder wall electrodes and suprapubic bladder catheters for filling and pressure recording. percutaneous stimulation in tethered animals was conducted wit hook electrodes inserted with a needle in the abdomen bilaterally adjacent to the bladder trigone. Stimulation was conducted with 40 Hz pulse trains of 10 to 30 mA for three seconds. Stimulation with both percutaneous and chronic electrodes induced high bladder pressures and voiding. In addition, with chronically implanted electrodes, impedance monitoring of bladder volume was found to be an effective recording technique.
Descriptors: bladder, electric stimulation therapy, spinal cord injuries, spinal cord injuries therapy, cats, electric impedance, electrodes, implanted, electrophysiology, monitoring, physiologic, transcutaneous electric nerve stimulation.

Wang, F., Y. Seta, G. Baumgarten, D.J. Engel, N. Sivasubramanian, and D.L. Mann (2001). **Functional significance of hemodynamic overload-induced expression of leukemia-inhibitory factor in the adult mammalian heart**. *Circulation* 103(9): 1296-1302. ISSN: 0009-7322.

NAL Call Number: RC681 .A1C8
Descriptors: feline heart, molecular biophysics, Leukemia inhibitory factor, apoptosis, hemodynamic overloading, ex vivo, cardiac myocyte, mRNA.

Wang, Z., T.P. O'Connor, S. Heshka, and S.B. Heymsfield (2001). **The reconstruction of Kleiber's law at the organ-tissue level.** *Journal of Nutrition* 131(11): 2967-70. ISSN: 0022-3166.
NAL Call Number: 389.8 J82
Abstract: The relationship between resting energy expenditure (REE) (kJ/d) and body mass (M) (kg) is a cornerstone in the study of energy physiology. By expressing REE as a function of body mass observed across mammals, Kleiber formulated the now classic equation: REE = 293M(0.75). The biological processes underlying Kleiber's law have been a topic of long-standing interest and speculation. In the present report we develop a new perspective of Kleiber's law by developing an organ-tissue level REE model consisting of five components: liver, brain, kidneys, heart and remaining tissues. The resting thermal output of each component is the product of the component's specific resting metabolic rate (K) and mass (T). With increasing body size, the K values for all five components had negative exponents and were directly proportional to M(-0.08--0.27), and all component T values were directly proportional to M(0.76-1.01). The resulting exponents of the product (K x T) were M(0.60-0.86) for the five components. Although the (K x T) values of individual components do not scale equally, their combined formula (286M(0.76)) is similar to that observed by Kleiber on the whole-body level. Modeling mammalian REE at the organ-tissue level provides new insights and pathways for future mechanistic explorations of REE-body composition relationships.
Descriptors: basal, biological models, body composition, brain, cats, dogs, kidney, liver, myocardium, rabbits, rats, species specificity.

Ward, C.R., S.E. Achenbach, D. Holt, M.E. Peterson, and J.L. Meinkoth (2005). **Thyrotropin-stimulated DNA synthesis and thyroglobulin expression in normal and hyperthyroid feline thyrocytes in monolayer culture.** *Thyroid* 15(2): 114-120. ISSN: 1050-7256.
Abstract: Feline hyperthyroidism is a common, spontaneous disease in older cats that is similar clinically and histopathologically to human toxic multinodular goiter (TNG). In this study, the functional response of feline normal thyroid (NT) and hyperthyroid (HT) cells grown in monolayer culture to thyrotropin (TSH) was determined. Basal levels of DNA synthesis were similar in NT and HT cells. TSH stimulated concentration-dependent DNA synthesis in NT and HT cells, with maximal stimulation seen at 1 and 10 mU/mL TSH in NT and HT cells, respectively. HT cells had higher basal levels of thyroglobulin (Tg) expression. TSH stimulated Tg expression in NT and HT cells in a concentration-dependent fashion, with maximal activity at 0.5 and 5 mU/mL TSH, respectively. These results demonstrate that NT and HT cells in monolayer culture exhibit growth and functional responses to TSH. HT cells have higher basal Tg expression than NT cells and require higher TSH concentrations to stimulate DNA synthesis and Tg expression, two measures of thyroid cell activation. These data support the idea that feline hyperthyroidism is caused by cell abnormalities, resulting in dysregulated growth and hormone synthesis, and emphasize its importance as an animal

model for TNG.
Descriptors: Feline hyperthyroidism, aged cats, human toxic multinodular goiter (TNG), thyrotropin, animal model for TNG.

Watson, J.C., E.M. Doppenberg, M.R. Bullock, A. Zauner, M.R. Rice, D. Abraham, and H.F. Young (1997). **Effects of the allosteric modification of hemoglobin on brain oxygen and infarct size in a feline model of stroke.** *Stroke* 28(8): 1624-30. ISSN: 0039-2499.
Abstract: BACKGROUND AND PURPOSE: Cerebral ischemia and stroke are leading causes of morbidity and mortality. An approach to protecting the brain during ischemia is to try to increase the delivery of oxygen via the residual blood flow through and around ischemic tissue. To test this hypothesis, we used a novel oxygen delivery agent, RSR-13 (2-[4-[[(3,5-dimethylanilino)-carbonyl]-methyl]phenoxy]-2-methylpr opionic acid). Intravenous administration of RSR-13 increases oxygen delivery through allosteric modification of the hemoglobin molecule, resulting in a shift in the hemoglobin/oxygen dissociation curve in favour of oxygen delivery. METHODS: We studied RSR-13 in a feline model of permanent middle cerebral artery occlusion to assess its effects on cerebral oxygenation and infarct size. A randomized, blinded study of RSR-13 (n = 6) versus 0.45% saline (n = 12) was conducted, after an RSR-13 dose-escalation study (n = 4). Drug was administered as a preocclusion bolus followed by a continuous infusion for the duration of the experiment (5 hours). Brain oxygen was measured continuously with the use of a Clark oxygen electrode. Infarct size was measured at 5 hours after occlusion with computer-assisted volumetric analysis. RESULTS: The drug treatment group had consistently higher mean brain oxygen tension than controls (33 +/- 5 and 27 +/- 6 mm Hg, respectively) and significantly smaller infarcts (21 +/- 9% versus 33 +/- 9%, respectively, P < .008). We observed an inverse relationship between the dose response of RSR-13 (the shift in the hemoglobin/oxygen dissociation curve) and infarct size. CONCLUSIONS: These results are evidence that allosteric hemoglobin modification is protective to the brain after acute focal ischemia, providing a new opportunity for neuroprotection and raising the possibility of enhancing the protective effect of thrombolysis and ion channel blockade.
Descriptors: brain, cerebral infarction, cerebrovascular disorders, aniline compounds, biological availability, cats, hemoglobins, oxygen, propionic acids, time factors.

Webb, C.B., D.C. Twedt, M.J. Fettman, and G. Mason (2003). **S-adenosylmethionine (SAMe) in a feline acetaminophen model of oxidative injury.** *Journal of Feline Medicine and Surgery* 5(2): 69-75. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: cats, adenosylmethionine, acetaminophen, glutathione, oxidative stress.

Wesche, D.L., B.G. Schuster, W.X. Wang, and R.L. Woosley (2000). **Mechanism of cardiotoxicity of halofantrine.** *Clinical Pharmacology and Therapeutics* 67(5): 521-9. ISSN: 0009-9236.
Abstract: OBJECTIVES AND METHODS: To further evaluate the scope and mechanism of potential cardiotoxicity associated with the antimalarial drug halofantrine, case reports submitted to the US Food and Drug Administration Spontaneous Reporting System were examined. Because halofantrine was associated with electrocardiographic prolongation of the QT interval and ventricular arrhythmias, in vitro cardiac

electrophysiologic studies (isolated perfused cardiac model and isolated ventricular myocytes) were conducted to test the hypothesis that halofantrine or its metabolite is responsible for cardiotoxicity. RESULTS: Although it is difficult to ascertain causality and to estimate overall incidence, a significant number of adverse events related to the cardiovascular system were reported, including QT interval prolongation, life-threatening arrhythmias, and sudden death. The effect of halofantrine and its active metabolite (N-desbutylhalofantrine) on repolarization were examined in an isolated perfused heart model. Results indicate that halofantrine was able to prolong the QT interval, whereas N-desbutylhalofantrine had minimal effect on the QT interval relative to baseline. In an attempt to further elucidate the mechanism of QT interval prolongation, the effects of racemic halofantrine, its stereoisomers, and N-desbutylhalofantrine on repolarizing currents in isolated ventricular myocytes were studied with use of patch-clamp techniques. Halofantrine produced a stereoselective block of the delayed rectifier potassium channel in isolated feline myocytes. CONCLUSIONS: These results indicate that halofantrine is similar to quinidine and class III antiarrhythmics in its ability to prolong repolarization. We conclude that high plasma concentrations of halofantrine should be avoided, especially in women, and that N-desbutylhalofantrine may have potential as a safer antimalarial drug.
Descriptors: antimalarials, heart conduction system, myocardium, phenanthrenes, adolescent, adult, adverse drug reaction reporting systems, aged, cardiovascular diseases, cats, child, child, preschool, disease models, animal, infant, middle aged.

Weyrich, A.S., M. Buerke, K.H. Albertine, and A.M. Lefer (1995). **Time course of coronary vascular endothelial adhesion molecule expression during reperfusion of the ischemic feline myocardium.** *Journal of Leukocyte Biology* 57(1): 45-55. ISSN: 0741-5400.
NAL Call Number: QP185 .R4
Abstract: The time course of endothelial P-selectin, ICAM-1, and E-selectin expression was studied in a feline model of myocardial ischemia and reperfusion. Cats were subjected to 90 min of myocardial ischemia followed by 0, 10, 20, 60, 150, or 270 min of reperfusion. At the end of reperfusion, the coronary vasculature was examined immunohistochemically to localize monoclonal antibodies (mAbs) PB1.3, RR1/1, and Cy1787 directed against P-selectin, ICAM-1, and E-selectin, respectively. Immunohistochemical localization for P-selectin, recognized by mAb PB1.3, was maximally expressed 20 min after reperfusion in 60 +/- 6% of coronary venules ($P < 0.05$ compared to non-reperfused controls), and covered 59 +/- 3% of the endothelial cell perimeter of immunostained coronary venules. Immunolocalization of mAb PB1.3 gradually declined at 60, 150, and 270 min of reperfusion. Immunohistochemical localization of mAb RR1/1 (anti-ICAM-1) in endothelial cells of coronary venules was observed to a modest extent in non-ischemic myocardium and at 10, 20, and 60 min of reperfusion, but was significantly increased following 150 and 270 min of reperfusion ($P < 0.05$ compared non-reperfused controls). At 270 min post-reperfusion, mAb RR1/1 was seen in 50 +/- 4% of coronary venules. Endothelial immunolocalization of mAb Cy1787 (anti-E-selectin) was only observed in 13 +/- 1 and 14 +/- 3% of coronary venules after 150 and 270 min of reperfusion, respectively, suggesting that pronounced expression of E-selectin does not occur within 270 min after reperfusion. These results demonstrate sequential expression of three major endothelial cell adherence molecules in

situ following myocardial ischemia and reperfusion. The timing of endothelial cell expressed P-selectin and ICAM-1 could coordinate neutrophil trafficking during the early stages of reperfusion.
Descriptors: cell adhesion molecules biosynthesis, intercellular adhesion molecule 1 biosynthesis, myocardial ischemia, myocardial reperfusion injury, platelet membrane glycoproteins biosynthesis, antibodies, monoclonal, cats, cell adhesion molecules analysis, creatine kinase, E selectin, endothelium, vascular, endothelium, vascular, endothelium, vascular, immunohistochemistry, intercellular adhesion molecule 1 analysis, myocardial ischemia, myocardial reperfusion injury, myocardium, neutrophils, p selectin, platelet membrane glycoproteins analysis, time factors.

Whang, C.J. and Y. Kwon (1994). **Cerebral energy metabolism following ESWL brain injury model and effects of cerebral protective drugs.** *Journal of Korean Medical Science* 9(2): 123-34. ISSN: 1011-8934.
Abstract: The goal of this study was to introduce a new method inducing an experimental brain injury model using ESWL(Extracorporeal Shock Wave Lithotripsy) and to evaluate findings of localized lesions on 1H MR imaging and the response of cerebral energy metabolism using a 31P MR spectroscope to the ESWL brain injury in cats. This study also examined effects of cerebral protective drugs. 1) There were no statistically significant changes in pH at all measurement points. 2) In the trauma group, initial decrease of PCr/Pi was seen at 30 to 60 minutes with return to control levels by 2 hours after injury($P < 0.05$), followed by a second decline at 4 hours which lasted until 8 hours after injury. 3) Significant recovery in PCr/Pi($P < 0.05$) was observed in both the THAM and dexamethasone treated groups at all measurement points and in the mannitol treated group only temporary recovery at 30 and 60 minutes ($P < 0.05$). 4) High intensity signals were seen on 1H MR imaging in traumatized animals. This study demonstrated the immediate and persistent recovery of cerebral energy metabolism using THAM or dexamethasone and an immediate but transient effect with mannitol in traumatized animals.
Descriptors: brain, brain injuries, dexamethasone, animal disease models, energy, lithotripsy, tromethamine, adenosine triphosphate, brain, brain injuries, brain injuries, cats, hydrogen ion concentration, magnetic resonance spectroscopy, phosphates, phosphocreatine, random allocation.

Widdison, A.L. (1996). **Pathogenesis of pancreatic infection.** *Annals of the Royal College of Surgeons of England* 78(4): 350-3. ISSN: 0035-8843.
Abstract: John Hunter studied comparative anatomy of the pancreas but was unaware of pancreatic infection which is now the leading cause of mortality in pancreatitis. This was investigated using a feline model of pancreatitis. Pathogens spread to the healthy and inflamed gland from many sources including colon, gallbladder, or a septic focus and by various routes including the circulation, reflux into the pancreatic duct or by transmural migration from the colon. Colonisation risk was proportional to necrosis and inflammation, confirming clinical observations. These studies showed that pathogens frequently colonised the pancreas, but infection developed only in animals with pancreatitis. In cats with pancreatitis, phagocytic function was reduced by 28%. This was probably owing to phagocytic capacity being overwhelmed by protease-antiprotease

complexes because, in humans, granulocyte and lymphocyte function was normal. These experiments suggested that it would be difficult to prevent pancreatic colonisation, but indicated some types of therapy may have potential. These were investigated using this animal model of pancreatic infection. Treatment with either cefotaxime or levamisole (an immunostimulant) were effective. However, the anti-inflammatory drug dopamine, which reduced inflammation, did not eradicate all pathogens.
Descriptors: bacterial infections, opportunistic infections, pancreatitis microbiology, acute disease, bacterial infections, bacterial infections, cats, animal disease models, escherichia coli infections, escherichia coli infections, escherichia coli infections, opportunistic infections, opportunistic infections, pancreatitis, pancreatitis, phagocytosis, risk factors.

Widdison, A.L., C. Alvarez, Y.B. Chang, N.D. Karanjia, and H.A. Reber (1994). **Sources of pancreatic pathogens in acute pancreatitis in cats.** *Pancreas* 9(4): 536-41. ISSN: 0885-3177.
Abstract: The source(s) of pancreatic pathogens is uncertain, although the colon is usually implicated. We studied whether pathogens may spread from different sites in a feline model of the disease. Acute pancreatitis was induced using a standard technique and a distinctive clinical strain of Escherichia coli as the marker bacterium. E. coli were placed in the colon, gall bladder, main pancreatic duct, or obstructed renal pelvis of control cats (no pancreatitis) and acute pancreatitis cats. Pancreases were colonized from each source, whether or not pancreatitis was present. The pancreatic colonization rate was greater in acute pancreatitis only when E. coli had been placed in the colon. In conclusion, E. coli may spread to the pancreas from different sources. The high rate of pancreatic colonization in both control and inflamed glands suggested that, clinically, bacteria may spread to the pancreas more frequently than is currently thought.
Descriptors: escherichia coli infections microbiology, pancreas microbiology, pancreatitis microbiology, acute disease, cats, colon microbiology, escherichia coli, gallbladder microbiology, kidney microbiology, pancreatic ducts microbiology.

Widdison, A.L., N.D. Karanjia, and H.A. Reber (1994). **Antimicrobial treatment of pancreatic infection in cats.** *The British Journal of Surgery* 81(6): 886-9. ISSN: 0007-1323.
Abstract: An investigation examined the efficacy of antibiotics in a novel feline model of pancreatic infection in acute pancreatitis. Acute pancreatitis was induced in cats using an established technique. In control animals (no pancreatitis) and cats with pancreatitis, *Escherichia coli* (10(4) in 0.1 ml) was placed in the pancreatic duct. Reoperation was performed after 24 h in six controls and six cats with pancreatitis. *E. coli* was cultured from the pancreas in five control animals and five cats with pancreatitis. Reoperation was performed after 1 week in ten controls, in 11 cats with pancreatitis and in nine with pancreatitis that were treated with cefotaxime (50 mg/kg intramuscularly three times daily) started 12 h after the induction of pancreatitis and administration of *E. coli*. Pancreatic infection developed in eight cats with pancreatitis compared with none of the cefotaxime-treated animals and none of the controls ($P < 0.05$). Cefotaxime reached bactericidal levels in pancreatic tissue and juice. In conclusion, ductal administration of *E. coli* caused pancreatic infection only in cats with acute pancreatitis. Early administration of an appropriate antibiotic was effective in treating pancreatic infection in acute

pancreatitis.
Descriptors: cefotaxime, escherichia coli infections, opportunistic infections, pancreatitis, acute disease, cats, animal disease models, *Escherichia coli*, pancreas microbiology, pancreatitis microbiology.

Widdison, A.L., N.D. Karanjia, and H.A. Reber (1994). **Routes of spread of pathogens into the pancreas in a feline model of acute pancreatitis.** *Gut* 35(9): 1306-10. ISSN: 0017-5749.
NAL Call Number: RC799 G8
Abstract: The routes of spread of pathogens into the pancreas in acute pancreatitis were investigated. Four experiments were performed: (1) cats with and without acute pancreatitis were given 10(7) *Escherichia coli (E coli)* intravenously, (2) in cats with acute pancreatitis 10(8) *E coli* was placed in the colon. In half of them the colon was then enclosed in an impermeable bag to prevent transmural spread. (3) *E coli* (10(4)) was placed in the pancreatic duct in cats with and without acute pancreatitis. (4) In cats with acute pancreatitis 10(5) *E coli* was placed in the gall bladder. In half of them the common bile duct was ligated to prevent biliary-pancreatic reflux. After 24 hours, intravenous E coli infected the pancreas in six of nine cats with acute pancreatitis and three of 10 controls. After 72 hours E coli spread to the pancreas from the colon in six of nine cats with acute pancreatitis. This was prevented by enclosing the colon in an impermeable bag ($p = 0.02$). In five of six cats with acute pancreatitis and five of six controls *E coli* placed in the pancreatic duct colonised the pancreas within 24 hours. Pancreatic colonisation from the gall bladder occurred in five of six cats with a patent common bile duct and in three of six with an obstructed common bile duct. In conclusion, in cats *E coli* can spread to the pancreas by the blood stream, transmurally from the colon, and by reflux into the pancreatic duct.
Descriptors: *Escherichia coli* infections microbiology, pancreas microbiology, pancreatitis microbiology, acute disease, bile reflux microbiology, cats, colitis microbiology, colon microbiology, animal disease models.

Willey, C.D., S. Balasubramanian, M. Rodriguez Rosas, R.S. Ross, and D. Kuppuswamy (2003). **Focal complex formation in adult cardiomyocytes is accompanied by the activation of beta3 integrin and c-Src.** *Journal of Molecular and Cellular Cardiology* 35(6): 671-83. ISSN: 0022-2828.
Abstract: In pressure-overloaded myocardium, our recent study demonstrated cytoskeletal assembly of c-Src and other signaling proteins which was partially mimicked in vitro using adult feline cardiomyocytes embedded in three-dimensional (3D) collagen matrix and stimulated with an integrin-binding Arg-Gly-Asp (RGD) peptide. In the present study, we improved this model further to activate c-Src and obtain a full assembly of the focal adhesion complex (FAC), and characterized c-Src localization and integrin subtype(s) involved. RGD dose response experiments revealed that c-Src activation occurs subsequent to its cytoskeletal recruitment and is accompanied by p130Cas cytoskeletal binding and focal adhesion kinase (FAK) Tyr925 phosphorylation. When cardiomyocytes expressing hexahistidine-tagged c-Src via adenoviral gene delivery were used for RGD stimulation, the expressed c-Src exhibited relocation: (i) biochemical analysis revealed c-Src movement from the detergent-soluble to the -insoluble

cytoskeletal fraction and (ii) confocal microscopic analysis showed c-Src movement from a nuclear/perinuclear to a sarcolemmal region. RGD treatment also caused sarcolemmal co-localization of FAK and vinculin. Characterization of integrin subtypes revealed that beta3, but not beta1, integrin plays a predominant role: (i) expression of cytoplasmic domain of beta1A integrin did not affect the RGD-stimulated FAC formation and (ii) both pressure-overloaded myocardium and RGD-stimulated cardiomyocytes exhibited phosphorylation of beta3 integrin at Tyr773/785 sites but not beta1 integrin at Thr788/789 sites. Together these data indicate that RGD treatment in cardiomyocytes causes beta3 integrin activation and c-Src sarcolemmal localization, that subsequent c-Src activation is accompanied by p130Cas binding and FAK Tyr925 phosphorylation, and that these events might be crucial for growth and remodeling of hypertrophying adult cardiomyocytes.

Descriptors: integrin beta3, myocardium, proteins, src family kinases, adenoviridae, antigens, cd29, Western blot, cats, cell nucleus, cells, cultured, collagen, cytoplasm, cytoskeleton, dose response relationship, drug, histidine, hypertrophy, integrins, microscopy, confocal, myocardium, oligopeptides, phosphoproteins, phosphorylation, protein binding, protein tyrosine kinase, signal transduction, time factors, tyrosine, vinculin.

Woodman, R.C., D. Teoh, D. Payne, and P. Kubes (2000). **Thrombin and leukocyte recruitment in endotoxemia.** *American Journal of Physiology: Heart and Circulatory Physiology* 279(3): H1338-45. ISSN: 0002-9513.

NAL Call Number: 447.8 AM3

Abstract: Because thrombin has been implicated in sepsis, it has been proposed that antithrombin III (AT III) is beneficial due to its anticoagulatory and antiadhesive effects. Using intravital microscopy, we visualized leukocyte-endothelium interactions in postcapillary venules of the feline mesentery exposed to lipopolysaccharide (LPS). At a concentration of AT III that blocks leukocyte adhesion in postischemic mesentery, we found no role for thrombin in LPS-induced rolling, adhesion and emigration, or microvascular dysfunction. Furthermore, AT III did not attenuate leukocyte-endothelial interactions after tumor necrosis factor-alpha superfusion of the mesentery. In contrast, fucoidan, a selectin inhibitor, prevented almost all LPS-induced rolling and reduced adhesion, emigration, and microvascular dysfunction. In a model of endotoxemia, leukocyte recruitment into mesentery or lungs was unaffected by AT III. Finally, in a human cell system that mimics the flow conditions in vivo, human neutrophils rolled, adhered, and emigrated similar to the feline postcapillary microvessels, and AT III had no effect on leukocyte recruitment induced by LPS. If AT III has beneficial effects in endotoxemia, it is not due to a direct effect upon leukocyte rolling, adhesion, or emigration in postcapillary venules in vivo.

