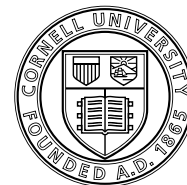




# Cat Watch

March 2021 - Vol. 25, No. 3



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

## THIS JUST IN

### Cats Choose Lamb

*Study compared it with beef*

A study from New Zealand looked at raw beef and lamb ingredients for cat palatability. Eight lucky test cats got to taste liver, kidney, heart, lung, tripe, and deboned meat from both species. Overall, cats preferred liver and kidney, regardless of origin.

Two-bowl preference tests (side by side bowls with different choices) were used to rank ingredients. Cats preferred lamb over beef ingredients, except for heart and liver, which showed no difference. Deboned meat was the bottom of the preference list. Liver was the most palatable of the choices. However, liver can be of concern for feeding in any great amount due to its natural high vitamin A.

When looking at lamb versus beef, it is important to note that lambs tend to be slaughtered younger, so age and aging factors could be part of the preference. Also, these were raw choices. Rankings could change with cooking.

Note: The researchers wrote that lamb kidney is a viable, highly palatable, and safer alternative to liver for high-value pet food. It is important to note that the feeding of raw diets to cats is controversial, largely due to the fact that raw foods carry the risk of exposing cats and their owners to potentially harmful pathogens. The Cornell Feline Health Center recommends that owners refrain from feeding their cats raw diets. ■

*Animals* 2020, 10(4), 558; <https://doi.org/10.3390/ani10040558>

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## Make Easter Cat-Friendly

*Holidays bring family, fun, and feline mischief*

A quick response if your cat licks, chews, or swallows a harmful substance can mean the difference between life and death. But you must know what to watch for, and, unfortunately, Easter brings its candidates for a feline disaster.

### Plastic Easter Grass

It's fun for cats to bat around, tug, and chew—and it can be a blast to watch their antics. Unfortunately, if your cat swallows any of it, she may end up with a blockage that requires surgery. If you see plastic grass in your cat's mouth, do not try to pull it out. The end may be in the intestines and, if you tug on it, it could cause further damage. Instead, call your veterinarian. **Prevention:** Use paper confetti in your Easter baskets.

### Chocolate

While not on par with dogs, some cats do have a sweet tooth. Chocolate contains caffeine and theobromine, both of which are poisonous to cats (and dogs). They can cause seizures, heart failure, and death. Dark chocolate is the worst, but even white chocolate is rich enough to cause pancreatitis. **Prevention:** Keep all candy in a covered bowl or in a cupboard safe from inquisitive felines and collect all hidden chocolate Easter eggs when the game is over.

### Lilies

These beautiful Easter plants are extremely toxic to cats. This warning includes all lilies, including the Easter lily (*Lilium longiflorum*) and daylilies (*Hemerocallis*). These plants, fallen leaves, pollen, and even the water from a vase of lilies can cause acute, life-threatening kidney failure in cats. **Prevention:** Just say no to lilies. Do not bring any arrangements with lilies into your house and don't grow any of the toxic lilies in your yard.

### Dinner Table

While most house cats know the family dinner table is off limits, leaving unattended aromatic food around may be too much to resist. The traditional Easter Ham is too salty for your cats and may be fatty, which can cause gastrointestinal upset. Even grapes and raisins, which can be in Easter breads and fruit salads, are toxic to most cats. **Prevention:** Don't share human foods with your cats.

### Baking Goods

Uncooked dough can be toxic to pets. The raw yeast ferments the carbohydrates in the dough while releasing carbon dioxide and alcohol (making the bread rise). The alcohol can cause alcohol poisoning. Signs include ataxia (unstable gait), tremors, hypotension, hypothermia, respiratory depression, and seizures. The risk of aspiration is high as ethanol is directly irritating to the stomach, causing vomiting, yet it also paralyzes the muscles that close the epiglottis. If your cat does investigate your baking and eats some of the raw dough, contact your veterinarian immediately. If any time has passed, the dough may be expanding in her stomach as it ferments, making her uncomfortable and unlikely to be able to vomit much up. **Prevention:** Be sure uncooked dough is out of your cat's reach when you leave it to rise. ■



*Lillies are deadly! Don't take the chance of an accident like this.*

Reuters/Chub | Stock Photos

## Chemo for Mammary Cancer

*The therapy may prolong life in affected cats*

**F**eline mammary cancer (FMC) is aggressive. About 90% of cases are malignant, with metastasis already present at the time of diagnosis. The risk is highest for intact female cats and cats who have had heat cycles before being spayed. A recent study from Portugal looked at cases of cats with metastatic mammary cancer from a group of veterinary hospitals to investigate the progression of FMC with or without adjuvant treatment. The study evaluated 73 cats verified via histopathology to have mammary adenocarcinoma with metastasis. The metastatic spread was confirmed, and 75% of the cats had surgery to remove as much of the cancer as possible.

