THE WINN FELINE FOUNDATION
For the Health and Well-Being of All Cats
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HEALTH NEWS

From THE WINN FELINE FOUNDATION

Summaries by Betty White 4/07

"Therapeutic Options for Cognitive Decline in Senior Pets." Cognitive dysfunction syndrome is a neuro-degenerative disorder of senior dogs and cats, characterized by alterations in usual behavior and a gradual cognitive decline. This diagnosis is reached by an exclusionary process. Older pets are increasingly subject to diseases of virtually all organ systems, as well as impairment of circulation to the central nervous system. Pain and lesions to the brain can cause behavior changes. These changes are usually noticed before the onset of clinical signs. If there is no underlying medical problem present, the older pet is diagnosed as suffering from cognitive dysfunction syndrome. The acronym DISHA has been used to describe the signs of cognitive dysfunction: **d**isorientation, **i**nteractions with **s**timulation from people and other pets, **h**ouse soiling, or **a**ctivity level changes.

Because of the similarity seen with early Alzheimer's disease and senility in humans, the dog has been studied extensively as a model for human brain aging. Clinical signs alone have traditionally indicated that dogs are diagnosed with the syndrome at approximately 11 years of age. Studies of therapeutic options for both pets and humans have focused on a combination of therapies as opposed to a single one. These combinations include antioxidants, certain fatty acids, essential minerals, vitamins, metabolic co-factors, and trophic nutrients to maintain brain cell health and memory preservation. Results of two studies provided some interesting insights: (1) Oxidative damage is considered to be one of the main factors in age-related decline of dogs, suggesting that therapies should be selected for their ability to scavenge or prevent the production of oxygen-free radicals. (2) The most significant positive effect on health and life span in dogs can be achieved through weight control.

There are no drugs licensed for the treatment of cognitive dysfunction in cats, and the use of canine medications must be weighed against the potential risks. Reports indicate that selegiline has been found to be useful in senior cats for improving such clinical signs as disorientation, increased vocalization, decreased affection, and repetitive or restless activity. Natural supplements such as Senilife, currently distributed in Italy to aging dogs and cats, make label claims for treating cats. However, any improvement reported has only been anecdotal; there are little or no published data available.

[Landsberg, G. (2006). Therapeutic options for cognitive decline in senior pets. J Am Anim Hosp Assoc 42(6): 407-13.]

NOTE: A study by Danielle A. Gunn-Moore of the University of Edinburgh and others demonstrated that certain age-related changes in cat brains are similar to those observed

in the brains of aged people and other old mammals:[Gunn-Moore, D. A., J. McVee, et al. (2006). Ageing changes in cat brains demonstrated by beta-amyloid and AT8-immunoreactive phosphorylated tau deposits. J Feline Med Surg 8(4): 234-42.]

"The Use of Complementary and Alternative Therapies in Dogs and Cats With Cancer." Researchers from the College of Veterinary Medicine, Colorado State University, Fort Collins, were interested not only in the extent to which owners used complementary and alternative therapies for their cancer-stricken pets, but also what types were used, for what purpose the therapies were used, and the sources of information and the level of interest in these therapies. Two hundred fifty-four owners agreed to answer a 5-page questionnaire. Of that number, 164 (65%) used some kind of complementary/alternative therapy. The most often stated reason for use was "to improve general well-being," not as a treatment or cure (34%). A further 22% hoped to improve immune function, and 13% hoped to lessen pain. The least used modalities were acupuncture and chiropractic procedures.

This study revealed that pet owners turn to their veterinarian most often for information about other therapies. It also indicated that the use of complementary and alternative therapies in dogs and cats with cancer is high, mirroring the use reported for humans.
[Lana, S., L. Kogan, et al. (2006). The use of complementary and alternative therapies in dogs and cats with cancer. J Am Anim Hosp Assoc 42(5): 361-65.]

