Cornell University
College of Veterinary Medicine
Feline Health Center

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# CatWatch®

*Expert information on medicine, behavior and health from a world leader in veterinary medicine*

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## IN THE NEWS . . .
## An Anonymous Grant to Evaluate GI Diseases

A grant from anonymous donors in memory of their cat, Speckles, will support feline research to distinguish between gastrointestinal disease caused by inflammatory bowel disease (IBD) and lymphoma.

"Speckles' family has entrusted Winn Feline Foundation to help identify high-quality research proposals that may provide answers to major abdominal cancers in cats related to the liver, pancreas and/or gastrointestinal tract," said the Winn Feline Foundation in announcing the award.

Jan Suchodolski, DVM, Ph.D, ACVIM, at Texas A&M University will lead the study on IBD and low-grade alimentary lymphoma, which often requires surgery to obtain intestinal biopsies. The project will assess fecal bacteria and if significant difference is found, it may lead to a less invasive, more accurate diagnosis. ❖

# CPR Saves Lives When Minutes Count

*A Cornell online course shows how to perform the latest, safest steps for chest compressions and rescue breathing*

Imagine returning home from work to see your cat lying motionless on the living room floor. You call his name, but he doesn't respond, and you quickly realize he's not breathing and fear his heart has stopped. The nearest veterinary clinic is 15 minutes away. You're panicked, but for your cat's sake, you realize you need to immediately begin cardiopulmonary resuscitation (CPR) to save his life.

Pet CPR, Cornell

**Two-handed chest compressions** are effective on an obese cat. Put him on his side and position your hands over the highest point of the chest. Interlock your hands and compress the chest at a rate of 100-120 per minute.

Your cat cannot survive 15 minutes without his heart pumping oxygenated blood to his brain and vital organs. In a pet emergency, every minute counts. That's why Cornell University College of Veterinary Medicine, in conjunction with the American College of Veterinary Emergency and Critical Care (ACVECC), now offers a one-hour online course for owners and professionals to teach them the latest

*(continued on page 4)*

# What Those Mighty MRIs Can Uncover

*They use magnetic waves up to 40,000 times stronger than the earth's magnetic field to detect abnormalities*

A neutered male Persian experiencing severe lower back pain had his owners concerned and his veterinarian puzzled. That prompted a referral to Cornell University Hospital for Animals, where the veterinary team turned to one of its most sophisticated diagnostic tools: magnetic resonance imaging (MRI).

The images revealed that the nearly 2-year-old cat had a bone lesion compressing the spinal cord and causing pain, says radiologist Peter Scrivani, DVM, ACVR, Associate Professor of Imaging at Cornell. "MRI also showed that the type of bone lesion was consistent with a benign vascular malformation that would be cured if the abnormal bone were removed. Surgery was performed and the cat did well."

**Favorable Follow-up.** At his six-month recheck examination, the cat was normal and pain free. Another success story, thanks to MRI. Million-dollar-plus MRI machines are part of imaging methods now being used with increasing frequency in veterinary medicine. Other options include X-rays, computed tomography (CT), ultrasound and nuclear medicine. Cornell performs about 400 MRI examinations on dogs and 25 exams on cats annually.

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# CatWatch

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For information on your cat's health, visit the Cornell University College of Veterinary Medicine, Cornell Feline Health Center website at www.vet.cornell.edu/fhc/.

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## Do You Fit the Picture of the Typical Owner?

Did you get your cat from a shelter instead of a referral from a friend or relative? Does he sleep with you? Is he a senior? You just might be the typical cat owner in the U.S., at least among those described in the American Pet Product Association's latest owners' survey.

The group biennially issues a massive digital and print report — 614 pages at cost of $3,400 to non-members. It covers trends in ownership, products, services, marketing and lifestyle in sweeping depth and breath, cataloging generational and regional differences for cats, dogs, horses, reptiles and small animals.

**Nearly a third of owners** now adopt their cats from animal shelters.

Example: 35% of cat owners live in the South, with a little more than 20% each in the North Central and West, with the remaining 20% in the Northeast. They reflect the distribution of all pet owners as well as the population as a whole, the association says.

