

THIS JUST IN

## How Cats Sniff

*Coiled bony airway structures get the job done*

Scientists from Ohio State University found that a cat’s nose works like a gas chromatograph, a tool that detects and separates vaporized chemicals. The cat’s nose works better, say the researchers, adding that chromatograph efficiency could be improved based on what they’ve learned about the cat’s nose function.

Cats have tightly coiled bony airway structures that separate the air into two flow streams, one that is cleansed and humidified and another that delivers the odorants quickly and efficiently to the brain’s olfactory region. The analysis took into account the speed and direction of air flowing through the bony structures inside the feline nose.

“You want odor detection to be very fast,” says Kai Zhao, associate professor of otolaryngology at Ohio State’s College of Medicine, “so there is one branch that delivers odor at high speed, potentially allowing for quick detection rather than waiting for air to filter through the respiratory zone.”

The speed at which the brain detects the odor helps cats make decisions about important things like safety and food. ■

Wu, Z., et al. “Domestic cat nose functions as a highly efficient coiled parallel gas chromatograph,” *PLOS Computational Biology*, 2023; 19 (6): e1011119. *Science Daily*.

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# Choosing Anti-Anxiety Meds

*When anxiety interferes with normal life*

The focus on feline mental health is increasing in veterinary medicine as more cat owners learn that medications can play a role in treating anxiety and other behavioral disorders.

“Anti-anxiety medication may be warranted for a cat who has a moderate to severe anxiety-based behavior problem or experiences frequent anxiety,” says Pamela J. Perry, DVM, PhD, behavior resident at Cornell University’s College of Veterinary Medicine.

### Qualifying Behavior

All cats will experience a little fear or anxiety in their lives due to day-to-day stressors, which is fine. The problem occurs when a cat’s stress-related behavior starts to interfere with his ability to lead a normal life or causes harm to others in the household.

For example, many cats hide when a stranger comes into the house. Depending on your cat’s personality, he may take hours to days to investigate the stranger. This is normal. But if your cat is so scared that he is unable to access food, water, and/or his litterbox when a stranger is in the house, this can become a problem. Cats with more severe anxiety may even panic and hide when they hear people outside. These situations are not ideal for the cat.

Aggression due to fear, which is often shown as lashing out when the cat feels he is cornered, can result in injuries to humans and other pets in the household.

And no one enjoys cleaning up after an anxious cat who pees throughout the house. These issues generally drive owners to seek help quickly.

### Signs of Fear or Anxiety

- ▶ Hiding
- ▶ Aggression toward other cats or humans
- ▶ Urine marking
- ▶ House soiling
- ▶ Over-grooming or other repetitive behaviors

### The Right Medication

Your veterinarian or a veterinary behaviorist can help you determine if your cat would benefit from anti-anxiety medication and will steer you toward the right medication to try first.

“SSRIs—such as fluoxetine or sertraline—and clomipramine are commonly prescribed for cats with anxiety disorders,” says Dr. Perry. You may know fluoxetine by the brand name Prozac and sertraline as Zoloft.

“With inter-cat aggression, buspirone is often prescribed for the ‘victim’ cat because it tends to make kitties bolder and friendlier so they are less likely to run away from the aggressor,” says Dr. Perry.

While it may seem counterintuitive, encouraging the victim cat to stand his ground calmly can take the wind out of a bully cat’s sails.

All these medications are usually used long-term, either for several months while you also work on a behavioral modification plan before weaning off or as a permanent part of your cat’s care.

Different medications can be helpful for cats who only experience severe anxiety in specific situations. “Benzodiazepines, gabapentin, and trazodone also have been used in felines, usually as situational medications,” says Dr. Perry.

These drugs can be given an hour

*(continues on page 2, bottom)*



An aggressive, anxiety-driven cat may be anti-anxiety medications.

## Advances In Anti-Clotting Therapy

*Adding rivaroxaban to clopidogrel may help*

**A** major concern for owners of cats diagnosed with hypertrophic cardiomyopathy (HCM) is the development of clots in the heart. Cats with HCM that develop clots have a significantly worse prognosis than those that do not.

The currently accepted therapy to make clot formation less likely is a drug called clopidogrel (Plavix), which helps prevent platelets (cells that aggregate together in the initial formation of a clot) from coming together. Unfortunately, this medication alone is often not effective at preventing clots or a recurrence of clots. Some cats seem to have genetic resistance to the effects of clopidogrel.