Descriptors: antithrombin III, endotoxemia, leukocytes, thrombin, capillary permeability, cats, cell adhesion, cell movement, cells, cultured, chemotaxis, leukocyte, diffusion chambers, culture, dose response relationship, drug, endotoxemia, hemodynamic processes, leukocytes, lipopolysaccharides, lymphatic system, mesentery supply, mesentery, neutrophil infiltration, selectins, thrombin, tumor necrosis factor alpha.

Xie, R., F. Stapleton, and D.F. Sweeney (2001). **Confocal microscopy of feline cornea implanted with synthetic onlays: preliminary in vivo observations**. *Investigative Ophthalmology and Visual Science* 42(4): S271. ISSN: 0146-0404.
Descriptors: sense organs, feline cornea, sensory reception, confocal microscopy, feasibility, imaging method, light microscopy, simplified epikeratophakia technique, therapeutic method, synthetic onlay implantation, inflammatory response .
Notes: Meeting Information: Annual Meeting of the Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, USA; April 29-May 4, 2001.

Yamamoto, J.K. (Inventor) **Feline lymphoid cell lines capable of producing FIV for FIV diagnostics and vaccines**. 2000). *Official Gazette of the United States Patent and Trademark Office Patents*, 1237 (4). ISSN: 0098-1133
NAL Call Number: T223. A21
Descriptors: infection, FIV detection, detection method, FIV vaccine, polynucleotide probes, viral genome, HIV model.

Yang FaZhu, Huang XiaoHong, Tu ZhaoPing, and Zhang YingZhen (2000). **Establishment of an animal model of Capillaria hepatica**. *Chinese Journal of Parasitology and Parasitic Diseases* 18(4): 229-231. ISSN: 1000-7423.
Descriptors: animal models, disease models, experimental infections, laboratory animals, Capillaria hepatica, cats, rats.
Language of Text: Chinese; Summary in English.

Yang, T.D., J.S. Pei, S.L. Yang, Z.Q. Liu, and R.L. Sun (2002). **Medical prevention of space motion sickness--animal model of therapeutic effect of a new medicine on motion sickness.** *Advances in Space Research* 30(4): 751-755. ISSN: 0273-1177.
Descriptors: antiemetics, cholinergic antagonists, models, animal, space motion sickness, space motion sickness, acceleration, cats, clinical trials, dose response relationship, drug, drugs, chinese herbal, oxotremorine, rabbits, rats, scopolamine.

Yinon, U. (1994). **Visual hemispheric dominance induced in split brain cats during development: a model of deficient interhemispheric transfer derived from physiological evidence in single visual cortex cells.** *Behavioural Brain Research* 64(1-2): 97-110. ISSN: 0166-4328.
Abstract: The effects of cancellation of both interhemispheric callosal transfer and interocular interactions, were studied in early monocularly deprived cats. The main purpose of this study was therefore to prove whether unilateral hemispheric dominance would result under these conditions and to what extent each hemisphere will be functionally independent. Secondly, we have attempted to establish such an experimental model physiologically, on the single cell level. Interhemispheric transfer was surgically canceled by sagittal transection of the corpus callosum. In addition, the ocular projections were separated by sagittal transection of the optic chiasm in the transbuccal approach. This condition had practically induced visual split brain condition in these cats. These manipulations were carried out concurrently with monocular deprivation (SBDK group) which was surgically done by eye closure during the critical period of development of the visual system. Thus, the hemisphere ipsilaterally to the visually deprived eye had developed under conditions of deficient visual experience while the hemisphere

ipsilaterally to the normal eye had developed under conditions of unaltered visual experience. A group of cats (SBK) similarly operated but equally binocularly exposed during development was served as controls. In addition, adult cats similarly operated during adulthood either chronically or acutely were studied to evaluate the effects of interhemispheric and interocular separation. Other groups of cats were also studied for comparison, and included sham operated and normal adult cats. At adulthood, electrophysiological studies were done on these cats, in which action potentials were extracellularly recorded from single cells in the visual cortex (area 17-18 boundary) following anesthesia and paralysis. Stimulation was carried out manually and by a computer driven optical system, presenting on a tangent screen light bars at various spatial positions, orientations and directions. Receptive fields were thus mapped for all neurons and their dimensions and eccentricities were measured. The responsiveness, ocular dominance and other parameters were also studied for these cells. The results in the early deprived cats and in their controls, had shown a full separation between the two hemispheres, as reflected in the almost absolute ipsilateral eye responsiveness (> 97.0% cells). In comparison, in the sham operated and in the normal control cats only minor proportions of cells (13.0-18.7%) have been found as ipsilaterally and monocularly driven, showing almost full interhemispheric and interocular interaction. The main difference, however, in the results between the early monocularly deprived cats and their controls is that in the first group the two hemispheres were asymmetric concerning the amount of visual activation and in the second one they were very symmetric.(ABSTRACT TRUNCATED AT 400 WORDS)

Descriptors: attention, corpus callosum, dominance, cerebral, neuronal plasticity, sensory deprivation, vision, monocular, visual cortex, animals, newborn, brain mapping, cats, evoked potentials, visual, neurons, optic chiasm, vision, binocular, visual fields.

Zauner, A., T. Clausen, O.L. Alves, A. Rice, J. Levasseur, H.F. Young, and R. Bullock (2002). **Cerebral metabolism after fluid-percussion injury and hypoxia in a feline model.** *Journal of Neurosurgery* 97(3): 643-9. ISSN: 0022-3085.

Abstract: Currently, there are no good clinical tools to identify the onset of secondary brain injury and/or hypoxia after traumatic brain injury (TBI). The aim of this study was to evaluate simultaneously early changes of cerebral metabolism, acid-base homeostasis, and oxygenation, as well as their interrelationship after TBI and arterial hypoxia. METHODS: Cerebral biochemistry and O2 supply were measured simultaneously in a feline model of fluid-percussion injury (FPI) and secondary hypoxic injury. After FPI, brain tissue PO2 decreased from 33 +/- 5 mm Hg to 10 +/- 4 mm Hg and brain tissue PCO2 increased from 55 +/- 2 mm Hg to 81 +/- 9 mm Hg, whereas cerebral pH fell from 7.1 +/- 0.06 to 6.84 +/- 0.14 ($p < 0.05$ for all three measures). After 40 minutes of hypoxia, brain tissue PO2 and pH decreased further to 0 mm Hg and 6.48 +/- 0.28, respectively ($p < 0.05$), whereas brain tissue PCO2 remained high at 83 +/- 13 mm Hg. Secondary hypoxic injury caused a drastic increase in cerebral lactate from 513 +/- 69 microM/L to 3219 +/- 490 microM/L ($p < 0.05$). The lactate/glucose ratio increased from 0.7 +/- 0.1 to 9.1 +/- 2 after hypoxia was introduced. The O2 consumption decreased significantly from 18.5 +/- 1.1 microl/mg/hr to 13.2 +/- 2.1 microl/mg/hr after hypoxia was induced. CONCLUSIONS: Cerebral metabolism, O2 supply, and acid-base balance were severely compromised ultra-early after TBI, and they declined further

if arterial hypoxia was present. The complexity of pathophysiological changes and their interactions after TBI might explain why specific therapeutic attempts that are aimed at the normalization of only one component have failed to improve outcome in severely head injured patients.
Descriptors: brain, brain injuries, hypoxia, brain, acid base equilibrium, brain, carbon dioxide, cats, animal disease models, mitochondria, mitochondria ultrastructure, mitochondrial swelling, oxygen.

Zimmer, H.G. (2001). **Perfusion of isolated organs and the first heart-lung machine**. *Canadian Journal of Cardiology* 17(9): 963-969. ISSN: 0828-282X.
Descriptors: cardiovascular system, cats, equipment, apparatus, devices and instrumentation, embolism, vascular disease, cardiopulmonary bypass, surgical method, therapeutic method, heart lung machine, open heart surgery, isolated organ perfusion, oxygen consumption.

Surgical Techniques

Anonymous (2004). **Abstracts of the papers presented during XXVIII Annual Congress of Indian Society for Veterinary Surgery (November 18-20, 2004)**. *Indian Journal of Veterinary Surgery* 25(2): 122-142. ISSN: 0254-4105.
NAL Call Number: SF604.I45
Descriptors: abnormalities, acupuncture, anesthesia, anesthetics, animal diseases, bone fractures, congenital abnormalities, cryogenic surgery, deformities, diagnosis, diagnostic techniques, domestic animals, fracture fixation, glaucoma, grafts, healing, hernia, histopathology, intussusception, joints animal, laparoscopy, livestock, neoplasms, otitis, pharmacodynamics, pyometra, radiography, stifle, surgery, surgical equipment, surgical operations, techniques, tendons, therapy, transplantation, trauma, ultrasonography, urolithiasis, wild animals, wild birds, wounds, birds, buffaloes, cats, cattle, dogs, goats, horses, rabbits, rats, sheep.

Abrams, K.L. (2001). **Medical and surgical management of the glaucoma patient**. *Clinical Techniques in Small Animal Practice* 16(1): 71-76. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: blindness, clinical aspects, glaucoma, medical treatment, surgery, cats.

Acar, S.E., C. Perk, and O. Guzel (1998). **Kedilerin Temporomandibular luksasyon olgularnda operatif sagaltm [Surgery for temporomandibular luxation in cats]**. *Veteriner Fakultesi Dergisi Istanbul* 24(2): 243-254. ISSN: 0378-2352.
Descriptors: mandibular lesions, dislocations, joints animal, surgery, mandible, head, jaws, cats, temporomandibular luxation.
Language of Text: Turkish with a summary in English.

Ackerman, L.J. (1997). **Dermatologic applications of radio-wave surgery (radiosurgery)**. *Compendium on Continuing Education for the Practicing Veterinarian* 19(4): 463-471. ISSN: 0193-1903.
NAL Call Number: SF601. C66
Descriptors: surgery, surgical operations, histopathology, treatment, surgical equipment, radio waves, biopsy, skin diseases, cats.

Adeyanju, J.B., A. Samkange, M. Ndengu, A. Murondoti, M. Obwolo, O. Bwangamoi, and N. Kock (1997). **Cosmetic surgical oncology in small animals: outcome of management of 48 cases**. *Zimbabwe Veterinary Journal* 28(1): 34-35. ISSN: 1016-1511.
NAL Call Number: SF601 .R5
Descriptors: surgery, cosmetic surgery, neoplasms, cats.

Aiken, S.W. (2003). **Principles of surgery for the cancer patient**. *Clinical Techniques in Small Animal Practice* 18(2): 75-81. ISSN: 1096-2867.
NAL Call Number: SF911 .545
Descriptors: diagnosis, neoplasms, postoperative care, surgery, surgical operations, cats.

Aitken, M.L. and A.K. Patnaik (2000). **Comparison of needle-core (Trucut) biopsy and surgical biopsy for the diagnosis of cutaneous and subcutaneous masses: a prospective study of 51 cases (November 1997-August 1998)**. *Journal of the American Animal Hospital Association* 36(2): 153-157. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: biopsy, diagnosis, surgery, neoplasms, skin, skin diseases, epithelium, cats.

Altunatmaz, K., Y. Devecioglu, and S. Ozsoy (2002). **Kedi ve kopeklerde caput ve collum femoris krklarnn internal fiksasyonla sagaltmlar uzerine klinik calismalar [Clinical studies on the surgical treatment of femoral head and neck fractures using internal fixation in cats and dogs]**. *Veteriner Fakultesi Dergisi Istanbul* 28(1): 239-248. ISSN: 0378-2352.
Descriptors: arthroplasty, bone fractures, recovery, surgery, surgical operations, cats.
Language of Text: Turkish with a summary in English.

Atwell, R.B. and A.L. Litster (2002). **Surgical extraction of transplanted adult *Dirofilaria immitis* in cats.** *Veterinary Research Communications* 26(4): 301-308. ISSN: 0165-7380.
NAL Call Number: SF601 .V38
Descriptors: cats, *Dirofilaria immitis*, surgical operations, evaluation, techniques, catheters, efficiency.

Bagley, R.S., G.M. Silver, R.L. Connors, M.L. Harrington, A.J. Cambridge, and M.P. Moore (2000). **Exogenous spinal trauma: Surgical therapy and aftercare**. *Compendium on Continuing Education for the Practicing Veterinarian* 22(3): 218-230. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: spine, surgery, therapy, trauma, treatment, spinal diseases, cats.

Baines, S. (2000). **Small intestinal surgery. 1. Principles**. *In Practice* 22(9): 502-517. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: surgery, treatment, intestinal diseases, duodenum, jejunum, colon, ileum, cats.

Baines, S. (2000). **Small intestinal surgery. 2. Techniques**. *In Practice* 22(10): 574-592. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: surgery, surgical operations, surgical instruments, postoperative care, cats.

Balicki, I., E. Komar, P. Silmanowicz, A. Grela, I. Polkowska, and T. Szponder (1996). **Leczenie operacyjne zaman dalszego kon kosci udowej i ramiennej przy uzyciu grotowkretow Schanza u psow i kotow [Surgical treatment of distal femoral and humeral fractures using Schanz screws in dogs and cats]**. *Magazyn Weterynaryjny* 5(3): 198-201. ISSN: 1230-4425.
Descriptors: limb bones, bone diseases, fractures, orthopedics, fracture fixation, humerus, femur, cats.
Language of Text: Polish; Summary in English.

Bardet, J.F. (1994). **Chirurgie abdominale chez les carnivores domestiques: principes generaux. [Abdominal surgery in domestic carnivores - general principles.]**. *Pratique Medicale and Chirurgicale De L'Animal De Compagnie* 29(6, Supplement): 621-630. ISSN: 0758-1882.
Descriptors: anatomy, surgery, abdomen .

Bardet, J.F. (1999). **Chirurgia delle cavita nasali per via endoscopica. [Surgery of the nasal cavity via endoscopy]**. *Summa* 16(5): 19-26.
Descriptors: endoscopy, nose, surgery, diagnostic techniques, foreign bodies, polyps, cats.
Language of Text: Italian; Summary in English.

Bardet, J.F. (1999). **La chirurgie des cavites nasales sous guidage endoscopique [Surgery of the nasal cavity via endoscopy]**. *Le Point Veterinaire* 30(196): 25-32. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: nose, surgery, endoscopy, pharynx, sinuses, cats.
Language of Text: French with a summary in English.

Bardet, J.F. (1994). **Chirurgie de l'obstruction pylorique chez le chien et le chat. [Surgery for pyloric obstruction in dogs and cats]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 29(6, Supplement): 685-694. ISSN: 0758-1882.
Descriptors: surgery, obstruction, diagnosis, stomach diseases, cats.
Language of Text: French with a summary in English.

Bartels, K.E. (2002). **Lasers in medicine and surgery**. *Veterinary Clinics of North America, Small Animal Practice* 32(3): 250. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: lasers, small animal practice, surgery, surgical operations, medicine.

Bausch, M., K.J. Saers, and J.G. Kresken (2001). **Eroffnung der vorderen Linsenkapsel mit dem Hochfrequenz-Diathermie Kapsulotom bei der Kataraktchirurgie in der Kleintiermedizin [Opening of the anterior lens capsule using the high-frequency-capsulotomy in cataract surgery in small animal medicine]**. *Kleintierpraxis* 46(6): 349-355. ISSN: 0023-2076.
NAL Call Number: 41.8 K67
Descriptors: cataract, eye lens, small animal practice, surgery, cats.
Language of Text: German; Summary in English.

Bellah, J.R. (1999). **Surgery of intertriginous dermatoses**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 388-391. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: skin diseases, pyoderma, trauma, cats, *StapHylococcus intermedius*, *Malassezia pachydermatis*, Streptococcus, *Escherichia coli*, Pseudomonas, Proteus, Candida.

Bennett, J.W., A.S. Kapatkin, and S.M. Marretta (1994). **Dental composite for the fixation of mandibular fractures and luxations in 11 cats and 6 dogs.** *Veterinary Surgery* 23(3): 190-194. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Abstract: Twenty-one mandibular fractures in 11 cats and 6 dogs were repaired during a 20-month period. A new technique using dental composite was used to stabilize the mandible. The canine teeth were pumiced, acid etched, and aligned with dental composite, leaving the mouth opened approximately 1 cm. Six weeks after surgery the composite was removed so that radiographs of the mandible could be made with the animal under general anesthesia. In 1 dog in which the fracture had not healed, the composite was replaced. The composite broke before 6 weeks in 8 animals; 2 required replacement of the dental composite. There were no other complications. The median time for fracture healing was 6 weeks. All fractures healed with anatomic dental occlusion. The advantages of this technique are that no further damage is caused to the teeth or to the blood supply of the bone, the occlusion is anatomic, dermatitis (which is seen with tape muzzles) is not a complication, and the technique is easy to use in brachycephalic breeds, cats, and animals with poor bone quality. The limiting factor of this technique is that it does require four salvageable canine teeth. This repair technique is still a viable option even if one or more of the canine teeth are fractured. Dental composite stabilization is fast, easy, inexpensive, and, in our series, it was 100% effective for the repair of mandibular fractures.
Descriptors: cats injuries, composite resins, dislocations, dogs injuries, mandibular fractures, temporomandibular joint, acid etching, dental, cats surgery, dislocations surgery, dogs surgery, fracture fixation, fracture healing, mandibular fractures surgery.

Berg, J. (1998). **Principles of oncologic orofacial surgery**. *Clinical Techniques in Small Animal Practice* 13(1): 38-41. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: surgery, neoplasms, face, nose, postoperative care, prognosis, mouth diseases, cats.

Bernis Filho, W.O., C.M.F. Rezende, V.L.V. Abreu, and V.M.O. Bernis (1998). **Nosocomial infections in surgical wounds in small animals [Infeccoes hospitalares em feridas cirurgicas de pequenos animais]**. *Arquivo Brasileiro De Medicina Veterinaria e Zootecnia* 50(2): 127-132. ISSN: 0102-0935.
NAL Call Number: SF604 .A76
Descriptors: surgery, nosocomial infections, wounds, orthopedics, cats.
Language of Text: Portuguese; Summary in English.

Bernsteen, L., C.R. Gregory, A.E. Kyles, J.D. Wooldridge, and C.R. Valverde (2000). **Renal transplantation in cats.** *Clinical Techiques in Small Animal Practice* 15(1): 40-45. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: cats, kidney transplant, immunosuppression, immunosuppressive agents, anesthesia, surgery, postoperative care, postoperative, renal failure.

Bernsteen, L., C.R. Gregory, R.E. Pollard, S.M. Griffey, and V. Menwrath (1999). **Comparison of two surgical techniques for renal transplantation in cats**. *Veterinary Surgery* 28(6): 417-420. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: kidneys, kidney transplant, surgery, transplantation, anastomosis, postoperative, nephrectomy, renal function, treatment, cats.

Birchard, S.J. (1998). **Portosystemic shunts in dogs and cats: Surgical perspective.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 12: 709-710.
NAL Call Number: SF605.N672
Descriptors: vascular diseases, surgery, diagnosis, treatment.

Birchard, S.J. (1999). **Surgery of the liver and biliary tract**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice,* 2nd edition, W.B. Saunders: Philadelphia, USA, p. 874-881. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: liver diseases, surgery, treatment, postoperative care, postoperative, bile ducts, cats.

Birchard, S.J. and E.R. Schertel (1999). **Principles of thoracic surgery**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice,* 2nd edition, W.B. Saunders: Philadelphia, USA, p. 694-701. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: treatment, surgery, thorax, cats.

Birchard, S.J., D.D. Smeak, and M.A. McLoughlin (1998). **Treatment of idiopathic chylothorax in dogs and cats.** *Journal of the American Veterinary Medical Association* 212(5): 652-657. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: dogs, cats, chylothorax, treatment, surgery, therapeutic diets, parenteral feeding, thoracic duct, ligature, pleural drainage, pleurodesis, passive pleuroperitoneal shunts.

Bjorling, D.E. (1999). **Surgery of the urethra**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunder's Manual of Small Animal Practice,* 2nd edition, W.B. Saunders: Philadelphia, USA, p. 969-977. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: urethra, surgery, treatment, sex differences, cats.

Bjorling, D.E. (1999). **Surgery of the kidney and ureter**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice,* 2nd edition, W.B. Saunders: Philadelphia, USA, p. 938-942. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: surgery, treatment, kidney diseases, ureter, cats.

Blaiset, M.A., C.G. Couto, K.L. Evans, and D.D. Smeak (1995). **Complications of indwelling, silastic central venous access catheters in dogs and cats.** *Journal of the American*

Animal Hospital Association 31(5): 379-84. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Abstract: The records of 35 dogs and two cats with Broviac-Cookea catheters implanted during a one-year period at The Ohio State University Veterinary Teaching Hospital (OSU-VTH) were reviewed for complications. In 36 patients, the catheters were used for daily anesthesia associated with cobalt radiotherapy, and in one dog the catheter was used for parenteral hyperalimentation. The catheters were in place for a mean of 16.7 days. Complications occurred in five patients and included infection or sepsis (n = 3), local abscess formation (n = 1), and local induration (n = 1); all the complications resolved with appropriate therapy. Broviac-Cooke catheters should be considered for use in dogs and cats requiring frequent blood sampling, repeated intravenous access, or in those for which routine venous access is difficult or impossible. The complication rate is minimal (13%) and is similar to that reported in studies of humans with indwelling, silastic catheters.
Descriptors: abscess, bacteremia, pseudomonas infections, staphylococcal infections, abscess, catheterization, central venous, catheters, indwelling, cats, dimethylpolysiloxanes, pseudomonas infections, silicones, staphylococcal infections.

Bloomberg, M.S. (1996). **Surgical neutering and nonsurgical alternatives [cats]**. *Journal of the American Veterinary Medical Association* 208(4): 517-519. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: surgery, sterilization, pregnancy, female genitalia, male genitalia, contraceptives, castration, cats.

Bonath, K.H. (1996). **Diaphragmatic Surgery**. In: A.J. Lipowitz, D.D. Caywood, C.D. Newton and A. Schwartz (Editors), *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Williams & Wilkins: Baltimore, USA, p. 245-263.
NAL Call Number: SF991.C68
Descriptors: veterinary surgery, literature reviews, postoperative, small animal practice, diaphragm, cats.