The cats were divided into three groups based on the therapy elected: those receiving maximal tolerated dose chemotherapy with doxorubicin or carboplatin; those receiving metronomic chemotherapy with chlorambucil or cyclophosphamide; and those receiving toceranib phosphate.

At a six-month check, 19.4% of the cats were alive, with no significant difference seen in the survival rate or progression of the cancer in the different treatment groups. The presence of a pleural effusion (fluid in the chest cavity) was a negative prognostic factor. The fluid was attributed to metastases to the lungs and chest. Cats with pleural effusion only lived 16 days past the start of therapy. Cats without pleural effusion lived for 64 days on average.

While these results may sound depressing, 20% of the cats, all of which had advanced disease when treatment began, were alive after six months. If they had been diagnosed earlier, treatment may have been more effective. "To the best of our knowledge," wrote the authors, "this study includes the highest number of patients with metastatic FMC assessed. Despite the overall poor prognosis, some cats survived more than six months, indicating that adjuvant treatment may be an option to consider in metastatic disease."

The results indicate that chemotherapy may prolong life in some cats with mammary cancer with metastasis. If the cats had been diagnosed earlier, treatment

may have been more effective. With any cancer, early diagnosis is key. If you notice a lump on your cat, get her to your veterinarian immediately for an examination. See "Mammary Cancer Often Spreads" at [catwatchnewsletter.com](http://catwatchnewsletter.com) or in our March 2019 issue. ■

Petrucchi G, et al. Metastatic feline mammary cancer: prognostic factors, outcome, and comparison of different treatment modalities – a retrospective multicentre study. *J Feline Med Surg*. October 2020.



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## Clinical Trial for Feline COVID Vaccine

*USDA approval received for accelerated development*

**A** vaccine to stop COVID-19 in cats recently received authorization from the U.S. Department of Agriculture to begin accelerated clinical trials. The trials are being conducted by Joseph Impellizeri, DVM, DACVIM, MRCVS (Cornell 1994) of Veterinary Oncology Services at Guardian Veterinary Specialists, Brewster, N.Y.

"By studying the immune response after immunizing an important host that resides with human counterparts, we hope to understand better the potential clinical response against the virus using a specially designed vaccine and delivery system that may translate to both human and animal protection," says Dr. Impellizeri. The vaccine is being developed by Applied DNA and EvviVax.

The goal of the trial is to evaluate the vaccine for the prevention of SARS-CoV-2, the virus that causes COVID-19, in cats that would mitigate the animals as a potential reservoir for infections in humans. No transmission back to humans has been documented, although the possibility remains, given the virus' zoonotic origin.

The trial will recruit healthy pet cats that will receive two doses of the vaccine candidate and follow the enrolled cohort for up to six months. The trial's primary endpoint is to demonstrate the safety and immunogenicity of the vaccine in cats. The vaccine yielded strong responses even at very low doses in mice. ■



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# CatWatch

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# Oral-Cavity Diseases

*An early catch can avoid painful eating and more*

A variety of diseases can plague our cats' mouths, and plague they do: Studies have shown that 50 to 90% of cats over 4 years old suffer from dental disease. Of course, the earlier a problem is detected, the better the prognosis.

Many disorders of the feline mouth are painful. Because cats are so stoic, we may not notice that something is wrong until it has progressed extensively. Regular veterinary exams (once yearly for cats under 10 and twice yearly thereafter) allow you to catch any developing problems in your cat's oral cavity early.

## Gingivitis

Gingivitis is inflammation of the gums. In mild cases, you will notice a thin red line tracing the gums where they meet your cat's teeth. More severe cases will show more extensive inflammation, and the gums will be prone to bleeding. The damaged gums may recede, exposing the tooth roots.

The good news is that gingivitis is reversible with proper oral hygiene. Dental diets may help to remove the plaque that irritates the gums, but the best way to get your cat back to a clean mouth is to take her in for a full dental examination and to acclimate her to daily tooth brushing with a cat-safe toothpaste.