A recent study performed at the University of California at Davis investigated the effects of adding rivaroxaban (a drug that works on a different component of the clot-forming pathway) to clopidogrel therapy on the ability of feline platelets to aggregate in nine healthy cats, as a first step in determining whether dual antithrombotic treatment (DAT) might benefit cats with HCM.

With the combination therapy, the cats showed definite changes in clotting ability. DAT was more effective at decreasing platelet aggregation than either drug alone. Currently, rivaroxaban is expensive. While more research is needed, including a trial in cats with HCM, DAT may prove to be a life saver for many cats with HCM. ■

*Lo, S., et al. "Synergistic inhibitory effects of clopidogrel and rivaroxaban on platelet function and platelet-dependent thrombin generation in cats." Journal of Veterinary Internal Medicine, May 19, 2023.*

## Hope for Sterilization Alternatives

*Two research groups are working on nonsurgical methods*

**F**eline overpopulation is a big concern for all cat lovers and a huge headache for shelters and rescue facilities. Kitten explosions lead to cat overloads and shelters having to turn cats in need away.

While spay/neuter programs may help, they are expensive and require considerable coordination, expertise, and resources. They also incur the risks associated with anesthesia. The Morris Animal Foundation is funding a study by Dr. Sandra Ayres at Tufts University that is focusing on a nonsurgical sterilization method for female cats.

A single-injection sterilization method has proven successful in chickens and rats. The goal is to now do a small study with female cats to determine whether it is safe and if the production of fertile eggs can be reduced or even eliminated.

If this works, it would truly revolutionize feline sterilization. Feral cats could be trapped, vaccinated, and sterilized in one quick event with no need to anesthetize them. This would save time and money and would be safer for the cats treated.

A similar study from Kristen Navara, Ph.D., at the University of Georgia is looking at a vaccine that would hopefully cause the reproductive hormones in male cats to drop to the levels seen in neutered males. This vaccine has the potential to be administered orally without capturing cats, using drops such as those used for wildlife rabies control, making it even more potentially impactful. ■

*(Medications, continued from page 1)*

or so before the stressful event, such as a car ride to the veterinarian or company arriving at the house.

### Results

How quickly you will see improvements from anti-anxiety medications depends on the drug your cat is taking and why he is taking it.

"For SSRIs and clomipramine, it may take up to four to six weeks to see clinical benefits," says Dr. Perry. These drugs

are long-term medications for anxiety and take time to build up in your cat's system. Your cat will likely stay on these medications for several months or for the rest of his life.

"For gabapentin, trazodone, or benzodiazepines, the effects usually are seen within one to two hours," says Dr. Perry. These are situational medications that are useful for specific times when your cat is likely to be stressed out, such as during travel or a family gathering. ■

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# Could It Be Cancer?

*Cancer's prognosis depends upon the speed in which it is diagnosed—early diagnosis improves outcomes*

**N**ot every lump on your cat's body is cancer, but that doesn't mean you should ignore new growths. A rapidly growing spot on your cat should raise concern, but the diagnosis may bring questions as to what is best for your feline friend. The only way to know what lies ahead is to have your veterinarian examine the cat and advise you.

## Cutaneous Mast Cell Tumors

If your cat develops one or more small (less than 8 millimeters, or about a third of an inch), raised, round, smooth, hairless skin bumps that are pink, gray, or white in color, they could be cutaneous mast cell tumors.

Cutaneous mast cell tumors occur most often in cats 9 years old or older, and these tumors usually develop around the head and neck. The nice thing about these tumors in cats is that they are usually benign.

The treatment of choice for cutaneous mast cell tumors in cats is surgical removal, which should be curative. The question is whether this is the best choice for your cat.

Removal is the gold standard of care, but considerations for individual cats include the cat's overall health (is he a good candidate for general anesthesia and surgery?), the cost of



*This cat underwent a partial pinnectomy (removal of ear flap) due to squamous cell carcinoma.*

the procedure, and its possible effect on your cat's overall health. None of these considerations are small concerns.

"Sometimes I think it's OK to sit tight on small, cutaneous mast cell tumors if they are quiet and not bothering the cat," says Dr. Suzanne Losito, Cornell Veterinary Class of 1988 and a veterinarian at Fairmount Animal Hospital in Syracuse, NY.

"This is especially the case if the patient has health issues making anesthesia more of a risk. Because these tumors are usually benign, sometimes

the procedure involved in removing them creates more risk to the patient than leaving them," says Dr. Losito. If you choose to wait, continued monitoring is usually advised.