"Lack of Genetic Association Among Coat Colors, Progressive Retinal Atrophy and Polycystic Kidney Disease in Persian Cats." D. H. Maggs and L. A. Lyons of the School of Veterinary Medicine, University of California-Davis, investigated the connection, if any, between three coat colors and two Persian diseases, progressive retinal atrophy (PRA) and polycystic kidney disease (PKD). Breeders have indicated that only cats from brown (chocolate) or Himalayan (pointed) lines are at risk for the inherited form of PRA. The study evaluated 60 related cats for PRA by ophthalmic examination, genetically typed the cats for PKD, and also for the mutations that produce coat color variants in agouti, brown, and colors associated with the pointed coloration in Himalayan cats. There was no association found between coat color and the two diseases. Since PRA is not limited to cats with chocolate or pointed coat color, breeders and veterinarians should be aware that there may be a higher prevalence of the disease than currently believed.
[Rah, H., D. J. Maggs, et al. (2006). Lack of genetic association among coat colors, progressive retinal atrophy and polycystic kidney disease in Persian cats. J Feline Med Surg 8(5): 357-60.]

"Extra-testicular Interstitial and Sertoli Cell Tumors in Previously Neutered Dogs and Cats: A Report of 17 Cases." A group of Canadian researchers at the Ontario Veterinary College, University of Guelph, Canada, studied a group of extremely rare tumors derived from testicular tissue found in dogs and cats. Of the 17 cases submitted from 15 different veterinary practices, 5 were cats. All of the cats had a palpable mass in the scrotum or at the site of the original pre-scrotal incision. They all had an extra-testicular interstitial cell tumor, and had developed secondary sexual characteristics. These latter characteristics reversed after removal of the tumor, and no cats died of tumor-related disease.

Several possibilities were considered as causal, including the presence of embryological ectopic tissue (tissue that forms in the wrong place) or the presence of testicular tissue transplanted during castration.
[Doxsee, A. L., J. A. Yager, et al. (2006). Extratesticular interstitial and Sertoli cell tumors in previously neutered dogs and cats: a report of 17 cases. Can Vet J 47(8): 763-6.]

"Feline Idiopathic Megacolon." Veterinarians at VCA Veterinary Referral Associates, Inc. in Gaithersburg, Maryland, discussed this relatively common disorder of the colon. The problem is characterized by severe distention of the colon as a result of the impaction of fecal matter; a physical examination confirms the presence of a large palpable amount of very firm feces in the colon. Additional clinical signs of the disorder are lack of appetite, weight loss, difficult bowel movements, and/or vomiting. It is of paramount importance to rule out predisposing problems before diagnosing idiopathic disease. These problems might be systemic disturbances, mechanical obstructions, or obvious functional abnormalities.

Idiopathic megacolon is often successfully managed medically by dietary modification and the administration of laxatives, enemas, and/or therapies that increase colon motility. This latter therapy is necessary when ordinary *constipation*, defined as a condition in which bowel movements are infrequent or incomplete, is in actuality *obstipation*, a permanent loss of colonic motility. Any domestic cat may develop constipation, obstipation, and/or megacolon. Middle-aged male cats are most often affected. Owners may notice affected cats having reduced, absent, and/or painful defecation for a variable period of time. Feces are large, hardened, and desiccated, but chronically constipated cats may also have episodes of diarrhea or bloody stools as a result of the irritant effect of fecal concretions on the colon mucosa.

For those cats that do not respond to medical therapy, the current gold-standard surgical treatment is subtotal colectomy. This procedure removes 90% to 95% of the colon regardless of gross appearance. (It is exceedingly difficult to determine normal from abnormal colon tissue at the time of surgery.) Cats suffering from idiopathic megacolon that subsequently undergo subtotal colectomy have a fair to good long-term prognosis.
[Byers, C., C. Leasure, et al. (2006). Feline idiopathic megacolon. Comp Contin Edu Pract Vet 28(9): 658-64.]

