

9th Annual Symposium

The Ninth Annual Feline Symposium was held on March 22, 1986, at VHUP. Following are summaries of the talks and discussions.

How Men and Women Think About and Interact with Their Cats

Dr. Victoria L. Voith discussed her recent study which examined the attitude of owners and how owners interact with their pet cats. Questionnaires were made available to people entering four veterinary hospitals along the east coast of the United States. The questionnaires took between 15 and 20 minutes to complete and asked about the frequencies of specific behaviors of the cat. Over 800 questionnaires were either completely or partially filled out.

Following are Dr. Voith's findings:

84% of the questionnaires were filled out by women. 52% of the questionnaires referred to male cats and 48% to females; 13% of the cats were sexually intact; 77% were neutered by 12 months of age; 29% were declawed; 53% of the cats were five years old or younger; the most frequently cited age of the cats was two years (13%); 60% of the cats lived in the city, 33% in the suburbs, and 7% in a rural area.

Most of the cats were owned by couples of opposite sex (36%), followed by single adults (23%), and nuclear families (23%). The majority of cats were obtained from friends or neighbors (33%), found as strays (27%) or adopted from an SPCA or similar agency (11%).

46% of the cats were described as behaving in a disobedient or independent manner frequently or very often. 47% of the cats were described as engaging in a behavior that the owner considered a problem. 24% of the problems cited were elimination behaviors, 24% were destructive behaviors, and 20% were ingestive behaviors.

Men and women did not differ as to whether they considered the cat a family member, allowed it to sleep on the bed or get on the furniture, took it on errands or overnight trips, or shared food from the table or snacks, talked to it frequently, believed they were aware of the cat's moods, or believed that the cat was aware of their moods. Women did, however, spend more time interacting with the cat, more frequently talked to the cat about important matters, and considered the cat protective.

Comparison of this survey with one filled out by over 700 dog owners the previous year revealed that owners' attitudes and interactions are similar regarding pet dogs and pet cats.

The following table is from an article entitled "Attachment of people to companion animals" that appeared in *Veterinary Clinics of North America: Small Animal Practice*, Vol. 15, No. 3, March, 1985, edited by J. Quackenbush and V. L. Voith, W. B. Saunders Publishing Company, Philadelphia.

Percentage of Respondents Who Answered in the Affirmative to the Following Questions:

	DOG	CAT
Consider a family member	99%	99%
Sleep on bed	56%	89%
Allow on furniture	56%	95%
Take on errands	83%	8%
Take on trips	72%	29%
Share food from table	64%	67%
Share snacks	86%	68%
Talk to pet at least once a day	97%	97%
Talk about important matters at least once a month	45%	58%
Believe aware of pet's moods	99%	89%
Believe pet aware of person's moods	98%	91%
Have photographs	91%	91%
Celebrate birthday	54%	39%

Dr. Victoria L. Voith is assistant professor of medicine (behavior) here at the School.



Cats are Special

Dr. Michael A. Obenski discussed special problems encountered in cats. "Cats are different from other mammals, anatomically, behaviorally, and in their nutritional requirements," he said. "Medications safe for other species can be quite dangerous to cats."

Aspirin, a commonly used pain killer, should not be given to a cat without consulting a veterinarian. "Cats lack the enzyme needed to detoxify aspirin," he said. "If repeated doses are given, toxic concentrations of aspirin can build up. Aspirin can also cause stomach irritation, liver damage, bone marrow suppression, and a depletion of blood clotting factors in cats."

Phenylbutazone, a drug commonly used to treat arthritis in dogs and horses, should not be given to a cat as it causes severe kidney damage in felines.

"Often people have medication for the dog in the house, and they think it will also help the cat," Dr. Obenski said. "But that is not the case, and before giving any drug to a cat, a veterinarian should be consulted." A case in point is acetaminophen, a substance present in Tylenol, Datril, and other painkillers. "One Tylenol will kill a cat," he said. "Acetaminophen affects the cat's hemoglobin, and the animal will die. Sometimes it can be saved if the stomach is pumped before the drug reaches the bloodstream." Dr. Obenski mentioned that phenacetin, a similar substance present in painkillers, will have the same effect on cats. He also pointed out that Methylene Blue, a chemical found in many medications used to treat urinary infections, can damage red blood cells in cats and lead to severe anemia.

He did explain that quite a number of drugs, while not specifically licensed for cats, are safe and are frequently prescribed by veterinarians.

Dr. Obenski then discussed a number of diseases

peculiar to cats. Feline vestibular disease, an unusual disturbance in the cat's balance system, has a sudden onset and occurs primarily in the summer or early fall. Affected animals will tilt the head to one side, walk awkwardly, and their eyes move back and forth. The cause of the condition is unknown; animals recover slowly from it.

