



Cat Watch

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

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How could her cat be so normal one day and then so sick the next?

IN THE NEWS ...

Study Finds Treatment for a Form of Epilepsy

Researchers at the University College of London School of Pharmacy and neurologist Dr. Mark Lowrie at Davies Veterinary Specialists in Hertfordshire in the U.K. previously identified an epilepsy syndrome in geriatric cats. They named it Feline Audiogenic Reflex Seizures (FARS), a condition triggered by high-pitched sounds such as crinkling tin foil and clanging metal spoons.

Their follow-up study, published in the *Journal of Feline Medicine and Surgery*, compared levetiracetam, used to treat certain forms of epilepsy in humans, with the older drug phenobarbital.

When 28 cats with FARS took levetiracetam for three months, the researchers found that all of them had 50 percent fewer days in which they experienced myoclonic seizures — brief, shock-like jerks of a muscle or group of muscles. Only 3 percent of the 29 cats treated with phenobarbital showed the same reduction. ♦

Fear and Shyness Can Look the Same

The decider: A cat who's afraid may deliver a warning, while the bashful cat wants to avoid attention or contact

Not sure if a cat you want to adopt or even approach is fearful or simply shy? Recognizing the difference between the two behaviors can mean the start of a trusting relationship or the onslaught of an attack.

A shy cat is more apt to freeze in place and tremble in hopes that you will walk away. A fearful cat will likely flatten his ears, dilate his pupils and deliver a warning hiss before swatting or biting you if you try to touch him.



No mistaking the message: Back off.

"There is no doubt that the behaviors exhibited by fearful and shy animals overlap," says Leni Kaplan, MS, DVM, a lecturer in the Community Practice Service at Cornell University College of Veterinary Medicine.

Feeling Threatened.

"In my experience, shy cats will usually not show signs of aggression because they are trying to get away or avoid being the center of attention. Fearful cats, on the other hand, tend to feel threatened

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When the Pancreas Becomes Inflamed

The disease can go undetected because an affected cat may show only mild signs and, in some cases, show none at all

Feline pancreatitis has always been difficult to detect and treat. At least one study, now nearly a decade old, found that the potentially deadly disease might affect more than 60 percent of cats, yet only a small percentage are ever diagnosed.

The reasons lie in the widely varying characteristics and unknown elements of the disease, in which the pancreas becomes inflamed. Some cats will display only mild signs such as lack of appetite and lethargy, while growing evidence suggests that many cats with chronic pancreatitis show no symptoms at all. In ad-

dition, the vast majority of cases can't be traced to a specific cause.

Diagnostic Challenge. Cats' very nature also presents a challenge. "Cats are particularly difficult to diagnose because they often don't show pain or vomit when they are experiencing pancreatitis as dogs often do," says Meredith L. Miller, DVM, ACVIM, a lecturer in small animal medicine at Cornell University College of Veterinary Medicine.

When veterinarians suspect pancreatitis in cats, however, their ability to confirm the disease is improving, thanks to advanced and

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CatWatch

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SHORT TAKES

International Experts Identify Signs of Pain

Most owners recognize obvious signs of pain in their cats — lowering their heads, refusing food. Less obvious signs are cats flicking their tails and involuntarily blinking or closing their eyes, a condition called blepharospasm.

These are among key 25 signs of pain in cats identified in research at the University of Lincoln in the U.K. Dr. Isabella Merola and Daniel Mills, Professor of Veterinary Behavioral Medicine, surveyed international academics and practitioners with specialties in internal medicine, anesthesiology, oncology, dentistry, behavior, dermatology, ophthalmology and neurology. They say in *PLOS One* that the resulting list could lead to faster diagnoses and ultimately reduce suffering. The signs in no particular order:

- | | | |
|----------------------------|---------------------------|--------------------------------|
| 1. Lameness | 10. Activity decrease | 19. Change in feeding behavior |
| 2. Difficulty jumping | 11. Less rubbing people | 20. Avoiding bright areas |
| 3. Abnormal gait | 12. General mood | 21. Growling |
| 4. Reluctance to move | 13. Change in temperament | 22. Groaning |
| 5. Reaction to palpitation | 14. Hunched up posture | 23. Excessively closing eyes |
| 6. Withdrawal/hiding | 15. Shifting weight | 24. Straining to urinate |
| 7. Lack of grooming | 16. Licking a body region | 25. Tail flicking |
| 8. Playing less | 17. Lower head posture | |
| 9. Appetite decrease | 18. Blepharospasm | |

Last year, the American Animal Hospital Association and American Association of Feline Practitioners expanded information in its 2007 AAHA/AAFP Pain Management Guidelines for Dogs and Cats. The update, at www.catvets.com, includes a new section on feline degenerative joint disease, "due to the increased awareness of this painful condition in cats." ♦

YOUR CAT CAN HELP GENETIC RESEARCH

The Cornell Veterinary Biobank and Feline Health Center are seeking healthy purebred cats 10 years of age and older as part of their research on genetic diseases. The cats will serve as controls — those without illness — in genetic mapping studies.

Diseases such as inflammatory bowel disease, hypertrophic cardiomyopathy and diabetes mellitus may have a genetic basis, and by comparing DNA from affected and healthy cats, the Biobank hopes to locate the responsible genes. Its work could lead to identifying cats at risk of disease and aid in developing more effective treatments.

Owners participating in the study take their cats to Cornell for one to two days of screenings at no charge. Specialists

conducting the exams represent cardiology, dentistry, nutrition, oncology, ophthalmology and orthopedics. Tests include a complete blood count, chemistry panel, urinalysis, retrovirus and thyroid hormone testing, echocardiogram, electrocardiogram and blood pressure. If patients are determined to be a good candidate for sedation and their owners are interested in pursuing a CT scan, the patient will return the following day.

For answers to questions on qualifications or for more information, please email Liz Wilcox, DVM, or Marta Castelhan, DVM, director of the Biobank, at vetbiobank@cornell.edu. The Biobank is a database of DNA and medical information for genetic research. ♦

A cat experiencing
pain may be disinterested in food.



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When Compounding Is Right for Your Cat

Pharmacists can mix medications or alter them into chewables, tablets or liquids for specific needs

Hrudehy was in trouble. The 7-year-old cat had been diagnosed with both kidney disease and hypertrophic cardiomyopathy, the most common form of heart disease in cats. The double whammy made it difficult to manage his health because of the need to balance the fluids necessary for kidney health with the diuretics that helped control his heart disease. On top of that, of course, his feline nature meant that he wasn't fond of taking medication.

The answer was compounding. That's the practice of combining, mixing or altering a drug's ingredients to tailor it to a pet's specific needs. In Hrudehy's case, two of his medications — furosemide and digoxin — were compounded into a chicken-flavored liquid that he accepted readily.

Injectibles and Gels. Compounding is done by a licensed pharmacist, veterinarian or person supervised by a licensed pharmacist. Other examples of compounding include mixing two injectable drugs in the same syringe or creating a skin-penetrating gel for a drug typically given in other ways.

"Federal extra-label drug use regulations specifically permit compounding from FDA-approved drugs when a veterinarian believes there is a need to alter the approved drug to adequately medicate a non-food animal with a diagnosed medical condition," says Lisa Penny, R.Ph., pharmacy director at Cornell University Hospital for Animals.

Compounding has several benefits:

- ◆ It allows for diluting the strength of a medication, which may be necessary when treating a pet.
- ◆ The drugs can be formulated with pet-approved flavors, such as chicken, beef, cheese or liver.
- ◆ The drugs can be made into a form that's more palatable to pets, such as

chewable treats or from a tablet to a liquid suspension.

- ◆ Compounding can be useful if a drug needed to treat a pet's diagnosed condition isn't commercially available because of drug shortages or a product has been discontinued.
- ◆ It allows two active ingredients to be combined into one product.

Compounding sounds like a good alternative when you have a cat who refuses to swallow a pill or needs a specific dosage. But it has some potential drawbacks. Here's what you need to know.

