



# CatWatch

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



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## IN THE NEWS ...

### Pursuing a deadly virus on the molecular level

Feline infectious peritonitis (FIP) remains one of the unsolved mysteries in veterinary medicine. Without a simple diagnostic test, effective treatment or cure, it's the leading infectious cause of death in cats under 2 years of age. A strain of the relatively mild feline coronavirus causes FIP, and in a small percentage of cats, it mutates into the often-fatal feline infectious peritonitis virus.

Viruses bind to the surface of cells before entering and replicating in them, but the mechanisms that allow the FIP virus to access cells is not well understood. The Cornell Feline Health Center and Winn Feline Foundation has awarded Cornell virologist Gary Whittaker, Ph.D., a grant to determine the molecules involved.

He will study tissues, blood and fecal samples of both healthy and FIP virus-infected cats with the hope it could lead to a diagnostic test for the disease. The long-range goal: anti-viral therapies, such as vaccines, that could help prevent FIP. ♦

## Shelters' New Challenge: Dentistry

*They've begun providing dental care to encourage adoptions and reduce pain, returns and euthanasia*

If you visit an animal shelter to adopt a cat, you may be surprised to learn that some animals have received dental treatment. In a new and growing movement among shelters, veterinarians and supervised technicians are cleaning teeth, extracting fractured ones and treating inflammation of the gums to boost cats' chances of winning permanent homes.

"We've found that dental issues in middle-aged or older cats can interfere with their ability to be adopted due to the costs imparted to the new owner in correct-



Dental problems in middle-aged or older cats can be barriers to their adoption.

ing those problems," says Elizabeth A. Berliner, DVM, ABVP, the Janet L. Swanson Director of Maddie's Shelter Medicine Program at Cornell University College of Veterinary Medicine.

**Beyond Spaying.** "For decades, the focus of shelter medicine has been to address low-cost ways to spay and neuter and contend with overpopulation," she says. "We have worked hard to develop high-quality, high-volume techniques to enable us to spay and neuter safely and quickly."

(continued on page 4)

## The One-Eighth-Inch-Long Menace

*Fleas' seasonality has vanished in some areas, while females continue laying 50 eggs a day*

Summer brings blooming flowers, singing birds and — biting fleas. Warm weather awakens the fleas, if indeed they were ever asleep. Rising temperatures attributed to global warming are shortening the fleas' long winter naps and in some areas, eliminating them entirely, making flea bites a year-round risk for cats.

Dwight Bowman, M.S., Ph.D., professor of parasitology at Cornell University College of Veterinary Medicine, has a simple explanation for fleas' abundance: "Each female flea can lay 50 eggs per day onto the host, which includes any warm-blooded animal."

**The Life Cycle.** The eggs often roll off onto a cat's bedding, carpets, couches, blankets and other flea-friendly areas. Their ensuing development depends a good part on this: "The host's blood, previously consumed by female fleas, provides food in the form of flea dirt for the larvae when they hatch," Dr. Bowman says.

"The larvae crawl about on the ground or carpet and then fold in half and create a pupal case, a loose, sticky cocoon that may be camouflaged in green, purple or whatever bits of fabric are around them. When they emerge as adults, they immediately jump

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# CatWatch

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## SHORT TAKES

### Where the Money Went for Cat Expenses in 2013

Spending  
on pets will  
reach \$59  
billion this  
year, up  
4.9 percent  
over 2013,  
according to  
the American  
Pet Products  
Association.  
The surprising



**Owners spent an average  
of \$193 on routine veterinary  
care for their cats last year.**

category  
with the greatest proportion of growth  
last year: pet services such as boarding,  
training, pet sitting and grooming. It grew  
by 6 percent to \$4.4 billion.

The food category was first in  
spending at \$22 billion, up 4.5 percent,  
while veterinary care was second at \$14  
billion, an increase of 5 percent. The forces  
driving the increases are owners' emphasis  
on pets' health and their humanization,  
the association says.

According to its 2013-2014 National Pet  
Owners Survey, cat owners' annual basic  
expenses include:

Surgical veterinary visits	...\$382
Routine veterinary care	.....\$193
Food	.....\$203
Food treats	.....\$36
Kennel boarding	.....\$337
Vitamins	.....\$77
Groomer/grooming aids	.....\$20
Toys	.....\$23

"People are pampering their pets  
more than ever, and manufacturers and  
businesses are offering new products,  
services and opportunities to meet their  
needs and wants from interactive and  
innovative toys to pet-friendly hotels,  
restaurants and airlines," says APPA  
President Bob Vetere.