Aortic embolism is a serious illness encountered in cats. Here, the rear legs are paralyzed due to a blood clot which cuts off circulation in the arteries of the hind legs. Frequently, this condition leads to death, though there are surgical and medical treatments available.

Cats are the only mammal aside from humans that can have bronchial asthma. Constriction of the small air passages in the lungs causes coughing and difficult breathing. The illness can look very similar to a hairball problem. Untreated, it can lead to serious pneumonia.

Feline infectious anemia is caused by microscopic parasites which infect the red blood cells of cats. The infection, probably spread by insect bites, can be mild or severe. It is often seen in cats with feline leukemia. Cats can have a tumor of the thyroid gland, and this causes hyperthyroidism. Affected animals eat a great deal yet lose weight. Other symptoms may include diarrhea, excessive thirst, rapid heart rate, and excitability.

Heartworm, a parasite primarily seen in dogs, can also affect cats. In cats, rather than being a heart problem, heartworm disease manifests itself through recurring stomach trouble. Cats with a chronic vomiting problem should be tested for heartworm. Once diagnosed, the disease can be treated.

Dr. Obenski also mentioned cuterebra as a cat disease. It is caused by a group of flies whose larval stages may infect the skin of cats and certain other animals. The female fly lays her eggs on the fur. The larva hatches and burrows into the skin. A small abscess develops with a little hole for the larva to breathe through. The condition is seen frequently in kittens or older cats during the spring and summer. Affected animals should be treated by a veterinarian, as the removal of the larvae can be difficult.

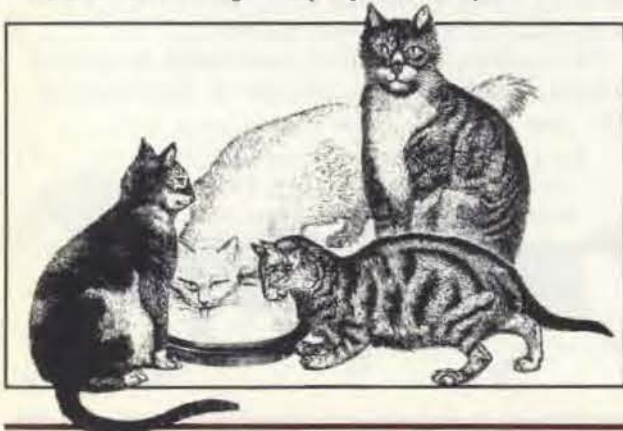
Dr. Obenski is an alumnus of the School. He graduated in 1972 and has a feline practice in Allentown, PA.



Peculiarities of Cat Nutrition

The special nutritional needs of cats were explained by Dr. David Kronfeld. "Of all the domesticated animals, cats need to be fed most carefully," said Dr. Kronfeld. "They are obligatory carnivores and their biochemistry is distinctive, as is their feeding behavior." He pointed out that cats evolved on a diet of small animals, high in animal protein and fat, with virtually no carbohydrates.

Today, through advancements in technology, ani-



mal feed is manufactured largely from cereal grains, such as corn and wheat, and the protein in feeds is derived mostly from soy beans. For the cat, which has evolved on animal proteins, this poses a problem. According to Dr. Kronfeld, cat food has to be carefully formulated and take into account the cat's biochemistry before it can be beneficial.

"Cats don't prosper on the amount of carbohydrates utilized well by dogs," he said. "It also has been found that starch and fiber depress digestion. Protein, fat, and vitamins have to be added to a cereal feed to make it nutritionally complete and palatable for cats." Cats have higher protein requirements than dogs, because they lack the ability to curtail the rate of amino acid breakdown by certain enzymes. As species which evolved on an animal protein-rich diet, cats never needed this adaptability. Cats also have a low rate of arginine synthesis, a substance needed to break down ammonia. If a cat's diet is lacking in arginine, ammonia will accumulate in the bloodstream and impair the function of the brain; convulsions and death can result.

Cats cannot produce taurine, and the absence of this substance in the diet can lead to retinal degeneration. Cats should not be fed dog food, as this is low in taurine. Dogs and other mammals can convert carotene into vitamin A, but the cat is not able to do so. The cat also is not able to produce niacin. Both substances are contained in liver. It appears that cats evolved on a diet with abundant liver. This, however, does not mean that a cat should be fed entirely on liver, as too much vitamin A can be toxic and lead to weak bones and fractures. Dr. Kronfeld recommended that kittens be fed no more than one teaspoon of liver daily, and adults receive no more than one ounce daily.

Cats also require more of the vitamins from the B complex than dogs, from two to eight times as much. In this group, the lack of thiamine can be serious. This vitamin, sensitive to heat, can be destroyed in the manufacturing process. Thiamine deficiency causes bleeding in the cerebellum and leads to loss of control of the limbs, loss of appetite, and death.