Compounded preparations must be prepared from animal and human drugs approved by the Food and Drug Administration through the Federal Food, Drug and Cosmetic Act. However, day-to-day regulations of compounding are the province of state boards of pharmacy and veterinary medicine. "This means that FDA does not verify the safety or effectiveness of compounded drugs," says Jason Strachman-Miller, an FDA health communications specialist.

Compounded drugs also lack an FDA finding of manufacturing quality before such drugs are marketed. The bottom line, according to the American



Drugs and compounds may act differently in animals than in humans. "Owners should ask compounding pharmacies if they have specialized training or credentials in veterinary compounding," says Lisa Penny, R.Ph., pharmacy director at Cornell University Hospital for Animals.

Veterinary Medical Association, is that there is no assurance that a compounded medication will be safe or effective for your cat's medical condition.

Drugs and compounds may act differently in animals than in humans. Compounding can complicate the situation because formulation into a different delivery system may affect how the drug works in the body.

"This may result in drug concentrations that are above or below the therapeutic range and lead to the development of increased side effects, unexpected side effects or a decrease in the drug's effectiveness," Penny says.

Questions to ask before you purchase medication for your pet from a compounding pharmacy:

- ◆ Is the pharmacy accredited by an independent accreditation body such as the Pharmacy Compounding Accreditation Board (PCAB)? The organization offers accreditation to compounding pharmacies that meet high quality and practice standards.
- ◆ Where does the pharmacy get the raw ingredients for compounding? They should be certified by the United States Pharmacopeia (USP).

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Pharmacists can formulate medications with pet-approved flavors, such as chicken, beef, cheese or liver.

SHY... (continued from cover)

or endangered — whether it is genuine or imagined — and are likely to hiss or growl to discourage being handled.”

Other signs of fear include a cat bringing his feet closer to his body, lowering his head and making himself seem smaller. He may arch his back and flatten his ears even more when a stranger approaches.

“The breeds most fearful of strange people are Abyssinians and Persians,” says behaviorist Katherine Houpt, VMD, Ph.D., professor emeritus at Cornell. “The ideal window for socialization is 2 to 7 weeks. A kitten should be handled by people before weaning, but some cats are genetically fearful and socialization will not make them non-fearful.”

Dr. Kaplan adds that kittens learn social and hunting skills from their mother and siblings between 6 and 8 weeks of age. “It is best to adopt kittens after 10 to 12 weeks of age so they have had a chance to socially develop. They will usually acclimate to a new home more easily at this older age.”

Predator and Prey. Unlike dogs, cats are solitary hunters by nature and are apt to avoid a fight or conflict whenever possible by distancing themselves and hiding or fleeing. As both predator and prey, cats often show fear or defensiveness in



Cats are solitary hunters by nature and are apt to avoid a conflict by distancing themselves and hiding or fleeing.

strange surroundings or with unfamiliar people. If they perceive they're being cornered, they may lash out.

In a 2013 study conducted by Madeline's Institute under the direction of behaviorist Sheila D'Arpino, DVM, a kitten's or cat's behavior in a shelter is not always an accurate representation of his behavior when he enters a less stressful surrounding, such as a home.

The study found that 87 percent of respondents (1,069 individuals) reported that a shy or fearful cat they adopted or fostered hid for the first 24 hours. More than half — 55 percent — reported that they were able to interact within two weeks, and most became comfortable and relaxed in less than three months.

The conclusion: Many shy or fearful cats can evolve into loving pets if owners properly handle them, use behavior modifications and/or anti-anxiety medications, and provide a safe environment. “Make sure the cat has escape routes like on top or under furniture, especially if there are dogs or other cats in the home,” says Dr. Houpt. “Initially, keep dogs on leashes inside or at least separate them in a different room using barriers, such as baby gates, so they can sniff one another without having close or physical contact.”

Dr. Kaplan encourages owners to be in tune with their cat's individual temperament and work within his limits. Some cats may simply prefer less handling and attention. The experts'

USE YOUR 'LIBRARY' VOICE IN GREETINGS

When in doubt about a cat's emotional state, Leni Kaplan, MS, DVM, at Cornell cautions that you should never:

- ◆ Attempt to invade his personal space.
- ◆ Lower yourself to be face-to-face.
- ◆ Touch his rear, tail or paw pads.
- ◆ Move abruptly or use large gestures.
- ◆ Speak in a loud voice.