The 2015-16 survey is directed in part to those who want to tap in to the growing pet industry as entrepreneurs. The case can be made that because the survey originates online, respondents are self-selected. That is, they choose to participate and results may be skewed toward greater owner responsibility. For instance, 90% say they have had their cats spayed or neutered.

Whatever the source, this portrait of average owners and cats offers a "consumer profile" for budding entrepreneurs, keeps the billion-dollar industry humming and ends with a surprising result:

- Owners are 47 years old, own their home and are likely to have children under 18. They have two cats and have been owners for 18-plus years. Those with two or more cats have an average of three. Those who sleep with their cats: 62%.
- Cats are 6.8 years old, approaching senior status; 79% of them are brought inside at night. A decade ago owners found their cats through friends and relatives. Today that availability has declined from 43% to 28% while 31% of owners obtain their cats from shelters, 27% take in strays. The cost of all cats is $66, with $169 paid for purebreds.
- Frequency of veterinary visits: Only two a year. A healthcare company's study four years ago found that 52% of owners took their cats to the vets only once a year. (Professional veterinary organizations, such as the American Association of Feline Practitioners, urge wellness exams annually — twice yearly for seniors.) Annual expenses include: $286 for emergency veterinary visits, $261 for illness, $398 for surgery
- Annual expenses: $58 for treats; $44 for beds; $246 for food (42% buy premium cat food). Twenty percent of owners buy litter box liners; 56% of those use liners with drawstrings. Most buy in 11- to 25-pound packages, with 78% choosing the clumping type.

While owners agree that the benefits of ownership extend to fun, love and companionship, they acknowledge that sadness upon their cats' death is a difficult hurdle. They have some small quibbles about shedding, but overall one in five say that they find no downside at all to cat ownership — the highest level of satisfaction in a decade. ❖

# When to Seek Treatment for Constipation

## *A missed day or two, illness and visible signs of straining all warrant a trip to the veterinarian*

Cats typically defecate one to three times a day, depending in part on the food they eat. Constipation — an inability to routinely and easily produce stool — is a fairly common feline disorder, says Meredith L. Miller, DVM, ACVIM, a lecturer in small animal medicine at Cornell University College of Veterinary Medicine.

"If the diet is low in fiber or contains indigestible hair or bones, constipation can be dietary. Dehydration, due to water restriction or reduced water intake, can also predispose a cat to be constipated," she says.

**No Urgent Threat.** Occasional constipation may not pose a health threat. "For cats who strain to defecate and then pass foreign material like grass or hair, the situation may not be urgent," says Dr. Miller. However, cats who haven't defecated for more than a day or two or who repeatedly show signs of constipation or have other signs of illness — such as decreased appetite, lethargy or vomiting — should be seen by a veterinarian.

**A water fountain** can encourage increased water consumption to help avoid constipation.

Serious blockages of the colon or rectum, as may be seen with cancer, foreign bodies and prostatic disease, can prevent defecation. "Inflammatory intestinal diseases or disorders of colonic motility can also lead to constipation or megacolon — a pathologic distension of the colon. Most commonly we see this in cats with chronic kidney disease. This in turn causes chronic dehydration, inflammatory bowel disease or megacolon," says Dr. Miller.

**The Susceptibility.** While constipation can occur in any age or breed, some cats are particularly susceptible. "Megacolon is more of a problem in middle-aged cats. Similarly, chronic kidney disease primarily affects middle-aged to senior cats," Dr. Miller says. "Manx cats may have spinal cord malformations that can lead to constipation."

Longer-haired cats are prone to a different type of constipation — a condition called pseudocoprostasis, says Dr. Miller. "These cats are straining to defecate because of matted hair covering their anus, not because of any problem with their intestinal tract. Keeping longer-haired cats well groomed can help prevent this from occurring."

**Manx may have spinal cord malformations** that lead to constipation. The breed also may have small stubs of tails or be entirely tailless.

Signs can alert owners that constipation may be developing. "Cats will posture and strain to defecate without producing fecal material. They may also cry out in pain when attempting to defecate," Dr. Miller says. "When produced, the fecal material may appear unusually small or dry." Again, cats will usually show the typical signs, such as loss of appetite, lethargy or vomiting that warrant a veterinary exam.