Dr. Kronfeld pointed out that cats can be fed

commercial dry food, provided it is formulated for cats. He explained that both the dry and the semi-moist feeds contain preservatives to give the food adequate shelf life. Canned foods need not contain preservatives. He also mentioned that canned foods generally contain less carbohydrates and fiber and are more efficiently utilized by the cat.

He added that most foods do not contain enough salt to stimulate the cat to take in fluids. "The Feline Urologic Syndrome has become quite common since the introduction of dry foods," he said. "These foods are higher in fiber, which in turn absorbs water in the gut, preventing fluids from reaching the kidneys." He feels that a cat's diet should contain 1 percent salt to encourage fluid intake. He mentioned that the pH of the urine is an important factor in the development of struvite crystals and stones. "It has been found that at pH 7 we get struvite development. We want a diet which keeps the pH below 6.6" he pointed out that the addition of phosphoric acid to foods to increase palatability may have decreased the chance of cats developing "FUS."

Asked whether cats should receive a vitamin supplement, he said no. He reminded the audience that cats evolved as solitary eaters, and finicky eaters often may just be fed in the wrong environment. "When feeding the cat, place the food where the cat will not be disturbed or threatened."

Dr. Kronfeld is Elizabeth and William Whitney Clark Professor of Nutrition at the School.



Advances in the Treatment of Feline Cancer

About 30 percent of healthy cats exposed to the feline leukemia virus actually become persistently infected. Dr. K. Ann Jeglum explained that quite a

number of cats are able to combat the disease and develop an immunity without the aid of a vaccine.

FelV, a retrovirus, invades the DNA (genetic material) of the cat's cells and replicates there. Virus particles circulate in the bloodstream and invade other organs. They also find their way into the saliva. It is an infectious disease and is transmitted from cat to cat through repeated intimate contact. "The virus probably spreads through the oral route, as saliva contains the highest concentration of virus particles," she said. "For a cat to become infected, it has to have prolonged, close contact with an infected animal."

She explained that when a cat first becomes infected, it is postulated that the virus invades the lymph nodes in the neck. At this point the body will fight the disease and will not produce antigens, but viral antigens may be in the serum at this time. An ELISA test, conducted at a veterinarian's office, can detect these antigens. This test does not determine whether a cat is infectious; it merely shows that the animal has been in contact with an infected cat.

Approximately 21 to 28 days after the initial exposure to the virus, the virus reaches the bone marrow. This stage is critical, as the cat's system will either ward off the disease, or its blood cells will be invaded and the FelV begins to replicate. If that occurs, the cat becomes viremic (infectious). This stage can be detected through an IFA test, which measures the presence of virus antigen within the DNA of blood cells. For this test, the veterinarian collects a blood sample and sends it to a special laboratory. If a cat is found to be viremic, it should be isolated from other cats to protect them from infection. At this stage it is possible for some cats to overcome the infection; however, the virus remains dormant in these animals, and the disease may occur later when the animal is stressed.

Dr. Jeglum explained that the majority of cats with FelV do not die from cancer but develop other diseases which are associated with a depressed immune system. "The virus contains a powerful immune suppressant."

She then discussed the vaccine currently available. Recent studies at the University of California, Davis, by Peterson and co-workers have challenged the initial efficacy studies conducted by Norden, and the issue is open-ended.

Dr. Jeglum recommended that owners exercise the traditional precautions of regularly testing sick cats, animals in catteries, or multi-cat households and isolating animals which test positive for the virus. She feels that all cats should be tested for FelV prior to vaccination and that only negative cats should be inoculated. She explained that not all cats need the vaccination. "It should be considered for high-risk cats, such as outdoor cats, cats in multiple cat households, and show cats. Pregnant cats can be vaccinated. Once a vaccination program has been initiated, the owner should still continue to test regularly for the disease, as the vaccine appears not to be effective in a certain number of animals."

Dr. Jeglum touched briefly on her work with feline mammary tumors. A treatment regimen encompassing chemotherapy and immunotherapy has been employed here at the School with good success. "We are now working on the next generation of treatment," she said. "We are developing specific monoclonal antibodies against mammary tumors, and these are used to fight breast cancer in cats. To date, we have treated six cats, and we are evaluating the efficacy of this treatment."

Dr. Jeglum stressed that mammary cancer is quite common in cats and that it is a disease which is frequently discovered only when it has reached advanced stages. "Owners of older cats should examine the cat's mammary glands periodically to check for abnormal growth. If the disease is detected early, in many cases the animal can be helped."

Dr. K. Ann Jeglum is assistant professor of medical oncology and head of the oncology service here at the School.