## Periodontitis

Periodontitis is inflammation of the tissues that support the teeth. This condition develops if gingivitis goes untreated. Periodontitis is painful, and as more and more of the periodontal tissues become compromised, the cat's teeth will loosen and fall out. You will notice swollen, bleeding gums and calculus buildup on the teeth. The teeth may look elongated due to gum recession.

The damage done by periodontitis is often irreversible. A professional dental cleaning removes the harmful bacteria and calculus from your cat's mouth, allowing the gums to become healthy, but many of the tissues around the teeth (and the teeth themselves) cannot be replaced once lost. Teeth that are broken or damaged should be extracted.

## Tooth Resorption

For reasons yet to be discovered, some cats suffer from tooth resorption, where



*Open wide: If you can, grab your phone and snap a picture so you can then look closely for any abnormalities.*

the teeth are gradually broken down. Tooth resorption usually starts at or below the gumline and may affect one or several teeth. Resorptive lesions are painful, and as the tooth is destroyed, it will eventually fall out.

## Stomatitis

Stomatitis is inflammation of the mucous membranes in the mouth. The inside of the mouth, including the gums, inside of the cheeks, and back of the throat, will be swollen and red. This condition is extremely painful, to the point where the cat will cry out when her mouth is touched and may clearly want to eat her food but back away from it because she knows eating will hurt.

Extracting all of the premolars and molars often provides relief, suggesting that stomatitis is caused by an inappropriate immune response to something on the teeth (the exact cause is still unknown). In some cats, all of the teeth have to be extracted. Thankfully, cats usually do very well without teeth.

## Fibroma

A fibroma is a benign tumor that usually grows along the gumline. They are not generally painful and don't spread to other areas, but they can grow large enough that they interfere with your cat's ability to eat normally. Surgery often provides a cure, and you can have the tumor sent out for histopathology to verify that it is non-cancerous.

## Malignant Tumors

Squamous cell carcinoma is the most common feline oral cancer, but fibrosarcoma and melanoma are also highly aggressive. These tumors grow rapidly and invade all of the tissues of the mouth. They often have an ulcerated surface and will bleed if disturbed.

Treatment depends upon the exact type of tumor, so it is important to send out a biopsy for a histopathology report. Surgery helps to debulk the tumor and make the cat more comfortable, but in many cases by the time it has been noticed, the cancer has already spread too much to be completely removed. If the tumor cannot be completely removed, radiation therapy may be a useful addition to your cat's treatment plan.

## Xerostomia

Xerostomia, or dry mouth, is when your cat isn't producing enough saliva. A dry mouth is uncomfortable and makes eating and swallowing more difficult. Xerostomia can be a complication of kidney failure and occurs as a side effect from radiation, certain medications, and sometimes anesthesia. Treatment includes fluid therapy to keep the cat hydrated, moistening the food, and even artificial saliva substitutes.

Being proactive about your cat's oral care will help prevent the development of some of these conditions. And, as always, if something seems off about how your cat eats or holds her head, or even if she just seems to be hiding more, have her examined by your veterinarian as soon as possible. ■

## What You Can Do

- ▶ Check your cat's mouth once a month or so if she will allow you to
- ▶ Get a veterinary exam at least once a year (every six months for cats 10 years of age or older)
- ▶ Use plaque-reduction products approved by the Veterinary Oral Health Council
- ▶ Introduce tooth brushing as part of your daily routine
- ▶ Watch for signs of dental pain, such as changes in eating habits, drooling, pawing at the mouth, head-shyness, and bad breath



# When Good Cats Go Bad

*Behavioral, medical, environmental reasons for soiling*

**W**e love our cats, but when one of them pees or poops outside the litterbox, it is easy to get frustrated. Cats eliminate inappropriately for many reasons, but with a little detective work and some help from your veterinarian, you can usually figure out the cause of your kitty's indiscretions.

"The most common house-soiling cases that I see are due to litterbox aversion (i.e., some aspect of the box or litter is not acceptable to the kitty), substrate or location preference, or anxiety/social conflict," says Pamela J. Perry, DVM, PhD, Behavior Resident at the Cornell University College of Veterinary Medicine. "I also see cats with medical problems contributing to the behavior as well as geriatric cats who are at higher risk of house soiling due to cognitive decline or accessibility issues. Many of the cases, however, involve a combination of factors."

## The Perfect Box

If your cat appears happy and healthy, one of the first things to do when he starts urinating or defecating outside the litterbox is to consider the litterbox itself, especially if you just got a new one or are trying a new litter. Several factors contribute to creating the perfect litterbox for your picky pooper:

**Number of boxes.** The ideal number of litterboxes is one for each cat plus an extra. This ensures that every cat has access to a litterbox and that the boxes don't get too gross too quickly.