"The Evolutionary Basis for the Feeding Behavior of Domestic Dogs (Canis Familiaris) and Cats (Felis Catus)." United Kingdom researcher J. W. S. Bradshaw of the University of Bristol takes an in-depth look at the reasons dogs and cats eat the food they do and the manner in which they consume it. He maintains that descent from the order *Carnivora* explains the structure of their teeth, sense of taste, and the way they eat. Typical of *Canis*, dogs' dentition is unspecialized and their taste system is rather insensitive to salt. Their pack-hunting ancestor, the wolf, *Canis lupus*, explains the preference of many dogs for large, infrequent meals -- reflecting competitive feeding behavior. As much as 100,000 years of domestication, however, has led to much diversity of conformation and behavior in the dog.

Cats, both structurally and physically, are highly specialized carnivores. This is reflected in their teeth, nutritional requirements, and sense of taste, which is insensitive both to salt and sugars. Since cats are descended from the solitary predator, *Felis silvestris*, a feline's preference for several small meals during the day harks back to the wild ancestor's daily pattern of multiple kills of small prey. Food selection in the wild is as much determined by what to hunt as what to eat, yet cats do modify their food preferences based on experience. Their sudden dislike, or boredom, with a food that was a substantial part of their diet, in favor of something new that may have a contrasting taste, tends to compensate for any incipient nutritional deficiencies. While kittens' preferences are strongly influenced by their mother, these preferences can change markedly during their first year of life, and even beyond.
[Bradshaw, J. W. (2006). The evolutionary basis for the feeding behavior of domestic dogs (Canis familiaris) and cats (Felis catus). J Nutr 136(7 Suppl): 1927S-1931S.]

"Dermatophytosis: Decontaminating Multianimal Facilities." A *dermatophyte* is defined as a fungus parasitic on the skin or hair, producing a state of dermatophytosis. The highly contagious *Microsporum canis*, or *M. canis*, is a fungal organism that can cause clinical disease in any haired animal, and it is one of the most common zoonotic diseases in veterinary medicine. Treating this disease, commonly referred to as ringworm, can be frustrating, particularly in multi-animal facilities, including animal shelters and catteries. Animals may be at increased risk if their health has been compromised by parasites, infections, etc. Additionally, a warm and humid environment either within a facility or regionally, may encourage the growth of fungus. *M. canis* organisms shed from infected animals can remain infectious for 12 to 24 months, and its highly contagious aspect can render almost any object capable of transmission.

Catteries present unique problems, such as owners with varying levels of medical knowledge, cats that leave for and return from shows, breeding queens and young kittens, housing connected to a primary residence, etc. Aggressive therapy often includes frequent topical treatments and systemic therapy for 6 to 12 months.

The first step in successfully treating dermatophytosis is to assess the extent of the infection. This involves culturing samples from every animal on the premises, including other pets. It does not matter if some animals appear to be free of fungus, because appearances are irrelevant; they may be simply asymptomatic. Not all strains of *M. canis* demonstrate positive fluorescence with the use of a Wood's lamp, so this form of direct examination is not reliable. In addition, surfaces should be wiped to obtain samples for culture throughout the facility. The identification of the species of dermatophyte and the extent of the problem will determine the treatment plan.

The facility must be disinfected, and this involves discarding/removing all non-essential items, disposing of portable fans, wiping all surfaces with bleach every 1-3 days, installing a dehumidifier, cleaning the ventilation ducts, installing high-efficiency filters, vacuuming or steam cleaning all carpets and fabric surfaces, using disposable smocks or coveralls, eliminating the free movement of animals and humans throughout the facility, and establishing a three-room quarantine method.

The best method of handling infectious diseases involves a three-room isolation protocol. One room is dedicated to those animals not infected, based on multiple cultures. A second, transition room is designed for animals successfully treated and waiting for follow-up cultures to be completed. The third room should be used for all infected animals.

The authors' suggest both a topical and systemic treatment of all animals. The topical treatment speeds clinical response and prevents environmental contamination and zoonosis. Apply lime sulfur (4 oz/gal) to the entire hair coat every 3 days with a dip, sponge, or pressure sprayer. Administer itraconazole (10 mg/kg/day) until two or three negative culture results have been obtained. Griseofulvin or ketoconazole can be used, but these drugs are less practical and may have more adverse effects.

