

FELINE health topics

for veterinarians

RESEARCH BRIEFS

UPCOMING MEETINGS:

- October 19-22
- December 2-5

FYI:

The information in this newsletter was obtained from our updated client brochures on feline behavior problems.

You can purchase these new brochures through our office by calling (607) 253-3443.

Feline Behavior Problems: Aggression

Aggression in cats can be a complicated and upsetting problem for owners to solve. An aggressive cat can be very dangerous, especially toward children who may not be able to recognize the physical cues that are the warning signs of aggression. Additionally, cat bites and scratches are painful and can transmit disease.

The different types of aggression are not mutually exclusive. Your cat may show more than one type of aggression, and the problems may be more or less serious than those described below. However, some general principles apply to all types and levels of aggression:

- Early intervention is best, before your cat's aggressive behavior becomes a habit.
- Physical punishment, even a light tap on the nose, increases your cat's fear and anxiety. Some cats may even see it as a challenge, and become more aggressive.
- Certain medications can help, but only in conjunction with behavior modification and environmental changes.
- Recognizing the signs of aggression, then startling your cat without making physical contact are effective in curbing most aggression problems.
- Whenever possible, avoid situations that increase your cat's aggression.
- Separate cats that have aggression issues and re-introduce them slowly.
- Food treats can be used to effectively reward non-aggressive behavior.

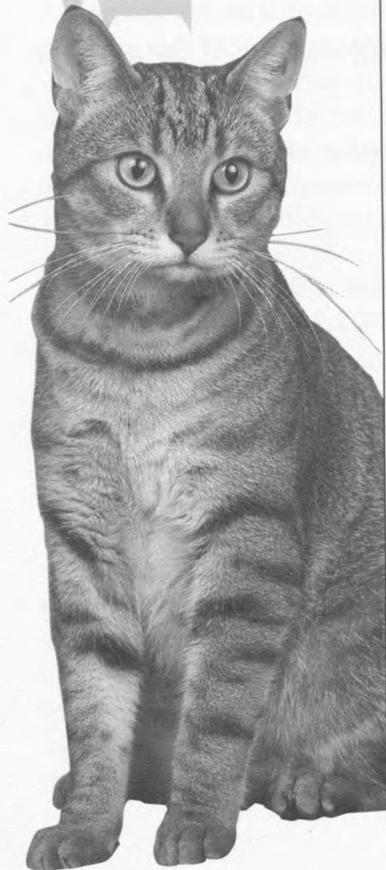
Q: "My cat is aggressive toward me and my other cat. What should I do?"

A: Because aggression may be caused by a medical problem, first take your cat to your veterinarian, who will perform a physical examination and appropriate diagnostic tests. Painful conditions, like arthritis and dental disease, as well as central nervous system conditions and hyperthyroidism, have all been implicated in aggression. Alleviation of underlying medical conditions often resolves the aggressive behavior.

Once medical causes have been ruled out, it is important to determine what kind of aggression your cat is displaying in order to formulate a management strategy, and ultimately, a solution.

Q: "My kitten sometimes bites and scratches me when we play. I know kittens love to play, but her attacks are painful."

A: Biting and scratching during play are typical of **play aggression**, a behavior most commonly observed in young cats and kit-



Feline Behavior Problems: Aggression

continued from page 1

tens. Kittens raised with littermates learn how to bite and scratch with reduced intensity, because play that is too rough causes pain to a playmate, resulting in either retaliation or the cessation of play. Consequently, play aggression is usually seen in kittens that were not raised with littermates or playmates, are under-stimulated, or lack appropriate play outlets.

Play aggression can usually be recognized in a kitten's body posture. The tail lashes back and forth, the ears

flatten against the head, and the pupils (the black part of the eyes) dilate. This sort of posture usually develops from normal play and is followed by biting and scratching. Kittens that stalk moving objects, like your hands and feet, are also displaying play aggression. Play aggressive cats often stalk or hide, then jump out and attack as you pass.

Try keeping a record of when this occurs to see if there is a pattern. You may learn, for example, that your kitten tends to hide under your bed and jump out as you're getting ready to go to sleep. By anticipating this, and encouraging play prior to the attack, you may be able to curb this behavior. A bell on a breakaway collar around your cat's neck clues you in to his whereabouts. You may need to deny him access to his favorite stalking places in order to stop this behavior.