**Location.** Cats like privacy, but they also don't like to be cornered. Convenience is a factor. The ideal location for a litterbox for most cats is a spot in the house that is not too busy but where they can't be cornered while taking care of business. Have at least one litterbox for each floor of your house, especially if you have a tiny kitten or a senior cat who can't handle a cross-country trek to get to the loo.

**Size.** Remember that your cat has to fit in the box! A general recommendation from the American Association of Feline Practitioners (AAFP) is to choose a box that is 1½ times the length of your cat (not including his tail). If your cat tends to get urine or feces just outside the box, he may need a larger box to allow him to position properly.

**Style.** Covered litterboxes appeal to many of us, but your cat may or may not agree. Some plastics may have an odor that is unpleasant to cats, especially when brand new. Robotic self-cleaning litterboxes may have a learning curve.

**Type of litter.** The AAFP recommends soft, unscented, clumping litter for most cats. Dusty and scented litters may irritate your feline's nose, and no one wants to pee while sneezing.

**Cleanliness.** Be honest: Are you doing your part? Check your litterboxes at least daily to remove any urine and feces. Cats like to be clean, so they may choose their own bathroom spot if the litterbox is chronically full. If you have multiple cats, your felines may have

different litterbox preferences. Experiment to see what each cat likes so you can keep everyone happy.

## Social Struggles

Cats who get along well will likely be fine with sharing their litterboxes, but other cats don't share that sentiment. If one cat gets picked on by another, be sure that the bully doesn't block access

## What You Can Do

- ▶ Pay close attention to when and where your cat eliminates outside the box
- ▶ Clean up messes promptly to remove any residual scent
- ▶ Avoid ammonia-based cleaners, as these can smell like urine
- ▶ Make sure you have enough litterboxes for your cats
- ▶ Try a different box style, location, or size (larger is usually better)
- ▶ Choose an unscented litter that doesn't get dusty

to the litterbox. This may not always be obvious. The more dominant cat even just lounging in the hallway that leads to the litterbox may be enough of a deterrent for a timid cat. See "Managing Rival Cats" in our December 2019 issue for more information, available at [catwatchnewsletter.com](http://catwatchnewsletter.com).

## Marking

"Marking behavior in cats is a form of communication," says Dr. Perry. "We see it in household cats as a means of marking their territory. Cats also will spray when they feel threatened or stressed." Intact cats are the most likely to mark their territory, but spayed and neutered cats also can show marking behavior. And cats may use stool to mark.

Dr. Perry recommends, "Owners should identify the trigger for the cat's marking (e.g., the presence of outdoor cats seen through a window) and work to resolve it. If marking is related to the presence of another household cat, then owners should address the cats' relationship." Where your cat sprays provides clues for the cause. If your cat is unhappy about a stray who is hanging out in your backyard, he may mark near the doors and windows where he sees the other cat as a warning to stay away.

If the urine or stool is throughout the house, particularly in spots where one or more of the cats spend a lot of time, it is more likely to be due to issues between your cats. "Seeking the advice of a veterinarian, especially one who specializes in behavior, is warranted," says Dr. Perry. A behavior consult should



A too busy "bathroom" will cause your cats to look for alternatives. You need a litterbox for each cat, plus one spare.

Lightspanch / Stock Photos

include an extensive discussion of your cat's behavior and how he interacts with your other cats to give the behaviorist a complete picture so she can determine what is causing your cat(s) to mark and the best way to solve the issues.

### Urinary and Gastrointestinal Issues

Urinary tract infections and disorders often cause your cat to urinate more or to feel more urgency to urinate. Parasites and gastrointestinal disorders can do the same for your cat's bowel movements.

As well as accidents, other signs of a urinary issue include frequent urination, small amounts of urine, excessive urine production, bloody urine, gritty urine, and straining. Other symptoms of gastrointestinal illness include bloody diarrhea, frequent soft stools, hard dry stools, blood in the stool, tarry stools, infrequent defecation, and straining. If you notice any of these signs in your cat, contact your veterinarian immediately.

### Aging

Senior cats may not be able to get to or use the same litterboxes they liked as young cats. A lower lip can make the litterbox more accessible. Be sure that he has easy access to a box without using stairs. Cats with cognitive dysfunction may have trouble remembering where the litterbox is, so the may need to be confined to a space with the box.