Boothe, H.W. (1999). **Surgery of the penis and prepuce**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA., p. 1013-1015. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: penis, prepuce, male genital surgery, treatment, dogs, cats.

Boothe, H.W. (1999). **Surgery for otitis media and otitis interna**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 439-442. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: surgery, otitis media, ear diseases, otitis, treatment, cats.

Boothe, H.W. (1999). **Surgery of the testes and scrotum**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 1005-1008. ISBN: 0721670784.
NAL Call Number: SF981.S29

Descriptors: testicular diseases, scrotum, postoperative care, postoperative, castration, ablation, cats.

Boothe, H.W. (1997). **The fundamentals of oncologic surgery**. *Veterinary Medicine* 92(4): 360...364. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: techniques, reviews, classification, surgery, neoplasms, cats.

Boothe, H.W.Jr. (1998). **Selecting suture materials for small animal surgery**. *Compendium on Continuing Education for the Practicing Veterinarian* 20(2): 155-163. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: surgery, sutures, suture techniques, small animal practice, cats.

Borenstein, N., A. Deneuche, E. Monnet, E. Viguier, and P. Fayolle (2001). **Chirurgie des carnivores domestiques. Trois cas de typhlectomie par sutures mecaniques. [Surgery of dogs and cats. Three cases of typhlectomy using mechanical sutures.]**. *Le Point Veterinaire* 32(216): 50-54. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: cats, intestinal resection, sutures, digestive system, surgical operations.
Language of Text: French.

Borenstein, N., A. Deneuche, E. Monnet, E. Viguier, and P. Fayolle (2001). **Chirurgie du caecum chez les carnivores domestiques: dispositifs d'agrafage mecanique interne [Caecal surgery in dogs and cats]**. *Le Point Veterinaire* 32(215): 20-22. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: cecum, surgery, dogs, cats.
Language of Text: French.

Bouhanna, L. (2001). **Ophtalmologie des carnivores domestiques. Chirurgie de la membrane nictitante. [Ophtalmology of dogs and cats. Surgery of nictitating membrane.]**. *Le Point Veterinaire* 32 (220): 24-31. ISSN: 0303-4997.
NAL Call Number: SF602.P6
Descriptors: dogs, cats, eye diseases, surgical operations, organic diseases.
Language of Text: French.

Bouvy, B. (1994). **Chirurgie du pancreas [Surgery of the pancreas]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 29(6): 771-780. ISSN: 0758-1882.
Descriptors: pancreas, surgery, pancreatitis, abscesses, neoplasms, pancreatic diseases, cats.
Language of Text: French with a summary in English.

Bouvy, B. and L. Cauzinille (2003). **Communications porto-systemiques congenitales, 2e partie: traitement chirurgical et pronostic [Portosystemic congenital shunts. Part 2: Surgical treatment and prognosis]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 38(6): 479-488. ISSN: 0758-1882.
Descriptors: congenital abnormalities, portal circulation, prognosis, surgery, treatment,

vascular diseases, cats.
Language of Text: French with a summary in English.

Brady, C.A. and L.G. King (2000). **Postoperative management of the emergency surgery small animal patient** . *Veterinary Clinics of North America, Small Animal Practice* 30(3): 681-698. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: pets, emergencies, surgery, postoperative care, intensive care, cats.

Braslasu, M.C., V.V. Popa, A.V. Sufaru, A. Tanase, and E.D. Stavarache (1994). **Supravegherea electrocardiografica la caine si pisica in cursul interventiilor chirurgicale. [Electrocardiographic monitoring during surgery on dogs and cats]**. *Lucrari Stiintifice Universitatea De Stiinte Agronomice Bucuresti Seria C, Medicina Veterinara* 37: 71-76. ISSN: 1222-5304.
Descriptors: surgical operations, apparatus, electrocardiograms, surgery, cats.
Language of Text: Romanian; Summary in English.

Bregazzi, V.S., S. LaRue, E. McNiel, D.W. Macy, W.S. Dernell, B.E. Powers, and S.J. Withrow (2001). **Treatment with a combination of doxorubicin, surgery, and radiation versus surgery and radiation alone for cats with vaccine-associated sarcomas: 25-cases (1995-2000).** *Journal of the American Veterinary Medical Association* 218(4): 547-550. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, sarcoma, vaccination, treatment, doxorubicin, surgery, radiotherapy, relapse, survival, efficacy.

Bright, R.M. (1999). **Surgery of the intestines**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 817-823. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: surgery, treatment, intestinal diseases, cats.

Bright, R.M. (1999). **Surgery of the esophagus**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 744-752. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: surgery, esophgus, cats.

Bright, R.M. (1999). **Anorectal surgery**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 901-906. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: surgery, treatment, anus, rectum, rectal prolapse, hernia, cats.

Bright, R.M. (1999). **Surgery of the stomach**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 777-786. ISBN: 0721670784.

NAL Call Number: SF981.S29
Descriptors: treatment, foreign bodies, surgery, stomach diseases, cats.

Bruse, S. (1994). **Moglichkeiten der plastischen Chirurgie bei Hund und Katze [Possibilities for plastic surgery in dogs and cats]**. *Praktische Tierarzt* 75(Sondernummer): 101-104. ISSN: 0032-681X.
NAL Call Number: 41.8 P882
Descriptors: surgery, plastic surgery, skin diseases, transplantation, cats.
Language of Text: German.

Budge, G. (1995). Veterinary Continuing Education: *Soft Tissue Surgery: Proceedings of a course from the Annual Seminar of the Companion Animal Society, 1995, Massey-University,* New Zealand Veterinary Association: New Zealand, Vol. 166, p. 1.
NAL Call Number: SF604. P82 no.220
Descriptors: surgical operations, surgical instruments, small animal practice, surgical equipment, abdomen, peritonitis, digestive system, hernia, anus, rectum, liver, spleen, pancreas, nephrectomy, bladder, prostate, urethra, reproductive organs, ears, pharynx, larynx, megacolon, education, surgery, cats.

Burger, M., F. Forterre, and L. Brunnberg (2004). **Surgical anatomy of the feline sacroiliac joint for lag screw fixation of sacroiliac fracture-luxation**. *Veterinary and Comparative Orthopaedics and Traumatology* 17(3): 146-151. ISSN: 0932-0814.
NAL Call Number: SF910.5 V4
Descriptors: animal anatomy, fracture fixation, joints animal, pelvis, screws, surgery, surgical equipment, cats.

Castagnaro, M., C. Casalone, E. Bozzetta, R. De Maria, B. Biolatti, and M. Caramelli (1998). **Tumour grading and the one-year post-surgical prognosis in feline mammary carcinomas.** *Journal of Comparative Pathology* 119(3): 263-275. ISSN: 0021-9975.
NAL Call Number: 41.8 J82
Descriptors: cats, mammary glands, cancer, prognosis, treatment, diagnosis, disease course, cell differentiation, survival, surgical operations, histology, mitosis, immunohistochemistry, age, prediction.

Castagnaro, M., C. Casalone, G. Ru, G.C. Nervi, E. Bozzetta, and M. Caramelli (1998). **Argyrophilic nucleolar organiser regions (AgNORs) count as indicator of post-surgical prognosis in feline mammary carcinomas**. *Research in Veterinary Science* 64(2): 97-100. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Descriptors: histopathology, neoplasms, prognosis, nucleolus, nuclei, cytopathogenicity, diagnostic techniques, microscopy, mammary gland diseases, carcinoma, cats.

Castagnaro, M., R. De Maria, E. Bozzetta, G. Ru, C. Casalone, B. Biolatti, and M. Caramelli (1998). **Ki-67 index as indicator of the post-surgical prognosis in feline mammary carcinomas.** *Research in Veterinary Science* 65(3): 223-226. ISSN: 0034-5288.
NAL Call Number: 41.8 R312
Abstract: Forty-eight feline mammary carcinomas (FMC) were resected surgically from

48 cats to determine whether the Ki-67 index (Ki-67I) would provide an indication of the post-surgical survival time (PST). Twenty-four cats (50 per cent) were still alive (group A) one year after surgery, whilst 24 (50 per cent) (group B) had died. Formalin-fixed, paraffin wax-embedded histological sections were immunostained with a monoclonal antibody to Ki-67 (MIB-1) and at least 1000 nuclei in eight to 10 representative fields were counted. The Ki-67I was expressed as the percentage of positive nuclei. In FMC, the Ki-67I ranged from 7.5 to 49.7 (24.8 +/- 9.5). A statistically significant difference (P = 0.000006) in the Ki-67I was found between group A and group B cats. No other statistically significant differences were found between these groups. The Ki-67I did not correlate with age or different histological type, according to the WHO classification. A Ki-67I cut-off of 25.2 represents a useful tool for identifying FMC with a more aggressive course.
Descriptors: cats, mammary gland neoplasms, prognostic markers, survival, antigens, disease course.

Caywood, D.D. (1996). **Thoracic Surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Lippincott,Williams and Wilkins: Baltimore, Maryland, USA, p. 196-227. ISBN: 0683050478.
NAL Call Number: SF991.C68
Descriptors: pneumothorax, chylothorax, atelectasis, postoperative, thorax, cats, dogs.

Caywood, D.D. (1996). **Cardiovascular Surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Williams & Wilkins: Baltimore, Maryland, USA, p. 265-286.
NAL Call Number: SF991.C68
Descriptors: pericardium, aortic rupture, arrhythmia, surgical operations, heart, postoperative, cats.

Clark, W.T. and R. Labuc (1997). ***Small Animal Medicine & Surgery: Course V436 (Also Part of V532)***, Murdoch University, Division of Veterinary & Biomedical Sciences, Dept. of Applied Veterinary Medicine: Perth, Western Australia, 461 p. ISBN: 0869055658.
NAL Call Number: SF991.S5943 1997
Descriptors: respiratory system, alimentary system, urinary system, behavior problems, dogs, cats, endocrinology, infectious diseases, oncology, dermatology, toxicology, cardiology, pet medicine.

Cohen, M., J.C. Wright, W.R.J. Brawner, A.N. Smith, R. Henderson, and E.N. Behrend (2001). **Use of surgery and electron beam irradiation, with or without chemotherapy, for treatment of vaccine-associated sarcomas in cats: 78 cases (1996-2000)**. *Journal of the American Veterinary Medical Association* 219(11): 1582-1589. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Descriptors: drug therapy, irradiation, metastasis, neoplasms, radiotherapy, sarcoma, sex differences, surgery, survival, cats.

Colitz, C.M.H. (2004). **What you need to do basic ophthalmic surgery?** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 730.
Descriptors: eyes, preoperative care, surgery, surgical equipment, surgical instruments, surgical operations, cats, dogs.

Cook, C.S. (1997). **Surgery for glaucoma**. *Veterinary Clinics of North America, Small Animal Practice* 27(5): 1109-1129. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: anatomy, diagnosis, lasers, prostheses, glaucoma, surgery, cats.

Cronin, K., R.L. Page, G. Spodnick, R. Dodge, E.N. Hardie, G.S. Price, D. Ruslander, and D.E. Thrall (1998). **Radiation therapy and surgery for fibrosarcoma in 33 cats.** *Veterinary Radiology and Ultrasound:* 39(1): 51-56. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: cats, sarcoma, x rays, radiotherapy, excision, antibiotics, pathogenesis, survival, neoplasms, organic diseases, radiation, surgical operations, therapy, doxorubicin, disease course.

DaVid, T., I. Kasper and M. Kasper (2000). ***Atlas of Small-Animal Surgery. Soft Tissue Surgery. [Atlas Der Kleintierchirurgie; Weichteilchirurgie]***, Vol. 408, Schlutersche Verlagsanstalt und Druckerei GmbH & Co: Hannover, Germany
, ISBN: 3877063896.
Descriptors: surgery, medicine, plastic surgery, reconstructive surgery, general surgery, head, neck, thorax, abdomen, urogential tract.
Language of Text: German.

Davidson, E.B., C.R. Gregory, and P.H. Kass (1997). **Surgical excision of soft tissue fibrosarcomas in cats.** *Veterinary Surgery* 26(4): 265-269. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: cats, sarcoma, excision, animal tissues, survival, pathogenesis, radiotherapy, body parts, neoplasms, organic diseases, surgical operations, therapy, prognosis, treatment .

DeHoff, W.D. (1996). **Gastrointestinal surgery I**. *Veterinary Quarterly* 18(sup1.): S2-S4. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: surgery, hernia, torsion, digestive system, stomach, cats.

DeHoff, W.D. (1996). **Gastrointestinal surgery II**. *Veterinary Quarterly* 18(sup1.): S5-S6. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: surgery, digestive system, anastomosis, intestinal diseases, rectal prolapse, anal glands, cats.

Denny, H.R. and S.J. Butterworth (2000). ***A Guide to Canine and Feline Orthopaedic Surgery***, 4th edition, Blackwell Science: Oxford; Malden, MA, USA, 634 p. ISBN: 0632051035 .
NAL Call Number: SF991.D44
Descriptors: dogs, cats, surgery, orthopedics.

Denny, H.R., M.L. Nagel and V. Hach (1996). ***Orthopadische Chirurgie an Hund Und Katze [A Guide to Canine and Feline Orthopaedic Surgery}***, 3rd edition, Ferdinand

Enke Verlag
: Stuttgart, Germany, 338 p. ISBN: 3432934025.
Descriptors: veterinary medicine, small animal practice, bone diseases, orthopedics, fracture fixation, animal welfare, cats, dogs.
Language of Text: German and English.

Denny, H.R., M.L. Nagel and V. Hach (1996). ***Orthopadische Chirurgie an Hund Und Katze [Orthopedic Surgery on Dogs and Cats]***, 3rd edition, Ferdinand Enke Verlag: Stuttgart, Germany
, 338 p.
Descriptors: veterinary medicine, small animal practice, bone diseases, orthopedics, fracture fixation, cats.
Language of Text: German.
Notes: The third English edition of this book on the surgical pathology of bones and joints and the repair of fractures was published in 1993, and it has been translated to form the second German edition.

Dong, X., S. Wang, and Y. Wang (1996). **Effects of electrical stimulation of SII and electroacupuncture on beta-endorphin contents in the perfusate from the nucleus centrum medianum of the thalamus in cats**. *Zhen Ci Yan Jiu [Acupuncture Research]* 21(4): 25-27. ISSN: 1000-0607.
Abstract: In order to probe into whether beta-endorphin is involved in descending modulation of the somatosensory area (SII) of the cerebral cortex on the nucleus centrum medianum (CM) of the thalamus and this mechanism of acupuncture analgesia, it was investigated that effects of electrical stimulation of SII and electroacupuncture on beta-endorphin content in the perfusate from the nucleus CM. Adult cats were randomly divided into three groups: control, electroacupuncture and electrical stimulation of SII. Push-pull perfusion technique was used to collect the perfusate from the nucleus CM beta-endorphin contents in the perfusate were determined with radioimmunoassay. The results indicated that beta-endorphin content in the perfusate was increased significantly by electrical stimulation of SII and not by electroacupuncture, suggesting that the beta-endorphin release from the nucleus CM was elevated by the stimulation of SII and was not influenced by electroacupuncture. It is indicated that beta-endorphin is possibly involved in the descending regulatory effect of electrical stimulation of SII on the nucleus CM, but is not involved in the regulatory effect of electroacupuncture on the nucleus CM.
Descriptors: electroacupuncture, somatosensory cortex, thalamic nuclei, beta endorphin, cats, electric stimulation, random allocation.
Language of Text: Chinese.

Eich, C.S. and L.L. Ludwig (2002). **The surgical treatment of cholelithiasis in cats: A study of nine cases.** *Journal of the American Animal Hospital Assocociation* 38(3): 290-296. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: cats, cholelithiasis, cholecystectomy, clinical aspects, picture, bilirubin, alkaline phosphatase, alanine aminotransferase, aspartate aminotransferase, enzyme activity, surgical operations, histopathology, cholecystitis, hepatitis, ultrasonography,

lipidosis, risk factors, cholecystduodenostomy, cholecystojejunostomy, cholangiohepatitis .

Eisner, E.R. (1995). **Performing surgical root canal therapy in dogs and cats.** *Veterinary Medicine* 90(7): 648-661. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, teeth, tooth diseases, surgical operations, therapy, surgical instruments, animal health, body parts, digestive system, disease control, equipment, mouth, organic diseases, equipment, endodontic surgery, endodontic diseases, dental roots, dental root canal, surgical equipment, dental health.

El Mezayen, A.F. (1999). **Surgical management of medically nonresponsive gastrointestinal disorders in cats.** *Zagazig Veterinary Journal* 25(3): 70-81. ISSN: 1110-1458.
Descriptors: cats, surgical operations, disorders, radiography, gastroenteritis, analytical, digestive system diseases.

El Seddawi, F.D. (1996). **Surgical management of some perianal and rectal affections in dogs and cats.** *Zagazig Veterinary Journal* 24 (3): 1-10 . ISSN: 1110-1458.
Descriptors: dogs, cats, surgical operations, fistulation, diagnosis, radiography, functional disorders, digestive system diseases, clinical trials, paraffin, analytical, disorders, experimentation, hydrocarbons.

Emily, P. (2004). **Advances in periodontal therapy and surgery**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 248-249.
Descriptors: bone formation, periodontium, surgery, surgical operations, cats.
Notes: Meeting Information: Small animal and exotics Book one: Alternative medicine orthopedics, Orlando, Florida, USA; 17-21 January 2004.

Erlewein, D.L. and E.L. Kuhns (1996). ***Instructions for Veterinary Clients: Canine and Feline Medical and Surgical Problems.*** 3rd edition, Mosby: St. Louis, Missouri, 477 p. ISBN: 0815131615.
NAL Call Number: SF991.E75
Descriptors: dogs, cats, diseases, veterinarian and client.

Erlewein, D.L. and E.L. Kuhns (1996). ***Instructions for Veterinary Clients: Canine and Feline Medical and Surgical Problems***, 3rd edition, Mosby: St. Louis, Missouri, 477 p. ISBN: 0815131615.
NAL Call Number: SF991.E75
Descriptors: dog diseases, cat diseases, veterinarian and client.

Esson, D. (2001). **A modification of the Mustarde technique for the surgical repair of a large feline eyelid coloboma**. *Veterinary Ophthalmology* 4(2): 159-160. ISSN: 1463-5216.
NAL Call Number: SF891 .V47
Descriptors: coloboma, eyelid diseases, keratitis, surgery, cats.

Eugster, S., P. Schawalder, F. Gaschen, and P. Boerlin (2004). **A prospective study of postoperative surgical site infections in dogs and cats.** *Veterinary Surgery* 33(5): 542-

50. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Abstract: OBJECTIVE: To assess postoperative surgical site infection (SSI) rate and to identify associated predictive factors. STUDY DESIGN: Prospective clinical study. ANIMALS: Dogs and cats that had surgery (1010 interventions) during 58 weeks from April 1999 to June 2000. METHODS: Data sheets were completed by clinicians. Patients were controlled for clinical evidence of SSI at suture removal. Two definitions of SSI ("infection" and "infection/inflammation") were developed specifically for this study and used for statistical analysis. Logistic regression models were built in order to identify significant predictive factors for SSI. RESULTS: Wounds with "infection/inflammation" occurred in 5.8% and "infected" wounds in 3% of patients. The outcome "infection" was associated with 3 major risk factors (duration of surgery, increasing number of persons in the operating room, dirty surgical site) and 1 protective factor (antimicrobial prophylaxis). The outcome "infection/inflammation" was associated with 6 significant factors (duration of anesthesia, duration of postoperative intensive care unit stay, wound drainage, increasing patient weight, dirty surgical site, and antimicrobial prophylaxis). CONCLUSIONS: SSI frequency in companion animals is comparable with the frequency observed in human surgical patients. Several significant predictive factors for SSI in small animals surgery were identified. CLINICAL RELEVANCE: Baseline information for SSI surveillance in our hospital and for comparison with other studies was defined. The factors identified may help to predict infections in surgical patients and to take adequate preventive measures for patients at risk.
Descriptors: surgical site infection, cats, antimicrobial prophylaxis, prevention.

Fayolle, P. (2002). **Trattamento chirurgico delle lesioni tendinee traumatiche nei carnivori domestici. [Surgical treatment of traumatic tendinous lesions in domestic carnivores]**. *Summa* 19(4): 13-21.
Descriptors: lesions, surgical operations, tendons, cats.
Language of Text: Italian; Summary in English.

Fayolle, P. (1998). **Traitement chirugical des lesions tendineuses traumatiques chez les carnivores domestiques [Surgical treatment of traumatic tendon lesions in domestic carnivores]**. *Le Point Veterinaire* 29(189): 119-125. ISSN: 0303-4997.
Descriptors: surgery, orthopedics, tendons, lesions, adhesions, healing, sutures, reviews, cats.
Language of Text: French with a summary in English.

Fearnside, S.M., R.D. Eaton Wells, and T.N. Davey (2003). **Surgical management of urethral injury following pelvic trauma in three cats**. *Australian Veterinary Practitioner* 33(1): 2-7. ISSN: 0310-138X.
NAL Call Number: SF601.A9
Descriptors: anastomosis, case reports, catheterization, catheters, pelvis, postoperative, surgical operations, trauma, urethra, cats.

Fingland, R.B. (1999). **Surgery of the vagina and vulva**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 1043-1049. ISBN: 0721670784.

NAL Call Number: SF981.S29
Descriptors: female genital diseases, surgery, vaginal diseases, treatment, cats.

Fingland, R.B. (1999). **Surgery of the ovaries and uterus**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 1029-1036. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: female genital diseases, ovaries, uterus, surgery, cats, dogs.

Fingland, R.B. (1999). **Surgery of the urinary bladder**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 958-963. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: surgery, treatment, bladder, bladder diseases, cats.

Fischer, H.R., J. Norton, C.N. Kobluk, A.L. Reed, R.L. Rooks, and F. Borostyankoi (2004). **Surgical reduction and stabilization for repair of femoral capital physeal fractures in cats: 13 cases (1998-2002).** *Journal of the American Veterinary Medical Association* 224(9): 1478-82. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Abstract: OBJECTIVE: To evaluate anatomic reduction and surgical stabilization of femoral capital physeal fractures in cats. DESIGN: Retrospective study. ANIMALS: 13 cats. PROCEDURE: Medical records of cats with unilateral or bilateral femoral capital physeal fractures evaluated from 1998 to 2002 were reviewed. Age and weight of cats at the time of surgery; breed; sex; concurrent injuries; severity of lameness before and 1, 2, 4, 6, and 8 weeks after surgery; the amount of fracture reduction achieved and number of Kirschner wires (K-wires) used; degree of degenerative joint disease of the hip joint and lysis of the femoral neck and head observed after surgery; whether K-wires were removed after surgery; and complications after surgery were evaluated. RESULTS: Thirteen cats with 16 capital physeal fractures were identified. There was significant improvement in the severity of clinical lameness in all cats from weeks 1 through 4 after surgery. There was no correlation between the scores of the individuals who evaluated radiographs for fracture reduction and placement of K-wires. CONCLUSIONS AND CLINICAL RELEVANCE: Results suggested that surgical stabilization and repair of femoral capital physeal fractures facilitate a short recovery period and a good prognosis for return to normal function in cats.
Descriptors: cats injuries, cats surgery, femur head injuries, hip fractures, lameness, animal surgery, bone wires, epiphyses injuries, epiphyses, femoral neck fractures surgery, femoral neck fractures, femur head, femur neck injuries, femur neck, hip fractures radiography, hip fractures surgery, postoperative, retrospective studies, risk factors, treatment outcome.