Abyssinians are among the breeds, along with Persians, who are most fearful of people.

The best way to greet a cat: Let him make the decision about whether he'd like to meet you, Dr. Kaplan says. “Do not approach the cat. Allow the cat to come to you. You can kneel down to the cat's level and gently extend one finger or your hand.”

“I tell people that cats like quiet people,” says behaviorist Katherine Houpt, VMD, Ph.D., at Cornell. “When meeting a cat, use your ‘library’ voice.”

advice to help a shy or fearful cat feel more comfortable:

- ◆ Limit exposure to situations that create fear and anxiety. For example, feed the cat in a separate room. He needs to feel that he can eat without being threatened.
- ◆ Consider clicker training to teach him new tricks and build confidence. Predictability also helps build confidence and a sense of security. Cats are fans of routine.
- ◆ Create a calm, stable environment by offering cat trees and litter boxes in different locations.
- ◆ Limit handling the cat initially and slowly build his trust in you. "I'm a strong advocate of low-stress handling techniques," says Dr. Kaplan. "I use towels or large blankets to handle cats. Usually they do not fight or flail because they are not being directly touched by the person restraining them. Do not scruff cats because this will only escalate their fear, anxiety and shyness so that they will no longer be able to be handled."
- ◆ When visitors arrive, "Do not drag the cat out to meet them," Dr. Houpt says. "Show them the cute pictures on your phone instead." Dr. Kaplan recommends letting cats direct the interaction and approach the visitor on their own terms.

Recognize that your cat tunes into your emotional state and can sense when you're impatient or afraid. When taking your cat to the veterinary clinic, for example, try to reduce outward displays of fear or anxiety.

Also, understand that the source of your cat's fearful response may be an underlying medical condition, such as pain or hormonal imbalances. Book a veterinary appointment for an exam and ask if your cat may be a candidate for a sedative or anti-anxiety medication to be given before an anticipated stressful situation, says Dr. Kaplan.

Keep in mind that fear ranks as the most common cause of aggression in

REDUCING THE FEAR FACTOR IN VET VISITS

All cats need a veterinary exam at least once a year, ideally twice. Marty Becker, DVM, a frequent TV guest expert on pets and best-selling author, is spearheading a national Fear-Free Initiative that includes veterinarians, animal behaviorists and other pet professionals.

The campaign identifies these steps toward achieving fear-free veterinary visits:

- ◆ Deliver a calm pet to the clinic by making sure the cat is safely inside a carrier. When at home, leave the carrier open in your living room to provide a comfortable, resting place.
- ◆ Limit food intake beforehand. Some cats may respond favorably to receiving a favorite treat during the appointment.
- ◆ Call ahead and request that your fearful cat be allowed to go directly into an exam room rather than wait in the waiting area.
- ◆ Seek clinics that may incorporate pheromones, calming music and a silent space heater to keep the exam room feel safe.
- ◆ Take a bath towel to place on the stainless steel exam table to avoid your cat's slipping.
- ◆ Allow the cat time to explore the room to get used to the environment before the exam begins.
- ◆ Ask about options to administer vaccines, such as small-gauge needles or a reduced dose. Also, ask about warming injections to room temperature — as long as this doesn't impact the product's effectiveness.

cats at veterinary practices, according to the American Association of Feline Practitioners. It's critical to take measures to reduce or prevent the fear from escalating. For instance, the use of nylon face muzzles that cover the eyes calms some cats because it reduces the intensity of visual stimuli in the exam room.

Best Carrier. The type of pet carrier you select can also help mitigate some fearfulness at the clinic. Plastic carriers with removable tops and fronts can allow a fearful cat to remain in the carrier during an examination. By allowing the cat to stay in the bottom half of the carrier, a towel can be placed over him creating a "tent effect" but still allowing access.