Another management technique is to use noise deterrents, such as a human-generated hiss, or a blast from a compressed air canister. These must be used within the first few seconds of the onset of aggression to startle, rather than scare the cat, into ceasing his behavior. Do not physically punish your cat, even with a slight tap on the nose. The pain of

being struck can lead to more aggressive behavior, and your kitten will learn to fear and avoid you. Additionally, any physical contact may be interpreted as play, which rewards your kitten's rambunctious behavior. Simply walking away and ignoring your kitten is much more effective; it teaches him that the consequence of rough play is no play.

All of your play objects should be at a distance from your hands, so your cat has no opportunity to bite or

scratch you. For example:

- Toss moving objects like ping-pong balls, walnuts, or aluminum foil balls for your cat to chase.
- Provide climbing perches, scratching posts, and ball toys that deliver food when batted about.
- Buy a fishing pole toy with feathers on the end to dangle in front of your cat.

Q: "My ordinarily nice cat gets very agitated whenever anyone new comes into the house; she has even attacked some visitors."

A: These are signs of **fear aggression**—a defensive behavior toward unfamiliar stimuli, like people, animals, and noises. Unpleasant experiences, like a trip to the veterinarian's office, may also trigger fear aggression. A cat displaying this sort of aggression hisses, bares her teeth, and crouches low with her tail and legs tucked under her body. Her ears are flat against her head, her pupils are dilated, and her fur stands on end.

The management of this problem involves identification and, if possible, avoidance of fear-eliciting stimuli. You can attempt a gradual desensiti-

Do not physically punish your cat, even with a slight tap on the nose. The pain of being struck can lead to more aggressive behavior, and your kitten will learn to fear and avoid you.



zation program, in which your cat is exposed to such stimuli a safe distance away for short periods of time, then rewarded with food treats for non-aggressive behavior. For example, if your cat has a fear of men, a man might stand at a distance that does not trigger aggressive behavior in your cat. Your cat gets a treat for her



The ultimate purpose of the Cornell Feline Health Center is to improve the health of cats everywhere by developing methods to prevent or cure feline diseases, and by providing continuing education to veterinarians and cat owners. All contributions are tax-deductible.

Director:

James R. Richards, D.V.M.

Veterinary Consultants:

Christine A. Bellezza, D.V.M.
Eric Christensen, D.V.M.
Carolyn M. McDaniel, V.M.D.

Administrator:

Gwendolyn M. Frost

Administrative Assistants:

Kathleen M. Mospan
Pamela E. Sackett
Sheryl A. Thomas
Shelly E. VanGorder

©2002 by Cornell University on behalf of the Cornell Feline Health Center, College of Veterinary Medicine, Ithaca, NY 14853.

Phone: (607) 253-3414

Fax: (607) 253-3419

All rights reserved. Permission to reprint selected portions must be obtained in writing. Cornell University is an equal opportunity, affirmative action educator and employer.

calm demeanor. With each session, the man moves closer, and gradually, the cat learns to associate the man's presence with a tasty treat.

There are two important things *not* to do with a fear aggressive cat:

- Do not console her. Kind words and petting communicate your approval of her inappropriate behavior.
- Visitors to your home should not retreat or show fear in front of a fear aggressive cat, because this teaches the cat that her behavior can make unwanted visitors go away. Lack of attention is a better strategy.

Q: "My cat kills outside mice and birds. I worry that he will attack our pet gerbil."

A: A normal, instinctive desire to hunt prey, **predatory aggression** includes the stalking, chasing, and attacking of rodents and birds. This behavior is inappropriate when

removing bird feeders and using tightly sealed garbage containers.

Putting a bell on a breakaway collar around your cat's neck so you know his whereabouts can help foil his sneak attacks on people. Take precautions with infants and toddlers, who are especially vulnerable to predatory aggression.

Q: "My arthritic cat growls and hisses when I pick her up to give her medicine. I don't want to hurt her, or be hurt, but I have to give her pills."

A: A cat that dislikes being touched in a painful area may display **pain-induced aggression** in an attempt to stop you from handling her. This behavior can also be associated with past trauma. For example, a cat whose tail was once caught in a door may continue to resent any touching of his

tail long after the pain is gone.