**The Diagnosis.** A veterinarian can often detect hard stool in the colon by palpation, as can an abdominal X-ray. A digital rectal exam will reveal any obstructions around the anus or in the rectum.

"If left untreated, a constipated cat can become obstipated — completely unable to defecate," Dr. Miller says. This may necessitate hospitalization for intravenous fluids, enemas and stool softeners. It also might require anesthetizing the cat so a veterinarian can manually remove the obstructing stool. "Severe and chronic constipation can lead to colon distension, or megacolon, which can often be managed with medications and diet. However, in severe cases, this may require surgical removal of the colon."

Given such consequences, she advises any underlying cause of constipation in cats be treated promptly. Enemas may be administered to hydrate and soften dried or impacted stool but should be performed only by a veterinarian. "If no underlying cause can be found,

*(continued on page 5)*

### AVOIDING INJURY AND ILLNESS WITH HOME REMEDIES

Some home remedies and over-the-counter products can be dubious at best or dangerous at worst when given for feline constipation. Do not give your cat mineral oil, cautions Meredith Miller, DVM, ACVIM, at Cornell. "This can be dangerous, resulting in life-threatening pneumonia, if the cat vomits it up and aspirates it into his lungs."

Since increasing hydration is important, "Cats can be encouraged to drink more by introducing a water fountain, flavoring the water bowl with low-sodium chicken broth, feeding canned food or adding water to their food," Dr. Miller says.

## CPR ... *(continued from cover)*

steps in performing CPR on cats and dogs.

**Providing Oxygen.** CPR includes chest compressions and rescue breathing, which involves sealing a pet's mouth and blowing air from your mouth directly into the pet's nostrils to provide oxygen.

"By knowing how to perform CPR, pet owners have a real chance at saving their pets," says Daniel Fletcher, Ph.D., DVM, ACVECC, Associate Professor of Emergency and Critical Care at Cornell. Dr. Fletcher serves as the co-chair of the RECOVER Initiative, established in 2011 by leading veterinarians to publish the first evidence-based veterinary CPR guidelines. He is also the author of this new Pet CPR course now available online.

"The objective of this course is to teach you how to properly intervene if your dog or cat suddenly collapses and to teach you how to initiate CPR on the way to the veterinary clinic," says Dr. Fletcher.

Cardiopulmonary arrest (CPA) occurs when the heart has stopped beating and the pet has stopped breathing. Blood flow and delivery of nutrients to the body have ceased. Within minutes after the start of CPA, vital organs begin to develop irreversible damage.

A cat can go into cardiac arrest because of a variety of causes, including trauma, exposure to extreme cold or hot weather, ingestion of toxins, airway obstruction, heart and lung disease, and other chronic or sudden onset of diseases.

"If there is any doubt your cat is in CPA after 10 to 15 seconds, you should start CPR even if you are not 100-percent sure," Dr. Fletcher says."It is more dangerous not to start CPR on a patient who has or has not arrested. Yes, every minute counts."

**If you find your cat collapsed and unresponsive, make sure nothing is obstructing the airway by opening the mouth and pulling out the tongue.** If your cat responds in any way, stop immediately to avoid being bitten.

Cats are more likely to survive CPA if proper chest compressions and rescue breathing are started as soon as possible and if pauses in CPR are minimized. The two main goals of CPR are:

- Providing blood flow by compressing (pushing on) the cat's chest to mimic the normal function of a beating heart.

## THE SEVEN ESSENTIAL STEPS OF CPR

If your cat suddenly collapses, perform the following steps to determine if cardiopulmonary arrest (CPA) has occurred and to initiate cardiopulmonary resuscitation (CPR).