There is no question that aggressive, persistent treatment will clear most multi-animal facilities of dermatophytosis. However, this regime may take over a year to complete. It obviously requires patience and determination.
[Hnilica, K., E. May, et al. (2006). Dermatophytosis: Decontaminating multianimal facilities. Comp Contin Edu Pract Vet 28(8): 564-79.]

"White Spotting in the Domestic Cat (Felis Catus) Maps Near KIT on Feline Chromosome B1." Researchers at the School of Veterinary Medicine, University of California – Davis, genotyped five feline-derived micro-satellite markers in a large pedigree of cats that segregated for ventral white spotting. Since the called gene KIT and the called gene EDNRB cause similar white spotting phenotypes in other species, three of the five micro-satellite markers chosen were on feline chromosome B1 near KIT. The other two markers were on feline chromosome A1 near EDNRB. Pair-wise linkage analysis pointed to linkage of the white spotting with the three B1 markers, but not with the other two A1 markers. This study indicated that KIT, or another gene within the linked area, is a candidate for white spotting in cats. Another strong candidate is platelet-derived growth factor alpha (PDGFRA). This assumes that the KIT-PDGFRA linkage group, conserved in many mammalian species, is also conserved in the cat.
[Cooper, M. P., N. Fretwell, et al. (2006). White spotting in the domestic cat (Felis catus) maps near KIT on feline chromosome B1. Anim Genet 37(2): 163-5.]
NOTE: This study was supported by the Winn Feline Foundation.

"Prevalence of Feline Cataract: Results of a Cross-Sectional Study of 2000 Normal Animals, 50 Cats With Diabetes and One Hundred Cats Following Dehydrational Crises." D. L. Williams and M. F. Heath, researchers at Queen's Veterinary School Small Animal Hospital, University of Cambridge, England, studied 2,150 cats from veterinary hospital populations, shelters, and breeding catteries. All cats over 17-1/2 years were affected by some degree of lens opacity. In normal cats, 50% of them suffered from cataracts. The mean age when this occurred was 12.7 years, plus or minus 3.4 years. In cats with diabetes, when 50% had cataracts, the mean age was 5.6 years, plus or minus 1.9 years. Cats with episodes of dehydration related to chronic renal failure, chronic vomiting, or chronic diarrhea, when 50% had cataracts, had a mean age of 9.9 years, plus or minus 2.5 years. This study indicated that diabetes and dehydration crises do affect the onset of feline cataract.

[Williams, D. L. and M. F. Heath (2006). Prevalence of feline cataract: results of a cross-sectional study of 2000 normal animals, 50 cats with diabetes and one hundred cats following dehydrational crises. Vet Ophthalmol 9(5): 341-9.]

"In Vitro Comparison of Antiviral Drugs Against Feline Herpesvirus 1." Researchers at the Faculty of Veterinary Medicine, Ghent University, Belgium, studied the efficacy of six antiviral drugs in treating feline herpesvirus 1 (FHV-1), a common cause of respiratory and ocular disease in cats. The drugs evaluated were acyclovir, ganciclovir, cidofovir, foscarnet, adefovir and PMEDAP. The drugs were tested *in vitro* using Crandall-Rees feline kidney (CRFK) cells. The researchers stated that measuring reduction in plaque number and plaque size are two valuable and complementary means of assessing the efficacy of an antiviral drug, and the six drugs were compared using those parameters. They concluded that ganciclovir, PMEDAP, and cidofovir are the most potent inhibitors of FHV-1 in CRFK cells. (The most remarkable effect was observed for cidofovir and ganciclovir.) That being the case, these three drugs may be valuable candidates for the treatment of FHV-1 infection in cats.
[van der Meulen, K., B. Garre, et al. (2006). In vitro comparison of antiviral drugs against feline herpesvirus 1. BMC Vet Res 2: 13.]