Flanders, J.A. (1994). **Surgical therapy of the thyroid.** *Veterinary Clinics of North America, Small Animal Practice* 24(3): 607-621. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: dogs, cats, thyroid gland, surgery, thyroidectomy, animal anatomy,

anesthesia, hyperthyroidism, prognosis, postoperative care, postoperative, relapse.
Notes: In the series analytic: Thyroid disorders, edited by Duncan C. Ferguson.

Fossum, T.W. (2001). **Chylothorax in cats: is there a role for surgery?** *Journal of Feline Medicine and Surgery* 3(2): 73-79. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: etiology, chylothorax, medical treatment, respiratory diseases, reviews, surgery, surgical operations, thoracic duct, cats.

Fossum, T.W. (1998). **Surgery of the ear and rear**. *Medical and Surgical Solutions 98: Proceedings 309,* University of Sydney, Post Graduate Foundation in Veterinary Science: Sydney, Australia, p. 107-116. ISBN: 1875582746.
NAL Call Number: SF604.R37no.309
Descriptors: ears, surgery, anesthesia, anesthetics, otitis, radiography, antibiotics, analgesics, hernia, diagnosis, clinical aspects, ultrasonography, differential diagnosis, anatomy, surgical operations, postoperative care, perineum, cats.

Fossum, T.W. (1998). **Peritonitis/surgical techniques to avoid intestinal leakage**. *Medical and Surgical Solutions 98,* Vol. 309, Post Graduate Foundation in Veterinary Science: Sydney, Australia: University of Sydney, p. 135-141. ISBN: 1875582746.
NAL Call Number: SF604.R37no.309
Descriptors: intestines, techniques, surgery, peritonitis, diagnosis, clinical aspects, radiography, ultrasonography, peritoneum, differential diagnosis, biopsy, intestinal diseases, cats.
Notes: The Professor KVF Jubb refresher course for veterinarians. Proceedings 309, Carlton Crest Hotel, Melbourne, Australia, 10-14 August 1998.

Fossum, T.W. (1998). **Thoracic surgery - diseases that you need to know how to treat!** *Medical and Surgical Solutions 98,* Post Graduate Foundation in Veterinary Science: Sydney, Australia: University of Sydney, p. 169-177. ISBN: 1875582746.
NAL Call Number: SF604.R37no.309
Descriptors: surgery, thorax, respiratory diseases, antibiotics, abscesses, differential diagnosis, radiography, ultrasonography, diagnosis, postoperative care, lungs, torsion, dogs, cats.

Fossum, T.W. (1998). **Surgical diseases of the lung and chest wall: new developments in the treatment of pneumothorax**. *Veterinary Quarterly* 20(Supplement1): S10-S11. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: thorax, respiratory diseases, thoracic cavity, surgery, pneumothorax, neoplasms, trauma, congenital abnormalities cats.

Fossum, T.W. (1997). ***Small Animal Surgery***, Vol. XV, Mosby: St. Louis, MO, USA, 1536 p. ISBN: 0323012388.
NAL Call Number: SF911.F67 2002
Descriptors: veterinary medicine, small animal practice, surgery, cats.
Notes: A new approach to surgery is offered here, ranging from elementary operating

room procedure to obscure surgical conditions, by way of the operations commonly performed on dogs and cats. The book is remarkable for over 1500 illustrations in colour (drawings and photographs), with much tabulated information (coloured blue), and a text which utilises green type for headings, and yellow panels for special notes. It is divided into sections on general surgical principles, soft tissue surgery, orthopaedics and neurosurgery. Unlike most books on surgery, anaesthesia is included in the preparations for surgery.

Fossum, T.W. and C.S. Hedlund (2003). **Gastric and intestinal surgery**. *Veterinary Clinics of North America, Small Animal Practice* 33(5): 1117-1145. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: large intestine, small animal practice, small intestine, stomach, surgery, surgical operations, cats.

Fossum, T.W., M. Miller, and M. Willard (1998). *Medical and surgical solutions 98: The Professor KVF Jubb Refresher Course for Veterinarians. Proceedings 309, August 10, 1998-August 14, 1998, Carlton Crest Hotel, Melbourne, Australia,* University of Sydney, Post Graduate Foundation in Veterinary Science: Sydney, Australia, Vol. 309, 271 p. ISBN: 1875582746.
NAL Call Number: SF604.R37no.309
Descriptors: diseases of dogs and cats, diagnostics, pancreatitis, portosystemic shunts, gastric dilation volvulus, tracheal collapse, cardiomyopathy.

Fujiki, M. (2004). **Intra- and postoperative control in surgery for intervertebral disc herniation in dogs and cats**. *Journal of Veterinary Medicine, Japan* 57(4): 207-212. ISSN: 0447-0192.
Descriptors: intervertebral discs, surgery, cats.
Language of Text: Japanese.

Ganesh, T.N., S. Dharmaceelan, S. Ayyappan, N.N. Balasubramanian, and S.R. Pattabiraman (1999). **Incidence of surgical conditions in dogs and cats - a retrospective study**. *Indian Veterinary Journal* 76(2): 156-157. ISSN: 0019-6479.
NAL Call Number: 41.8 IN2
Descriptors: surgery, cats, dogs.

Garnier, E. (2000). **La biopsie hepatique chirurgicale par laparotomie chez les carnivores domestiques [Surgical liver biopsy via laparotomy in dogs and cats**. *Le Point Veterinaire* 31(209): 79-81. ISSN: 0303-4997.
Descriptors: liver, biopsy, laparotomy, liver diseases, diagnosis, cats.
Language of Text: French.

Garnier, E. and M. Giry (2002). **Sutures en chirurgie uretrale chez le chien et le chat [Sutures used in urethral surgery in dogs and cats]**. *Le Point Veterinaire* 33(228): 56-57. ISSN: 0303-4997.
Descriptors: surgical operations, sutures, urethra, cats.
Language of Text: French.

Gavin, P.R., J.R. Fike, and P.J. Hoopes (1995). **Central nervous system tumors.** *Seminars on Veterinary Medical Surgery of Small Animals* 10(3): 180-189. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: dogs, cats, neoplasms, central nervous system, radiotherapy, metastasis, computed tomography, imagery, dosage, necrosis, anesthesia.

Gelatt, K.N. and J.P. Gelatt (2001). ***Small Animal Ophthalmic Surgery: A Practical Guide for the Practising Veterinarian.***, Butterworth-Heinemann Ltd.: Oxford, UK , 381 p. ISBN: 0750648058.
NAL Call Number: SF992.E92 G46
Descriptors: eye diseases, small animal practice, surgical operations, ophthalmic surgery, veterinarians, surgical anatomy, postoperative.

Gibson, K.L., A.W. Donald, H. Hariharan, and C. McCarville (1997). **Comparison of two pre-surgical skin preparation techniques**. *Canadian Journal of Veterinary Research* 61(2): 154-156. ISSN: 0830-9000.
NAL Call Number: SF601 .C24
Descriptors: skin, antiseptics, surgery, antibacterial agents, pets, antiinfective agents, chlorhexidine.
Language of Text: English; Summary in French.

Gibson, T.W., B.A. Brisson, and W. Sears (2005). **Perioperative survival rates after surgery for diaphragmatic hernia in dogs and cats: 92 cases (1990-2002).** *Journal of the American Veterinary Medical Association* 227(1): 105-9. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Abstract: OBJECTIVE: To determine the survival rates of dogs and cats that underwent surgical treatment for traumatic diaphragmatic hernia within 24 hours of admission and determine whether timing of surgery affected perioperative survival rate. DESIGN: Retrospective study. ANIMALS: 63 dogs and 29 cats treated surgically for traumatic diaphragmatic hernia. PROCEDURE: Medical records were reviewed to evaluate associations between perioperative survival rates and variables including timing of surgery in relation to admission and acute versus chronic diaphragmatic hernia. RESULTS: Among the 92 animals, 82 (89.1%) were discharged alive after surgery. Sixty-four (69.6%) patients received surgical intervention within 12 hours of admission, and 84 (91.3%) received surgical intervention within 24 hours of admission. Median time from admission to discharge was 4 days (2 to 33 days). Data for acute cases (68 dogs and cats) were analyzed separately. Sixty-three (92.6%) patients with acute diaphragmatic hernia received surgical intervention within 24 hours of admission to the hospital, and 59 (93.7%) of these patients were discharged alive. Twenty-nine (42.6%) patients with acute diaphragmatic hernia received surgical intervention within 24 hours of trauma, and 26 of 29 (89.7%) patients were discharged alive. An overall acute and chronic perioperative survival rate of 89.7% was observed in dogs and cats that received surgical intervention within 24 hours of admission. CONCLUSIONS AND CLINICAL RELEVANCE: Results in 68 dogs and cats that underwent surgery within 24 hours of admission suggested that early surgical intervention for acute diaphragmatic hernia was associated with good perioperative survival rates.
Descriptors: cats, surgery, diaphragmatic hernia, survival rates.

Gilson, S.D. (1998). ***Self-Assessment Colour Review of Small Animal Soft Tissue Surgery.***, Iowa State University Press: Ames, Iowa, 192 p. ISBN: 1874545642.
NAL Call Number: SF981.G55
Descriptors: veterinary medicine, surgery, case studies, questions and answers, splenomegaly, diaphragmatic hernia, urethro-rectal fistula, elongated soft palate, testicular torsion, neoplasms.

Gilson, S.D. (1998). **Principles of surgery for cancer palliation and treatment of metastases**. *Clinical Techniques in Small Animal Practice* 13(1): 65-69. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: surgery, neoplasms, metastasis, diagnosis, cats.

Giry, M. and L. Dejardin (1994). **Techniques chirurgicales de l'intestin grele. [Surgical techniques for the small intestine]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 29(6, Supplement): 695-707. ISSN: 0758-1882.
Descriptors: small intestine, techniques, surgery, surgical operations, anastomosis, postoperative, intestinal diseases, cats.
Language of Text: French with a summary in English.

Glover, T.D. and G.M. Constantinescu (1997). **Surgery for cataracts**. *Veterinary Clinics of North America, Small Animal Practice* 27(5): 1143-1173. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: anatomy, prostheses, surgical operations, surgical instruments, cataract, surgery, cats.

Goldstein, I.M., P. Ostwald, A. Pachnanda, and S. Roth (1995). **Effects of nitric oxide synthase inhibition of blood flow and recovery of the electroretinogram after retinal ischemia in cats**. *Investigative Ophthalmology and Visual Science* 36(4): S116. ISSN: 0146-0404.
Descriptors: cardiovascular system, cats, sense organs, electroretinogram, retinal ischemia, sensory reception, hyperemia, nitric oxide sythase, opHthalmology .

Gores, B.R., J. Berg, J.L. Carpenter, and M.G. Aronsohn (1994). **Surgical treatment of thymoma in cats: 12 cases (1987-1992).** *Journal of the American Veterinary Medical Association* 204(11): 1782-1785. ISSN: 0003-1488.
Online: CITATION NOTES: US (United-States)
NAL Call Number: 41.8 Am3
Descriptors: cats, lymphatic system, neoplasms, excision, pathogenesis, case studies, animal morphology, cardiovascular system, organic diseases, surgical operations, thymus gland, prognosis, relapse, metastasis .

Gourley, I.M.G.C.R.P.B.V.A. (1995). ***Atlas of Small Animal Surgery. [Testo Atlante Di Chirurgia Dei Piccoli Animali.]***, Vol. IX, Unione Tipografico-Editrice Torinese: Torino, Italy
, 301 p. ISBN: 8802048797.
Descriptors: veterinary medicine, small animal practice, surgery .
Language of Text: Italian.

Notes: A translation into Italian of the English text published by Gower Medical Publishing (New York) in 1992.

Greenfield, C.L., A.L. Johnson, L. Klippert, and L.L. Hungerford (1995). **Veterinary student expectations and outcomes assessment of a small animal surgical curriculum**. *Journal of the American Veterinary Medical Association* 206(6): 778-782. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: assessment, curriculum, education, small animal practice, dogs, cats.

Gregory, S. (2003). **Surgical management of urinary calculi in dogs and cats**. *Veterinary Times* 33(15): 14-15. ISSN: 1352-9374.
Descriptors: diagnosis, surgery, surgical operations, urinary calculi, urolithiasis, cats.

Grosenbaugh, D. and W. Muir (2002). **Oximetria de pulso. [Pulse oximetry in small animal surgery.]**. *Selecciones Veterinarias* 10(1): 38-42. ISSN: 0327-859X.
Descriptors: surgery, cats.
Language of Text: Spanish.

Gueiros, V.A., A.P. Borges, J.C. da Silva, T.S. Duarte, and K.L. Franco (2001). **Utilization of the methyl-2-cyanoacrylate adhesive and the nylon suture in surgical skin wounds of dogs and cats [Utilizacao do adesivo metil-2-cianoacrilato e fio de nailon na reparacao de feridas cutaneas de caes e gatos]**. *Ciencia Rural* 31(2): 285-289. ISSN: 0103-8478.
NAL Call Number: S192. R4
Descriptors: adhesives, experimental surgery, nylon, skin, surgery, surgical instruments, sutures, cats, dogs.
Language of Text: Portuguese; Summary in English.

Guenego, L., R. Gautier, F. Fauqueux, and A. Madelenat (1999). **Traitement de l' hyperthyroidie feline: description d' un protocole et d' une technique chirurgicale simplifiee [Treatment of feline hyperthyroidism: protocol and simplified surgical technique description]**. *Le Point Veterinaire* 30(202): 31-35. ISSN: 0303-4997.
Descriptors: cats, thyroid gland, endocrine diseases, therapy, surgical operations, animal glands, body parts, endocrine glands, organic diseases.
Language of Text: French.

Guenego, L., R. Gautier, F. Fauqueux, and A. Madelenat (2003). **Trattamento dell'ipertiroidismo felino: descrizione di un protocollo e di una tecnica chirurgica semplificata. [Treatment of feline hyperthyroidism: protocol and simplified surgical technique descriptions]**. *Summa* 20(7): 21-26.
Descriptors: endocrine diseases, hyperthyroidism, hypoparathyroidism, parathyroid diseases, postoperative, resection, surgery, surgical operations, thyroid diseases, thyroid gland, thyroid hormones, thyroidectomy, transplants, cats.
Language of Text: Italian; Summary in English.

Guenego, L., R. Gautier, F. Fauqueux, and A. Madelenat (1999). **Traitement de l'hyperthyroidie feline: description d'un protocole et d'une technique chirurgicale**

simplifiee [Treatment of feline hyperthyroidism: description of the protocol and a simplified surgical technique]. *Le Point Veterinaire* 30(202): 551-555. ISSN: 0303-4997.
Descriptors: treatment, surgery, hyperthyroidism, thyroid diseases, endocrine diseases, radiotherapy, cats.
Language of Text: French with a summary in English.

Guptill, L., C.R. Scott Moncrieff, E.B. Janovitz, W.E. Blevins, S.E. Yohn, and D.B. DeNicola (1995). **Response to high-dose radioactive iodine administration in cats with thyroid carcinoma that had previously undergone surgery.** *Journal of the American Veterinary Medical Association* 207(8): 1055-1058. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, radiotherapy, radioisotopes, iodine, carcinomas, thyroid gland, surgical operations, endocrine diseases, pathogenesis, thyroxine, case studies, amino acids, animal glands, body parts, disease control, elements, endocrine glands, halogens, hormones, isotopes, neoplasms, nonmetals, organic diseases, therapy, thyroid hormones, thyroidectomy, hyperthyroidism, I thyroxine.

Hara, Y. (2003). **Coping with non-union of fractures in small animals in the plastic surgery field**. *Journal of Veterinary Medicine, Japan* 56(9): 752-757. ISSN: 0447-0192.
Descriptors: fractures, plastic surgery, surgery, tissue repair, cats.
Language of Text: Japanese.

Harari, J. (1996). ***Small Animal Surgery.***, National Veterinary Medical Series, Vol. XV, Williams & Wilkins: Baltimore, MD, 353 p. ISBN: 0683039105.
NAL Call Number: SF911.S5
Descriptors: veterinary medicine, orthopedics, surgical operations, surgery, students, neurosurgery, soft tissue surgery, general surgery, examination questions, USA Clinical Competency Test, National Boards.

Harari, J. (2002). ***Topics in Feline Surgery***, 4th edition, Vol. XII, W.B. Saunders: Philadelphia, Pennsylvania, 1004 p.
NAL Call Number: SF601 .V523 v.32 no.4
Descriptors: cats, surgery, diseases, treatment.

Hardie, E.M. (1996). **General abdominal surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention,* Williams & Wilkins: Baltimore, Maryland, USA, p. 333-364.
NAL Call Number: SF991.C68
Descriptors: surgical operations, haematoma, infection, adhesions, peritonitis, abdomen, postoperative, cats.

Hardie, E.M., G.J. Spodnick, S.D. Gilson, J.A. Benson, and E.C. Hawkins (1999). **Tracheal rupture in cats: 16 cases (1983-1998).** *Journal of the American Veterinary Medical Association* 214(4): 508-512. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, trachea, rupture, tubes, anesthesia, air, volume, endotracheal tubes, cuff inflation.

Hawkins, E.C. and T.W. Fossum (2000). **Medical and surgical management of pleural effusion**. In: J.D. Bonagura (Editor), *Kirk' s Current Veterinary Therapy XIII: Small Animal Practice*, W.B. Saunders: Philadelphia, USA, p. 819-825. ISBN: 0721655238.
Descriptors: pleura, surgery, treatment, respiratory diseases, diagnosis, lungs, chylothorax, chyle, neoplasms, cats.

Hedlund, C.S. (1999). **Surgery of the nasal cavity and sinuses**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 621-627. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: surgery, nose, sinuses, neoplasms, cats, *Pneumonyssoides caninum*, *Linguatula serrata*.

Henry, C.J. (1999). **Surgery and adjuvant therapy of sarcomas: Vaccine-associated feline sarcoma.** In: *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association*, Vol. 13, p. 399-400.
Descriptors: cats, sarcoma, vaccination, treatment.
Notes: Meeting held on January 9-13, 1999 in Orlando, Florida.

Hoelzler, M.G. and D.A. Lidbetter (2004). **Surgical management of urinary incontinence**. *Veterinary Clinics of North America, Small Animal Practice* 34(4): 1057-1073. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: surgery, surgical operations, ureter, urethra, urinary incontinence, urinary tract, urination, urination disorders, cats.

Holt, D. (2004). **Bite wounds: A potential surgical emergency**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 18: 1164-1166.
Descriptors: antibiotics, bites, clinical aspects, healing, inflammation, surgery, wound treatment, wounds, cats, dogs.

Holt, D. (1996). **The bite wound patient: A potential surgical emergency**. *Proceedings and abstracts 21st Congress of the World Small Animal Veterinary Association, October 20, 1996, Jerusalem, Israel*, World Small Animal Veterinary Association: Jerusalem, Israel, p. 71-72.
Online: www.wsava.org
NAL Call Number: 41.8 J8292
Descriptors: infection, therapy, surgery, wounds, bites, cats, dogs.

Holt, D.E. (2003). **Preparing the patient for surgery**. In: *Scientific Proceedings Veterinary Programme: British Small Animal Veterinary Association 46th Annual Congress, April 3, 2003-April 6, 2003, Birmingham, UK*, British Small Animal Veterinary Association: Quedgeley, UK, p. 250-252.
Online: www.bsava.com
NAL Call Number: 41.8 J8292
Descriptors: preoperative care, surgery, cats.

Holt, D.E., C.G. Schelling, H.M. Saunders, and R.J. Orsher (1995). **Correlation of ultrasonographic findings with surgical, portographic, and necropsy findings in dogs and cats with portosystemic shunts: 63 cases (1987-1993).** *Journal of the American Veterinary Medical Association* 207(9): 1190-3. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Abstract: Results of abdominal ultrasonography in 63 dogs and cats with suspected congenital portosystemic shunts (PSS) were compared with surgical, portographic, and necropsy findings. True-positive ultrasonographic results were found in 33 animals, and 2 animals had false-positive results for detection of single extrahepatic PSS. In 4 animals, results were true negative and in 8 animals, were false-negative for detection of extrahepatic PSS. The false-negative rate decreased substantially with operator experience. The sensitivity of ultrasonography for detection of extrahepatic PSS in these animals was 80.5%, and the specificity was 66.7%. In 5 other animals, ultrasonographic examination was strongly suggestive of the existence of a shunt, but the vessel could not be definitively imaged. All 5 animals had single extrahepatic shunts. Eleven animals had true-positive results for detection of intrahepatic PSS. One animal had false-positive ultrasonographic results for intrahepatic PSS, but an extrahepatic shunt was diagnosed at surgery. The sensitivity of ultrasonography for detection of intrahepatic PSS was 100%.
Descriptors: cats abnormalities, dogs abnormalities, portal system abnormalities, breeding, cats surgery, dogs surgery, liver ultrasonography, portal system surgery, portal system ultrasonography, portography, retrospective studies, sensitivity and specificity, ultrasonography, doppler, duplex.

Hosgood, G. and J.D. Hoskins (1998). ***Small Animal Paediatric Medicine and Surgery.***, 1st edition, Butterworth-Heinemann: Boston, MA, 316 p. ISBN: 0750635991.
NAL Call Number: SF991.H588
Descriptors: young animal diseases, congenital abnormalities, small animal practice, kittens, surgery, hereditary diseases, medicine, diagnostic techniques, inherited defects, breeds.

House, A. and D. Brockman (2004). **Emergency management of the acute abdomen in dogs and cats. 2. Surgical treatment**. *In Practice* 26(10): 530-537. ISSN: 0263-841X.
NAL Call Number: SF601.I4
Descriptors: abdomen, etiology, analgesics, antibiotics, diagnosis, digestive system diseases, emergencies, fluid therapy, foreign bodies, intussusception, neoplasms, nutritional support, pain, peritonitis, postoperative care, surgery, surgical operations, therapy, trauma, wounds, cats.

