THE FELINE HEALTH CENTER • CORNELL COLLEGE OF VETERINARY MEDICINE

CatWatch

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

THIS JUST IN

Cats Are Larger

Study of ancient remains

Modern domestic cats are at least 16 percent bigger than their Viking-Age ancestors (793–1066 AD), according to a Danish study shared by The Winn Foundation. Researchers excavated the remains of adult domestic cats at archaeological sites in Denmark as well as modern skeletal remains.

Femur length showed the largest change (16 percent), while tooth size increased the least (5.5 percent). More modest increases were identified when comparing the femurs and teeth of post-Medieval (5th to 15th centuries) cats with those of modern female cats; over this time span, femur length increased 4 percent, while dental size increased 1.5 percent.

Interestingly, the ancient remains were unable to be divided by sex, but the comparisons were all made to female modern-age remains. This is believed to mean increases represent the minimum differences between the archaeological groups and modern cats.

Food availability is believed to be a factor, as cats transitioned from rodent hunters to house pets. Genetic changes may have played a role, too, but additional studies are needed.■

Bitz-Thorsen J, Gotfredsen AB. Domestic cats (Felis catus) in Denmark have increased significantly in size since the Viking Age. Danish J Archaeology 2018; 7:241-254



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5 Things to Know About Feline Hypertension

Just as in humans, high blood pressure is a silent killer

1 Blood pressure in cats is measured as in humans, with the systolic (upper) value representing the pressure in the blood vessels when the heart is contracting and the diastolic (lower) value representing the pressure in the blood vessels when the heart relaxes.

2 Many cats suffer from a stress-induced, temporary increase in blood pressure that can be due to the anxiety of being in the veterinarian's office. A systolic pressure of below 170 mm Hg (millimeters of mercury) suggests that a cat does not have hypertension.



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Dilated pupils also can reflect a cat's mood, such as playful, frightened, or, like this Russian Blue, angry.

3 High blood pressure can cause blindness and impaired cardiac and kidney function.

4 Rarely do cats suffer from high blood pressure without an underlying cause, which means another disease is usually causing the hypertension.

5 Symptoms of hypertension may include sudden blindness or visual impairment (often with pupil dilation), increased thirst, increased or decreased urine output, respiration problems, lethargy, anorexia, seizures, disorientation, and wobby gait. If any of these are observed in your cat, an immediate visit to your vetinerarian is warranted.■

DID YOU KNOW?

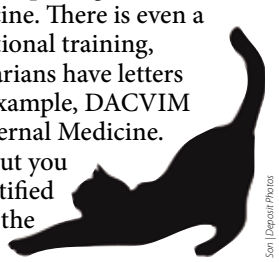
Choosing a Board-Certified Veterinarian

Specialists with higher training in specific areas often require a referral

If your cat has been diagnosed with a complex or serious illness or needs specialty surgery, your regular veterinarian may recommend a referral to a board-certified specialist, a veterinarian who has put in extra training in a certain field, much like a human oncologist or cardiologist.

According to the American Veterinary Medical Association (AVMA), "There are 22 AVMA-recognized veterinary specialty organizations comprising 41 distinct specialties," covering everything from anesthesia to zoo medicine. There is even a specialty for general practitioner veterinarians who have additional training, such as for a specific species. Called diplomates, these veterinarians have letters designating their speciality after their DVM credentials. For example, DACVIM refers to Diplomate of the American College of Veterinary Internal Medicine.

Your veterinarian will guide you in choosing a specialist, but you can also visit vetspecialist.com, where veterinarians board-certified by the American College of Veterinary Internal Medicine and the American College of Veterinary Surgeons are listed.■



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Tiny Antiviral Molecule Offers Hope

Improvement noted in 26 of the 31 cats in the trial


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Feline infectious peritonitis (FIP) is a devastating disease of cats for which there are currently no effective therapies available. Occurring in two forms—a wet form in which fluid accumulates in body cavities and a dry form in which affected cats develop neurological signs—the current prognosis for cats with FIP is grave. FIP develops in approximately 5 percent of cats infected with the ubiquitous (and usually well-tolerated) feline enteric coronavirus.

A recent study led by Niels Pedersen DVM, PhD, at the University of California, Davis, investigated the efficacy of the nucleoside analog GS-441524, which has previously been shown to inhibit FIP viral growth in cultured cells, in cats with naturally occurring wet form or dry form FIP. Cats with neurologic signs and/or evidence of ocular inflammation were excluded due to concerns regarding the compound's ability to cross the blood-brain and blood-eye barriers. A nuceloside analog is an anti-viral molecule.