Two other forms of mast cell cancer in cats are more worrisome than the cutaneous form. When mast cell tumors occur in the spleen or the gastrointestinal tract, they are almost always malignant. Sadly, affected cats are usually sick by the time this cancer is diagnosed by a veterinarian.

Your veterinarian may be able to palpate an enlarged spleen or intestinal tumors in the abdomen. Splenectomy is the treatment of choice for splenic mast cell cancer, and survival times are decent. Gastrointestinal mast cell tumors carry a worse prognosis, even with surgery and chemotherapy, if indicated.

## Squamous Cell Carcinoma

If your cat develops chronic scabby, crusted lesions on its ear tips, lips, nose, or eyelids, it could be cancer. Cutaneous squamous cell carcinoma (SCC) is a malignancy that mostly affects white or lightly pigmented cats who go outdoors in the sun.

The upside to this cancer is that it is slow to metastasize (spread), so if it is caught early enough in a place where it can be removed with wide margins, surgery can be curative. Not surprisingly, when SCC occurs in the mouth of cats, it is difficult to treat, and the prognosis is usually worse.

Signs of oral SCC include bad breath, drooling, pawing at the mouth, changes in eating habits, and weight loss.

## Injection Site Sarcoma

A cat who develops a firm bump in the area where an injection was given that doesn't resolve within three weeks could be cancer.

Injection site sarcoma (ISS) is a rare but devastating adverse event that can occur after a subcutaneous injection in cats. When ISS was first identified in 1991, it was strongly associated with the rabies vaccine and the feline leukemia vaccine, specifically the aluminum adjuvant (a substance added to vaccines to enhance their effectiveness) in these vaccines. Subsequently, the role of adjuvants in the development of ISS has been brought into question, and this remains a controversial issue. Importantly, ISS has been occasionally

*(continues on page 5)*

## You Should Know

*Seemingly simple problems could be giving you a wake-up call that your cat is battling cancer. Consider these scenarios:*

**Your geriatric cat jumped off the couch and became acutely non-weight bearing on a limb.** This could be cancer. Osteosarcoma is an aggressive bone cancer that is sometimes not apparent until the cat suffers a pathological fracture through the weakened, cancerous bone lesion.

**Your intact (not spayed) or spayed later in life female cat develops a pea-sized lump near a nipple.** This could be cancer. Breast cancer in cats is almost always malignant, so the earlier it is identified and treated, the better the prognosis.

**Your cat has chronic diarrhea with or without vomiting and is not responding to treatment. She is losing weight.** This could be cancer. Lymphoma in cats can infiltrate the intestinal walls, disrupting their normal function. It can also form palpable tumors in the abdomen. Initial diagnostics may include abdominal ultrasound, but a definitive diagnosis requires biopsy. With advances in chemotherapeutic treatments, cats can often enjoy months to years of good quality life when treated for gastrointestinal lymphoma.



# The Dangers of Calicivirus

*Feline calicivirus is highly contagious and can be fatal*

**F**or most cats, a feline calicivirus (FCV) infection is a typical upper respiratory infection. It is highly contagious and common, but FCV can progress to a serious health crisis in some cases. There is no curative treatment, but most cats will recover completely with supportive care.

## Signs of FCV

Symptoms can depend somewhat upon which strain of FCV the cat contracts, but signs seen in mild cases of FCV generally include:

- ▶ Ocular (eye) discharge
- ▶ Nasal discharge
- ▶ Fever
- ▶ Lethargy
- ▶ Lack of appetite

Many cats will have some conjunctivitis (inflammation of the mucous membranes in the eye), and most will sneeze and/or cough. Cats with mild cases of FCV often recover in as little as five days, but more serious cases may take up to six weeks to fully heal.

In more severe cases, your cat may develop ulcers in the mouth, worsening the lack of appetite and causing drooling due to pain.

Pregnant cats will often have abortions. Some cats will end up with chronic gingivitis, but many cats have a full recovery.

The virus may move into the lungs and cause viral pneumonia.

In these cases, affected cats will often have an increased respiratory rate of 40 breaths per minute at rest, will be lethargic, unwilling to eat, and will often cough. (Normal respiration in a cat is under 40 breaths per minute.)

Secondary bacterial infections can develop, and hospitalization of the cat may be required.

## Systemic FCV

Some unfortunate cats will experience severe systemic (body wide) calicivirus infections. This is due to a genetically different version of the virus known as (VS) FCV with VS standing for “virulently systemic.” Unlike “normal” calici infections, this version often has serious consequences.