The association's report on the survey,  
a 558-page door stopper of a book, also  
found that:

- ◆ 90 percent of owners said their cats  
had been spayed or neutered.
- ◆ 53 percent of cat owners also have  
a dog.

- ◆ 35 percent of owners obtained  
their cats as strays they caught or  
found outdoors; 26 percent adopted  
them from a shelter or humane  
organization, and 32 percent  
obtained them a friend or relative.

### 'Automatic' Insulin Injections

People have had the option of  
managing their diabetes by using injectable  
insulin pens for years. Now the Food and  
Drug Administration has approved the first  
insulin pen for diabetic dogs and cats. The  
refillable pens automatically measure the  
prescribed insulin dose.

Merck Animal Health developed pens  
to make giving insulin injections more  
convenient for owners, says Kathleen  
Heaney, DVM, director of technical services,  
"and precision dosing makes it easier  
to consistently deliver an accurate dose  
compared to syringes." The pens will be  
offered at a number of veterinary clinics in  
the U.S. to help owners administer insulin  
safely and effectively, the company says.

Diabetes is a growing problem, Dr.  
Heaney says, with the prevalence in dogs  
and cats today ranging from one in 100 to  
one in 500.

### Phasing Out a Pesticide

The Environmental Protection Agency  
and two pet product companies have  
agreed to phase out the neurotoxin  
propoxur in flea collars because of its  
health risk to children. Sergeant's Pet Care  
Products, Inc. and Wellmark International  
will manufacture pet collars using the  
chemical until April 1, 2015, and distribute  
them for one year. The collars are sold  
under the trade names Sentry and Biospot,  
among others.

An EPA assessment of propoxur in  
pet collars last year, following a petition  
from the independent Natural Resources  
Defense Council, indicated risks to children  
who may ingest pesticide residues when  
they touch a treated animal and then put  
their hands in their mouth.

Pets, however, aren't at risk, the EPA  
says: "If you decide to use propoxur  
pet collars, follow the label instructions  
carefully and your pet should be fine." ◆



# Best Advice for Safe Travel: Buckle Up!

*Simple tactics such as using calming scents help make road trips generally stress-free*

If you're taking your cat or cats on vacation this summer, you'll be in pet-loving company. Six percent of owners take their cat with them when they travel two nights or more, according to the American Pet Products Association.

The percentage may not sound impressive, but consider that 39 million households in the U.S. own one or more cats — the average is 2.1 — and that means almost a half a million cats will be on the road, hopefully all of them in carriers. That's the most important travel recommendation from Gretchen L. Schoeffler, DVM, a specialist in emergency and critical care at Cornell University College of Veterinary Medicine.

"It is imperative that cats travel in a carrier while in the car, preferably a crate that is buckled in," says Dr. Schoeffler, Section Chief of the Emergency and Critical Care Service. "When loose, cats simply become projectiles in the case of a quick stop or accident, injuring themselves and others."

**Watch Those Claws.** An unrestrained cat in the car is also a distraction and danger to the driver. "Can you imagine your cat freaking out, bouncing around with extended claws while you are driving 55 miles an hour on a busy highway?" Dr. Schoeffler asks. "A cat may get under a seat, under the dashboard or escape if a door or window is opened. Take the cat out of the carrier only when you have reached your destination."

The carrier should be well-ventilated and large enough for your cat to stand and turn around. It should have space for a water bowl and, if you choose, a litter tray.

Here are more recommendations from Dr. Schoeffler for safety and well-being on the road:

## *To Reduce Stress*

Cats often associate car rides with negative experiences, such as going to the veterinary clinic. Conditioning can help them overcome their anxiety. "Prior to the trip, let the cat explore the car while it is parked in the driveway," Dr. Schoeffler says. "Make sure the cat doesn't disappear under the dash board. By letting a cat explore the car, it becomes a less scary place — one that he can claim as his own."

When your cat is comfortable in the stationary car, take him on short trips and slowly build up to longer ones. "By providing positive reinforcement — playtime and treats — each and every time he goes for a ride, he will become conditioned to enjoy the experience," Dr. Schoeffler says.