1. Stimulate him by gently shaking him and shouting his name.
2. If the cat does not respond, take a few seconds to touch his chest and determine if the chest is rising and falling. If not, this is an indicator that he's not breathing.
3. Open your cat's mouth, pull his tongue out to open his airway and look inside his mouth for anything that might be blocking the airway, such as a piece of food, scrap of chewed fabric or piece of a toy. **Important:** Don't start CPR if the cat responds in any way such as moving or vocalizing. Such a patient is not in cardiopulmonary arrest. If your cat pulls his tongue back or clenches his mouth, don't proceed with CPR or you could get bitten.
4. Clear the mouth of any obstructions.
5. Call for help from someone nearby. Ask him or her to get transportation and call the nearest veterinary clinic to alert it to this emergency situation so they can be ready to administer medical care when you arrive.
6. Begin doing CPR. Each cycle consists of delivering a series of 30 chest compressions followed by two mouth-to-snout breaths.
7. As soon as the car is available, load the cat into the car and continue CPR while proceeding to the veterinary clinic.

**"If there is any doubt your cat is in cardiopulmonary arrest after 10 to 15 seconds, you should start CPR** even if you are not 100-percent sure," says Daniel Fletcher, Ph.D., DVM, who is board certified in emergency and critical care at Cornell.

## TO ENROLL IN THE PET CPR COURSE

The online Pet CPR course is open to anyone and takes about one hour to complete. The fee is $25. The self-paced course features short how-to videos and explains proper ways to perform chest compressions and rescue breathing on all types of dog and cat breeds.

At the end of the course, students must test what they learned by answering a 14-question assessment. Individuals who correctly score 70 percent or higher earn certificates issued by the American College of Veterinary Emergency and Critical Care. They will have unlimited number of opportunities to achieve a passing score.

To enroll in the course, visit **www.ecornell.com/courses/veterinary-courses/pet-cpr/.**

- Providing oxygen and removing carbon dioxide by blowing air into the cat (mouth-to-snout) to mimic the normal process of breathing.

The chance of survival will ultimately depend on the underlying disease that caused the arrest, but by providing CPR immediately, you can increase your cat's chances of survival and help protect his vital organs while transporting him to the nearest veterinary clinic.

Performing CPR consists of using hand techniques illustrated in the online course to correctly perform 30 chest compressions at a rate of 100 to 120 per minute followed by two rescue breaths. This cycle is then repeated until the cat starts responding or you arrive at the nearest veterinary clinic.

**How-to Procedures.** The online course provides illustrated step-by-step procedures and short videos on performing CPR. You'll learn the proper hand placement on the cat's chest to perform chest compressions based on the size of the kitten or cat.

"The biggest issue for many people is performing chest compressions correctly because you have to use the correct technique," says Dr. Fletcher. "Our course shows you the right way to do chest compressions, and it is important to avoid stopping and starting, stopping and starting because once you stop chest compressions, blood flow drops off. Every time you stop CPR, it can take about 45 seconds to get back up to that blood flow level, which is why we promote not stopping chest compressions for any prolonged period of time."

The course also guides you on how to perform rescue breaths on cats. You will learn how to safely extend the cat's neck so his snout is aligned with his spine to keep his airway open. "It's important to seal the mouth and breathe into the cat's snout, so your oxygenated air does not escape out the sides of the cat's mouth and fails to reach her lungs," says Dr. Fletcher.

You will also learn how to maintain the best posture to maximize the effectiveness of the chest compressions and rescue breaths and much more.

## RECOMMENDATIONS CAME FROM MORE THAN 1,000 SCIENTIFIC PAPERS

The Reassessment Campaign on Veterinary Resuscitation (RECOVER) was founded in 2011 by the American College of Veterinary Emergency and Critical Care and the Veterinary Emergency and Critical Care Society to create the first evidence-based recommendations to resuscitate dogs and cats in cardiopulmonary arrest. RECOVER is directed by co-chairs Dr. Daniel Fletcher from the Cornell University College of Veterinary Medicine and Dr. Manuel Boller from the University of Melbourne Faculty of Veterinary and Agricultural Sciences.

More than 100 board-certified veterinary specialists reviewed more than 1,000 scientific papers related to CPR to develop the veterinary CPR guidelines.

**Because cats are small and have easily compressible chests, one-handed CPR can be performed by having the cat lie on his side on a flat surface.** Wrap your dominant hand around the breastbone, place your thumb directly over the cat's heart and then do chest compressions by pushing at a rate of 100 per minute.