These (VS)FCV infections usually start like normal calici infections. They

## Intranasal Vaccines

Intranasal vaccines are noted for stimulating local antibodies in the nose and nasopharynx. This immunity may develop faster than that seen with subcutaneous injections. Cats who get an intranasal vaccine may sneeze for a couple of days post vaccination.

tend to cause ocular and nasal discharges and, possibly, ulcers in the oral cavity. They can rapidly progress to cause high fevers, lethargy, and depression. Many affected cats develop edema (swelling) of the face and/or legs. Some will become jaundiced (exhibiting a yellowish color to the whites of the eyes, ears, and mucous membranes) due to liver involvement, and most show signs of multiple organ involvement or failure. Crusty sores may appear on the nose, ears, paws, and eyes.

While uncommon, this strain of the virus is very infectious. Researchers say there are many variants of this severe strain, all slightly different genetically. The mortality rate can approach 70% despite intensive care.

## Transmission

For small groups of cats, it is not uncommon for 10% of cats to experience infections. Moving up to larger groups such as those in catteries and shelters, as many as 90% may have evidence of infection at some point. Carrier states can exist for months. In rare cases, a cat

may remain a carrier for life. Female cats who are carriers can infect their kittens in utero or shortly after birth.

Most cats get calicivirus infections from other cats, most often through sneezed droplets. Unfortunately, calicivirus can survive for up to a month on surfaces such as bedding, food bowls, and litterboxes. People can act as carriers if they handle an infected cat and then an uninfected cat without taking hygiene precautions in between. Two days to two weeks after exposure, the new infections can become apparent.

Most mild cases of FCV will not require diagnostic testing, as your veterinarian will often start symptomatic treatment for feline respiratory infections regardless of their cause. If it is important to determine exactly which upper respiratory virus is involved, or if cases progress to serious illness, then testing becomes important.

Swabs from areas of active infection or serum can be sent off for laboratory testing such as PCR or viral culture. Many cats have multiple infectious agents involved in their illness. Some veterinary clinics have rapid test kits, which can be run immediately for quick results.

FCV is a virus known for frequent mutations. Different variants of the virus tend to show propensities for certain clinical symptoms. One variant may cause a lot of lameness, whereas another may cause strictly respiratory signs.

## Treatment

Treatment for a calicivirus starts out with symptomatic care. Cats with ocular and nasal discharges benefit from gentle cleaning two or three times a day. Warm compresses can help soften and loosen hard crusts. Flushing your cat’s eyes

## Cornell Research on FCV

John S. L. Parker, BVMS, Ph.D., a researcher at the Baker Institute for Animal Health at Cornell University, has identified a cellular receptor for FCV. The long-term goal of his work is to understand how the interactions between FCV and its receptor control infectious virus entry, viral tropism, and virulence. Knowing more about the behavior of the virus could lead to improvements in both treatment and prevention. It may also provide information on how and why the virulent form of this disease crops up. From a One Health perspective, knowledge gained about FCV may also be applicable to human calici viruses. Note: One Health is a global initiative involving physicians, veterinarians, and environmentalists working together to achieve optimal health for all living creatures.



John Parker, BVMS, Ph.D., has made progress in the fight against FCV.



Peter Richi | iStock

Isolate any new apparently healthy cat you bring home for at least one month. If a new cat arrives showing signs of illness, the quarantine should be extended.

with artificial tears after cleaning can be soothing. Using a nebulizer can help. An easy way to do this is to shut your cat in the bathroom while you shower and don't put on the fan.

Since cats rely heavily on scent for their appetite, you may need to warm up your cat's food to create more aroma or add a "smelly" topper like the juice from a can of tuna to stimulate their desire to eat. If your cat has painful oral ulcers, she might eat better if you make her food into a slurry.

Kittens or young cats who have painful joints may need some pain or anti-inflammatory medications prescribed by your veterinarian. Do not use anything over the counter. Warm compresses on the sore areas initially may relieve some of the discomfort.

Cats who show signs of a secondary bacterial infection, including puslike discharges, should be on an antibiotic. Liquid options may be easiest to give to your cat with an upper respiratory infection. There are no anti-viral medications approved for use in cats with FCV, but nitazoxanide and 2'-C-methylcytidine (2CMC) are currently under study.

Cats who progress to pneumonia may need hospitalization. The use of an oxygen cage, intravenous (IV) or subcutaneous fluids, and a feeding tube if your cat won't eat are all potential therapies.