She suggests using Feliway — a pheromone that tends to calm cats — in the car. It's a synthetic copy of the feline facial pheromone that cats use to mark safe territory, available as a spray or diffuser. In addition, putting items with your cat's scent, such as bedding or towels, in the car can help the environment seem more familiar.

## *To Prevent Car Sickness*

Reduce stress and you'll likely reduce motion sickness. It's the primary reason for cats' motion sickness, Dr. Schoeffler says. "You might also consider withholding food for eight hours prior to and during the actual travel time. An empty stomach may help reduce nausea."

Meclizine (*mek' li zeen*), marketed under several brand names, may be given for motion sickness but not for anxiety, Dr. Schoeffler says. Consult your cat's veterinarian before giving any medications or supplements — even over-the-counter medications.

## *To Avoid Hyperthermia*

"Cats don't develop heat stroke as often as dogs," Dr. Schoeffler says. "With that



A loose cat in the car is an invitation to disaster. A securely buckled crate can help prevent injuries to him, the driver and passengers.

being said, you should never leave a pet in a car or confined space unattended. Not in the shade, not during the winter, not even with the windows cracked. "

When it's 75 degrees outside, it takes only 10 minutes for the temperature inside a vehicle to reach 94 degrees. Ten minutes later, the interior temperature can hit 104.

Additionally, cats should always have access to water, Dr. Schoeffler says. "The only cats I have had to treat for heat-related illness have been left in a confined space unattended."

## *To Manage Rest Stops — Or Not*

If you have harness-trained your cat and he can happily walk on leash, he might appreciate a walk outdoors, away from crowds and other pets at rest areas. A more practical solution would be to pack a portable or disposable litter tray in his crate.

## *To Aid in Emergencies*

In addition to obvious supplies such as food, bowls, first-aid kit, favorite toys, plastic bags, litter and scoop, don't forget the not-so-obvious: an ID tag with your name and home and cellphone numbers, a copy of your cat's medical records in the event he needs veterinary care and a photo of him in case he becomes lost — but your thoughtful care won't let that happen. ♦



**DENTAL ...** *(continued from cover)*

Dental treatment is the new challenge. "Periodontal disease contributes to infection, illness and discomfort in our companion animals," Dr. Berliner says. "Equipment is expensive and dental procedures can take hours. By having veterinary dentists and shelter veterinarians working together, we know that dentistry could be the ticket to getting homes for more shelter animals."

At this point, dental procedures are limited at shelters and are usually performed by shelter or general practice veterinarians and their technicians due to the costs. "Most shelters are unable to utilize specialists for this work, as there are few, if any, in many communities, and they can be cost prohibitive," Dr. Berliner says. "A shelter animal is more likely to have a diseased tooth extracted than to have endodontic work done."

Progressive shelters are seeking grants and donations, and conducting creative fundraisers to provide dental care. Pawsitively Cats in Tucson, Ariz., is staging a Jeep Raffle Cat Dental Benefit. Cause 4 Paws Feline Rescue in Quebec, Canada, raised \$576 to provide much-needed den-



**Jenelle Vail, DVM, provides dental treatment** for a cat at the Humane Society of Boulder Valley, Colo. The clinic performed major dental procedures on 70 cats last year.

tal treatment for a rescue cat, now healthy and up for adoption. And in Brighton, Mass., the Gifford Cat Shelter encourages supporters to designate how their donations are spent, including \$500 to cover dental surgery for a shelter cat suffering from painful dental disease.

**Staff Training.** Veterinarians are donating time and expertise to the movement. Earlier this year, veterinary dentist Tony Woodwood, DVM, AVDC, at Animal Dental Care and Oral Surgery, presented a free, two-day training session for 16 shelter personnel at his dental training center in Colorado Springs. "I did a similar

**CONSULTATIONS ARE AVAILABLE**

Maddie's Shelter Medicine Program at Cornell provides resources for veterinarians, animal shelter staff and pet owners at [www.sheltermedicine.vet.cornell.edu](http://www.sheltermedicine.vet.cornell.edu). The program conducts research and offers consultations in person and by phone (607-253-3349) and email ([sheltermedicine@cornell.edu](mailto:sheltermedicine@cornell.edu)).