When returning home, reduce the risk of aggression from your other cat or cats by leaving him in the carrier. Watch how the other cat(s) react to him. "The cat who is returning may be

perceived as being different — perhaps because of areas of shaved hair after a procedure — or a smell," Dr. Kaplan says. The cat may have hospital scents on him, putting the other cats on the defense. They may act as though the returning cat is a stranger.

You may have to wait several hours before letting your cat out of the carrier. Wait for any hissing from the other cats to subside. If signs of aggression surface, distract the cats by clapping or stomping to separate them. Never attempt to physically separate them or pick one up when they're in an aroused state. One or both may redirect their aggression toward you.

Dr. Kaplan's parting advice: While some cats, no matter the time and energy devoted to them, will not acclimate to a given household, it's possible for many cats, with their owners' patience and training, to allow the human-animal bond to thrive. ♦

PANCREAS... (continued from cover)

sensitive diagnostics such as computed tomography (CT) and contrast ultrasound, though these diagnostics are still largely used in university or research settings. A test for feline pancreatitis — indicating the presence of the enzyme pancreatic lipase immunoreactivity (PLI) — replaced previous less-precise blood tests but isn't 100 percent accurate.

"A biopsy is the gold standard for diagnosing pancreatitis, but they are rarely performed due to the invasiveness of obtaining a pancreatic biopsy," Dr. Miller says.

Instead, veterinarians typically base their diagnosis on clinical signs, including fever, difficulty breathing and increased heart rate, as well as lab work results and abdominal ultrasound findings. "Ultrasound is fairly sensitive for pancreatitis diagnosis in about 60 to 70 percent of cases, but it depends on the skill of the veterinarian using it," Dr. Miller says. "CT and contrast ultrasound are found to be more sensitive for the diagnosis of pancreatitis, but their use is limited by cost and availability of equipment."

Two Serious Forms. Pancreatitis, in which digestive enzymes attack the pancreas and other organs, can be acute (sudden and short-lived) or chronic (of longer duration). Either form is serious and can lead to complications. A 2007 study in which post-mortem examinations on 115 cats were performed found that chronic pancreatitis was perhaps more common — and thus, underdiagnosed — than the veterinary community had previously

thought. The study found evidence of chronic pancreatitis in 67 percent of the cats, including 45 percent of the cats that were apparently healthy. Acute pancreatitis was present in 16 percent of the cats.

Cats of any age, breed or sex can develop pancreatitis. Most patients are middle-aged or older, and most cases are idiopathic, meaning of unknown origin. Trauma, infection, parasites or reactions to certain drugs are possible causes. Siamese cats seem to be at greater risk than other breeds, which suggests a possible genetic component to the disorder. In dogs, pancreatitis is often thought to be related to nutritional factors, such as excessive fat in their diets. However, this is not thought to be the case with cats.

"The specific causes of pancreatitis remain unknown," according to the Cornell Feline Health Center. "Something, perhaps a defect in an animal's natural defense mechanisms, triggers the disease and results in digestion of the pancreatic tissue," the center says, adding that some people believe it can be caused by ingestion of insecticides or other toxins.

In some cases, physical trauma — being struck by a car, for example — has been associated with the disease,



Ultrasound can identify pancreatitis in about 60 to 70 percent of cases. While computed tomography and contrast ultrasound are more effective, their use is limited by cost and availability of equipment.

the center says. "And various infectious disorders, such as toxoplasmosis and feline infectious peritonitis, have been cited as possible causes, as have such factors as adverse drug reactions, inflammatory bowel disease, liver disease and parasitic infection."

Pancreatitis can progress rapidly in cats but can also often be treated without permanent damage to the organ. However, if pancreatitis goes untreated over time, organ damage can occur. Uncommon but serious complications of chronic pancreatitis in cats can include:

- ◆ **Diabetes mellitus:** Inflammation within the pancreas can lead to destruction of the part of the pancreas that helps control blood glucose. Eventually this can result in the development of diabetes mellitus and the need for insulin injections.
- ◆ **Exocrine pancreatic insufficiency:** Long-term inflammation of the pancreas can lead to a reduction in the amount of digestive enzymes produced by the organ. This limits the body's

THE ROLE OF THE PANCREAS

The pancreas is a small, V-shaped strip of tissue within the cat's abdomen. It's part of the endocrine and digestive system, vital for the digestion of food and production of insulin. When the pancreas becomes inflamed, the flow of enzymes into the digestive tract can become disrupted, and digestive enzymes can be forced out of the pancreas and into the abdominal area.