Any cat with a suspected respiratory illness should be quarantined from other cats. That means a separate room with the cat's own food and water bowls, bedding, toys, and litterbox. Ideally, you should change clothes and shoes after being in the "sickroom." Severely affected cats may need to be in isolation

for as long as three months. An important aspect of managing calicivirus infections is environmental cleaning and disinfecting after and as your cat recovers. Calici is an unenveloped virus, which means it is a tough virus to eliminate. This virus can survive for up to a month on surfaces, and potentially longer at cold temperatures. Shelter medicine veterinarians recommend accelerated hydrogen peroxide, potassium

peroxymonosulfate (Trifectant, Virkon-S), and sodium hypochlorite and other products in this family (e.g., 5% bleach diluted at ½ cup per gallon) for cleaning. These products are generally effective at neutralizing FCV.

### Prevention

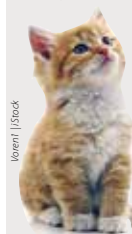
Vaccination is the cornerstone of the prevention program for FCV, but there are some caveats. This virus mutates frequently. Even the best vaccines are not 100% effective, but they help to decrease the severity of disease in an individual cat and shorten the recovery time. Use of a bivalent vaccine (that covers two strains) is recommended, especially for cats at risk, such as those in shelters,

### FCV in Kittens

A unique subset of FCV infections is seen in kittens. While these kittens may or may not show signs of a respiratory infection, they are lame. This syndrome usually comes on rapidly, with kittens showing a shifting leg lameness. Some refuse to move at all. Joints may be stiff and extremely painful to the touch. Generally, affected kittens will also have fevers and don't feel well enough to eat.

Warm compresses and pain or anti-inflammatory medications may help to make the kitten feel more

comfortable. Luckily, most kittens power through this phase in two or three days. Lameness can also be a side effect of calicivirus vaccinations in kittens, but it resolves fairly quickly.



loveni | iStock

rescues, or multi cat households with frequent turnover of residents.

The American Association of Feline Practitioners recommends vaccinating against FCV as one of the core vaccines (recommended for all cats). Kittens should receive their first vaccine at 6 to 8 weeks of age and a booster every three to four weeks until 16 to 20 weeks of age. This series should hopefully cover the kittens as their maternal immunity fades. After that, they should get a booster at 1 year of age with additional vaccinations every three years or as recommended.

Most calici vaccines are provided in a combination vaccine that contains vaccines for other feline viruses, such as feline herpes and/or feline panleukopenia. If an intranasal version is given (versus a subcutaneous injection), yearly boosters are suggested. ■

(cancer, continued from page 3)

associated with non-vaccine injections in cats, especially of long-acting medications, including antibiotic and steroid injections.

ISSs are usually fibrosarcomas, which are locally aggressive cancers that are slower to metastasize, although up to 25% do spread. They often occur within weeks or months of the injection, although they have been known to occur up to 10 years later.

Sometimes these lesions grow and change rapidly, making it clear something is wrong with the cat. Other times it is slow, more insidious growth of a firm, fixed, bumpy mass.

Because the biological behavior of this cancer is so well known, there is no sense in procrastinating when pursuing treatment, nor is there sense in pursuing any kind of minimal approach to removing the lump.

Early, wide surgical resection on the first attempt yields the best results. This means if it occurs on a limb, as aggressive as it may sound to you, limb amputation may be recommended to save your cat's life. Fortunately, most cats do surprisingly well after recovery from limb amputation.

This is the rationale behind the current recommendation to administer vaccines on the lower limbs rather than between the shoulder blades, as had been standard practice for decades. Additional therapy, including radiation and chemo, may be recommended by your veterinarian on a case-by-case basis. ■

# Anal Gland Problems

*They're rare, but they are very uncomfortable*

If you ever see your cat dragging her butt across the floor, you'll probably do a double take, but cats do sometimes have anal gland issues.

"Unlike dogs, cats do not commonly experience anal gland problems," says Leni K. Kaplan, MS, DVM, senior lecturer at Cornell University's College of Veterinary Medicine, but when they do occur, they are quite uncomfortable.

Your cat's anal glands are located just inside the anus. These glands secrete a dark, stinky fluid that is then expressed when your cat defecates. This is part of what gives cat poop its lovely aroma.

Why do such beautiful beings have such an odorous detail? The smelly anal gland secretion acts as a signature scent to give other cats information about that cat and to mark its territory. Like dogs and skunks, cats may also express their anal glands when threatened to distract the predator so the cat can get away. For most cats, the anal glands will function normally throughout their entire lives.