Resolving or alleviating the pain is the best way to manage this problem. However, like the arthritic cat described above, you may need to handle a cat in pain in order to treat her. If so, handle her as gently as possible, wear gloves if necessary, and give her food treats so that she associates your touch with a tasty reward. If she acts aggressive while you are handling her, do not reward her with kind words and petting; this demonstrates that aggressive behavior is acceptable. Finally, ask your veterinarian about medications that can help your cat cope with her pain.

Q: "Sometimes when I approach my cat while he's on the windowsill looking outside, he turns around and swats at me, unprovoked. Why?"

A: **Redirected aggression** typically occurs when a cat is aroused by one stimulus, but another pet or person intervenes. In the example above, a bird outside the window may have stimulated the cat, but the unsuspect-

continued on page 4

If your cat shows predatory aggression toward indoor pets like gerbils, hamsters, or pet birds, it is wise to deny him access to those animals.



directed toward humans, and can be disturbing when directed toward wildlife or small indoor pets.

A cat on the prowl shows hunting body postures. He slinks with a lowered head and a twitching tail, and lunges when the prey is within reach. Because this behavior is instinctive, it is especially hard to control. There are, however, some effective management strategies.

If your cat shows predatory aggression toward indoor pets like gerbils, hamsters, or pet birds, it is wise to deny him access to those animals. If you do not want your cat to hunt wildlife, consider keeping him indoors. Some wildlife can also be deterred from your property by

RECOMMENDED PRODUCTS & RESOURCES

ELECTRONIC MATS:

Scatmat

Contech Electronics, Inc.
P.O. Box 115
Saanichton, BC V8M 2C3
Canada

PetMat

Radio Systems Corporation
5008 National Drive
Knoxville, TN 37914

DOUBLE-SIDED TAPE:

Sticky Paws

Fe Lines, Inc.
Route 1, Box 438
Burlison, TX 76028

MOTION-ACTIVATED SPRINKLER:

Scarecrow

The Dog's Outfitter
1 Maplewood Drive
Hazleton, PA 18201

Feline Behavior Problems: Aggression

continued from page 3

ing owner became the recipient of the lashing instead. A cat exhibiting redirected aggression may growl and pace; his hair stands on end, his tail swishes, and his pupils dilate.

Avoid the cat until he is calm. Interaction can lead to injury, and any

age outdoor animals from coming near your house by installing motion-activated sprinklers, removing bird feeders, and using well-sealed garbage containers.

Finally, you can interrupt redirected aggression between cats by

not use physical restraint; this can increase his anxiety.

You can systematically discourage your cat's petting-induced aggression with the following tactics: Entice your cat onto your lap with a tasty treat, and lightly stroke him. Well before you detect his aggressive warning signs, place him on the floor with a treat to reward his peaceful behavior. Gradually increase the length of time you spend petting him, and he will learn that calm interactions are followed by treats.

The hardest part of dealing with petting-induced aggression is accepting that your cat has limits to what he will tolerate. Yours may never be a cuddly cat, but he can learn to interact without violence.

If your cat has exhibited redirected aggression toward another cat in the house, re-introduce the two cats slowly, once the aggressor has calmed.



attention, including punishment, may encourage his behavior. You may have to gently herd your cat to a quiet, dark room for a "time-out;" if necessary, use a thick, folded blanket or a board to protect yourself from injury. Periodically, enter the room, turn on the light, and put down a bowl of food. If your cat is still aggressive, turn the light off and leave. If he is calm, pet and praise him.

If your cat has exhibited redirected aggression toward another cat in the house, re-introduce the two cats slowly, once the aggressor has calmed. Place the cats on opposite ends of the room and feed them; if necessary, you can place each cat in a carrier to ensure their safety. This will allow both cats to associate food with the other's presence. Such behavior modification techniques are important for maintaining household harmony; if severe redirected aggression occurs regularly, your two cats will learn to fight whenever they are together.