**YOU'RE WELCOME AT THE CONFERENCE**

The public is invited to the 2014 ASPCA Cornell Maddie's Shelter Medicine Conference to be held July 18-20 at the Robert Purcell Center on the Ithaca, N.Y., campus. More than 350 veterinarians, technicians, assistants, shelter staff, volunteers and board members are expected to attend.

Topics will cover dentistry; infectious diseases such as parasites and feline infectious peritonitis; training and emotional support for humane euthanasia; pet first aid, including new protocols in administering cardiopulmonary resuscitation; and legal issues such as pet store puppy sales, breed-restriction laws and shelter access laws.

Heartworm treatment and prevention options also will be discussed because the disease, which is widespread in the South, impacts Northern shelters when they take in animals affected by floods, hurricanes and other natural disasters in Southern states.

Registration for the conference is \$100 for veterinarians, \$50 for licensed veterinary technicians, \$25 for individuals and free for students. For more information, visit [www.aspcapro.org/shelter-med-conference](http://www.aspcapro.org/shelter-med-conference).

**SHELTER MEDICINE ON THE WAY TO CERTIFICATION**

More than 4,500 animal shelters operate in the United States with staff and volunteers caring for six to eight million cats and dogs each year. The duties shelter veterinarians face are diverse, including knowledge of infectious disease, animal behavior, public health, veterinary forensics, immunology, animal law, companion animal population management, epidemiology, sanitation care and facility design.

After nearly a decade of concerted efforts led by the Association of Shelter Veterinarians, the American Veterinary Medical Association is in the process of approving board certification in shelter medicine practice.

Veterinarians will have two routes to pursue for certification: enrolling in a two- or three-year residency training program or selecting a practitioner path for those with six years or more experience in practicing shelter medicine.

Credit shelter medicine programs at Cornell and other universities and Maddie's Fund with demonstrating the need for certification. Maddie's Fund has awarded more than \$96 million to animal welfare organizations and veterinary schools since it began in 1999. Its goal is to create a "no-kill nation," where all healthy animals are guaranteed placement in permanent homes. To learn more, visit [www.maddiesfund.org](http://www.maddiesfund.org).



training event for the Toronto Humane Society 18 months ago, and they reported decreased return rates on adoption on those patients who had their mouths cleaned before adoption," he says.

The Humane Society of Boulder Valley, Colo., which cares for 9,000 animals annually, with a 93 percent success rate of adopting or reuniting them with owners, is one of the pioneers in shelter dental care.

"We realized for many years that dental disease can be a strong deterrent



**A veterinarian or certified veterinary technician** spends two hours on a dental procedure, says Lesli Groshong, DVM, chief veterinarian at the Humane Society of Boulder Valley. "In that time, 12 to 14 spay/neuter surgeries could be completed."

to adoption or create problems post-adoption when the adopter takes their new pet to the veterinarian for an exam and walks out with a \$1,000-plus estimate," says Chief Veterinarian Lesli Groshong, DVM. "Nobody wins and the pet may continue to be in oral pain. The pet is unlikely to have the procedure done and may be returned to the shelter where it is likely to be euthanized."

Preliminary reports from Boulder indicate 70 cats and 60 dogs had major dental procedures there last year and about 75 had simple extractions, Dr. Groshong says. "Not included are animals that were adopted and then had the dental done — usually because there can be a long wait before a dental can be done, so we frequently allow the adoption to be completed and then the pet returns to our public practice for the dental as an owned animal with the shelter covering the cost." (The nonprofit society operates a public veterinary practice that helps support its work.)

**Medical Disclosures.** The typical dental problems she sees in cats are heavy buildup of tartar and painful absorptive lesions.



**Some animal shelters routinely provide dental cleaning** for cats like this one undergoing the procedure at a private clinic.

Animals with tartar and/or gingivitis (gum inflammation) but no painful, abscessed or mobile teeth get a medical disclosure accompanying their adoption stating the pet has dental disease that will likely need treatment from their veterinarian.

The shelter's board of directors pressed for "zero euthanasia of adoptable animals" about 15 years ago, Dr. Groshong says. "We were beginning to place more older but otherwise healthy animals for adoption and [were] hearing from adopters about the high cost of dental care. We had a simple dental scaler and I began to extract more and more teeth."