### Bad Habits

"Some cats who have an underlying medical issue that contributes to house soiling may continue to eliminate outside the box after the issue is resolved," says Dr. Perry. "This may be due to a developed preference for another location or substrate or because of a negative association (and subsequent aversion) with the litterbox."

Your cat may associate painful elimination with the litterbox itself, or be fearful of a location where medications are given or another cat frequently ambushes him. Switching to a new box that looks different or moving the box to a new location may help. If he seems to go in a certain spot, put a litterbox in that location for him if possible to get him back in the habit of using a box.

The best way to prevent inappropriate elimination from becoming a habit is to address it promptly to resolve any underlying health or behavioral issues. Swift diagnosis and treatment will get your cat back on the right track quickly. ■

# Asthma Can Be Controlled

*An inhaler mask is an effective treatment option*

As many as 5% of cats battle asthma, an allergic response that causes cats to have difficulty breathing. Its onset is usually gradual. The immune systems of affected cats respond to airborne allergens such as smoke, pollen, or dust mites by making antibodies against them, and when they are exposed again, these antibodies initiate an inflammatory response that can be severe enough to be life-threatening.

Most asthmatic cats are diagnosed between 3 to 6 years of age. At one time, Siamese cats were considered high risk, but this belief has not held up to the test of time. Overweight cats may be predisposed to asthma.

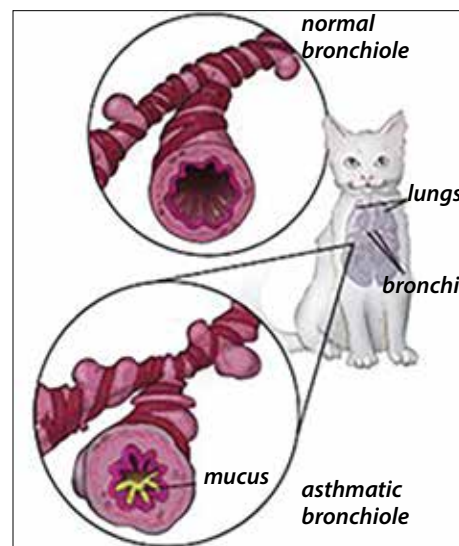
Dr. Betsy Arnold, DVM (Cornell, 1980), has expertise with feline asthma, both as a veterinarian and a breeder of Siamese cats. She recommends that you have your cat examined by your veterinarian if you notice any respiratory problems, and radiographs may be obtained to evaluate her lungs. Other respiratory illnesses, such as pneumonia or cancer, need to be ruled out.

### How Asthma Develops

Realistically, it is impossible to protect your cat from all the allergens that cause her to have an asthmatic attack. You can stop smoking, if you smoke, and avoid using a wood stove or fireplace, but you can't keep her life free from dust mites, pollen, and other triggers.

When your cat is exposed to the allergen, the immune system begins its response and inflammation sets in. The airways become irritated and constrict in response, while the inflamed tissues swell. Usually, mucus is produced in response to the irritation, further decreasing the size of the airway. The lower airways, the bronchi and bronchioles, are affected the most (a veterinarian may call this condition "bronchitis"). Your cat may start to have trouble breathing, especially when she exhales, and wheezing and coughing may be observed. The cough is generally a dry, hacking cough that sounds a lot like the one that precedes a hairball being coughed up.

Cats with mild symptoms of asthma may only show signs at certain times of year, such as when pollen counts are high. If symptoms become moderate or severe,



Bronchioles in a normal lung allow air to pass freely. Asthmatic bronchioles are constricted and may accumulate fluid in the passages.

you may notice your cat is also less active. She may breathe with her mouth open and appear to take rapid, shallow breaths, as if panting. As the symptoms worsen, your cat may expend a great deal of energy just to breathe. You may notice some weight loss, and it will become apparent that your cat is in some distress.

## What You Should Know

A severe asthma attack is a veterinary emergency.

If you notice these signs, calmly put your cat in a carrier in preparation for an immediate trip to the veterinarian and call ahead to let them know you're arriving:

- ▶ **Labored breathing (mouth open, neck extended)**
- ▶ **Gums are pale or bluish, rather than pink**

Cats experiencing a severe attack may need supplemental oxygen and injectable medications to rapidly reduce inflammation and dilate airways as well as a sedative, in many cases, to reduce their stress from being unable to fully oxygenate.



*Open mouthed breathing is not normal in cats. While it can be caused by stress in some cats, asthmatic cats may breathe with their mouths open and their necks extended.*

## Diagnosis

Your veterinarian will listen to your cat's lungs and chest for abnormal sounds like wheezes or crackles.