You may be able to prevent your cat's redirected aggression if you can identify the stimulus that sets him off. However, if the stimulus is an outdoor noise, smell, or sight, you may have to block your cat's exposure to the outside world. You can install electronic mats that deliver a harmless, mild shock, or put sticky tape on your windowsills. Window blinds are also effective deterrents. You can discour-

immediately startling them with a water gun or shaking a jar of pennies. This sort of remote punishment keeps you from getting hurt, and if consistent, may discourage further attacks.

Q: "My cat begs for attention, but when I pet him for too long, he lashes out and runs away."

A: A cat exhibiting **petting-induced aggression** will usually seek out attention, but at some point while being petted, he acts as though he's had too much, and he attacks.

Although a tensed body, flattened ears, and lashing tail are typical of the warning signs a cat gives before an attack, cat owners must learn to recognize signs that are particular to his or her cat. Young children are especially at risk because they may be unable to read a cat's body language.

To manage this problem, examine the ways in which you handle your cat. Try holding or touching your cat only when he seeks you out; avoid uninvited handling, physical punishment, or picking up your cat when he's eating. When petting your cat, do

Q: "Our cat growls and hisses when we try to move her off our bed, although she constantly seeks our attention."

A: This cat is attempting to control the situation through **status-induced aggression**. Other examples include cats that block doorways, or solicit attention from their owner or another cat by biting or swatting them as they pass, often with unsheathed claws. The signs of this kind of aggression include tail swishing, flattened ears, dilated pupils, growling, and hissing.

To manage this cat, the owners must ignore the cat's demands for play, food and attention; such rewards must only be given when the cat is relaxed. A relaxed cat holds her tail up, has normal sized pupils, and does not swat. Owners should never physi-

The hardest part of dealing with petting-induced aggression is accepting that your cat has limits to what he will tolerate. Yours may never be a cuddly cat, but he can learn to interact without violence.



cally punish their cat; even a harmless tap on the nose may be viewed as a challenge and the cat may become even more aggressive. The most effective reaction to status-induced aggression is to ignore the cat completely and wear attack-proof jeans around the house.

Q: “My cat has been very nasty toward the new cat I just brought home. They have violent interactions and I worry that they’ll hurt each other.”

A: Cats tend to defend their territory by exhibiting **territorial aggression** when a new cat is added to the household, and even when a resident cat returns from a hospital stay bearing unfamiliar smells. Owners often observe the territorial aggressive cat swatting, chasing, and attacking the new or returning cat.

The most effective management of territorial aggression is to prevent it from occurring when first bringing home a new cat. However, the following steps can be taken even if you have already introduced a new cat and your cats are brawling. All of the following steps should be taken slowly; rushed introductions are the most common cause of failure.

- Your new cat should be confined to his own room with litter, food, and water. The two cats should be able to smell and hear each other through the closed door, but there should be no physical contact.
- After a few days, switch the positions of the cats. Allow your cat to investigate the smells of the newcomer, while the new cat explores the house and the scent of his new playmate. Expect some hissing. Switch them back after they have had some time to explore.
- The next step is place them on opposite ends of the same room, either in carriers or restrained with

harnesses and leashes. Both cats should be fed, so that they learn to associate the pleasure of eating with each other’s presence. If the cats won’t eat, or seem anxious or aggressive, they are probably too close together. However, if they eat and seem relaxed, they can be moved closer together at the next feeding session.

- The final step is to release them from their carriers and feed them, still keeping them far apart. Monitor them for anxiety and aggression.
- This whole process can proceed only as quickly as your cats allow, and can take weeks or even months. Signs of anxiety or aggression usually indicate that the introductions are proceeding too quickly.

If the territorial aggression still cannot be controlled, your veterinarian may prescribe medication for both the aggressor and the victim. Keep in mind that medication is only part of

minimum, and avoid approaching or handling either the mother or her kittens if you are met with maternal aggression.

If you must handle the mother cat during this time, she can be muzzled or gently restrained. If the kittens need to be held, try to entice the mother away with some tasty food.

Q: “Our two male cats wake us up with fighting and hissing.”

A: Male cats are often involved in **inter-cat aggression**, which usually erupts as one cat reaches social maturity at two to four years of age. Although this type of aggression is usually seen in males due to hormone-driven competition for mates, it can occur between cats of any sex when territorial conflicts occur. Such cats exhibit the typical signs of aggression: flattened ears, puffed-up hair, hissing, and howling.