When this occurs, the enzymes can begin to break down the fat and proteins in other organs. In simplest terms, the body begins to digest itself. The kidney and liver can be affected, and the abdomen can become inflamed and infected as well. If bleeding occurs in the pancreas, shock and death might occur.

ability to digest food properly and can result in weight loss and increased fecal volume. In these cases, cats might require digestive enzyme supplements.

"Pancreatitis can range from mild cases that can be treated on an outpatient basis to severe cases that warrant hospitalization and intensive care," Dr. Miller says. "Cats in particular require special attention paid to their nutritional needs," Dr. Miller says. Hepatic lipidosis, also known as fatty liver syndrome, is a life-threatening complication of anorexia in cats on its own. "An esophagostomy tube, a feeding tube that goes into the side of the neck in cats, is often placed to provide adequate nutrition to prevent or reverse this potentially devastating complication."

Some cases might require surgery to remove large accumulations of fluid such as a pancreatic cyst or abscess, or to remove damaged tissue when a blockage occurs and causes inflammation.

For severe cases, owners should be prepared for five to seven days of hospitalization for their cat, in which costs might climb to between \$3,000 and \$5,000, Dr. Miller says.

Owners should also expect to dedicate time to their cats' recovery at home

THERAPY FOCUSES ON PROVIDING COMFORT

Treatment of pancreatitis usually focuses on supportive care to address a cat's symptoms. These are the most common therapies:

- ◆ **Intravenous fluids:** Cats with pancreatitis are often dehydrated due to vomiting or diarrhea. Intravenous fluids will improve hydration and aid the damaged pancreas. Fluids will also help flush toxins from the body.
- ◆ **Diet:** Once vomiting has stopped, reintroduction of food will help recovery. A feeding tube may be required if the cat refuses to eat. His veterinarian will advise on the most appropriate diet.
- ◆ **Pain control:** Initial pain management might include injectable drugs, but special skin patches can be used to maintain comfort later. The patches can be worn when the cat comes home as well.

Treatment of other symptoms can include anti-vomiting medication, antacids and anti-ulcer drugs, antibiotics, vitamin B12 and anti-inflammatories to increase a cat's comfort.

by administering medications or specific diets. "The challenge is that, with severe pancreatitis, the major therapy is time and supportive care," Dr. Miller says. Unfortunately, we can't predict which patients will recover fully and which may experience complications until we attempt intensive care. There is no magic-bullet therapy for this disease."

With proper management, mild, uncomplicated cases have a favorable prognosis. Cats with severe pancreatitis,

including frequent, acute attacks, have a guarded prognosis. When their cats' quality of life declines, owners may consider euthanasia to end their suffering.

"Fortunately," Dr. Miller says, "veterinarians have pancreatitis on their radar more than ever, even though the clinical signs shown by the patient may be subtle or non-specific. That awareness, coupled with advances in diagnostics, is improving our success in recognizing and treating this complicated condition." ♦

COMPOUNDING... (continued from page 3)

- ◆ Is the pharmacy using an FDA-approved drug in the compound?
- ◆ Is the pharmacy licensed in your state? This is a consideration if you're buying drugs online.
- ◆ Does the pharmacy follow USP guidelines regarding good compounding practices as well as strength, quality, purity and stability?

Compounded drugs may or may not be more expensive than the regular form of the drug. Factors can include the price of the drug, a cat's size and the type of compounding required. However, "It is not legal for a veterinarian to prescribe, or a pharmacist to

compound, a medication that is commercially available just because the compounded product is less expensive," says Penny.