Howe, L.M. (1997). **Short-term results and complications of prepubertal gonadectomy in cats and dogs.** *Journal of the American Veterinary Medical Association* 211(1): 57-62. ISSN: 0003-1488.
NAL Call Number: 41.8 AM3
Abstract: OBJECTIVE: To determine short-term results and complications of prepubertal gonadectomy in cats and dogs. DESIGN: Prospective randomized study. ANIMALS: 775 cats and 1,213 dogs. PROCEDURE: Animals undergoing gonadectomy were allotted into 3 groups on the basis of estimated age (group 1, < 12 weeks old; group 2, 12 to 23 weeks old; group 3, > or = 24 weeks old). Complications during anesthesia,

surgery, and the immediate postoperative period (7 days) were recorded. Complications were classified as major (required treatment and resulted in an increase in morbidity or mortality) or minor (required little or no treatment and caused a minimal increase in morbidity). An ANOVA was used to detect differences among groups in age, weight, body temperature, and duration of surgery. To detect differences in complication rates among groups, chi 2 analysis was used. RESULTS: Group 1 consisted of 723 animals, group 2 consisted of 532, and group 3 consisted of 733. Group-3 animals had a significantly higher overall complication rate (10.8%) than group-1 animals (6.5%), but did not differ from group-2 animals (8.8%). Differences were not detected among the 3 groups regarding major complications (2.9, 3.2, and 3.0% for groups 1, 2, and 3, respectively), but group-3 animals had significantly more minor complications (7.8%) than group-1 animals (3.6%), but not group-2 animals (5.6%). CLINICAL IMPLICATIONS: In this study, prepubertal gonadectomy did not increase morbidity or mortality on a short-term basis, compared with gonadectomy performed on animals at the traditional age. These procedures may be performed safely in prepubertal animals, provided that appropriate attention is given to anesthetic and surgical techniques.
Descriptors: cats surgery, dogs surgery, hysterectomy, orchiectomy, ovariectomy, age factors, hysterectomy, orchiectomy, ovariectomy, population control, postoperative, prospective studies, random allocation, time factors.

Igna, C., S. Bolte, A. Sala, L. Schuszler, D. Padurean, and I. Susa (1998). **Aspecte terapeutice in chirurgia tubului digestiv [Therapeutic aspects in surgery of the digestive tract]**. *Revista Romana De Medicina Veterinara* 8(1): 59-65. ISSN: 1220-3173.
Descriptors: surgery, intestines, suture techniques, postoperative, surgical operations, sutures, digestive system, cattle, horses, sheep, pigs, dogs, cats.
Language of Text: Romanian with summaries in French and English.

Igna, C., S. Bolte, I. Susa, D. Padurean, L. Schuszler, and A. Sala (1997). **Aspecte de diagnostic in chirurgia abdominala [Diagnostic aspects of abdominal surgery]**. *Revista Romana De Medicina Veterinara* 7(4): 455-460. ISSN: 1220-3173.
Descriptors: diagnosis, surgery, abdomen, cattle, horses, sheep, pigs, cats.
Language of Text: Romanian with summaries in French and English.

Ionascu, I. and I. Miclaus (2004). **Traumatic cataract in cats - clinical aspects and surgical therapy.** *Clinica veterinaria 2004: Proceedings of the Sixth International Symposium in Animal Clinical Pathology and Therapy, June 14, 2004-June 18, 2004, Belgrade, Serbia*, Series . (Editor), Faculty of Veterinary Medicine.: Belgrade, Serbia, p. 280-281. ISBN: 8681043196.
Abstract: Cataract is any opacity within the lens of the eye or its capsule. Cataract interferes with light reaching the retina and results in loss of vision and blindness, if affecting a significant portion of the lens. After trauma of the head or penetrated corneal wounds, traumatic cataract may occur. Because of the changing of colour and its aspect, the traumatic cataract in cats can be easily diagnosed. In this issue the clinical aspects and the surgical treatment of traumatic cataract in cats, are presented.
Descriptors: cats, cataract, lesions, ultrasonics, surgical operations, eye diseases.

Ionascu, I. and I. Miclaus (2004). **Cataract surgery by phacoemulsification in cats.** In: *Clinica veterinaria 2004: Proceedings of the Sixth International Symposium in Animal Clinical Pathology and*

Therapy, June 14, 2004-June 18, 2004, Budva, Faculty of Veterinary Medicine.: Belgrade (Serbia and Montenegro), p. 283-284. ISBN: 8681043196.
Abstract: Cataract surgery using current phacoemulsification techniques offers a number of attractive beefits to both surgeon and patient. The principal advantages are: smaller incision size, which decreases the amount of tissue injury, reduces the amount of postoperative pain and inflammation, minimal loss of endothelial cells and corneal oedema. The protective properties of viscoelastic substances have in turn enhanced intraoperative safety surgeon control, minimizing iris trauma, capsule tears and the possibility of intraoperative suprachoroidal hemorrhage by maintaining a pressurized surgical environment. The main operative steps in phacoemulsifications are: clear corneal limbus incision, capsulotomy, capsulorhexis, phacofragmentation, phacoemulsification and aspiration, corneal limbus suture.
Descriptors: cats, cataract, surgical operations, carnivora, eye diseases, organic diseases.

Isola, M., M. Bue, and S. Bernacchia (1995). **Plastiche cutanee ed innesti peduncolati nella chirurgia dei piccoli animali [Plastic surgery and skin grafting in small animals]**. *Praxis Veterinaria Milano* 16(3): 5-9.
Descriptors: surgery, plastic surgery, reviews, skin grafting, cats.
Language of Text: Italian.

Jeffery, N.D. (1995). ***Handbook of Small Animal Spinal Surgery: A Practitioiner's Guide***, Vol. VII, W.B. Saunders Co.: Philadelphia, PA, 236 p. ISBN: 0702016888.
NAL Call Number: SF911.J43
Descriptors: radiography, contrast media, congenital abnormalities, fractures, dislocations, neoplasms, trauma, nervous system diseases, spinal cord, surgical operations, postoperative care, therapy, spine, spinal diseases, surgery, cats.

Jens, B. and D.E. Bjorling (2001). **Suture selection for lower urinary tract surgery in small animals**. *Compendium on Continuing Education for the Practicing Veterinarian* 23(6): 524-531. ISSN: 0193-1903.
NAL Call Number: SF601. C66
Descriptors: bladder, breaking strength, cysts pathological, degradation, healing, inflammation, surgical operations, suture, suture techniques, tensile strength, tissue repair, tissues, ureter, urethra, urinary calculi, urinary tract, urine, cats, dogs, Escherichia coli, guineapigs, Proteus mirabilis.

Johnson, L. (2000). **Tracheal collapse: diagnosis and medical and surgical treatment**. *Veterinary Clinics of North America, Small Animal Practice* 30(6): 1253-1266. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: trachea, diagnosis, surgery, treatment, collapse, dogs, cats.

Johnston, K.L., A. Lamport, O. Ballevre, and R.M. Batt (1999). **A comparison of endoscopic and surgical collection procedures for the analysis of the bacterial flora in duodenal fluid from cats.** *Veterinary Journal* 157(1): 85-89. ISSN: 1090-0233.
NAL Call Number: SF601.V484
Abstract: In order to assess an endoscopic collection procedure, populations of bacteria

in duodenal fluid from seven adult cats were compared in paired samples obtained by endoscopy and direct needle aspiration during laparotomy. Each sample of duodenal juice was subjected to quantitative and qualitative culture of bacteria under both aerobic and anaerobic conditions. There were no significant differences in total numbers or individual species of bacteria comparing the two collection procedures. These findings indicate that collection of duodenal juice by endoscopy using the procedure described provides a representative sample of small bowel fluid for the assessment of the bacterial flora. Therefore, there appears to be no need for more invasive or complicated sampling techniques when quantitative and qualitative culture of duodenal juice is indicated as part of an investigation of small bowel disease in cats.
Descriptors: body fluids, cats, duodenum, gastrointestinal endoscopy, specimen handling, suction, aerobic bacteria.

Jongh, O. (2003). **Indications operatoires et bilan pre-operatoire de la chirurgie de la cataracte [Operative indications and pre-operative assessment for cataract surgery]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 38(3): 205-212. ISSN: 0758-1882.
NAL Call Number: SF981.A5
Descriptors: etiology, cataract, diagnosis, eye diseases, eyes, cats.
Language of Text: French with a summary in English.

Julier Franz, A., M. Kramer, S. Schleicher, M. Gerwing, E. Schimke, and S. Tacke (2002). **Die chirurgische Versorgung der Luxatio capitis ossis femoris bei Hund und Katze mit einem Kirschner Bohrdraht [The surgical treatment of the coxofemoral luxation with a transarticular pin in dogs and cats]**. *Kleintierpraxis* 47(4): 221-230. ISSN: 0023-2076.
NAL Call Number: 41.8 K67
Descriptors: femur, pelvis, surgical operations, cats.
Language of Text: German; Summary in English.

Kajikawa, T., A. Furuta, T. Onishi, T. Tajima, and S. Sugii (1999). **Changes in concentrations of serum amyloid A protein, alpha 1-acid glycoprotein, haptoglobin, and C-reactive protein in feline sera due to induced inflammation and surgery.** *Veterinary Immunology and Immunopathology* 68(1): 91-8. ISSN: 0165-2427.
NAL Call Number: SF757.2. V38
Abstract: To identify candidates for feline acute phase proteins, the concentrations of serum amyloid A protein (SAA), alpha 1-acid glycoprotein (alpha 1-AG), C-reactive protein (CRP), and haptoglobin (Hp) were measured in sera isolated from clinically normal and hospitalized (or diseased) cats, from cats with experimentally induced inflammation, and cats subjected to surgery for urinary diversion. Measurements were made by sandwich enzyme-linked immunosorbent assay and single radial immunodiffusion. The concentrations of SAA, alpha 1-AG, and Hp in sera from hospitalized cats were 7-11 times higher than in clinically normal cats. Similar results were obtained for the concentrations of SAA, alpha 1-AG, and Hp in cats with induced inflammation and cats subjected to surgery. By contrast, the serum concentration of feline CRP did not change significantly between clinically normal cats and hospitalized cats or inflammation-induced or post-surgery cats. Feline SAA concentration was found

to increase earliest, with alpha 1-AG and Hp beginning to increase thereafter. From these results, feline SAA is concluded to be an acute phase reactant at the early stage of inflammation.
Descriptors: c reactive protein analysis, cats, haptoglobins analysis, orosomucoid analysis, serum amyloid a protein analysis, inflammation, urinary diversion.

Kendik, Z. (1994). **A kisallatok csontsebeszetenek alapjai I. A velourszegezes, tuzodrot es drothurok technikak [Fracture surgery in small animals. I. Intramedullar pins, cerclage and tension band wire]**. *Kisallatvorvoslas* 1(1): 5-10.
Descriptors: surgery, fracture fixation, cats.
Language of Text: Hungarian.

King, G.K., K.M. Yates, P.G. Greenlee, K.R. Pierce, C.R. Ford, B.H. McAnalley, and I.R. Tizard (1995). **The effect of acemannan immunostimulant in combination with surgery and radiation therapy on spontaneous canine and feline fibrosarcomas**. *Journal of the American Animal Hospital Association* 31(5): 439-447. ISSN: 0587-2871.
NAL Call Number: SF601. A5
Descriptors: surgery, radiotherapy, immunostimulation, combination therapy, adjuvants, neoplasms, survival, immunostimulants, immunotherapy, sarcoma, cats.

Kirk, D. (2005). **New advance in cancer treatment could offer alternative to surgery**. *Veterinary Times* 35(2): 8. ISSN: 1352-9374.
Descriptors: antibiotics, electric current, electrical stimulation, electricity, neoplasms, surgery, therapy, cats.

Kirpensteijn, J. and C.D. van Zuilen (1995). **Oncological surgical emergencies**. *Veterinary Clinics of North America, Small Animal Practice* 25(1): 207-223. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: physiopathology, postoperative care, neoplasms, surgery, emergencies, cats.

Kishigami, M. (2000). **Techniques in plastic surgery using specially developed appliances. Conclusion**. *Journal of Veterinary Medicine, Japan* 53(4): 317. ISSN: 0447-0192.
Descriptors: fracture fixation, surgical equipment, apparatus, surgical instruments, cats.
Language of Text: Japanese.

Koch, D.A. and P.M. Montavon (1998). **Eine chirurgische Methode zur Stabilisation von traumatischen Subluxationen, Luxationen und Frakturen der Brust- und Lendenwirbelsaule bei Hunden und Katzen. [A surgical method for the stabilization of traumatic subluxation, luxation and fractures of the thoracic and lumbar vertebrae in dogs and cats]**. *Schweizer Archiv Fur Tierheilkunde* 140(10): 413-8. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Abstract: A dynamic fixation technique, that is technically easy and requires a minimal instrumentarium, is described for the treatment of subluxations, luxations and fractures of the thoracic and lumbar vertebral column in dogs and cats. Results of its application in 34 dogs and three cats are reported.

Descriptors: cats injuries, dislocations, dogs injuries, spinal fractures, spinal injuries, cats surgery, dislocations surgery, dogs surgery, fracture fixation, fracture fixation, lumbar vertebrae injuries, spinal fractures surgery, spinal injuries surgery, thoracic vertebrae injuries.
Language of Text: German.

Koch, D.A. and P.M. Montavon (1998). **Eine chirurgische Methode zur Stabilisation von traumatischen Subluxationen, Luxationen und Frakturen der Brust- und Lendenwirbelsaule bei Hunden und Katzen. [A surgical method for stabilisation of traumatic subluxations, luxations and fractures of the thoracic and lumbar vertebral column in dogs and cats]** . *Schweizer Archiv Fur Tierheilkunde* 140(10): 413-418. ISSN: 0036-7281.
NAL Call Number: 41.8 SCH9
Descriptors: fractures, trauma, spinal diseases, surgery, fracture fixation, dislocations, cats.
Language of Text: German with a summary in English and French.

Kogovsek, J. (2002). **Kirursko zdravljenje mack s pretrganimi kolenskimi kriznimi vezmi s tehniko po Schawalderju [Surgical treatment of cats with ruptured knee joint ligaments according to Schawalder's technique]**. *Veterinarske Novice* 28(11): 457-459. ISSN: 0351-5842.
Descriptors: joint diseases, ligaments, surgery, cats.
Language of Text: Slovenian with a summary in English.

Kramer, M. (2004). ***Kompendium Der Allgemeinen Veterinarchirurgie. [Compendium of General Veterinary Surgery]***, Schlutersche GmbH & Co. KG, Verlag und Druckerei: Hannover, Germany, 350 p.
Descriptors: veterinary medicine, students, small animal surgery, shock, anesthesia, wound treatment.
Language of Text: German; Summary in English.

Kyles, A.E., M. Aronsohn and E.A. Stone (1996). **Urogenital surgery** . *Complications in Small Animal Surgery: Diagnosis, Management, Prevention,* Williams & Wilkins: Baltimore, Maryland, USA, p. 455-525.
NAL Call Number: SF991.C68
Descriptors: urolithiasis, biopsy, ureter, kidney diseases, urethra, pyometra, cryptorchidism, urogenital system, postoperative, surgery, cats, dogs.

Kyles, A.E., E.A. Stone, J. Gookin, K. Spaulding, E.M. Clary, K. Wylie, and G. Spodnick (1998). **Diagnosis and surgical management of obstructive ureteral calculi in cats: 11 cases (1993-1996).** *Journal of the American Veterinary Medical Association* 213(8): 1150-1156. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, ureter, urolithiasis, calcium, oxalates, diagnosis, radiography, ultrasonics, echography, surgical operations, pathogenesis, alkaline earth metals, analytical, body parts, elements, metallic elements, organic acid salts, organic diseases, radiation, salts, sound, urinary tract, urinary tract diseases, urogenital system, ureteroliths,

pyelotomy, ureterotomy, ureterectomy, ureteroneocystostomy, clinical aspects, ultrasonography, postoperative care, prognosis .

Lackner, P.A. (2001). **Techniques for surgical correction of adnexal disease**. *Clinical Techniques in Small Animal Practice* 16(1): 40-50. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: cornea, eyelids, surgical operations, cats.

Laitinen, O. (2001). **Kirurgisten haavainfektioiden profylaksia koirilla ja kissoilla [Prophylaxis in surgical wound infections in dogs and cats]**. *Suomen Elainlaakarilehti* 107(4): 220-224. ISSN: 0039-5501.
NAL Call Number: 41.8 F49
Descriptors: anesthesia, antibiotics, bacterial diseases, hygiene, nosocomial infections, prophylaxis, wounds, cats, dogs.
Language of Text: Finnish with a summary in English.

Lantz, G.C. (1996). **Surgical correction of unusual temporomandibular joint conditions**. In: R.B. Ford (Editor), *Head and Neck Medicine and Surgery in Small Animal Practice*, 2nd edition, Veterinary Learning Systems Inc.: Trenton, USA, p. 284-288. ISBN: 1884254241.
NAL Call Number: SF911. H42
Descriptors: surgery, joint diseases, jaws, cats.

Lanz, O.I. and B.C. Wood (2004). **Surgery of the ear and pinna**. *Veterinary Clinics of North America, Small Animal Practice* 34(2): 567-599. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: ablation, clinical aspects, diagnosis, ear diseases, ears, haematoma, postoperative, resection, reviews, surgery, surgical operations.

Lappin, M.R. (2003). **Medicine and surgery of the feline respiratory tract - Parts 1 & 2**. In: *Scientific Proceedings Veterinary Programme, April 3, 2003, Birmingham, UK*, British Small Animal Veterinary Association 46th Annual Congress: Quedgeley, UK, p. 269-278.
Online: www.bsava.com
NAL Call Number: 41.8 J8292
Descriptors: bacterial diseases, diagnosis, mycoses, respiration, surgical operations, trauma, cats.

Lappin, M.R. (2003). **Medicine and surgery of the feline GI tract - Parts 1 & 2**. In: *Scientific Proceedings Veterinary Programme: 46th Annual Congress, April 3, 2003-April 6, 2003, Birmingham, UK*, British Small Animal Veterinary Association: Quedgeley, UK, p. 285-293.
Online: www.bsava.com
NAL Call Number: 41.8 J8292
Descriptors: bacterial diseases, diagnosis, diarrhea, digestive disorders, digestive tract, mycoses, parasitism, surgical operations, viral diseases, vomiting, cats.

Liaw BorSong, Chi ChauHwu, and Yeh LihSeng (2003). **Case report: retrospective study of long-term complications after spay surgery in dogs and cats** . *Taiwan Veterinary*

Journal 29(2): 156-161. ISSN: 1682-6485.
NAL Call Number: SF604 .C54
Descriptors: case reports, clinical aspects, ovariectomy, ovaries, postoperative care, postoperative, surgery, uterus, cats.
Language of Text: Chinese wth a summary in English.

Lin ChungTien (2002). **Surgical repair of deep corneal ulcer, descemetocoele, and perforation by conjunctival flap in dogs and cats**. *Taiwan Veterinary Journal* 28(3): 168-174. ISSN: 1682-6485.
NAL Call Number: SF604 .C54
Descriptors: conjunctiva, cornea, eye diseases, eyes, lesions, postoperative, surgical operations, cats.
Language of Text: English with a summary in Chinese.

Lindley, D.M. and S.G. Krohne (1996). **Eyelid, third eyelid, and conjunctival surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Williams & Wilkins: Baltimore, USA, p. 183-193.
NAL Call Number: SF991.C68
Descriptors: surgery, reviews, postoperative, small animal practice, eyes, eyelids, cats.

Lipowitz, A.J. (1996). **Perineal Surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Williams & Wilkins: Baltimore, USA, p. 527-540.
NAL Call Number: SF991.C68
Descriptors: surgery, perineum, postoperative, small animal practice, cats.

Liptak, J.M. (1997). **The principles of surgical oncology**. *Australian Veterinary Practitioner* 27(3): 114-121. ISSN: 0310-138X.
NAL Call Number: SF601.A9
Descriptors: reviews, techniques, treatment, diagnosis, surgery, neoplasms, cats.

Lopez, N.A. (2002). **Using CO2 lasers to perform elective surgical procedures**. *Veterinary Medicine* 97(4): 302-312. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: carbon dioxide, castration, hysterectomy, lasers, small animal practice, surgery, surgical operations, techniques, cats, dogs.

Lorinson, D. and R.M. Bright (1998). **Long-term outcome of medical and surgical treatment of hiatal hernias in dogs and cats: 27 cases (1978-1996).** *Journal of the American Veterinary Medical Association* 213(3): 381-384. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: dogs, cats, hernia, pathogenesis, therapy, surgical operations, disorders, functional disorders, prognosis, medical treatment.

Ludwig, L.L. (2000). **Surgical emergencies of the respiratory system**. *Veterinary Clinics of North America, Small Animal Practice* 30(3): 531-553 . ISSN: 0195-5616.
NAL Call Number: SF601.V 523
Descriptors: emergencies, respiratory system, surgery, pets, respiratory diseases, cats.

Ludwig, L.L.M.M.A., T.K. Graves, and M.S. Crisp (1997). **Surgical treatment of bile peritonitis in 24 dogs and 2 cats: a retrospective study (1987-1994).** *Veterinary Surgery* 26(2): 90-98. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: dogs, cats, bile, peritonitis, surgical operations, symptoms, diagnosis, bilirubin, pathogenesis, lesions, gall bladder, digestive system diseases, survival, body fluids, body parts, digestive system, digestive system diseases, liver, organic diseases, pigments, prognosis, trauma, cholecystitis, sepsis .

M.J.Bojab (Editor) (1998). ***Current Techniques in Small Animal Surgery***, 4th edition, Williams & Wilkins: Baltimore, Maryland, USA, 1340 p. ISBN: 0683008900.
NAL Call Number: SF991.C87 1998
Descriptors: veterinary medicine, small animal practice, pets, surgery, orthopedic surgery.

Maguire, H., M. Torabinejad, D. McKendry, P. McMillan, and J.H. Simon (1998). **Effects of resorbable membrane placement and human osteogenic protein-1 on hard tissue healing after periradicular surgery in cats.** *Journal of Endodontics* 24(11): 720-5. ISSN: 0099-2399.
Abstract: Periradicular surgeries were performed on the maxillary cuspid teeth of twelve cats. Before reapproximation of the surgical flaps, eight of the osteotomies were covered with a resorbable membrane and eight were filled with human osteogenic protein-1 (hOP-1) on a collagen carrier. The remaining eight sites received no further treatment and served as controls. The animals were euthanized after 12 wk, and the specimens were examined histomorphometrically for the presence or absence of osseous regeneration, inflammation, and cementum formation on the root ends. The results showed that the sites treated with the membrane exhibited significantly more inflammation adjacent to the resected root ends ($p < 0.05$), and that the use of the membrane had no statistically significant effect on osseous healing or new cementum formation. The use of hOP-1 was associated with a significant decrease in the thickness of new cementum formed on the resected root ends ($p < 0.05$), but had no statistically significant effect on osseous healing or degree of inflammation. Based on these results, it seems that neither the use of hOP-1 nor resorbable membranes have a positive effect on periradicular tissue healing in endodontic surgery.
Descriptors: absorbable implants, alveolar bone loss surgery, bone morpHogenetic proteins, guided tissue regeneration, periodontal, membranes, artificial, transforming growth factor beta, wound healing, aluminum compounds, bone regeneration, calcium compounds, cats, cementogenesis, collagen, drug combinations, oxides, retrograde obturation, silicates, nonparametric statistics, tooth root surgery.