Because there is a hormonal component, the first step toward alleviat-

Put distinct sounding bells on breakaway collars on each cat so that you know their whereabouts. Immediately startle them with a loud noise (or a squirt from a water gun whenever they behave aggressively.



the solution; it must be used in conjunction with slow introductions and consistent rewards for peaceful behavior.

Q: “We took in a pregnant stray cat that recently gave birth. The mother cat gets very agitated and hisses if we try to approach her or the kittens.”

A: The mother cat has **maternal aggression**. This behavior usually subsides as the kittens age. In the meantime, it is best to provide a low stress environment, keep visitors to a

ing this aggression is to neuter or spay all cats involved. If this has already been done, the cats should be separated, each with their own food, water, and litter box, whenever they are unsupervised. When you are monitoring them, they should be rewarded with treats for peaceful interactions. Put distinct sounding bells on breakaway collars on each cat so that you know their whereabouts. Immediately startle them with a loud noise (i.e. a compressed air canister, or shaken jar of pennies) or a squirt from a water gun whenever they behave aggressively.

Research Briefs

A snapshot of recent feline research from the world's scientific literature

Toll, J.; Erb, H.; Birnbaum, N.; Schermerhorn, T. **"Prevalence and incidence of serum magnesium abnormalities in hospitalized cats."**

Journal of Veterinary Internal Medicine 16 (3) 217-221

 Total serum magnesium concentration ($[Mg^{2+}](s)$) was prospectively determined for 57 cats admitted to the intensive care unit (ICU) of the Cornell University Hospital for Animals. Data were collected and analyzed to determine the following: prevalence and incidence of $[Mg^{2+}](s)$ abnormalities, medical disorders associated with altered $[Mg^{2+}](s)$, association of altered $[Mg^{2+}](s)$ with other electrolyte abnormalities, length of hospitalization for cats with abnormalities of $[Mg^{2+}](s)$ versus those with normal $[Mg^{2+}](s)$, and survival of cats with abnormal $[Mg^{2+}](s)$ versus those with normal $[Mg^{2+}](s)$. The point prevalence of magnesium abnormalities was 26%, the period prevalence was 46%, and the cumulative incidence was 23%. Hypermagnesemia was associated with abnormalities of serum potassium ($P = .04$) and phosphate ($P = .01$) concentrations. Abnormalities of $[Mg^{2+}](s)$ were not associated with abnormal serum concentrations of Na^+ , Ca^{2+} , or Cl^- . On admission, hypomagnesemia was detected in cats with gastrointestinal, endocrine, and other disorders; hypermagnesemia was detected only in cats with renal disease, obstructive uropathy, or neoplastic disease. The median hospital stay for cats that developed abnormal $[Mg^{2+}](s)$ after admission was longer than for cats that remained normomagnesemic (5 versus 4 days, respectively; $P = .03$). Despite the longer hospital stay, the survival of these cats was lower than that of normomagnesemic cats (54

versus 77%; $P = .05$). When all cats were considered, the survival of cats with abnormal $[Mg^{2+}](s)$ also was decreased compared with normomagnesemic cats (62 versus 81%; $P = .05$). We conclude that abnormalities of $[Mg^{2+}](s)$ may affect morbidity and mortality of affected cats.

Cole, T.L.; Center, S.A.; Flood, S.N.; Rowland, P.H.; Valentine, B.A.; Warner, K.L.; Erb, H.N. **"Diagnostic comparison of needle and wedge biopsy specimens of the liver in dogs and cats."** *Journal of the American Veterinary Medical Association* 220(10) 1483-1490

 The objective of this study was to compare morphologic diagnoses determined from needle biopsy specimens obtained from the livers of dogs and cats with morphologic diagnoses determined from wedge biopsy specimens. In this prospective study, 2 needle biopsy specimens were obtained from each of 124 dogs and cats; wedge biopsy specimens were obtained from the same liver lobe during laparotomy or postmortem examination. Histologic features were scored independently by 3 individuals; a morphologic diagnosis was rendered after histologic features were scored. Cases were included only if at least 2 of the 3 examiners agreed on the morphologic diagnosis; the definitive diagnosis was considered to be the morphologic diagnosis rendered for the wedge biopsy specimen. Physical characteristics (length, width, surface area, degree of fragmentation, and number of portal triads for needle biopsy specimens and surface area for wedge biopsy specimens) were determined. Definitive diagnoses included hepatic necrosis ($n = 10$), cholangitis-cholangiohepatitis (13), chronic hepatitis-cirrhosis