She took Dr. Woodward's continuing education dental course a decade ago to improve her speed and efficiency in extractions. A veterinarian or certified veterinary technician spends two hours or more on a dental procedure, Dr. Groshong says. "In that time, 12 to 14 spay/neuter surgeries could be completed, and the veterinarian could perform a dozen complete physical exams and enter medical notes. The time and expense of performing dentals is a huge burden on shelters."

The clinic manages its staff to treat three or four animals requiring major dental care weekly, Dr. Groshong says. The sad truth at Boulder and many of shelters across the country: "If we didn't have the resources to perform dental procedures on the dogs and cats with severe dental disease, they would be euthanized rather than allowing a chronic painful condition to go untreated. Because of the expense of dentistry, it is rare to find people who are willing to adopt animals with severe dental disease even if intervention will be curative." ♦

## A COMPREHENSIVE APPROACH TO LOST AND FOUND PETS

Encouraging the reunion of lost animals and their owners is a critical issue for shelters. Elizabeth Berliner, DVM, ABVP at Cornell shares the successful example set by the Marin Humane Society in Novato, Calif. It's taking a comprehensive approach, including:

- ◆ Using homeowner associations to email residents about lost or found pets in their neighborhood.
- ◆ Identifying animal-related businesses willing to post found pet fliers in their stores.
- ◆ Connecting with local church groups to get the word out about lost or found pets to their congregation during sermons.
- ◆ Partnering with small community newspapers to highlight found and injured companion animals.
- ◆ Taking high-quality photos of found animals, capturing distinct markings and including detailed descriptions where the animal was found.
- ◆ Getting the public involved by encouraging people to promote and share happy people-pet reunions.

The ASPCA has a webinar on "How to Boost Return-to-Owner Rates" at [www.aspcapro.org/node/72003](http://www.aspcapro.org/node/72003).



**FLEAS**...(continued from cover)

onto the host that provides them with food, warmth and habitat — everything they need to thrive and repeat that life cycle. An adult flea would never leave an animal if it had a choice.”

While this arrangement may work well for the flea, it will likely make your cat miserable. Flea saliva, the substance deposited into the skin when fleas feed on your cat, contains more than 20 substances that are irritating and potentially allergenic, says dermatologist William H. Miller, VMD, Medical Director at the Cornell University Hospital for Animals.

“The flea’s bite causes a red papule — a small bump sort of like a mosquito bite in a person. If the cat had only one flea, the animal and owner wouldn’t even notice it. However, fleas rarely occur alone. As a group, fleas can inflict numerous itchy bites. And if the animal is allergic to flea saliva, the bite wound is bigger, angrier and itchier,” says Dr. Miller.

**Intense Itching.** Complications can arise from flea bites when the cat tries to soothe the itching by scratching, licking,



**Flea saliva, deposited into the skin** when fleas feed on cats, contains more than 20 irritating, potentially allergenic substances.

chewing or rubbing. Serious scratching — for example, by a cat with sharp claws — can damage the surrounding skin, and that skin can become infected, which can make itching even worse. “In debilitated

animals or those with chronic untreated allergies, this secondary infection can seriously damage the skin and cause systemic problems,” Dr. Miller says.

“Fleas are also a vector for tapeworms, as well as various bacterial pathogens like *Bartonella*, so if a flea is swallowed while the animal licks or chews at its skin, the animal can be infested by tapeworms or myriad systemic diseases.”

The degree of these reactions and complications in cats depends largely on the severity of the infestation, the degree of allergy in the animal and the timing of the cat’s treatment — ideally promptly. Allergic cats in a heavily infested environment can suffer significant skin damage in a very short period of time. “When a secondary infection is superimposed on a flea-induced rash, health can deteriorate very, very quickly,” Dr. Miller says.

**Favorite Sites.** Although fleas can bite anywhere on an animal’s body, the nape of the neck and base of the tail are common sites in cats. “If the flea burden is great, it’s easy to see the fleas. With only a few fleas, a flea comb may be necessary to

## WHEN FLEA CONTROL MOVED TO VETERINARIANS

Twenty-five years ago, the discovery that fleas can remain on a cat for their adult life revolutionized flea treatment. “It changed the thinking about flea treatment,” says parasitologist Dwight Bowman, M.S., Ph.D., at Cornell. “Now owners could apply a much smaller quantity directly to the pet rather than spraying their whole house or backyard.