Mahler, S. and J.Y. Guillo (1999). **Uretrostomie antepubienne chez trois chats et un chien: technique chirurgicale et resultats a long terme. [Antepubic urethrostomy in three cats and a dog: surgical technique and long-term results.]**. *Revue De Medecine Veterinaire* 156(4): 357-362. ISSN: 0035-1555.
NAL Call Number: 41.8 R32
Descriptors: dogs, cats, urethra, surgical operations, urinary tract, urogenital system.
Language of Text: French; Summaries in English and French.

Marino, D.J., J.M. MacDonald, D.T. Matthiesen, and A.K. Patnaik (1994). **Results of surgery in cats with ceruminous gland adenocarcinoma.** *Journal of the American Hospital Association* 30(1): 54-58. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: cats, carcinoma, ears, animal glands, surgical operations, pathogenesis, survival, animal morphology, neoplasms, organic diseases, sense organs, relapse .

Matsunaga, S. (2004). **Control of disseminated intravascular coagulation in surgery on dogs and cats**. *Journal of Veterinary Medicine, Japan* 57(4): 201-205. ISSN: 0447-0192.
Descriptors: blood coagulation disorders, disseminated intravascular coagulation, surgery, cats.
Language of Text: Japanese.

Maurus, Y. (1995). ***Survey of 198 cases of abdominal neoplasms among dogs and cats seen at the Munich Surgical Animal Clinic between 1990 and 1994 [Abdominale Tumoren bei Hund und Katze. Eine retrospektive Studie aus der Chirurgischen Tierklinik Munchen (1990-1994)],208***. Dissertation, Germany: Tierarztliche Fakultat, Ludwig-Maximilians-Universitat, Munchen.
: Munich, Germany.
Descriptors: neoplasms, abdomen, cats.
Language of Text: German with a summary in English.

McCarthy, R.J. (1996). **Surgery of the head and neck**. . *Complications in Small Animal Surgery: Diagnosis, Management, Prevention,* Williams & Wilkins: Baltimore, USA, p. 99-182.
NAL Call Number: SF991.C68
Descriptors: head, neck, surgery, small animal practice, postoperative, cats, dogs.

McLaughlin, R.M. (2002). **Surgical diseases of the feline stifle joint**. *Veterinary Clinics of North America, Small Animal Practice* 32(4): 963-982. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: bone diseases, bone fractures, clinical aspects, diagnosis, stifle, surgery, cats.

McLoughlin, M.A. (2003). **Surgery of the urinary tract** . In: *Diseases of the urinary tract: The 27th Annual Waltham Ohio State University Symposium for the Treatment of Small Animal Diseases, October 4, 2003-October 5, 2003,* Waltham USA, Inc.: Vernon, USA, p. 51-53.
Descriptors: bladder, kidneys, surgery techniques, urinary tract, cats, dogs.

McLoughlin, M.A. (2000). **Surgical emergencies of the urinary tract**. *Veterinary Clinics of North America, Small Animal Practice* 30(3): 581-601 . ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: emergencies, urinary tract, urinary tract diseases, surgery, pets, cats.

Medda, B.K., I.M. Lang, R. Layman, W.J. Hogan, W.J. Dodds, and R. Shaker (1994). **Characterization and quantification of a pharyngo-UES contractile reflex in cats.** *American Journal of Physiology* 267(6 Pt 1): G972-83. ISSN: 0002-9513.
NAL Call Number: 447.8 AM3

Abstract: We characterized and quantified a reflex from the pharyngeal mucosa to the upper esophageal sphincter (UES). Seventeen cats were decerebrated, and the pharynx was exposed by opening the cricothyroid ligament. UES motor activity was assessed by recording electromyographic (EMG) activity from the pharyngeal constrictors, i.e., the thyropharyngeus (TP) and cricopharyngeus (CP). The pharyngeal mucosa was stimulated by touch or pressure. Both stimuli activated contraction of the CP primarily when applied to the naso-, laryngo-, or hypopharynx, but pressure was more effective. The anteromedial portion of the hypopharynx was the most sensitive zone, but there was no strong stimulus-response relationship. The reflex response to a 1-s stimulus occurred at a delay of 0.46 +/- 0.06 s and lasted 4.5 +/- 0.5 s. This pharyngo-UES reflex was blocked by anesthesia of the mucosa or transection of the glossopharyngeal or pharyngoesophageal nerves but not the vagus nerves. In contrast, the esophago-UES contractile reflex was not blocked by anesthesia of the pharyngeal mucosa or transection of the glossopharyngeal nerves but was blocked by transection of either the vagus or pharyngoesophageal nerves. We concluded that the pharyngo-UES contractile reflex was activated by pharyngeal mucosal mechanoreceptors whose afferent limb was the glossopharyngeal nerve and whose efferent limb was the pharyngoesophageal branch of the vagus nerve.
Descriptors: esopHagogastric junction, muscle contraction, pharynx, reflex, cats, deglutition, esopHagogastric junction innervation, glossopHaryngeal nerve, mechanoreceptors, pharynx innervation, vagus nerve.

Meheust, P., K. Sanche, and J.P. Billet (1999). **Rupture complete de la trachee thoracique chez le chat. Traitement chirurgical: a propos d'un cas [Complete thoracic tracheal rupture in cats. Surgical treatment: case report]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 34(6): 717-724. ISSN: 0758-1882.
NAL Call Number: SF981.A5
Descriptors: rupture, surgery, trachea, case reports, treatment, cats.
Language of Text: French with a summary in English.

Meneses, M.C. and M. Serna (2002). **Alternativas quirurgicas en el tratamiento de descemetocelee [Surgical alternatives for the treatment of descemetocel]**. *Veterinaria Montevideo* 37(146): 21-24. ISSN: 0376-4362.
Descriptors: cornea, endothelium, epithelium, eye diseases, surgery, surgical operations, ulcers, cats.
Language of Text: Spanish with a summary in English.

Merav, S.H. (2000). **Esofagorrafias. [Oesophageal surgery in cats and dogs]**. *Selecciones Veterinarias* 8(2): 145-150. ISSN: 0327-859X.
Descriptors: surgical operations, esophgus, surgery, cats.
Language of Text: Spanish.

Meyer Lindenberg, A. (1998). **Indikationen und Technik der Sectio caesarea [Indications for caesarean section and surgical techniques]**. *Praktische Tierarzt* 79(10): 942-954. ISSN: 0032-681X.
NAL Call Number: 41.8 P882

Descriptors: dystocia, techniques, caesarean section, surgery, parturition, cats.
Language of Text: German with a summary in English.

Michels, G.M., B.D. Jones, B.T. Huss, and C. Wagner Mann (1995). **Endoscopic and surgical retrieval of fishhooks from the stomach and esophagus in dogs and cats: 75 cases (1977-1993).** *Journal of the American Veterinary Medical Association* 207(9): 1194-1197. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: dogs, cats, fishing gear, foreign bodies, stomach, esophgus, endoscopy, surgical operations, time, pathogenesis, case studies, body parts, digestive system, equipment, pollutants, removal, prognosis .

Minami, S., Y. Okamoto, Y. Okamura, and K. Kato (2005). **Laparoscopic surgery**. *Journal of Veterinary Medicine, Japan* 58(1): 55-61. ISSN: 0447-0192.
Descriptors: endoscopy, laparoscopy, surgery, cats.
Language of Text: Japanese.

Misaka, K., S. Nakamura, K. Nagashima, J. Sekine, K. Morita, K. Saito, and T. Fujikura (1998). **Comparison of biografts and artificial fabrics for the patch-graft of diaphragmatic defect in cats.** *Japanese Journal of Veterinary Anesthesia and Surgery (Japan)* 29(2): 33-44. ISSN: 0916-5908.
Descriptors: cats, hernia, diaphragm, pericardium, chitin, pet animals, body parts, carbohydrates, disorders, functional disorders, glucans, muscles, musculoskeletal system, polysaccharides, serosa, useful animals.
Language of Text: Japanese.

Mitchell, S.L., R. McCarthy, E. Rudloff, and R.T. Pernell (2000). **Tracheal rupture associated with intubation in cats: 20 cases (1996-1998).** *Journal of the American Veterinary Medical Association* 216(10): 1592-1595. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, trachea, trauma, iatrogenic diseases, treatment, diagnosis, clinical aspects, anesthesia, drug delivery systems, surgical operations, mortality.

Monnet, E. (2001). **La chirurgie pulmonaire chez le chien et le chat. [Pulmonary surgery in dogs and cats.]**. *Le Point Veterinaire* 32(216): 24-29. ISSN: 0303-4997.
Descriptors: dogs, cats, lungs, surgical operations, body parts, respiratory system.
Language of Text: French.

Moore, A.H. and C. Garden (1999). **Advanced surgery and surgical nursing**. *British Small Animal Veterinary Association: Manual of Advanced Veterinary Nursing*: 41-67. ISSN: 0327-859X.
Descriptors: surgery, anesthesia, practice, surgical operations, surgical equipment, postoperative care, dogs, cats.

Moore, C.P. and G.M. Constantinescu (1997). **Surgery of the adnexa**. *Veterinary Clinics of North America, Small Animal Practice* 27(5): 1011-1066. ISSN: 0195-5616.

NAL Call Number: SF601. V523
Descriptors: anatomy, conjunctiva, neoplasms, trauma, eyelid diseases, surgery, cats.

Morrison, W.B. (2001). ***Cancer in Dogs and Cats: Medical and Surgical Management.*** 2nd edition, Teton NewMedia: Jackson Hole, Wyoming, 782 p. ISBN: 1893441474 .
NAL Call Number: SF992.C35 M67 2001
Descriptors: dogs, cats, diseases, cancer in animals, oncology.

Mulligan, T.W. (2001). **Surgical endodontics**. *Clinical Techniques in Small Animal Practice* 16(3): 186-197. ISSN: 1096-2867.
NAL Call Number: SF911 .S45
Descriptors: dentistry, radiography, surgery, surgical equipment, surgical operations, teeth, tooth diseases, cats.

Murray, G. (1997). **Preparing the small animal patient for surgery**. *Irish Veterinary Journal* 50(5): 317-318. ISSN: 0368-0762.
NAL Call Number: 41.8 IR4
Descriptors: surgery, preoperative care, preanaesthetic medication, surgical operations, patient care, cats.

Murtaugh, R.J. (1998). **Surgical Oncology**. *Clinical Techniques in Small Animal Practice* 13(1): 1-76. ISSN: 1096-2867.
NAL Call Number: SF911. S45
Descriptors: small animal practice, surgery, neoplasms, cats.

Nagy, A., G. Eordegh, M. Norita, and G. Benedek (2003). **Visual receptive field properties of neurons in the caudate nucleus.** *European Journal of Neuroscience* 18(2): 449-452. ISSN: 0953-816X.
Abstract: Visual single-unit activity was recorded in the caudate nucleus of halothane-anaesthetized, immobilized, artificially respirated cats. Visually sensitive neurons were found in the dorsolateral part of the caudate body. A majority of the units responded optimally to small spot-like stimuli moving with velocities between 30 and 120 degrees /s. The receptive field of these units is large: it covers a major part of both the contra- and ipsilateral visual hemifields. No signs of retinotopy were observed. Most of the neurons display directional selectivity and are narrowly tuned to the direction of the moving stimulus. These physiological properties are consistent with recent morphological results that reveal multiple connections of the caudate nucleus with the superior colliculus through tecto-extrageniculo-thalamic pathways in the mammalian brain.
Descriptors: brain mapping, caudate nucleus, caudate nucleus, neurons, anesthesia, cats, electrophysiology, immobilization, orientation, photic stimulation, visual fields, visual pathways.

Nam, T.S., E.J. Baik, Y.U. Shin, Y. Jeong, and K.S. Paik (1995). **Analgesic effects of transcutaneous electrical nerve stimulation on renal pain in cats**. *Society for Neuroscience Abstracts* 21(1-3): 1407. ISSN: 0190-5295.
NAL Call Number: QP351. S6
Descriptors: transport and circulation, cell biology, membranes, morphology, cats,

nervous system, skeletal system, renal pain, dorsal horn neurons, neurophysiology, electrical nerve stimulation, analgesic, pain modulation, renal inputs, spinal cord.
Notes: Meeting Information: 25th Annual Meeting of the Society for Neuroscience, San Diego, California, USA; November 11-16, 1995.

Nasisse, M.P. (1997). **Surgical management of ocular disease**. *Veterinary Clinics of North America, Small Animal Practice* 27(5): 963-1271. ISSN: 0195-5616.
NAL Call Number: SF601 .V523
Descriptors: surgery, surgical instruments, surgical operations, eye diseases, cats.

Nasisse, M.P. and T.L. Glover (1997). **Surgery for lens instability**. *Veterinary Clinics of North America, Small Animal Practice* 27(5): 1175-1192. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: surgery, diagnosis, sutures, postoperative, eye diseases, congenital abnormalities, lens, cats.

Negro, V.B. and S.Z. Hernandez (2000). **Colmillos y muelas carniceras del gato domestico (*Felis catus*): caracteristicas anatomicas de importancia clinico - quirurgica [Canine and carnassial teeth of cats: anatomical features of clinical and surgical importance]**. *Veterinaria Argentina* 17(161): 62-77 . ISSN: 0326-4629.
NAL Call Number: SF604.V463
Descriptors: jaws, skull, anatomy, dentistry, teeth, cats, dental-alveolar topograpHy.
Language of Text: Spanish with a summary in English.

New Zealand Veterinary Association (1998). *Proceedings from A 'Touch of Soft' Symposium on soft Tissue Surgery, October 27, 1999-October 31, 1999, Palmerston North, New Zealand,* Veterinary Continuing Education, Massey University: New Zealand, Vol. 195, 95 p.
NAL Call Number: SF604. P82 no.220
Descriptors: surgery, small animal practice, cats, soft tissue surgery.

Newton, C.D. (1996). **Elective orthopedic surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention,* Williams & Wilkins: Baltimore, USA, p. 599-609.
NAL Call Number: SF991.C68
Descriptors: surgery, postoperative, small animal practice, joints animal, bones, orthopedics, cats.

Newton, C.D. and D.M. Nunamaker (1996). **Hip surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention,* Williams & Wilkins: Baltimore, USA, p. 611-620.
NAL Call Number: SF991.C68
Descriptors: orthopedics, surgery, postoperative, small animal practice, hips, cats.

Nickel, R.F. (2001). **[Chirurgie van de nieren en de afvoerende urinewegen deel 1] Surgery of the kidneys and efferent urinary tract in dogs and cats. I**. *Dier En Arts* 16(6/7): 201-205. ISSN: 0920-2412.
Descriptors: kidneys, surgery, treatment, urinary tract diseases, cats.
Language of Text: Dutch.

Niebauer, G.W. (1996). **Intracranial surgery in dogs and cats-technique and results of 46 cases**. In: *Proceedings and abstracts 21st Congress of the World Small Animal Veterinary Associaton, October 20, 1996-October 23, 1996, Jerusalem, Israel,* World Small Animal Veterinary Association.: Jerusalem, Israel, p. 397-399.
Online: www.wsava.org
NAL Call Number: 41.8 J8292
Descriptors: surgery, head, brain, cats.

Niekerk, L.J.V., F.J.M. Verstraete, and J.S.J. Odendaal (2002). **A comparison of the surgical caseloads of selected companion animal hospitals and a veterinary academic hospital in South Africa**. *Journal of the South African Veterinary Association* 73(3): 115-118. ISSN: 0301-0732.
NAL Call Number: 41.8 SO8
Descriptors: animal hospitals, pets, surgery, surgical operations, practice.

Nudelmann, N. (2001). **Laparoscopy in dogs and cats: surgical interventions (including ovariectomy) from a single approach [La laparoscopie chez les carnivores domestiques: actes chirurgicaux par abord unique]**. *Bulletin De La Societe Veterinaire Pratique De France* 85(3): 156-167. ISSN: 0395-7500.
NAL Call Number: SF602 .B85
Descriptors: endoscopy, laparoscopy, surgery, treatment, cats.
Language of Text: French.

Oakes, A.B. and M.G. Oakes (1998). **Small Animal Surgical Nursing and Dentistry**. In: D.M. McCurnin (Editors), *Clinical Textbook for Veterinary Technicians,* 4th edition, W.B. Saunders: Philadelphia, USA, p. 447-476. ISBN: 0721606121.
NAL Call Number: SF745 .C625
Descriptors: surgery, dentistry, small animal practice, cats.

Okumura, M., T. Kadosawa, and T. Fujinaga (1999). **Surgical correction of temporomandibular joint ankylosis in two cats**. *Australian Veterinary Journal* 77(1): 24-27. ISSN: 0005-0423.
NAL Call Number: 41.8 Au72
Descriptors: ankylosis, surgery, case reports, treatment, diagnosis, joint diseases, trauma, fracture, mandible, cats.

Osborne, C.A., I.P. Lulich, and S.L. Sanderson (1996). **Medical vs. surgical treatment of diseases of the urinary system**. In: *Proceedings and abstracts 21st Congress of the World Small Animal Veterinary Association, October 20, 1996-October 23, 1996, Jerusalem, Israel,* World Small Animal Veterinary Association.: Jerusalem, Israel, p. 223-226.
Online: www.wsava.org
NAL Call Number: 41.8 J8292
Descriptors: urinary tract diseases, surgery, prolapse, bladder diseases, urolithiasis, cats.

Padgett, S. (2002). **Feline thyroid surgery**. *Veterinary Clinics of North America, Small Animal Practice* 32(4): 851-859. ISSN: 0195-5616.
NAL Call Number: SF601. V523

Descriptors: anesthesia, clinical aspects, hyperthyroidism, medical treatment, surgery, surgical operations, thyroid gland, cats.

Paskalev, M. and S. Selskostopanska Akademiya (1998). **Sravnitelna pretsenka na nyakoi metodi za operativno lechenie na frakturi pri kucheta i kotki [Comparative evaluation of various techniques for surgical repair of bone fractures in dogs and cats]**. *Veterinarna Meditsina* 4 (1): 68-71. ISSN: 1310-5825.
NAL Call Number: SF604.V473
Abstract: The objective of this study was to compare the results of six methods used for surgical repair of 288 clinical bone fractures in dogs and 112 in cats. A relationship is established between the location of the fractures and the applicability and successfulness of the different techniques used. For repairing canine diaphyseal fractures best results are obtained by fixation with plates followed by internal fixation with pins. Combination of internal pins with fill-cerclage wires is more efficient in osteosynthesis of metaphyseal fractures than the use of intramedullar pins alone. Rush pinning techniques is highly successful for repairing epiphyseal fractures in both dogs and cats.
Descriptors: dogs, cats, bones, fracture fixation, fractures, surgical operations, lesions .
Language of Text: Bulgarian with a summary in English.

Pavletic, M.M. (1996). **Medical and surgical management of feline idiopathic megacolon.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 10: 196-198.
NAL Call Number: SF672.N672
Descriptors: cats, therapy, surgical operations, feline idiopathic megacolon.

Pavletic, M.M. (1997). **Skin flap and skin grafting techniques in small animal surgery**. 19(1): s24-s25. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: skin, treatment, surgery, skin grafting, small animal practice, cats.

Pavletic, M.M. (1997). **New techniques in small animal reconstructive surgery**. *Veterinary Quarterly* 19(supplement 1): s25-s27. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: neoplasms, skin, treatment, small animal practice, surgery, cats.

Pavletic, M.M. and J. Berg (1996). **Gastrointestinal surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention,* Williams & Wilkins: Baltimore, Maryland, USA, p. 365-398.
NAL Call Number: SF991.C68
Descriptors: gastrectomy, intestines, adhesions, intussusception, surgical operations, rectum, prolapse, atresia, digestive system, postoperative, surgery, cats.

Peixoto, E.C.T.M., W.R.R. Vicente, M.I.A. Santos, T.R. Netto, and F.E. Hayashi (2002). **Controle populacional de pequenos animais: esterilizacao cirurgica a preco minimo [Pet population control: surgical neutering with reduced cost]**. *Ars Veterinaria* 18(3): 258-266. ISSN: 0102-6380.
NAL Call Number: 447.8 J82

Descriptors: animal welfare, bitches, euthanasia, female animals, gonadectomy, ovariectomy, stray animals, surgery, cats.
Language of Text: Portuguese with a summary in English.

Petersen, S.W. (1999). **Surgery of skeletal muscle and tendons**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 1185-1187. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: surgery, skeletal muscle, tendons, postoperative care, postoperative, cats.

Pettersson, K. (1995). ***Urinvaegsobstruktion Hos Katt. Konservativ Eller Kirurgisk Behandling? Foerdjupningsarbete [Feline Urethral Obstruction: Conservative or Surgical Treatment?]***, Sveriges Lantbruksuniv: Uppsala, Sweden, 24 p.
Descriptors: cats, urinary tract diseases, urethra, symptoms, diagnosis, surgical operations, body parts, urinary tract, urogenital system, flushing of the urethra.
Language of Text: Swedish; Summaries in English and Swedish.

Philipov, J.P., C.D. Grosev, and D.Y. Dimov (1996). **L' osteocalcine plasmatique chez le chat: valeurs de reference et variations en cas de maladies metaboliques osseuses et apres chirurgie osseuse. [Plasma osteocalcin in cats. Reference values and changes in metabolic bone diseases and after bone surgery.]**. *Revue De Medecine Veterinaire* 147(4): 301-304. ISSN: 0035-1555.
NAL Call Number: 41.8 R32
Descriptors: cats, proteins, metabolic disorders, bone diseases, surgical operations, composition, disorders, musculoskeletal diseases, organic diseases.

Pope, E.R. (1996). **Plastic and reconstructive surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Williams & Wilkins: Baltimore, USA, p. 641-662.
NAL Call Number: SF991.C68
Descriptors: plastic surgery, surgery, healing, postoperative, small animal practice, wounds, cats.

Prymak, C. (1996). **Acute abdominal pain and vomiting - indications for surgery**. In: *Proceedings and abstracts 21st Congress of the World Small Animal Veterinary Association, October 20-23, 1996, Jerusalem, Israel*, World Small Animal Veterinary Association.: Jerusalem, Israel, p. 153-154.
Online: www.wsava.org
NAL Call Number: 41.8 J8292
Descriptors: pain, colic, vomiting, surgery, abdomen, dogs, cats.

Pullium, J.K. and P.M. Shealy (1998). **Surgical treatment of feline chylothorax.** *Feline Practice* 26(1): 20-22. ISSN: 1057-6614.
NAL Call Number: SF985 .F4
Descriptors: cats, respiratory diseases, pericarditis, ligature, surgical operations, lymph, symptoms, case studies, body fluids, body parts, cardiovascular diseases, heart diseases, organic diseases, surgical operations, chyle .