**Get Immediate Help.** Performing CPR on even a small animal like a cat is strenuous. That's why Dr. Fletcher encourages calling out for help in hopes another person can switch off on the chest compressions and rescue breaths. Once a vehicle is available, load your cat in the middle seat. If possible, have someone drive to the nearest veterinary clinic while you perform chest compressions and rescue breaths on your cat.

"Preparedness is key. By identifying where the closest emergency clinic is located now before a pet emergency occurs, you'll be ready in the case of an emergency. Post the information in a convenient location in your home and program it into your phone," Dr. Fletcher says. "I hope you never have to use what you will learn in this CPR course, but if your pet experiences cardiopulmonary arrest, you will now know what to do to maximize the chance of saving his life." ❖



**CONSTIPATION** ... *(continued from page 3)*

modification of the diet with increases in fiber may be recommended. "Your cat's veterinarian may recommend a stool softener," says Dr. Miller. "Good hydration and exercise are also important to keep your pets regular."

The post-treatment prognosis for a constipated cat will vary depending upon underlying cause and treatment. "For instance, if a pet is impacted with grass or hair, a favorable prognosis is likely. A rectal mass, on the other hand, carries a less favorable prognosis," says Dr. Miller. "In most cases, pets with persistent or recurrent bouts of constipation can be managed with nutritional changes, hydration, exercise and medication." ❖

## MRI...*(continued from cover)*

"About 90 percent of the imaging caseload is radiology (X-rays) and ultrasound," Dr. Scrivani says. "If, however, you want to image the brain or the spinal cord, you definitely want to go with the MRI. Also, for assessing certain types of back fractures or congenital anomalies, the CT might be a better option."

It's important to note that imaging methods are not in competition with each other. "They are complementary, and sometimes we may perform both MRIs and CTs to get the most information possible," Dr. Scrivani says.

MRI is safe and doesn't produce exposure to ionizing radiation like X-rays. "Extreme caution is taken to ensure that no one enters the MRI room with loose metal because if metal gets sucked into the MRI, it becomes a projectile," Dr. Scrivani says. "Collars are removed, and we take radiographs in some animals to make sure they have not ingested any metal."

Microchip identifications inside pets having MRIs will not cause harm, but Dr. Scrivani says sometimes these microchips do migrate in the body and can interfere when attempting to acquire images near the spine. "But this is an infrequent problem," he says.

**Costs Still High.** Certainly, cost is an issue. Imaging averages $1,000 to $4,000 per session, including anesthesia. Many major pet insurance companies cover some or all the fee. The expense of the MRI machines and the required shielded rooms explain why they tend to be available only at specialty hospitals and some veterinary schools and not at general veterinary practices.

Cornell has a Toshiba Vantage Atlas 1.5 Tesla machine designed for human use and adapted for animals. It was installed in 2010 at a cost of about $3 million, including a CT scanner and needed room renovations, with most of its cost covered by a $2.125 million donation from Janet Swanson, the wife of Cornell alumnus John Swanson. The tube-like machine is "closed," unlike the open machines sometimes used for human patients.

"With a closed machine, for the most part, we get a better signal and so usually get a better image," Dr. Scrivani says. "In people, claustrophobia can be an issue, but all our patients are under anesthesia so that is not an issue."

MRIs use magnetic waves up to 40,000 times stronger than the earth's magnetic field to detect abnormalities. Cats being imaged are placed under general anesthesia so they remain motionless to avoid blurred images during imaging, which can take up to two hours. "It takes time to make an MRI image and patients must be still during this time to achieve the best image quality possible," Dr. Scrivani says. "Plus, patients must remain in a particular location within the scanner where the best images are produced."

Michael H. Connor, Cornell

**X-rays and ultrasound comprise about 90 percent** of the imaging caseload at Cornell, says radiologist Peter V. Scrivani, DVM, ACVR. "If, however, you want to image the brain or the spinal cord, you definitely want to go with the MRI."

Minute signals are generated as the cat's body responds to the magnetic field. The signals are then converted to a cross-sectional image that enables radiologists and other specialists to look for signs of injury and disease. At Cornell, all data is digital and medical reports are available to referring veterinarians via computer access.