“In 1994 Ciba-Geigy came out with Program (lufenuron), the first such product. It worked by preventing fleas from reproducing and was a phenomenal success. In 1996 Frontline (fipronil) and Advantage (imidacloprid) came onto the market. Now rather than toting home bags of products like flea bombs and sprays for the house and yard, all the pet owner needed was one small product. The whole industry shifted over from pest-control agents to veterinarians.”

Generations of cats have received the treatments since then. “Owners need to apply the product only once a month and not worry about it anymore,” Dr. Bowman says.

Fleas will probably always be with us since stray cats and dogs, as well as wildlife like opossums, also harbor fleas, he says. “To pet owners, fleas may seem unusually difficult to eradicate. But the advantage in dealing with fleas is that they stay on the host, enabling targeted treatment.”



## BATTLING THE PARASITE ON THE HOMEFRONT

When flea infestation is extensive, stronger measures are sometimes called for, along with appropriate treatment of your cat. Ridding the environment of fleas — including treating all animals in contact with an infested cat — is key.

The most effective way is to treat the pet's living areas at the same time that you treat him. Here's how:

- ◆ Launder all pet bedding in hot water.
- ◆ Vacuum thoroughly under furniture, cushions, chairs, beds and along walls.
- ◆ Discard vacuum cleaner bags outside — otherwise, fleas can continue to develop inside the bags and re-infest the house.
- ◆ Apply citrus sprays to rugs, carpeting and pet bedding to kill fleas on contact. Boron-based shampoo for indoor carpeting kills immature fleas by contaminating their food supply. Both treatments are low-toxicity to humans.

find them," says Dr. Miller. "The presence of tapeworm segments around the animal's anus would increase the suspicion of fleas, although particularly in outdoor cats, tapeworm can also result from eating rodents. Any secondary infections would be diagnosed by clinical examination, along with diagnostic samples (cytology) from the lesions. Systemic diseases caused by the transfer of infectious agents might be diagnosed by appropriate blood tests or cultures."

A few flea bites require no treatment. However, when a cat is uncomfortably itchy due to flea allergies and/or having been bitten by a large number of fleas, veterinarians may prescribe an anti-itch medication. "Primarily, these are steroids, but antihistamines or some newer anti-allergic medications may also be used," says Dr. Miller.

**Product Variety.** Anti-flea medications are available in many forms, including topical spot-application products, pump sprays, flea collars and oral medications that require a flea to bite before becoming effective. Some topical products kill fleas by direct contact. Others kill the fleas once they ingest the product. Some products target adult fleas, others target larvae and eggs, and

some all three. Still others target fleas as well as other external parasites, such as ticks, lice and mange mites. "Selecting the best product depends upon the area, the cat and the owner's preference," says Dr. Miller.

New products to control fleas are constantly being researched and developed. "What began with just lufenuron in 1994 has multiplied," Dr. Bowman says. "There are 10 to 15 such products out there today. And new products, product combinations and delivery methods are still coming out. We will probably see entirely new chemicals in the next three or four years."

Although many preventives are available at big box stores, pet stores or farm and garden centers, their staffs may not be knowledgeable about a specific flea-control program for you, Dr. Miller says. "A veterinarian who knows the number and type of animals in your household, the indoor and outdoor environment, and the medical idiosyncrasies of your pets will be able to design the flea-control program best suited to you and your cat."

Dr. Bowman's best advice: "Take your cat to the veterinarian for a prescription, follow instructions and don't stop using flea control in the winter, no

## MEET CTENOCEPHALIDES FELIS

The wingless cat flea, *Ctenocephalides felis*, breeds year round in most of the U.S., with temperatures and humidity most favorable for them from June through August. The insects are hard-shelled, ranging from reddish-brown to black in color. Because of their size — about one-eighth of an inch long — they're difficult to see on a cat's coat. Their waste may be evident, however, as tiny black dots, largely consisting of dried blood.



**High temperatures and humidity** are most favorable to the cat flea in the summer, but it breeds all year in most of the U.S.