Radlinsky, M.A.G. (2004). **Lower urinary tract surgery**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 1175-1177.
Descriptors: bladder, postoperative, surgery, surgical operations, trauma, urethra, urinary tract diseases, urolithiasis, cats.

Raiser, A.G. (1994). *Anais do 1o Congresso Brasileiro de Cirurgia e Anestesiologia Veterinaria [Proceedings of the first Brazilian Congress of Veterinary Surgery and Anaesthesiology], November 6, 1994-November 10, 1994, Curitiba, Brasil,* Colegio Brasileiro de Cirurgia e Anestesiologia Veterinaria.: Curitiba, Brazil, 122 p.
Descriptors: domestic animals, surgery, anesthesia, cattle, dogs, rabbits, horses, cats, meeting abstracts.
Language of Text: Summaries in Portuguese and English.

Raiser, A.G. and N.L. Pippi (1998). **Abordagem cirurgica da hernia abdominal traumatica em caes e gatos [Surgery of traumatic abdominal hernia in dogs and cats]**. *Veterinaria Tecnica* 8(6): 38-43. ISSN: 0872-119X.
Descriptors: surgery, hernia, trauma, cats.
Language of Text: Portuguese with a summary in English.

Ramsey, D.T. and D.B. Fox (1997). **Surgery of the orbit**. *Veterinary Clinics of North America, Small Animal Practice* 27(5): 1215-1264. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: surgery, anatomy, diagnosis, biopsy, congenital abnormalities, surgical operations, postoperative care, eye diseases, cats.

Read, R. (1998). **Elbow dysplasia and other forelimb joint problems: When is surgery indicated?** *Publication: Veterinary Continuing Education* 182: 13-34. ISSN: 0112-9643.
NAL Call Number: SF604. P82
Descriptors: joint diseases, surgery, lameness, shoulders, elbows, carpus, differential diagnosis, nutritional disorders, osteodystrophy, trauma, bone fractures, fractures, osteomyelitis, neuromuscular diseases, inflammation, dysplasia, diagnosis, treatment, clinical aspects, musculoskeletal anomalies, dogs, cats.

Read, R. (1998). **Patellar luxation: the why, when and how of surgical correction**. *Publication: Veterinary Continuing Education* 182: 55-67. ISSN: 0112-9643.
NAL Call Number: SF604. P82
Descriptors: dislocations, patella, surgery, anatomy, pathogenesis, musculoskeletal anomalies, cats.

Remedios, A.M. and J. Ferguson (1996). **Minimally invasive surgery: laparoscopy and thoracoscopy in small animals**. *Compendium on Continuing Education for the Practicing Veterinarian* 18(11): 1191-1199. ISSN: 0193-1903.
NAL Call Number: SF601. C66
Descriptors: surgery, small animal practice, apparatus, diagnostic techniques, endoscopy, thoracic cavity, abdomen, cats.

Richardson, E.F., C.R. Gregory, and E. Sucre (1994). **Enhancement of the surgical education of fourth year veterinary students by participation in juvenile ovariohysterectomy and castration program**. *Veterinary Surgery* 23(5): 415. ISSN: 0161-3499.
NAL Call Number: SF911.V43
Descriptors: postoperative, education, castration, hysterectomy, cats.

Rieser, T.M. (2004). **Preparing the critical patient for invasive surgery**. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association.* 18: 185-186.
NAL Call Number: SF605.N672
Descriptors: haemodynamics, haemorrhage, preoperative care, stabilization, surgery, surgical operations, cats.

Risio, L. (1998). **Principi generali di chirurgia addominale nei carnivori domestici [General principles of abdominal surgery in dogs and cats]**. *Praxis Veterinaria Milano* 19(3): 22-24.
Descriptors: surgery, abdomen, laparotomy, cats.
Language of Text: Italian with a summary in English.

Rogers, K.S., C.L. Barton, and J.M. Habron (1996). **Cytology during surgery**. *Compendium on Continuing Education for the Practicing Veterinarian* 18(2): 153-163. ISSN: 0193-1903.
NAL Call Number: SF601. C66
Descriptors: surgery, surgical operations, neoplasms, diagnosis, metastasis, biopsy, cats.

Ross, J.T. (1995). **How to perform three useful surgical procedures in cats.** *Veterinary Medicine* 90(9): 869-878. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: cats, surgical operations, colectomy, thoracostomy tube placement, thyroidectomy, postoperative care, methodology .

Sabolic, M. (1998). **Znacenje i ucestalost kirurskih bolesti pasa i macaka - Veterinarska stanica Varazdin od 1994. do 1997. god [Significance and prevalence of surgical diseases by dogs and cats: Varazdin veterinary station 1994-1997]**. *Veterinarska Stanica* 29(3): 143-150. ISSN: 0350-7149.
Descriptors: surgery, disease prevalence, fractures, bursitis, trauma, gynaecology, plastic surgery, abdomen, injuries, abscesses, neoplasms, castration, ovariectomy, eye diseases, conjunctivitis, prolapse, cataract, hernia, intestinal diseases, cats.
Language of Text: Croatian with a summary in English.

Sabolic, M. (1997). **Najcesce bolesti koze u pasa i macaka s posebnim osvrtom na rasirenost, dijagnostiku i lijecenje - Veterinarska stanica Varazdin (u razdoblju od 1994. do 1996.) [Commonest skin diseases in dogs and cats with special reference to prevalence, diagnosis and treatment - Veterinary Surgery Varazdin (1994 to 1996)]**. *Veterinarska Stanica* 28(6): 329-335. ISSN: 0350-7149.
Descriptors: diagnosis, treatment, skin diseases, dermatitis, otitis externa, scabies, allergies, seborrhoea, ectoparasites, ivermectin, ketoconazole, antibiotics, corticoids, trichlorfon, chemical control, arthropod allergies, therapy, cats, dogs.
Language of Text: Croatian with a summary in English.

Salisbury, S.K. (2002). **Surgical management of megacolon in cats.** *Proceeding of the North American Veterinary Conference: Eastern States Veterinary Association* 16: 788-790.
NAL Call Number: SF605 .N672
Descriptors: cats, megacolon, surgical operations.
Notes: In the volume: Small animal and exotics. Part of a three volume set. Meeting held January 12-16, 2002, Orlando, Florida.

Saroglu, M. and A.S. Kaval (2004). **Felin kornea nekrozu ve konjunktival pedikullu greft ile operatif sagaltm [Feline corneal necrosis and its surgical treatment using a conjunctival pedicle graft]**. *Veteriner Fakultesi Dergisi Istanbul* 30(1): 21-28. ISSN: 0378-2352.
Descriptors: autografts, conjunctiva, cornea, eye diseases, necrosis, prognosis, surgery, surgical operations, therapy, cats.
Language of Text: Turkish with a summary in English.

Sasaki, N. (2004). **Intra- and postoperative control in canine and feline surgery**. *Journal of Veterinary Medicine, Japan* 57(4): 185. ISSN: 0447-0192.
Descriptors: surgery, cats, dogs.
Language of Text: Japanese.

Schalla, K. (1996). **Syndrom urologiczny u kotow - metody interwencji chirurgicznej [Surgical treatment of the feline urological syndrome]** . *Magazyn Weterynaryjny* 5(3): 218-219. ISSN: 1230-4425.
Descriptors: urolithiasis, urinary tract diseases, cats.
Language of Text: Polish.

Schertel, E.R. (1999). **Surgical correction of patent ductus arteriosus**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice*, 2nd edition, W.B. Saunders: Philadelphia, USA, p. 583-586. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: heart diseases, treatment, surgery, congenital abnormalities, cats.

Schmokel, H.G. and G. Ehrismann (2001). **The surgical treatment of talocrural luxation in nine cats**. *Veterinary and Comparative Orthopaedics and Traumatology* 14(1): 46-50. ISSN: 0932-0814.
NAL Call Number: SF910.5 V4
Descriptors: fracture, joints animal, ligaments, postoperative care, surgical operations, cats.

Schwartz, A. (1996). **Endocrine surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Williams & Wilkins: Baltimore, USA, p. 287-331.
NAL Call Number: SF991.C68
Descriptors: surgery, reviews, postoperative, small animal practice, endocrine system, cats.

Seim, H.B.I. (2003). **Medicine and surgery of the feline respiratory tract - Part 1**. In: *Scientific Proceedings Veterinary Programme: 46th Annual Congress, April 3, 2003-April 6, 2003,*

Birmingham, UK, British Small Animal Veterinary Association: Quedgeley, UK, p. 278-281.
Online: www.bsava.com
NAL Call Number: 41.8 J8292
Descriptors: diagnosis, hernia, respiratory diseases, surgical operations, cats.

Seim, H.B.I. (2003). **Medicine and surgery of the feline respiratory tract - Part 2**. *Scientific Proceedings Veterinary Programme: British Small Animal Veterinary Association 46th Annual Congress, Birmingham, UK, 3rd 6th April 2003, April 3, 2003-April 6, 2003, Birmingham, UK,* British Small Animal Veterinary Association 46th Annual Congress: Quedgeley, UK, p. 281-285.
Online: www.bsava.com
NAL Call Number: 41.8 J8292
Descriptors: carcinoma, diagnosis, ears, nasopharynx, neoplasms, nose, polyps, respiratory diseases, surgical operations, cats.

Seim, H.B.I. (2003). **Medicine and surgery of the feline GI tract - Part 1**. In: *British Small Animal Veterinary Association 46th Annual Congress: Scientific Proceedings Veterinary Programme, April 3, 2003-April 6, 2003, Birmingham, UK,* British Small Animal Veterinary Association.: Quedgeley, UK, p. 293-308.
Online: www.basava.com
NAL Call Number: 41.8 J8292
Descriptors: digestive disorders, digestive tract, foreign bodies, intussusception, neoplasms, obstruction, peritonitis, preoperative care, surgical operations, cats.

Seim, H.B.I. (2003). **Medicine and surgery of the feline GI tract - Part 2**. In: *Scientific Proceedings Veterinary Programme: British Small Animal Veterinary Association 46th Annual Congress, April 3, 2003-April 6, 2003, Birmingham, UK,* British Small Animal Veterinary Association.: Quedgeley, UK, p. 308-317.
Online: www.bsava.com
NAL Call Number: 41.8 J8292
Descriptors: colon, digestive disorders, digestive tract, megacolon, peritonitis, surgical operations, cats.

Seim, H.B.I. (1998). **Surgery of the feline stomach**. *Feline Medicine and Surgery: Proceedings 308,* University of Sydney, Post Graduate Foundation in Veterinary Science: Sydney, Australia, p. 37-42. ISBN: 187558272X.
NAL Call Number: SF604.R37 no.308
Descriptors: stomach, surgery, anatomy, foreign bodies, stomach emptying, cats.

Seim, H.B.I. (1998). **Surgery of the feline small intestine I**. *Feline Medicine and Surgery: Proceedings 308,* University of Sydney, Post Graduate Foundation in Veterinary Science: Sydney, Australia, p. 43-54. ISBN: 187558272X.
NAL Call Number: SF604.R37 no.308
Descriptors: intestines, small intestine, surgery, sutures, anesthesia, treatment, preoperative care, stress, antibiotics, prophylaxis, cats.

Seim, H.B.I. (1998). **Surgery of the feline small intestine II**. *Feline Medicine and Surgery: Proceedings 308,* University of Sydney, Post Graduate Foundation in Veterinary Science: Sydney, Australia, p. 55-62. ISBN: 187558272X.
NAL Call Number: SF604.R37 no.308
Descriptors: intestines, small intestine, surgery, sutures, cats.

Seim, H.B.I. (1998). **Surgery of the feline small intestine III** . *Feline Medicine and Surgery: Proceedings 308,* University of Sydney, Post Graduate Foundation in Veterinary Science: Sydney, Australia, p. 63-74. ISBN: 187558272X.
NAL Call Number: SF604.R37 no.308
Descriptors: intestines, small intestine, surgery, sutures, neoplasms, clinical aspects, intestinal diseases, obstruction, intussusception, prolapse, foreign bodies, radiography, preoperative care, diagnosis, cats.

Seim, H.B.I. (1998). **Surgical techniques for the feline liver and biliary tract**. (Editor), *Feline Medicine and Surgery: Proceedings 308,* University of Sydney, Post Graduate Foundation in Veterinary Science: Sydney, Australia, p. 75-94. ISBN: 187558272X.
NAL Call Number: SF604.R37 no.308
Descriptors: liver, surgery, bile, anatomy, preoperative care, trauma, postoperative care, gall bladder, neoplasms, cats.

Seim, H.B.I. (1998). **Surgery of the feline colon. Surgical management of megacolon**. *Feline Medicine and Surgery: Proceedings 308,* University of Sydney, Post Graduate Foundation in Veterinary Science: Sydney, Australia, p. 117-124. ISBN: 187558272X.
NAL Call Number: SF604.R37 no.308
Descriptors: colon, megacolon, surgery, intestinal diseases, anatomy, preoperative care, antibiotics, etiology, diagnosis, postoperative care, cats.

Seim, H.B.I. (1998). **Surgery of the feline anus and rectum**. *Feline Medicine and Surgery No. 308,* University of Sydney, Post Graduate Foundation in Veterinary Science.: Sydney, Australia, p. 125-136. ISBN: 187558272X.
NAL Call Number: SF604.R37 no.308
Descriptors: anus, rectum, surgery, anatomy, clinical aspects, fistula, prolapse, neoplasms, cats.

Seim, H.B.I. (1998). **Surgery of the feline urinary tract**. *Feline Medicine and Surgery No.308,* University of Sydney, Post Graduate Foundation in Veterinary Science.: Sydney, Australia: p. 137-142. ISBN: 187558272X.
NAL Call Number: SF604.R37 no.308
Descriptors: urinary tract, surgery, bladder, neoplasms, surgical operations, nephrectomy, kidney diseases, urinary tract diseases, cats.

Seim, H.B.I. (1998). **Surgical treatment of feline hyperthyroidism**. *Feline Medicine and Surgery: Proceedings 308,* University of Sydney, Post Graduate Foundation in Veterinary Science: Sydney, Australia, p. 143-148. ISBN: 187558272X
.
NAL Call Number: SF604.R37 no.308

Descriptors: hyperthyroidism, surgery, thyroid diseases, diagnosis, radiography, neoplasms, prognosis, anesthesia, postoperative care, preoperative care, cats.

Seim, H.B. and M.R. Lappin (1998). ***Feline Medicine and Surgery,*** VIII edition, Post Graduate Foundation in Veterinary Science: Sydney, New South Wales, Australia, 355 p. ISBN: 187558272X.
NAL Call Number: SF604.R37 no.308
Descriptors: cats, diseases, surgery.

Senna, N.A. (2004). **Obstipation and megacolon in cats: diagnosis and surgical modalities**. *Veterinary Medical Journal Giza* 52(2): 301-318. ISSN: 1110-1423.
Descriptors: clinical aspects, diagnosis, megacolon, surgery, cats.

Sherding, R.G., S.J. Birchard and S.E. Johnson (1999). **Diseases and surgery of the exocrine pancreas**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice,* 2nd edition, W.B. Saunders: Philadelphia, USA, p. 882-890. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: pancreatic diseases, surgery, treatment, pancreatitis, neoplasms, clinical aspects, cats.

Shida, T. (2003). **The front line of the medical treatment of cancer in companion animals. An approach to collected studies. Surgical and radiation treatment**. *Journal of Veterinary Medicine, Japan* 56(11): 947-952. ISSN: 0447-0192.
Descriptors: neoplasms, radiotherapy, surgery, cats.
Language of Text: Japanese.

Silva, A. (2000). **Plastic and reconstructive surgery of the skin [Pele: cirurgia plastica e reconstrutiva]**. *Caes and Gatos* 15(89): 32-36.
Descriptors: plastic surgery, skin lesions, cosmetic surgery, cats.
Language of Text: Portuguese.

Silva, A. (2000). **Apostila cirurgica: pontos (e cuidados) a ponderar. [Surgical notes: points (and precautions) to consider.]**. *Caes and Gatos* 14(88): 31-34.
Descriptors: domestic animals, surgery, surgical equipment, surgical instruments, disinfection, disease control, infections, cats.
Language of Text: Portuguese.

Smeak, D.D. (1999). **Surgery of the external ear canal and pinna**. In: S.J. Birchard and R.G. Sherding (Editors), *Saunders Manual of Small Animal Practice,* 2nd edition, W.B. Saunders: Philadelphia, USA, p. 424-433. ISBN: 0721670784.
NAL Call Number: SF981.S29
Descriptors: surgery, ears, postoperative care, ear diseases, treatment, cats.

Smith, M.M. (2001). **Surgical management of otitis externa and otitis media in cats.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 15: 632-633.

NAL Call Number: SF605 .N672
Descriptors: cats, otitis externa, otitis media, surgical operations.

Smith, M.M. (1996). **Lingual approach for surgical extraction of the mandibular canine tooth in dogs and cats.** *Journal of the American Animal Hospital Association* 32(4): 359-64. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Abstract: A lingual approach for surgical extraction of the mandibular canine tooth was developed based on anatomic observations of tissues and structures of the rostral mandible and lingual orientation of the mandibular canine tooth root. Measurements of the lingual and buccal aspects of the alveolus indicated similar quantities of bone required for alveolectomy to expose the tooth root. The surgical procedure was performed in 12 dogs and four cats with no complications reported during the follow-up period.
Descriptors: cats surgery, cuspid surgery, dogs surgery, hyoid bone surgery, mandible surgery, tooth extraction, alveolectomy, alveolectomy, tooth extraction.

Soderstrom, M.J., S.D. Gilson, and N. Gulbas (1995). **Fatal reexpansion pulmonary edema in a kitten following surgical correction of pectus excavatum.** *American Animal Hospital Association* 31(2): 133-136. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: kittens, oedema, surgical operations, genetic disorders, lungs, case studies, free radicals, sternum, body parts, bones, cats, disorders, metabolic disorders, musculoskeletal system, respiratory system, young animals, reperfusion injury, postoperative, congenital abnormalities.

Spackman, C.J.A. (1996). **Oncologic surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Williams & Wilkins: Baltimore, USA, p. 663-676. ISBN: 0683050478.
NAL Call Number: SF991.C68
Descriptors: surgery, postoperative, small animal practice, neoplasms, cats.

Stanley, B.J. (2003). **Surgical management in urolithiasis**. In: *Scientific Proceedings Veterinary Programme: British Small Animal Veterinary Association 46th Annual Congress, April 3, 2003-April 6, 2003, Birmingham, UK*, British Small Animal Veterinary Association: Quedgeley, UK, p. 354-355.
Online: www.bsava.com
NAL Call Number: 41.8 J8292
Descriptors: surgical operations, urinary tract, urinary tract diseases, urolithiasis, cats.

Stanley, B.J. (1996). **Surgical management of neoplastic disease - when and where?** In: *Proceedings and abstracts 21st Congress of the World Small Animal Veterinary Association, October 20, 1996-October 23, 1996, Jerusalem, Israel*, World Small Animal Veterinary Association: Jerusalem, Israel, p. 105-110.
Online: www.wsava.org
NAL Call Number: 41.8 J8292
Descriptors: neoplasms, surgery, cats.

Stokhof, A.A. and H.J. Gelissen (1999). **Thoraxchirurgie bij gezelschapsdieren de rol van Professor G.H.B. Teunissen (1907-1998) [Thoracic surgery in companion animals. The role of Professor G.H.B. Teunissen (1907-1998)]**. *Tijdschrift Voor Diergeneeskunde* 124(3): 80-83. ISSN: 0040-7453.
NAL Call Number: 41.8 T431
Descriptors: surgery, veterinarians, history, biograpHies, cats, dogs.
Language of Text: Dutch.

Stone, E.A. (1997). **Surgical management of urinary tract disease: ureteral calculi in cats and urinary bladder neoplasia in dogs.** *Compendium on Continuing Education for the Practicing Veterinarian* 19(3): 62-68. ISSN: 0193-1903.
NAL Call Number: SF601 .C66
Descriptors: cats, dogs, urinary tract diseases, organic diseases.

Straw, R.C. (1994). **Techniques in feline oncologic surgery.** *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association* 8: 521-523.
NAL Call Number: SF605.N672
Descriptors: cats, surgical operations, neoplasms, techniques.

Sturgeon, C., A.I. Lamport, D.H. Lloyd, and P. Muir (2000). **Bacterial contamination of suction tips used during surgical procedures performed on dogs and cats.** *American Journal of Veterinary Research* 61(7): 779-83. ISSN: 0002-9645.
NAL Call Number: 41.8 Am3A
Abstract: OBJECTIVE: To determine prevalence of bacterial contamination of surgical suction tips. SAMPLE POPULATION: Surgical tips used during 44 surgical procedures performed on 42 dogs and 2 cats. PROCEDURE: Surgical procedures were classified into 1 of 3 categories according to degree of bacterial contamination of the surgical site (clean, clean-contaminated, contaminated). Two sets of suction apparatuses were used for test and control suction tips. Test tips were used normally to suction blood and fluid, whereas control tips were placed on the surgical drapes but not in the surgical wound. Suction tips were collected aseptically and placed into thioglycolate broth tubes for qualitative aerobic and anaerobic bacterial culture at the end of each procedure. RESULTS: Test and control suction tips were contaminated with bacteria during 30 of 44 (68%) procedures. *Staphylococcus* spp were the predominant bacteria in tips used during clean and clean-contaminated surgeries. When surgery was performed on clean-contaminated or contaminated wounds, prevalence of isolation of other bacteria such as *Pseudomonas* spp, *Streptococcus* spp, and *Escherichia coli* from both test and control suction tips was higher than for clean wounds. Mean time of procedures during which both test and control suction tips became contaminated was not significantly different from time of procedures during which neither tip became contaminated. CONCLUSION AND CLINICAL RELEVANCE: Surgical suction tips often become contaminated during standard veterinary surgical procedures. The risk of wound infection after surgery may be influenced by bacterial contamination of surgical suction tips.
Descriptors: cats surgery, dogs surgery, surgery, instrumentation, surgical instruments, surgical wound infection, antibiotic prophylaxis, bacteria, aerobic, bacteria, anaerobic, colony count, microbial, logistic models, regression analysis, suction instrumentation,

suction, suction, surgical instruments microbiology, surgical wound infection microbiology, surgical wound infection.

Sullivan, T.C. (1997). **Surgery for retinal detachment**. *Veterinary Clinics of North America, Small Animal Practice* 27(5): 1193-1214. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: eye diseases, anatomy, diagnosis, surgical operations, retina, surgery, cats.

Swalec, K.M. and L.G. Wheaton (1995). **Surgical management of pyometra in dogs and cats.** *Seminars in Veterinary Medicine and Surgery Small Animal* 10(1): 30-34. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: dogs, cats, pyometra, surgical operations, symptoms, diagnosis, therapy, disease control, uterine diseases, bitches, postoperative medical treatment.
Notes: In the series Small Animal Reproduction. 2, edited by Mushtag A. Memon.