(12), canine vacuolar hepatopathy (11), portosystemic vascular anomaly-microvascular dysplasia (17), neoplasia (10), miscellaneous hepatic disorders (18), and no hepatic disease (33). For individual examiners, the morphologic diagnosis assigned to needle biopsy specimens agreed with the morphologic diagnosis assigned to wedge biopsy specimens for 56 and 67% of the specimens. All 3 examiners agreed on the morphologic diagnosis assigned to needle and wedge biopsy specimens for 44 and 650 of the specimens, respectively. Morphologic diagnoses assigned to needle biopsy specimens concurred with the definitive diagnosis for 59 of 124 (480) animals. These results suggest that needle biopsy specimens of the liver from dogs and cats must be interpreted with caution.

Eleraky, N.Z.; Potgieter, L.N.D.; Kennedy, M.A. **"Virucidal efficacy of four new disinfectants."** *Journal of the American Animal Hospital Association* 38(3) 231-234

 Virucidal efficacy was evaluated for four recently available disinfectants: chlorine dioxide, potassium peroxymonosulfate, a quaternary ammonium compound, and citricidal (grapefruit extract). Sodium hypochlorite (3%) and tap water were used as positive and negative controls respectively. Feline herpesvirus, feline calicivirus, and feline parvovirus were exposed to the manufacturers' recommended dilutions of the evaluated disinfectants. Both chlorine dioxide and potassium peroxymonosulfate completely inactivated the three viruses used in this study. These disinfectants can aid in controlling nosocomial transmission of viruses with less of the deleterious effects of sodium hypochlorite. The quaternary

ammonium compound evaluated in this study and citricidal were not effective against feline calicivirus and feline parvovirus.

Arai, M.; Earl, D.D.; Yamamoto, J.K. "Is AZT/3TC therapy effective against FIV infection or immunopathogenesis?" *Veterinary Immunology and Immunopathology* 85(3-4) 189-204

 In vitro and in vivo prophylactic and therapeutic efficacy of AZT/3TC treatment was evaluated against feline immunodeficiency virus (FIV) infection. In vitro studies utilized FIV-infected peripheral blood mononuclear cells (PBMCs) or FIV-infected T-cell lines treated with AZT (azidothymidine) alone, 3TC alone, or AZT/3TC combination and tested for anti-FIV activity and drug toxicity. AZT/3TC combination had additive to synergistic anti-FIV activities in primary PBMC but not in chronically infected cell lines. In vivo studies consisted of four treatment groups (n = 15) of SPF cats receiving AZT/3TC combination (5-75 mg/kg/drug PO BID for 8 or 11 weeks) and one control group (n = 9) receiving oral placebo. Group I (n = 6, 150 mg/kg/drug/day) was treated starting 3 days pre-FIV inoculation, whereas Group II (n = 3, 150 mg/kg/drug/day) and Group III (n = 3, 100 mg/kg/drug/day) treatments were simultaneous with FIV inoculation. Group IV treatment (n = 3, 100 mg/kg/drug/day) was initiated 2 weeks post-FIV inoculation. All cats were monitored for drug toxicity and FIV infection. Eighty-three percent of cats in Group I and 33% of cats in Groups II and III were completely protected from FIV infection. A significant delay in infection and antibody seroconversion was observed in all unprotected cats from Groups I, II and III. Group

IV cats had only a slight delay in FIV antibody seroconversion. Adverse drug reactions (anemia and neutropenia) observed at high doses (100-150 mg/kg/drug/day) were reversible upon lowering the dose (20 mg/kg/drug/day). In contrast, AZT/3TC treatment had no anti-FIV activity in chronically infected cats. Furthermore, severe clinical signs caused by adverse drug reactions were observed in some of these cats. Overall, AZT/3TC treatment is effective for prophylaxis but not for therapeutic use in chronically FIV-infected cats.