**Looking Ahead.** MRI's use and precision are expected to expand even more. "The typical lifespan of a MRI scanner is about 10 years, so we will be looking for a means to replace or upgrade our system in the near future," Dr. Scrivani says. "The scanner has been excellent, but we look forward to having access to innovative technologies that will improve our clinical, teaching and research programs, allowing us to offer novel imaging examinations."

Improvements may include upgrading to a 3 Tesla MRI, a newer generation MRI that can provide even greater imaging details. Dr. Scrivani also anticipates:

- ***Short examinations.*** "Often, there is a trade-off made between image quality and time to acquire the image. Faster examinations with improved image quality are a likely advancement."
- ***Improved molecular imaging*** to see how cells handle chemicals or drugs. "This is the future of MRI, but not in the near future for clinical practice," he says.

### FINDING DEFECTS FROM BRAIN SWELLING TO JOINT DISEASE

MRIs can noninvasively identify health and medical problems, including:

- Brain tumors
- Brain swelling or inflammation
- Traumatic brain injuries
- Herniated, bulging or degenerated intervertebral discs in the spine
- Stenosis (narrowing) of the spinal column
- Spinal tumors and congenital abnormalities
- Inflammation of the spinal cord or nerves
- Infections of the spine
- Joint diseases
- Compression fractures

## WHICH IMAGING IS RIGHT FOR YOUR CAT?

*These are some of the features of various imaging tools.*

### X-RAYS: no anesthesia typically needed

They can detect changes or abnormalities in bone and soft tissue based on absorption of electromagnetic radiation. They're most commonly used to obtain images of the abdominal and chest cavity for signs of lung, heart or abdominal organ disease, as well as to identify bone fractures in cats showing signs of lameness.

**Advantages:** Most veterinary clinics can take X-rays without cats needing to be sedated or anesthetized. "Radiographs provide a quick and relatively inexpensive evaluation, which can be helpful following trauma such as a skull fracture," says radiologist Peter V. Scrivani, DVM, ACVR, at Cornell.

**Drawbacks:** The images can't distinguish between soft tissue or fluid, necessitating speculation or more precise imaging for a diagnosis. Care must be taken to prevent radiation exposure to technicians who operate the machine.

**Cost:** $50 to $100 per image.

### ULTRASOUND: real time results

Sound waves are transmitted and reflected back from targeted tissue. The non-invasive option allows veterinarians to view the heart, abdominal organs, muscles and tendons.

**Advantages:** Images are available in real time versus a snapshot from X-rays. They can detect differences in the density of tissue and fluids, can identify the presence of crystals in urine, and see blood flowing through the chambers of the heart and blood vessels.

**Drawbacks:** It can be time consuming if many organs are being examined. It doesn't provide the detail of MRI.

**Cost:** $300 to $400.

### COMPUTED TOMOGRAPHY: images in 3-D

The donut-shaped CT scanner uses sophisticated computer processing to create three-dimensional, cross-sectional images of the body. An X-ray shows only a flat, two-dimensional view.

**Advantages:** A CT can obtain a view of a body organ or tissue in less than an hour. It can detect trauma and head, lung and nasal diseases.

**Drawbacks:** General anesthesia is usually required and the cat must remain still for several minutes inside the scanner. The scan cannot identify subtle changes in the body that an MRI can.

**Cost:** $500 to $1,200, plus the anesthesia fee.

**Computed tomography provides cross-sectional images.** X-rays show a flat, two-dimensional view.

- ***A trend toward producing hybrid images*** — combining two methods like CT and positron emission tomography (PET scans), which uses small amounts of radioactive materials. The images could provide both structural and functional or molecular information in the same image.

Whatever the technological advances, Dr. Scrivani says veterinarians face challenges to keep on top of their game. "Modern imaging can produce exquisite depictions of patient morphology — the form and structure of organisms — but there still is a need for expert interpretation, technical expertise and continued research." ❖

## NUCLEAR MEDICINE IMAGING: LIMITED AVAILABILITY

Nuclear medicine imaging allows veterinarians to track internal hemorrhaging and kidney function. It can also aid in diagnosing stress fractures. At Cornell, it is rarely used except to diagnose hyperthyroidism in cats, the cause of lameness in horses and to rule out portosystemic shunts (abnormal blood vessels that bypass the liver) in dogs.