Syring, R.S. and K.J. Drobatz (2000). **Preoperative evaluation and management of the emergency surgical small animal patient**. *Veterinary Clinics of North America, Small Animal Practice* 30(3): 473-489. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: surgery, small animal practice, emergencies, evaluation, preoperative care, pets, diagnosis, cats.

Tadmor Y.O. and A. Tadmor (1997). **Carbon dioxide laser in small animal surgery**. *Israel Journal of Veterinary Medicine* 52(1): 26. ISSN: 0334-9152.
NAL Call Number: 41.8 R25
Descriptors: small animal practice, carbon dioxide, surgery, lasers, domestic animals, cats.

Teixeira, M.W., M.M. Alievi, M.V. Rios, and J.E. Schossler (1999). **Clinical and surgical management of open distal tibial fractures in small animals treated with tibio-tarsal transfixation [Conduta clinico-cirurgica na fratura distal de tibia exposta em pequenos animais tratados por transfixacao tibio-tarsal**. *Arquivos Da Faculdade De Veterinaria, UFRGS* 27(2): 60-67. ISSN: 0101-5230.
Descriptors: surgery, treatment, antibiotics, fractures, fracture fixation, wounds, wound treatment, tibia, dogs, cats, Corynebacterium, Proteus mirabilis, StapHylococcus aureus, Streptococcus.
Language of Text: Portuguese; Summary in English.

Terhonen, H.L., M. Rantala, and O. Laitinen (2003). **Koirien ja kissojen leikkaushaavainfektiot - ennaltaehkaisy ja hoito [Surgical infections in dogs and cats - prevention and treatment]**. *Suomen Elainlaakarilehti* 109(11): 584-591. ISSN: 0039-5501.
NAL Call Number: 41.8 F49
Descriptors: antibacterial agents, bacterial diseases, disease prevention, postoperative, surgical operations, wound treatment, wounds, cats.
Language of Text: Finnish with a summary in English.

Tobias, K.M. (2002). **Congenital portosystemic shunts in dogs and cats: a review of diagnosis, medical management and surgical treatment**. *Journal of Animal and Veterinary Advances* 1(1): 49-54. ISSN: 1680-5593.
Descriptors: clinical aspects, congenital abnormalities, diagnosis, prognosis, reviews, surgery, surgical operations, vascular diseases, cats.

Tomizawa, N. (2004). **Control of surgery involving the canine and feline pharynx, larynx and trachea**. *Journal of Veterinary Medicine, Japan* 57(4): 195-199. ISSN: 0447-0192.
Descriptors: larynx, pharynx, surgery, trachea, cats.
Language of Text: Japanese.

Toth, J. (1997). **Hibak es tevedesek a kisallat-sebeszeti gyakorlatban [Errors and mistakes in the practice of small animal surgery]**. *Magyar Allatorvosok Lapja* 119(8): 483-491. ISSN: 0025-004X.
Descriptors: errors, surgery, cats, dogs.
Language of Text: Hungarian; Summary in English.

Trout, N.J. (2001). **Surgical management of oral neoplasia in dogs and cats.** *Proceedings of the North American Veterinary Confeerence: Eastern States Veterinary Association* 15: 642-643.
NAL Call Number: SF605 .N672
Descriptors: dogs, cats, neoplasms, mouth, surgical operations.

Trout, N.J. (2001). **Feline obstipation--medical and surgical options.** *Proceedings of the North American Veterinary Conference* 15: 639.
NAL Call Number: SF605 .N672
Descriptors: cats, constipation, surgical operations.

Trout, N.J. (1997). **Surgical treatment of hepatobiliary cystadenomas in cats.** *Seminars in Veterinary Medicine and Surgery Small Animal* 12(1): 51-53. ISSN: 0882-0511.
NAL Call Number: SF911 .S45
Descriptors: cats, cysts, adenoma, symptoms, diagnosis, excision, resection, pathogenesis, neoplasms, organic diseases, surgical operations, prognosis .
Notes: In the special issue: Feline liver disease, edited by Mary Anna Labato.

Trout, N.J., R.J. Berg, M.C. McMillan, S.H. Schelling, and S.L. Ullman (1995). **Surgical treatment of hepatobiliary cystadenomas in cats: five cases (1988-1993).** *Journal of the American Veterinary Medical Association* 206(4): 505-507. ISSN: 0003-1488.
NAL Call Number: 41.8 Am3
Descriptors: cats, adenoma, liver, excision, surgical operations, pathogenesis, case studies, animal morphology, digestive system, neoplasms, organic diseases, surgical operations, prognosis, postoperative.

Uchino, Y., N. Sasaki, K. Nakato, T. Bando, T. Hongo, S. Mori, and T. Mori (2001). **Surgery in cats and experimental methods**. *Journal of the Physiological Society of Japan* 63(10): 271-316. ISSN: 0031-9341.
Descriptors: cats surgery, anesthesia, animal husbandry, brain surgery, decerebrate state, forelimb innervation, hindlimb innervation, labyrinth surgery, laminectomy,

microelectrodes, monitoring, intraoperative, oculomotor muscles innervation, perfusion, peripheral nerves surgery, spinal cord surgery.
Language of Text: Japanese.

Valat, B. and P. Moissonnier (2001). **L'epiploon, un allie de choix en chirurgie [The greater omentum: surgical applications]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 36(2): 91-103. ISSN: 0758-1882.
NAL Call Number: SF981.A5
Descriptors: animal tissues, healing, omentum, surgery, cats.
Language of Text: French with a summary in English.

Van Sluijs, F.J. (1996). **Surgical diseases of the stomach and small intestine - case presentations**. *Veterinary Quarterly* 18(sup1.): S17-S18. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: intestinal diseases, stomach diseases, regurgitation, vomiting, dilation, digestive system diseases, cats.

Van Sluijs, F.J. (1994). **Chirurgie du foie. [Surgery of the liver]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 29(6): 755-758. ISSN: 0758-1882.
NAL Call Number: SF981.A5
Descriptors: adenoma, surgery, liver, carcinoma, bile ducts, liver diseases, neoplasms, cats.
Language of Text: French with a summary in English.

Van Sluijs, F.J. (1994). **Chirurgie du systeme biliaire extra-hepatique. [Surgery of extrahepatic tracts]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 29(6): 759-763. ISSN: 0758-1882.
NAL Call Number: SF981.A5
Descriptors: gall bladder, cholelithiasis, cholecystectomy, surgery, liver diseases, bile ducts, cats.
Language of Text: French with a summary in English.

Van Sluijs, F.J. (1994). **Traitement chirurgical des shunts portosystemiques. [Surgical treatment of portosystemic shunts]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 29(6, Supplement): 765-769. ISSN: 0758-1882.
NAL Call Number: SF981.A5
Descriptors: encephalopathy, vascular diseases, congenital abnormalities, liver diseases, portal circulation, surgery, cats.
Language of Text: French with a summary in English.

Vandaele, E. and E. Troncy (2002). **Analgesie chirurgicale postoperatoire l'ains s'injecte avant la chirurgie, mais n'est efficace qu'apres [Injecting non-steroidal antiinflammatory agents before surgery is not as effective as after surgery]**. *Le Point Veterinaire* 33(224): 16-17. ISSN: 0303-4997.
Descriptors: analgesics, non steroidal anti-inflammatory agents, surgery, cats.
Language of Text: French.

Viguier, E. (1999). **Evoluzione della laparoscopia in chirurgia veterinaria. [Laparoscopy and its evolution in veterinary surgery]**. *Summa* 16(5): 29-35.
Descriptors: surgery, medicine, laparoscopy, endoscopy, diagnosis, cats.
Language of Text: Italian; Summary in English.

Viguier, E. (1999). **La laparoscopie et son evolution en chirurgie veterinaire [The evolution of laparoscopy in veterinary surgery]**. *Le Point Veterinaire* 30(196): 17-23. ISSN: 0303-4997.
Descriptors: veterinary medicine, surgery, laparoscopy, endoscopy, abdomen, dogs, cats.
Language of Text: French with a summary in English.

Viguier, E. (1994). **Techniques chirurgicales de l'estomac: les gastrotomies, les gastrostomies, les gastrectomies, les gastroduodenostomies et les gastrojejunostomies [Stomach surgical techniques: gastrotomy, gastrostomy, gastrectomy, gastroduodenostomy and gastrojejunostomy]**. *Pratique Medicale and Chirurgicale De L' Animal De Compagnie* 29(6, Supplement): 637-653. ISSN: 0758-1882.
NAL Call Number: SF981.A5
Descriptors: stomach, surgery, techniques, gastrectomy, stomach diseases, surgical operations, carnivores, cats.
Language of Text: French with a summary in English.

Viguier, E. (1995). **Arthroscopy in veterinary surgery [L'arthroscopie en chirurgie veterinaire]**. *Bulletin De L' Academie Veterinaire De France* 68(2): 131-138. ISSN: 0001-4192.
NAL Call Number: 41.9 R24
Descriptors: instruments, surgery, joint diseases, horses, cats.
Language of Text: French.

Villablanca, J.R. (2004). **Counterpointing the functional role of the forebrain and of the brainstem in the control of the sleep-waking system**. *Journal of Sleep Research* 13(3): 179-208. ISSN: 0962-1105.
Descriptors: behavior, biosynchronization, cell biology, nervous system, insomnia, behavioral and mental disorders, nervous system disease, EEG, electroencephalography, clinical techniques, diagnostic techniques, mesencephalic transection, experimental surgical techniques, forebrain brainstem interactions, non rapid eye movement sleep, oculo pupillary behavior, rapid eye movement, sleep-waking system.

Waldron, D.R. (2001). **Diagnosis and surgical management of mammary neoplasia in dogs and cats.** *Veterinary Medicine* 96(12): 943-948. ISSN: 8750-7943.
NAL Call Number: 41.8 M69
Descriptors: dogs, cats, mammary gland neoplasms, diagnosis, surgery, treatment, incidence.

Walshaw, R. (1996). **Hepato-biliary, pancreatic, and splenic surgery**. In: (Editors), *Complications in Small Animal Surgery: Diagnosis, Management, Prevention*, Williams & Wilkins.: Baltimore, Maryland, USA, p. 399-453.

NAL Call Number: SF991.C68
Descriptors: pancreatitis, pancreatectomy, biopsy, bile ducts, gall bladder, spleen, splenectomy, liver, pancreas, postoperative, surgery, cats.

Wander, K.W., E. Monnet, and E.C. Orton (1998). **Surgical correction of cor triatriatum sinister in a kitten.** *American Animal Hospital Association* 34(5): 383-386. ISSN: 0587-2871.
NAL Call Number: SF601.A5
Descriptors: kittens, genetic disorders, heart diseases, echography, heart, case studies, surgical operations, body parts, cardiovascular diseases, cardiovascular system, cats, disorders, organic diseases, young animals, congenital abnormalities, echocardiography, heart valves.

Wang, Y., X. Dong, and S. Wang (1994). **Effects of electrical stimulation of S II and electroacupuncture on contents of some free amino acids in the precruciate cortex**. *Zhen Ci Yan Jiu [Acupuncture Research]* 19(1): 8-10. ISSN: 1000-0607.
Abstract: Effects of electrical stimulation of the somatosensory area II (S II) of the cerebral cortex and electroacupuncture (EA) on contents of r-aminobutyric acid (GABA), glutamic acid (Glu), aspartic acid (Asp) and alanine (Ala) in the precruciate cortex (PreCtx) were investigated in order to probe if the free amino acids in the preCtx are involved in the S II descending modulation and acupuncture analgesia. Adult cats were randomly divided into four groups: control, EA, electrical stimulation of S II and stimulation of S II plus EA. EA was applied at right Huantiao and Yanglingquan acupoints for 30 min and electrical stimulation was given on the S II surface. Amino acids were separated by paper chromatography and determined with spectrophotometry. Results showed that the stimulation of S II or/and EA had no significant effects on the contents of GABA, Glu, Asp and Ala in the PreCtx, indicating that the four amino acids are probably not involved in regulatory effects of EA and the stimulation of S II on the PreCtx.
Descriptors: cerebral cortex, electroacupuncture, glutamic acid, somatosensory cortex, gamma aminobutyric acid, aspartic acid, cats, electric stimulation, random allocation.
Language of Text: Chinese.

Watanabe, M. (1996). **Laser treatment in small animals. I. Is it possible to use lasers for bloodless surgery?** *Journal of Veterinary Medicine, Japan* 49(1): 65-68. ISSN: 0447-0192.
Descriptors: lasers, surgery, cats.
Language of Text: Japanese.

Watanabe, M. (1996). **Laser treatment in small animals. 2 Is it possible to use lasers for bloodless surgery?** *Journal of Veterinary Medicine, Japan* 49(2): 113-116. ISSN: 0447-0192.
Descriptors: lasers, surgery, dogs, cats.
Language of Text: Japanese.

Waters, D.J. (1996). **Spinal Surgery**. *Complications in Small Animal Surgery: Diagnosis, Management, Prevention,* Williams & Wilkins: Baltimore, Maryland, USA, p. 541-562.
NAL Call Number: SF991.C68
Descriptors: surgical operations, spinal cord, spine, postoperative, surgery, cats.

Wazen, J.J. (1994). **Intraoperative monitoring of auditory function: experimental observations and new applications.** *The Laryngoscope* 104(4): 446-55. ISSN: 0023-8422.
Abstract: The three different methods of intraoperative monitoring, namely, auditory brainstem response evaluation (ABR), electrocochleography (ECoG), and direct eighth nerve compound action potentials monitoring are reviewed. Both ECoG and direct eighth nerve monitoring surpass the ABR in their ability to provide fast, almost instantaneous, large, reproducible potentials in response to click stimuli. Changes in the amplitude and the latency of these potentials alert the surgeon of an impending eighth nerve injury. Human clinical observations revealed instances of persistence of the ECoG despite a total eighth nerve section in the cerebellopontine angle. Animal and human experiments were conducted to evaluate the effectiveness of ECoG and direct eighth nerve monitoring in hearing preservation. Twelve cats underwent progressive sectioning of the eighth nerve with simultaneous monitoring of changes in their ECoG and direct eighth nerve potentials. ECoG thresholds were obtained intraoperatively in eight patients undergoing surgery for conductive hearing loss. The results of these experiments suggest that recording directly from the eighth nerve is a more accurate technique during cerebellopontine angle and eighth nerve surgery. ECoG, however, appears to have a promising role in the intraoperative monitoring of middle ear reconstruction procedures under general anesthesia.
Descriptors: hearing loss, conductive, hearing loss, conductive surgery, monitoring, intraoperative, vestibulocochlear nerve, vestibulocochlear nerve surgery, action potentials, adult, aged, audiometry, evoked response, audiometry, pure tone, auditory threshold, cats, cochlear microphonic potentials, electrodes, implanted, evoked potentials, auditory, brain stem, middle aged, speech reception threshold test.

White, R.N. (2003). **Principles of thoracic surgery**. In: *Scientific Proceedings Veterinary Programme: British Small Animal Veterinary Association, April 3, 2003-April 6, 2003, Birmingham, UK,* British Small Animal Veterinary Association 46th Annual Congress.: Quedgeley, UK, p. 255-257.
Online: www.bsava.com
NAL Call Number: 41.8 J8292
Descriptors: anesthesia, surgical instruments, surgical operations, thorax, cats.

White, R.N. (2002). **Surgical management of constipation**. *Journal of Feline Medicine and Surgery* 4(3): 129-138. ISSN: 1098-612X.
NAL Call Number: SF985 .J68
Descriptors: intestinal diseases, megacolon, reviews, surgical operations, cats.

White, R.N. and C.A. Burton (2000). **Surgical management of intrathoracic tracheal avulsion in cats: long-term results in 9 consecutive cases.** *Veterinary Surgery* 29(5): 430-435. ISSN: 0161-3499.
NAL Call Number: SF911. V43
Descriptors: cats, trachea, trauma, surgical operations, postoperative, prognosis.

White, R.N., M.A. Forster van Hijfte, G. Petrie, C.R. Lamb, and R.A. Hammond (1996). **Surgical treatment of intrahepatic portosystemic shunts in six cats.** *Veterinary Record* 139(13): 314-317. ISSN: 0042-4900.

NAL Call Number: 41.8 V641
Descriptors: nervous system diseases, surgical operations, breeds animals, cats, genetic disorders, portacaval shunt, congenital abnormalities.

White, R.N., N.J. MacDonald, and C.A. Burton (2003). **Use of intraoperative mesenteric portovenography in congenital portosystemic shunt surgery**. *Veterinary Radiology and Ultrasound* 44(5): 514-521. ISSN: 1058-8183.
NAL Call Number: SF757.8 .A4
Descriptors: clinical aspects, congenital abnormalities, diagnosis, diagnostic techniques, portal vein, radiography, surgical operations, vascular diseases, cats, dogs.

Wilkie, D.A. and C. Whittaker (1997). **Surgery of the cornea**. *Veterinary Clinics of North America, Small Animal Practice* 27(5): 1067-1107. ISSN: 0195-5616.
NAL Call Number: SF601. V523
Descriptors: eye diseases, surgical instruments, ulcers, trauma, transplantation, cornea, surgery, cats.

Withrow, S.J. (1998). **Surgical oncology**. *Veterinary Quarterly* 20(Supplement 1): S12-S13. ISSN: 0165-2176.
NAL Call Number: SF601. V46
Descriptors: surgery, neoplasms, radiotherapy, disease control, cats.

Woerdt, A.V.d. (2004). **Adnexal surgery in dogs and cats**. *Veterinary Ophthalmology* 7(5): 284-290. ISSN: 1463-5216.
NAL Call Number: SF891 .V47
Descriptors: congenital abnormalities, cornea, entropion, eyelid diseases, eyelids, surgery, surgical operations, cats, dogs.

Wylie, K.B. and G. Hosgood (1994). **Mortality and morbidity of small and large intestinal surgery in dogs and cats: 74 cases (1980-1992).** *American Animal Hospital Association* 30(5): 469-474. ISSN: 0587-2871.
NAL Call Number: SF601 .A5
Descriptors: dogs, cats, intestines, mortality, surgical operations, peritonitis, body parts, digestive system, digestive system diseases, organic diseases, small intestine, large intestine, intestine resection, postoperative, anastomosis, suture .

Yata, S., H. Kitano, and K. Shimouchi (1996). **Castration of cats with the help of a surgical appliance**. *Journal of Veterinary Medicine, Japan* 49(12): 1014-1016. ISSN: 0447-0192.
Descriptors: castration, cats.
Language of Text: Japanese.

Zhu, B., J. Han, and S.R. Chiochio (1997). **Effect of stimulation of the superior and inferior spermatic nerves on testosterone secretion and testicular blood flow**. *Chinese Journal of Applied Physiology* 13(1): 75-9. ISSN: 1000-6834.
Abstract: The effects of testicular nerves on regulation of androgen secretion were examined by determining testicular blood flow and testosterone in testicular vein at 10 minute interval before, during, and 10, 20, 30 min after stimulation (Pre. Est. Post. 10.

Post 20. Post 30 respectively) of superior or inferior spermatic nerves (SSN or ISN) with 25 Hz high (50-70 V) or low (20-25 V) currency. Blood flow and blood samples of the testicular vein were obtained through a cannula in left side under anesthesia of pentobarbital sodium. Under the stimulation of SSN, blood flow in testicular vein decreased by 44.87% in Est with high voltage whereas with low voltage no change appeared in Est but decreased by 27.25% in the period of poststimulation; although with high voltage of stimulation of SSN a transient fall of testosterone (42.01%) was observed in Est, 2.5 times increase of testosterone occurred in the period of poststimulation, meanwhile the testosterone rose by 87.33% in Est of SSN stimulation with low voltage and was further elevated up to 4 times in post-stimulated period. Unlike the stimulation of SSN, there was no influence of stimulating ISN on testosterone with either high or low voltage whereas there was significant increase of blood flow (12.31%) in the period of Est with high voltage then it tended to decrease after stimulation. The present work supported the hypothesis that testicular nerves involve in regulation of androgen secretion in testis and provided a strong evidence for further investigation of nervous regulation of endocrine in testis.
Descriptors: testis secretion, testosterone secretion, cats, electric stimulation, regional flow, testis supply, testis innervation, testosterone.
Language of Text: Chinese.

Zuilen, C.D., van, and J. Kirpensteijn (1997). **Tumorchirurgie [Tumour surgery]**. *Tijdschrift Voor Diergeneeskunde* 122(12): 333-337. ISSN: 0040-7453.
NAL Call Number: 41.8 T431
Descriptors: biopsy, prognosis, neoplasms, surgery, pets, dogs, cats.
Language of Text: Dutch with a summary in English.

Selected Web Sites

The Laboratory Cat. *A.E. James.*
Online: http://www.adelaide.edu.au/ANZCCART/publications/FS_Cat8.pdf
Description: Provides laboratory cat information on colony husbandry, housing, nutrition, anesthetics and analgesics, technical procedures, and diseases.

Comfortable Environmentally Enriched Housing for Domestic Cats. *Geoffrey G. Loveridge.*
Online: http://www.animalwelfare.com/pubs/cq/cats.htm
Description: The design of long-term housing for cats under study should aim to provide space which is safe for both cats and care givers, provide pleasant sights and sounds, is easily cleaned, has satisfactory ventilation and is both mentally and physically stimulating.

Comfortable Quarters for Cats in Research Institutions. *Irene Rochlitz.*
Online: http://www.awionline.org/pubs/cq02/Cq-cats.html
Description: Information on social housing, enclosure size and design, and interactions with humans for cats in research environments.

Pain in Cats. *Matthews, K.A.*
Online: http://www.cvmbs.colostate.edu/ivapm/animals/cats.htm
Description: This site provides a list of signs, causes and treatment of pain in cats. There is a video that explains how animals experience pain.

Enrichment Strategies for Laboratory Animals from the Viewpoint of Clinical Veterinary Behavioral Medicine: Emphasis on Cats and Dogs. *Overall, K.A. and D. Dyer.*
Online: http://dels.nas.edu/ilar_n/ilarlournal/46_2/pdfs/v4602overall.pdf
Description: This review includes an emphasis on behavioral enrichment for the well-being of dogs and cats.

The Cat in Biomedical Research. *Paula D. Johnson.*
Online: http://www.uac.arizona.edu/VSC443/catmodel/catmodel06.html
Description: These are lecture notes from a course in research animal methods. It covers selection criteria, sources of cats, housing and husbandry, conditioning, colony management, and diseases of cats.

Enriching the Environment of the Laboratory Cat. *Sandra McCune.*
Online: http://www.nal.usda.gov/awic/pubs/enrich/labcat.htm
Description: This paper introduces the problems of confinement experienced by domestic cats, the principles of enrichment relevant to this species and the role of enrichment in preventing and relieving problems.