## Impacted Glands

One problem that cats can sometimes develop is impacted anal glands. "This occurs when the secretions do not empty on a regular basis and become thicker and obstruct the duct so the glands cannot evacuate naturally," says Dr. Kaplan. "When this occurs, the gland becomes overly distended/full/swollen which is quite uncomfortable."

The glands will continue to produce

### Signs of Anal Gland Problems

- ▶ Excessive grooming in the anal/hind limb area
- ▶ Scooting
- ▶ Behavior changes (less social, grumpy, lethargic)
- ▶ Decreased appetite
- ▶ Reluctance to use litterbox
- ▶ Swelling and/or redness around the anal region

secretions even though there is no more room for storage. The solution is to manually express the glands.

## Abscesses

"An anal gland abscess may develop when the gland is inflamed or infected from impaction. Sometimes, the abscess will rupture and form an open draining tract near the anus as a means of getting the gland emptied," says Dr. Kaplan.

Impacted anal glands are a perfect home for bacteria because they are warm and moist. And like any infection, infected anal glands are not comfortable. The ruptured abscess will relieve the pressure of the impacted gland(s), but also hurts.

Abscessed anal glands are treated in a similar manner as other abscesses. Your veterinarian will flush the abscess to remove as much pus and bacteria as possible, then start your cat on a course of antibiotics. Sutures may be needed in extreme cases, but these wounds are

usually left open to allow continued draining as they heal on their own.

## Expressing Cat Anal Glands

A fair number of dogs benefit from having their anal glands manually expressed either periodically or on a more regular basis, but this is not common for cats.

"Due to the tiny size of a cat's anus, it is quite uncomfortable for cats to tolerate a rectal exam and anal gland expression without sedation, especially when we are working so hard to promote low stress, fear free visits," says Dr. Kaplan.

A sedated cat is much more likely to hold still, allowing the veterinarian to do a more thorough investigation of the area to make sure that everything is properly cleaned before the kitty goes home.

"For most cats, they should not need a routine anal gland expression," says Dr. Kaplan. "If a particular cat has recurrent episodes of anal gland impaction, infection, or abscess, make sure the owners speak with their veterinarian about options on how to address this medical issue. Some cats may need surgery to remove the anal glands, but this is rare."

## Bottom Line

"Should any of signs of an anal gland problem be detected, the cat should be seen by its veterinarian," says Dr. Kaplan. Treating an impacted gland early can prevent an infection from setting in and spare your cat the discomfort of a ruptured abscess.

If you notice your cat scooting, she most likely has some dried poop on her rear that she is trying to dislodge. Check out the situation and help her clean up.

If you don't see an obvious reason for her odd behaviors relating to her behind, it's time to schedule a veterinary exam to sort it out.

Open sores and draining abscesses are not usually an emergency, but prompt treatment will have your cat feeling better quickly. ■



Pina Shestakova | iStock

*If your cat is not herself, with decreased appetite and litterbox avoidance, it may be wise to peek under her tail (if she'll let you!).*



*Leni K. Kaplan, MS, DVM, is a senior lecturer at Cornell University's College of Veterinary Medicine.*



# Old Cats and Vaccinations

*Even if your cat is frail, experts agree that you usually should still vaccinate him*

**W**hen it comes to decisions about vaccinations for chronically ill, skinny, debilitated cats, consider these facts:

- ▶ No solid research answers the question about whether to vaccinate ill cats.
- ▶ The existing vaccination guidelines do not address cats by age once they are adults.
- ▶ The diseases these vaccinations prevent are far worse than any concerns about safety, side effects, or over-vaccination.
- ▶ The strength of the cat's own immune system wanes with advancing age.

"It is important that geriatric cats receive vaccinations," says Dr. Russell Katz, Cornell Class of 1988 and owner of Pelham Animal Hospital in Pelham, N.Y. "They may have reduced immunity, especially to the respiratory viruses. It's no different than how important it is for elderly people to receive influenza and pneumonia vaccines."

## Individualized Recommendations

"Unless the kitty has a fever or is receiving treatment for life-threatening diseases, I recommend they be vaccinated for rabies and the feline respiratory complex diseases," says Dr. Katz. "If they go outdoors, I also recommend feline leukemia virus (FeLV) vaccination for my geriatric feline patients."