Centonze, L.A.; Levy, J.K. "Characteristics of free-roaming cats and their caretakers." *Journal of the American Veterinary Medical Association* 220(11) 1627-1633

 The investigators sought to describe the characteristics of unowned, free-roaming cats and their caretakers who participated in a trap-neuter-return (TNR) program and to determine the effect of the program on free-roaming cat colonies. The sample population comprised 101 caretakers of 920 unowned, free-roaming cats in 132 colonies in north central Florida. Most (85/101; 84%) caretakers were female, and the median age was 45 years (range, 19 to 74 years). Most (89/101; 88%) caretakers owned pets, and of those, most (67/101; 66%) owned cats. The major reasons for feeding free-roaming cats were sympathy and love of animals. Most caretakers reported that the cats they cared for were too wild to be adopted, but many also reported that they considered the cats to be like pets. The total surveyed cat population was 920 before participation in TNR and 678 after TNR. Mean colony size was 7 cats before TNR and 5.1 cats after TNR. Most cats lived on the

caretaker's property. At the time of the survey, 70% (644/920) of the cats had been neutered. The investigators attributed the decrease in the surveyed free-roaming cat population to a reduction in births of new kittens, adoptions, deaths, and disappearances. Recognition of the human-animal bond that exists between caretakers and the feral cats they feed may facilitate the development of effective control programs for feral cat populations.

Muirden, A. "Prevalence of feline leukaemia virus and antibodies to feline immunodeficiency virus and feline coronavirus in stray cats sent to an RSPCA hospital." *Veterinary Record* 150(20) 621-625

 A total of 517 stray cats at an RSPCA veterinary hospital were tested for feline leukaemia virus (FeLV), feline coronavirus (FCoV) and feline immunodeficiency virus (FIV). The prevalence of FeLV was 3.5 per cent in all the cats, 1.4 per cent in healthy cats and 6.9 per cent in sick cats. FeLV positivity was associated only with disease of non-traumatic origin. Antibodies to FCoV were present in 22.4 per cent of the cats, and their prevalence was significantly higher in cats over two years old and in feral/semiferal cats. The prevalence of antibodies to FIV was 10.4 per cent in all the cats, 4.9 per cent in healthy cats and 16.7 per cent in sick cats. The prevalence of FIV antibodies was significantly higher in entire males and neutered males than in females, in cats over two years old compared with younger cats, and in cats suffering disease of non-traumatic origin rather than in healthy cats or cats suffering only from trauma. Sex, age and health status were each independently highly associated with FIV antibodies.

Upcoming

MEETINGS

① American Association of Feline Practitioners/ Academy of Feline Medicine 2002 Annual Fall Conference

The Fall Conference of the American Association of Feline Practitioners and the Academy of Feline Medicine will be held **October 19-22, 2002** at Wyndham Buttes Resort, Tempe, AZ. The Conference will focus on feline behavior and features some of the world's foremost experts. Topics include normal behavior, communication, social organization, neurochemistry of behavior and emotions, prevention of behavior problems, the economics of behavior service in a private practice setting, cognitive dysfunction, aggression, and a host of other important behavioral issues. Twenty four continuing education hours are available.

Questions should be addressed to AAFP/AFM, 200 Fourth Avenue North, Suite 900, Nashville, Tennessee 37219, 615/259-7788, 800/204-3514, fax 615/254-7047 or email aafp@walkermgt.com. For additional information and to register online, visit www.aafponline.org/conteducation/conteducation.html.

② Sixth International Feline Retrovirus Research Symposium

The Sixth International Feline Retrovirus Research Symposium (IFRRS) will be held at the Ritz-Carlton Resort, Amelia Island, FL on **December 2-5, 2002**. IFRRS is an established international forum for the presentation and critical discussion of research results and applications carried throughout universities and industry. Researchers in the field of feline retrovirology attend this conference to exchange clinical, basic, and applied research findings with a goal of advancing veterinary and comparative medicine. Topics covered will include viral genetics, receptor interaction, pathogenesis, oncogenesis, immunology, cytokines, vaccination, and therapy. Questions may be addressed conferences@doce.ufl.edu; for additional information or to register online, visit www.doce-conferences.ufl.edu/ifrrs.



Cornell Feline Health Center
Cornell University
College of Veterinary Medicine
Ithaca, New York 14853