"There must be a documented reason for compounding the product, such as a smaller strength needed or

the form of the medication needing to be changed — pills to suspension, etc. Choosing to use a compounded drug simply because it's less expensive could put a cat's health at risk because that formulation of the drug hasn't been proven safe and effective." ♦

HOW TO REPORT PROBLEMS

What happens if your cat has a problem with a compounded medication? If he has an adverse reaction or you notice possible quality or safety defects such as particles in a solution, an unusual color or separation of liquids, let his veterinarian know. He or she should report the problem to the compounding pharmacist and appropriate regulatory agencies. You can also report adverse events yourself by following the instructions on the FDA website. Use the keywords "report animal adverse drug experiences" at fda.gov.



Elizabeth

Elizabeth is thankful for the assistance of **Bruce G. Kornreich, DVM, Ph.D., DACVIM**, Associate Director of the Cornell Feline Health Center, in providing the answer on this page.

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 ...

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MISTAKES

'How Could He Be So Normal One Day and So Sick the Next?'

Q I wonder if you can provide some insight into a recent problem. I currently have 12 cats, as I am involved in local TNR (trap/neuter/release) efforts. One kitty showed up at my door about five years ago, when he was about 1 year of age. I had him neutered, gave him his core vaccines and took him in. He has lived as an indoor-outdoor cat with four other cats since then. He recently became lethargic, and I took him to the veterinarian, where he tested positive for both feline immunodeficiency virus (FIV) and feline leukemia virus (FeLV). His red blood cell count was very low. I was floored, and we ultimately decided to euthanize him. I don't understand how he could have appeared so normal one day and then become so sick the next. Do these diseases always occur together, and aren't they considered to be a death sentence?

A I am so sorry to hear about your recent loss. Both FIV and FeLV are categorized as retroviruses, and they are very common in cats. Both are found in approximately two percent of all cats, and although they may infect cats at the same time, this is not always the case. They are part of the same general family, but they differ in a couple of very important ways, so perhaps a discussion of these differences might be helpful.

FIV is transmitted primarily by bite wounds, as it is found in high concentrations in the saliva of infected cats. For this reason, it is possible to house FIV infected cats with non-infected cats without an extremely high risk of transmission as long as the cats do not fight. FIV affects a cat's ability to mount an immune response against infectious organisms, thereby making infected cats more susceptible to infections by viruses, bacteria and fungi.

Cats who go outside are at an increased risk of FIV infection because they are more likely to fight with FIV-infected cats. There is a vaccine for FIV, but in spite of this, the prevalence of FIV

infection in cats has not significantly changed over the past two decades. The average lifespan of a cat diagnosed with FIV infection is approximately 5 years.

FeLV can be found in high concentrations in a number of bodily secretions of infected cats, including saliva, nasal secretions, feces, urine and milk. For this reason, FeLV is easily transmitted among susceptible cats by casual contact. FeLV can cause a number of medical problems in infected cats, including certain types of cancer, anemia (low red blood cell count), susceptibility to infections and inflammatory conditions of the eye.

Cats who go outside are also at increased risk of FeLV infection, as are susceptible cats housed with FeLV-positive cats. There is a relatively effective vaccine for FeLV and, due in part to this advance, the prevalence of FeLV infection in cats has dropped precipitously over the past two decades. The average lifespan of a cat diagnosed with FeLV is approximately 2½ years.

An important point here is that cats infected with either of these viruses can survive for years, provided that their owners work diligently with their veterinarians to manage them. As with your baby, it is quite common for affected cats to appear outwardly normal for prolonged periods of time before finally showing signs of disease. For some reason, cats have evolved to hide signs of disease in many cases, perhaps because in nature they are actually prey for other species, and an outward appearance of health is an important survival tool.

I hope that this is helpful. It is very important that you discuss the management of your other cats with respect to testing, vaccination and potential isolation of infected cats from non-infected ones to assure their best health with your veterinarian. I would recommend that you do not take any more cats into your household before you do this, and that you keep whatever arrangements that you currently have with respect to who is housed with whom until you have had the chance to consult with your veterinarian.

Best of luck to you and the kitties.

—Sincerely, Elizabeth ❖

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