He or she may obtain radiographs. Asthmatic feline lungs often appear overinflated, as the cat works hard to move air in and out. The radiographs may reveal a characteristic pattern along the airways that is created by the accumulation of inflammatory cells (called a bronchiolar pattern).

Your veterinarian may opt to do a tracheal lavage, which allows him or her to look for unusual cells or pathogens in the trachea. Your cat will need to be sedated for this procedure, which involves placing a thin catheter into the trachea and upper bronchi and injecting a small amount of sterile saline. The saline is then retrieved for evaluation.

The gold standard for diagnosis is bronchoscopy, during which a small flexible camera is inserted into the airways to evaluate the lining and diameter of the airways and to collect cell samples for evaluation. This procedure requires either anesthesia or heavy sedation and is often performed only at specialty clinics.

Your veterinarian will check for heartworm disease and lungworms, which can cause similar clinical signs. Bloodwork may show an increase in eosinophils, which are disease-fighting white blood cells that can be associated with allergies and parasitic infections.

## Treatment

Any bacterial infections found in retrieved fluid samples will be treated with antibiotics.

For asthma, the mainstay drug is a corticosteroid, such as prednisolone or fluticasone, to reduce inflammation. The ideal way to give steroids is via an inhaler, and, yes, there are ones made specifically for cats.

With aerosol therapy, the steroid dose goes directly to the respiratory tract where it is needed. This treatment has a lower risk of side effects, such as diabetes mellitus, from long-term systemic steroid use. Your cat may need to be trained to handle the mask using treats and a lot of patience. Inhalers can be quite expensive, but they can be very effective (see sidebar, below, and go to [tinyurl.com/felineinhaler](http://tinyurl.com/felineinhaler) for a video showing how to use an inhaler for cats).

Some cats simply do not accept the inhaler mask, says Dr. Arnold. For these

## What You Can Do

- ▶ Switch to a dust free cat litter.
- ▶ Minimize or avoid household sprays for cleaning, odor reduction, air freshening, hair spray, and so on. If you must use these items, have a safe room where your cat can stay until the aerosol clears.
- ▶ Do not allow anyone to smoke in your house.
- ▶ Get rid of carpets, if possible.
- ▶ Become a dedicated house cleaner, vacuuming, dusting, and mopping frequently. Wash drapes and furniture covers regularly.
- ▶ Install HEPA filters on vacuums and furnaces, if possible. HEPA air filters can help in individual rooms.
- ▶ If your cat is overweight, discuss ways to help her lose weight with your veterinarian.

cats, your options include an injectable steroid, daily pills, liquids, or formulated transdermal medications. With the transdermal option, the medicine is applied to the inner ear flap, where it is absorbed through the skin. All these methods of delivering systemic steroids carry a risk of side effects.

Bronchodilators such as albuterol can open airways in acute attacks. These medications relax the muscles around airways, opening the bronchi to allow increased air flow. Theophylline is often used for long-term management.

Treatments on the horizon are fatty acid supplements, immunotherapy for allergens, and stem-cell therapy, but more research is needed before they are widely used. Some may now be worth a try, however, such as fatty acids in the form of fish oil added to your cat's diet.

Asthma is not curable. Treatment can slow its progression and control symptoms so that your cat can lead a more comfortable life.

Some cats will only need seasonal treatment, while others need year-round therapy, possibly varying how much medication or which medications are given at any given time. Cats with severe asthma may require occasional veterinary hospital stays. ■

## Training For Inhaler Acceptance

With patience, many cats can be trained to use an inhaler mask. Start by getting your cat used to being gently held or simply staying put on a mat while you hold her. Have plenty of treats ready!

Show your cat the inhaler, placing a treat in the canister at first for her to play with. Move the mask closer and closer to her nose, each time adding a treat for her to get.

When you put the inhaler together and give a puff, it may startle your cat. Speak gently while engaging the inhaler to reduce its sound. Reward immediately. At first, you may be lucky if your cat takes one breath in the mask, but with patience many cats will stay with their heads in the mask for a full treatment.

It is important to note that this whole training sequence may take days or weeks. Don't rush it. Slow and steady works better than frightening your cat.

If your cat has asthmatic attacks during the training period, discuss other options to use while you're training with your veterinarian.



# When Telemedicine Works Well

*Some veterinary care can be provided remotely*

**V**eterinary medicine has not been immune to the effects of the COVID-19 pandemic. In addition to curbside appointments, requiring masks, and sometimes reduced hours, veterinary hospitals are starting to embrace novel forms of telehealth and telemedicine to provide the best possible care for their patients without having to bring their owners into the hospital.