Regulations regarding radioactive pharmaceuticals can limit their availability. Their use must be documented and the veterinary patient remains hospitalized while the pharmaceuticals are mostly cleared from the body.

The imaging involves administering a small amount of a gamma ray-emitting radioisotope to a sedated patient. A camera device then detects the location and distribution of the radioisotope.

Veterinarians watch how organs process these "tagged" medicines. The study shows how an organ or body system functions, not simply its appearance. The cost is usually $400 to $600.

Elizabeth

*Elizabeth is thankful for the assistance of the Cornell Feline Health Center in providing the answer on this page.*

## Interrupt her Bird Watching And You May Get a Swat

**Q** *I have a 6-year-old domestic shorthaired cat who is fascinated by a bird feeder that we have outside our living room window. She spends hours intently watching the birds that visit, and this is a great thing, for sure. Occasionally, though, when I approach her while she is watching the birds, she will turn around and swat at me aggressively. She never behaves aggressively in any other circumstance. Do you have any idea what is causing this behavior and how I can stop it?*

**A** Thanks very much for writing, and I understand how this behavior can be disconcerting. Aggression in cats can not only be confusing and scary, it can be dangerous, so intervening is important.

The causes of aggression in cats can be complex, both with respect to factors that trigger aggressive behavior and targets at which it is directed, making the development of strategies to eliminate aggressive feline behavior challenging.

Cats can display a number of different types of aggression and may display more than one type at a time. Irrespective of the type of aggression, however, some general principles that apply to the management of all types of feline aggression:

- Early intervention is best.
- Any type of physical punishment can increase a cat's fear anxiety and worsen aggression.
- Medications may help but only in combination with behavioral/environmental modification.
- Recognizing aggression and startling an aggressive cat without physical contact is usually effective.
- Avoid situations that you know make a cat aggressive.
- Separate cats who act aggressively toward each other and reintroduce them slowly with positive reinforcement.
- Food treats are excellent positive enforcers of non-aggressive behavior.

The first step to take in managing an aggressive cat is to make sure that she has no medical reason. Diseases such as hyperthyroidism, osteoarthritis, dental disease and central nervous system problems may cause aggression, so consultation with a veterinarian is vital before embarking upon attempts to manage the aggression with behavioral and/or environmental modification.

If your cat has been examined by a veterinarian and is healthy, I think she may be demonstrating a type of aggression called redirected aggression. With this type, a cat is aroused by one stimulus (in your kitty's case, the birds outside) and intervention by some other person or animal during this arousal prompts the cat to act aggressively (i.e., to redirect the aggression) toward that intervening individual.

The first step when this type of behavior occurs is to avoid your kitty completely until she calms down. You could get hurt if you try to interact with her and may also actually encourage this type of inappropriate behavior. It may be necessary to steer her gently to a quiet, dark room for a time-out using a thick blanket or barrier to protect you from injury.

You should then intermittently enter the room, turn on the light and put down a bowl of food. If she becomes aggressive again, pick up the food and leave the room. If she behaves calmly, pet her gently and praise her. You must be persistent, and intervene in this manner every time she acts aggressively toward you.

Removing the stimulus that prompts aggression can also be very helpful. In your case, although I know it's nice to know that the birds are entertaining her, moving the bird feeder or using window blinds to prevent her from watching them may be something to consider if you cannot modify her behavior using the technique outlined above.

I hope that this is helpful, and best of luck. Be careful and persistent, and I am sure that you can address this problem. If you can't do it on your own, please seek out the advice of a veterinary behaviorist. ❖

*—Sincerely, Elizabeth*

### PLEASE SHARE YOUR QUESTIONS

We welcome questions on health, medicine and behavior, but regret that we cannot comment on prior diagnoses and specific products. Please write *CatWatch* Editor, 535 Connecticut Ave., Norwalk, CT 06854-1713 or email catwatcheditor@cornell.edu.

### COMING UP ...

❖ RESOURCE GUARDING ❖ BRAIN TUMORS ❖ SPRAYING ❖ VOMITING ❖

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