Among the distinguishing facts about fleas:

- ◆ Because of their powerful legs, they can jump up to 8 inches high.
- ◆ Pet owners and others in the U. S. spend more than \$6 billion annually on flea control.
- ◆ Pet bedding is the area in the home most likely to harbor flea eggs and larvae.

Fleas can bite humans who handle infested animals and cause severe itching, but humans aren't their usual host.

matter where you live! Because some pet owners aren't doing these things, it's a wormier, more flea-ridden world than it should be." ♦





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.

## Should They Test Their Abyssinians for IMHA?

**Q** My husband and I breed Abyssinians, and we were told by another breeder that we should be checking our cats for immune-mediated hemolytic anemia (IMHA), as she owns a relative that tested positive. We don't know anything about IMHA. Could you enlighten us?

**A** Thanks for contacting us about this issue, as anemia (low-red blood cell concentration in the blood) can be a serious problem. Remember that blood is a bodily fluid composed primarily of water, with various types of cells suspended in it. One of these cell types is the red blood cell, which carries oxygen to the tissues of the body.

This oxygen is ultimately used to create molecules that can be used as a source of energy for the myriad biochemical processes that sustain life. Anemia can limit the amount of oxygen that is delivered to the body, thereby limiting the amount of energy that is ultimately available to carry out these vital processes and predisposing to organ dysfunction and symptoms including weakness and lethargy. Depending upon the magnitude of the anemia (i.e., how low the red blood cell concentration gets), anemia can be potentially life threatening and requires immediate evaluation by a veterinarian.

IMHA refers to a situation in which the body's immune system makes antibodies against its own red blood cells. Antibodies have evolved as a mechanism to protect the body from invading organisms such as viruses, bacteria and parasites; and when they function appropriately, antibodies result in the recognition of these infectious agents as "non-self" and the labeling of them for ultimate destruction by other components of the immune system. When antibodies are inappropriately directed toward red blood cells (i.e., toward "self") however, they can cause their destruction, leading to anemia and decreased oxygen delivery as outlined above.

IMHA has been roughly divided into primary and secondary classifications. Secondary IMHA refers to situations in which the surface of red blood cells is altered by things like viruses,

parasites or toxins, resulting in their inappropriately being labeled as "non-self" and destroyed. Certain types of cancers and infections such as feline leukemia virus and feline infectious peritonitis and drugs such as methimazole and trimethoprim sulfonamides can predispose to secondary IMHA in cats.

Primary IMHA refers to situations in which antibodies are directed against red blood cells, and no evidence of an infectious, toxic or cancerous agent that would cause alteration of the red blood cells is found. Primary IMHA is relatively rare in cats, although recent studies suggest that it is more prevalent than was previously suspected.

The treatment of IMHA is usually directed toward addressing/eliminating potential causes (as may be seen with secondary IMHA), restoring appropriate red blood cell concentration via transfusions if necessary, suppressing the immune response with immunosuppressive drugs such as corticosteroids, and generalized supportive care. Whether therapy for IMHA requires hospitalization or can be provided on an outpatient basis depends upon its cause and severity. The prognosis for cats with IMHA is dependent upon the underlying cause, the severity of the anemia and the stage at which it is diagnosed.

While I am not aware of Abyssinians being predisposed to IMHA per se, they are genetically predisposed to another cause of red blood cell destruction and anemia: pyruvate kinase (PK) deficiency. PK is an enzyme that is crucial for normal energy metabolism in red blood cells, and a deficiency of this enzyme results in their being fragile and predisposed to rupturing, rendering them unable to carry oxygen. Cats can be tested for PK deficiency using a small blood sample, and perhaps this is the test that this breeder is referring to.

I suggest that you discuss these issues with your veterinarian, and consider testing your babies to determine their PK status. This knowledge would be helpful in determining the risk of your kitties for anemia mediated by deficiency of this enzyme and may alter recommendations regarding monitoring for anemia and preparedness for managing anemia should it arise.

I hope that this is helpful, and please keep in touch.

—Best regards, 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**, 800 Connecticut Ave., Norwalk, CT, 06854 or email [catwatcheditor@cornell.edu](mailto:catwatcheditor@cornell.edu).

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#### CORRESPONDENCE

The Editor  
*CatWatch*  
800 Connecticut Ave.  
Norwalk, CT 06854  
[catwatcheditor@cornell.edu](mailto:catwatcheditor@cornell.edu)

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