## What Is Telemedicine?

The American Veterinary Medical Association (AVMA) has specific definitions for telehealth and telemedicine: “Telehealth is the overarching term that encompasses all uses of technology to deliver health information, education, or care remotely.” Even when your veterinarian is talking to you over the phone or posting reminders to pick up flea preventives on the hospital blog page, she is using telehealth.

“Telemedicine is a subcategory of telehealth that involves use of a tool to exchange medical information electronically from one site to another to improve a patient’s clinical health status,” says the AVMA.

Talking to your veterinarian over the phone is a basic form of telemedicine, but today some hospitals offer appointments and consultations through smartphone applications and over the internet. You may be able to send your veterinarian photos or videos of what you see in your cat or do a live video chat to allow your veterinarian to see exactly what your cat is experiencing in real time.

A variety of telemedicine and telehealth platforms are cropping up. Some of these apps and programs only provide general health information, while others enable you to communicate directly with your regular veterinarian through the program.

## When Can Telemedicine Be Used?

There are some common scenarios in which telemedicine appointments and care work perfectly, and others where it is not a good fit. Common examples of when telemedicine is appropriate include:

- ▶ Discussing your cat’s diet or medications
- ▶ Follow-ups
- ▶ General wellness



*Using a tablet or smartphone is pretty commonplace. It shouldn’t surprise anyone that veterinary medicine is embracing it.*

- ▶ Hospice care
- ▶ Post-operative monitoring
- ▶ Triage after business hours

Obviously, a telemedicine appointment won’t work for treatments that need to be applied directly to your cat, including vaccinations, blood draws, x-rays, and surgery. Your veterinarian also won’t be able to palpate your cat’s abdomen or any suspicious lumps or sore joints. For anything requiring hands-on care, your cat needs to go to the veterinary hospital. But telemedicine can be a great option for your veterinarian to follow up on a treatment or to determine if the symptoms you are seeing require an emergency visit or can wait until regular business hours.

## The Legal Stuff

The veterinarian-client-patient relationship (VCPR) is a crucial piece of veterinary medicine. In most states, veterinarians are required to have established this relationship with a client and patient before they can legally diagnose an illness or prescribe medications, whether in person or via telemedicine. For many states, establishing a VCPR requires at least one in-person exam for your pet and for you to sign a document stating that you give permission for the hospital to provide care for your cat.

Why is this important? If a veterinarian has never seen your cat before and you have never signed paperwork indicating your consent for the veterinarian to treat your cat, he or

she likely cannot provide any advice or information specific to your cat’s needs. The AVMA says, “With the exception of emergency triage, including poison-control services, the AVMA opposes remote consulting, including telemedicine, offered directly to the public when the intent is to diagnose and/or treat a patient in the absence of a VCPR.” This sentiment is backed up by the legislation in most states. Providing a diagnosis or prescribing a medication without having a VCPR in place could cost the vet his or her veterinary license.

States may also require that any advice given via telemedicine be provided by a veterinarian licensed to practice in your state.

## Telemedicine at Cornell

Cornell University Hospital for Animals is utilizing the program TeleVet, recommended by wired.com as their favorite telemedicine service. Cornell offers telemedicine appointments between 8 a.m. and 4 p.m. Monday through Friday in primary care, dermatology, sports medicine, nutrition, behavior, and exotics. For more information, visit [tinyurl.com/CornellTeleVet](https://tinyurl.com/CornellTeleVet).

The Cornell Feline Health Center also provides access to veterinarians through its Camuti Consultation Service. While this service cannot diagnose or make treatment recommendations, it can serve as a valuable source of information and support for cat owners. Visit <https://www.vet.cornell.edu/departments-centers-and-institutes/cornell-feline-health-center/health-information/camuti-consultation-service> for more information about this unique service. ■

## Is Telemed Here to Stay?

Our society has grown increasingly dependent on technology and flexibility, making telemedicine an attractive option for many owners when their cats don’t require an in-person visit. While telemedicine will never replace in-person veterinary care, it does play a valuable role in making veterinary care more easily accessible to clients and less stressful for patients while allowing veterinary staff the flexibility to triage a patient from home to determine if the pet truly requires emergency care. We believe it is here to stay.