Things your veterinarian will take into consideration when developing a personalized vaccination plan for your geriatric cat include:

- ▶ **Likelihood of exposure to disease.**
- ▶ **Indoor-only vs. indoor/outdoor.** Indoor-only cats are not likely to be exposed to FeLV, but they could encounter respiratory viruses, even when visiting the veterinary clinic. Cats who go outdoors definitely have risk of exposure to FeLV.
- ▶ **Single-cat vs. multiple-cat home.** Cats who live with many other cats have a higher likelihood of exposure to disease and may experience immune-suppressive stress,

depending on social dynamics and how the group gets along. Single cats have much lower likelihood of these risk factors.

- ▶ **New cats introduced frequently.** Cats living with families that acquire multiple pet cats or that foster rescue cats have a much higher likelihood of disease exposure and immune-suppressive stress.
- ▶ **Severity of the disease if infected.** For old, skinny, debilitated cats, the consequences of a respiratory infection could be severe.
- ▶ **Concurrent illnesses.** Cats with fevers or severe illnesses are typically not vaccinated until they recover.
- ▶ **History of adverse reaction to vaccine.** If your cat ever suffered a severe reaction, like anaphylaxis, to a vaccine, you and your veterinarian may think twice about repeating this vaccine. If the risk of the disease is high enough to warrant vaccination, pre-treatment with an antihistamine

and a corticosteroid 20 to 30 minutes before vaccination is recommended.

## Rabies Is a Standout

The rabies vaccine lives in a category all its own. Because rabies is a zoonotic life-threatening hazard to humans, vaccination is heavily dictated by state and/or local municipalities. As such, except for extreme circumstances, the rabies vaccine is generally recommended for all cats, indoor and outdoor.

If your cat shouldn't receive a rabies vaccine for health reasons (severe anaphylactic reaction in the past, immune-mediated disease making vaccination potentially dangerous, severely debilitated condition), some municipalities will accept a letter from your veterinarian stating why it is dangerous for your cat to be vaccinated and allow an exemption. It may be worth a try, but you will need your veterinarian's support on this.

If you are avoiding rabies vaccination for your cat but want to know your cat has protective immunity, rabies titer tests are available. Note: The titer test is not accepted by law enforcement, so if your cat bites someone or encounters a rabies-positive bat or other animal, he or she will be considered unvaccinated. ■

## The AAHA/AAFP Guidelines

Most veterinarians use the American Animal Hospital Association/American Association of Feline Practitioners Vaccination Guidelines to determine which vaccinations to recommend to their clients. The key word here is "guideline." These are recommendations for deciding the best course of action for an individual cat. This is not the same as a rule, which is a hard directive with no room for interpretation, or a law, which is government mandated, as is the case with rabies vaccines in many municipalities.

The AAHA/AAFP vaccine guidelines specify which vaccines are considered "core" vaccines—the ones generally recommended for all cats—and "non-core" vaccines, which are given depending upon your cat's lifestyle and environment. Most people leave the decision to the discretion of the veterinarian.

In general, the core vaccines recommended for pet cats are:

- ▶ Distemper [feline panleukopenia virus (FPV)]
- ▶ The respiratory viruses [feline herpes virus-1 (FHV), feline calicivirus (FCV)]
- ▶ Rabies
- ▶ FeLV for all kittens (even indoor); if indoor only adults, annual boosters are not necessary

Non-core vaccines for pet cats include:

- ▶ FeLV (for adult outdoor cats)
- ▶ Bordetella
- ▶ Chlamydia

Feline infectious peritonitis (FIP) vaccination is generally not recommended.

# When Your Cat Eats String

*If you see this happen, take the cat to a vet right away*

**Q** My 8-year-old Maine Coon cat ate part of a rope attached to a cat toy wand. The rope is made of three twisted parts that he loved to bite. I had no idea about the risk. Today I discovered a long piece of the rope in his bowel movement (about 5 or 6 inches long). I'm very concerned. His behavior seems normal, however, a few days ago he threw up a large amount of liquid but not since. Do I need to take him to a veterinarian to follow up his eating a piece of rope? Thank you for your advice.

**A** Thank you for getting in touch, and I am very sorry to hear about your cat's problem. Ingesting long, thin objects such as string, rope, or tinsel (called a linear foreign body) can be a very serious matter in cats, often requiring abdominal surgery to prevent potentially life-threatening perforation of the intestines.

My brief answer is that if you saw him ingest this rope, you should bring him to be examined by a veterinarian as soon as possible.

While these linear foreign bodies may occasionally pass through the gastrointestinal (GI) tract and come out in the feces, they can cause potentially dangerous obstruction of the GI tract. In some cases, one end of the foreign body can become lodged somewhere in the GI tract (often getting caught on the base of the tongue) and the other end can be carried deeper into the intestines.