# Severe Reaction to Mosquitos

*Removing the cat from the allergen is most effective*

**Q** My cat was bitten by mosquitos last summer, which caused crusting on his nose and upper and lower right eyelid, probably due to rubbing the bites because they itched. I applied topical hydrocortisone ointment, which seemed to help, but it did not completely resolve until my veterinarian prescribed steroids. He lives in an outdoor catio with other cats that were not affected. Are these reactions to mosquitoes common in cats, and what can I do to prevent them?

**A** Thanks for getting in touch, and I'm very sorry to hear that your kitty experienced this problem. Mosquitoes can not only be a nuisance in causing these types of reactions, but they can also transmit other harmful diseases such as heartworm disease, so please consider discussing heartworm preventative with your veterinarian. Interestingly, the tiny mosquito is commonly ranked as the most dangerous animal in the world due to the number of diseases it spreads, but let's get back to your cat's problem.

These types of reactions to mosquito bites are called hypersensitivity reactions, and they are an allergic response caused by extreme activation of the immune system to mosquito saliva. The immune system is vital to survival because it protects us (and our cats) from infection by a wide variety of microscopic organisms (i.e., bacteria, viruses, fungi)



*This blue mink Tonkinese is enjoying a perch outdoors, but she is susceptible to mosquito bites if out during dawn or dusk feeding times.*

by first identifying these invaders and then initiating an inflammatory response that ultimately neutralizes them.

This response is mediated largely by white blood cells that make antibodies to the invaders and release chemicals that cause an increase in blood flow and leakage of fluid in an affected area (this causes swelling). These chemicals also recruit other cells to the affected area, some of which are involved with the chemical destruction of the invading organisms (allergen).

While this system has evolved to be an amazing, elegant means of protection, it can sometimes go awry, a condition that is commonly referred to as an allergy. Mosquito hypersensitivity

is one example of this phenomenon. In this case, the allergic response is directed against the mosquitoes' saliva, and the swelling and itchiness that results can cause your cat to scratch, which can damage his skin and fur and lead to secondary skin infections, more scratching, and a vicious cycle of itchiness, scratching, and skin infections that can self-perpetuate.

Of course, the most effective way of preventing these reactions is to avoid the thing that causes them, in this case, mosquitoes. For this reason, anything that you can do to decrease exposure to mosquitoes, including making sure there is no standing water on your property, putting up bat houses to attract these mosquito-eating machines, and the use of mosquito traps would be beneficial. If these are not sufficient, and if your cat's hypersensitivity becomes difficult to control, it may be reasonable to consider keeping him indoors.

The treatment of mosquito hypersensitivity usually involves the use of some combination of corticosteroids and antihistamines, preferably topically, but in some cases systemic forms (injections, pills) may be necessary. Systemic corticosteroids can be effective in eliminating itch, but they carry the risk of some side effects, including diabetes mellitus and increased susceptibility to infections. If secondary bacterial skin infections develop, the use of antibiotics may be necessary to address these.

I hope that this is helpful, and please discuss these issues with your veterinarian. It's wonderful that you provide your kitty with a safe, happy outdoor experience, and I hope that by trying some of these ideas and treating any problems that arise promptly, you can continue to do so! ■



*This column is written by Bruce Kornreich, DVM, PhD, DACVIM, Director of the Cornell Feline Health Center and Editor-in-Chief of CatWatch. You can write to Dr. Kornreich*

*at [catwatcheditor@cornell.edu](mailto:catwatcheditor@cornell.edu) or CatWatch, 535 Connecticut Ave., Norwalk, CT 06854. We welcome digital photos of your cat to consider for use with your question.*

## Coming Up ...

- ▶ Lymphoma in Cats
- ▶ Eosinophilic Granuloma Complex
- ▶ Fleas in the House
- ▶ Introducing a Rescue Cat

## © HAPPENING NOW...

**Shelter Cats Helping Autistic Kids**—A study from the University of Missouri looked at the social benefits of shelter cats visiting with children with autism. The study found that the children experienced increases in empathy and decreased bullying, hyperactivity, and separation anxiety. They formed strong bonds with the cats.

**Rapper Turned Cat Lover**—The *Washington Post* reports that rapper Sterling Davis gave up his life as a rap artist to change

litterboxes at the Atlanta Humane Society in 2012. Five years later, the "TrapKing," as he is called, started a company to humanely trap stray cats, spay or neuter and microchip them, and then return them to where they came from. Davis now runs his company, TrapKing Humane Cat Solutions, from his RV, visiting predominantly black neighborhoods throughout the metro Atlanta area to trap feral felines and educate people about the importance of caring for strays. ■