As the intestines continue to move trying to pass the foreign body through, they can become bunched up due to the end that is immobile, and this can result in a compromise of blood supply to large parts of the intestine or to perforation of the intestines. This phenomenon can take variable periods of time to occur.

Either of these scenarios can result in intestinal contents spilling into the

abdominal cavity, with subsequent bacterial infection (peritonitis) and loss of viability (i.e., death) of portions of the GI tract. This infection can also spread to the bloodstream (sepsis), which is a potentially fatal complication.

Your veterinarian will examine your cat and likely recommend abdominal radiographs (X-rays) and/or abdominal ultrasound to evaluate the structure and function of the GI tract. He or she may recommend sedating or anesthetizing your cat to look at the back of the tongue to see if this rope might be bound up there.

Bloodwork may also be recommended to evaluate overall health and/or to prepare for surgical exploration of the abdominal cavity and removal of any foreign bodies if they are found. Such surgery is necessary and potentially life-saving if a linear foreign body is present.

Importantly, if you notice any of this rope protruding from either his anus or his mouth, do not pull on it, as doing this can lead to worsening of the intestinal bunching phenomenon mentioned above and worsen outcomes.

I hope that this is helpful, and please send us an update when you can. ■

## Avian Flu In Cats

*H5N1 has been detected in several cities in Poland*

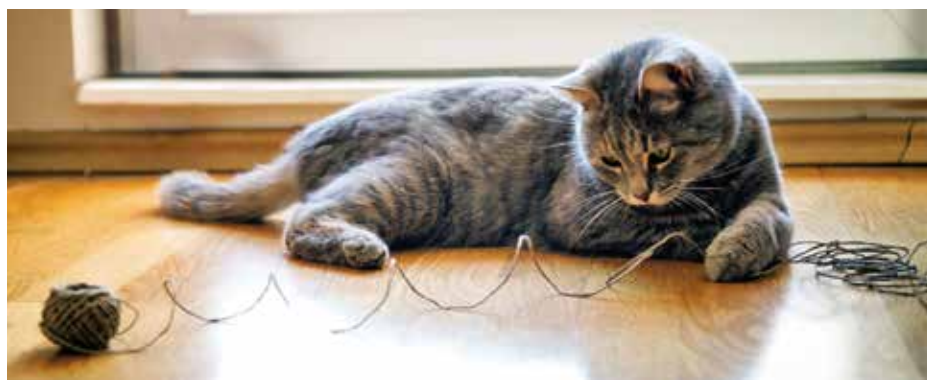
**I**n Poland, 70 cats are being considered potentially infected with H5N1 avian flu. This is a developing story.

As its name implies, the H5N1 avian flu is a respiratory virus that circulates in wild birds. Some strains can be transmitted to mammals (including humans). While the source of infection is still undetermined, preliminary data suggests that it may be infected chicken that is being fed to these cats.

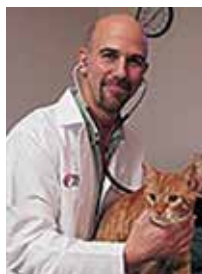
Signs of infection in both cats and people can include lethargy/fatigue, respiratory difficulty/pneumonia, and in some cases, neurologic signs.

Public health officials are recommending that owners keep their cats indoors, prevent interactions between their cats and wild animals, and keep cats away from footwear worn outdoors, as the virus can potentially be carried on the soles of shoes.

While the current outbreak appears to be isolated to Poland, there is a risk that it could spread, so we concur with these recommendations to cat owners throughout the world. Please work closely with your veterinarian if your cats show any signs listed above. ■



*Cats should not be allowed to play with string, rope, tinsel, or any other linear objects unsupervised, as ingestion could result in gastro-intestinal obstruction or worse.*



### Do You Have a Health Concern?

Send your health questions to Bruce Kornreich, DVM, PhD, DACVIM, Director of the Cornell Feline Health Center and Editor-in-Chief of CatWatch. Email to [catwatcheditor@cornell.edu](mailto:catwatcheditor@cornell.edu) or send by regular mail to CatWatch, 535 Connecticut Ave., Norwalk, CT 06854-1713.



Scan this code for more information on the Cornell Feline Health Center.

### Coming Up ...

- ▶ *Is Drooling or Foaming Saliva a Problem?*
- ▶ *What to Know About Stomach Cancer*
- ▶ *Recognizing Intestinal Blockages*
- ▶ *Symptoms of Brain Lesions or Tumors*
- ▶ *Laser Therapy for Cats*