Of the 31 cats enrolled, 26 appeared normal or near normal within two weeks of beginning therapy (provided as a subcutaneous injection once daily), with fever and other indicators of infections—i.e. albumin:globulin (A/G) ratio, white blood cell (WBC) parameters—showing dramatic improvements within the first two weeks of therapy in most cats. Some cats experienced clinical relapses that required repeat therapy, and most cats tolerated the treatments fairly well. No signs of systemic toxicity in 25 of the 26 cats tested and focal injection site reactions (inflammation at injection site) reported in 16 of the 26 subjects.

While further studies are required, the results of this safety and efficacy study suggest that GS-441524 represents an attractive potential therapy for FIP in cats and that this compound's efficacy for this application may be superior to that of previously tested protease inhibitors. ■

J Feline Med Surg. 2019 Feb 13:1098612X19825701. doi: 10.1177/1098612X19825701

Poor Prognosis: Restrictive Cardiomyopathy

Both asymptomatic cats and those showing illness in study

A recent study out of Italy looked at survival and prognostic factors for cats with restrictive cardiomyopathy. The researchers looked at 90 cats who had been diagnosed with this cardiac condition via echocardiography between 1997 and 2015. There were 53 more males than females in the study.

Most of the cats were domestic shorthairs showing some signs of illness, including respiratory difficulty, but a few were asymptomatic at the time of their diagnosis. Respiratory distress was the most common sign, but some cats also had murmurs or cardiac arrhythmias. Chest radiographs showed pleural effusion in a majority of the cats, and most had enlargement of the left atrium of the heart on their echocardiogram studies.

Survival times, despite treatment with diuretics, ACE inhibitors, and medications to prevent clots, were relatively short. Many cats died within two months of diagnosis. A few cats who initially came in without respiratory distress survived for over a year. This form of cardiomyopathy is a difficult disease to treat, and the prognosis is guarded at best.

Cats can suffer from three types of cardiomyopathy. The dilated version is uncommon since taurine levels have been adjusted in cat foods. Hypertrophic is the most common, with restrictive second in prevalence.



The Cornell Feline Health Center reminds us that restrictive cardiomyopathy is caused by the excessive buildup of scar tissue on the inner lining and muscle of the ventricle, which prevents the organ from relaxing completely, filling adequately, and emptying normally with each heartbeat.■

J Feline Med Surg. 2018 Dec;20(12):1138-1143. doi: 10.1177/1098612X18755955

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How Your Kitty Uses "Radar"

Whiskers are tiny communications devices

Your cat has several rows of whiskers, usually 12 arranged in rows, and a few over her eyes. You may also see them along her jawline, near her ears, and on the back of her front legs. All these whiskers, or "vibrissae," are stiff tactile hairs that help your cat learn about her environment.

While the whiskers themselves are just thick hairs, they are deeply rooted into follicles in the skin that have lots of nerve endings and blood vessels. The nerves conduct signals back to the brain and may be connected to muscles.

When a cat's whisker brushes against an object or is moved by a breeze, it bends, triggering the touch receptors in the follicle. The amount of pressure exerted on the whisker tells your cat about the size, shape, and location of the object or animal that has been detected, as well as how fast it is approaching (or how quickly your cat is moving toward it).

One well-known use for whiskers is to help your cat measure an opening to decide if she can fit through it. Longer facial whiskers extend out as wide as the cat's body, so if her head and whiskers can get through a space, the rest of the cat should be able to follow. This can obviously be problematic for an overweight cat, whose body exceeds the range of her whiskers (yet another reason to help your cat maintain a healthy weight).

The whiskers over your cat's eyes help protect her delicate corneas by triggering the blinking reflex when something touches them. This prevents anything from touching and potentially damaging the eye.

The whiskers on the back of your cat's front legs help her to feel the orientation of prey that she has caught in her paws. They also aid in foot placement as she jumps, which helps her to land so delicately.



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Whiskers are amazing! They help your cat judge where his body is and detect nearby threats, and they help you judge her mood!

Behavioral Clues

The position of your cat's whiskers can help you to evaluate her mood. A calm, relaxed cat will have relaxed whiskers, while a cat who is anxious or feels threatened will fan them out, erect, to take in as much information as possible. Cats who are hunting or playing will have their whiskers forward on full alert. A scared cat may pull her whiskers back close to her body to make herself appear small and to protect them from damage. If your cat is happy, she can elevate the whiskers over her eyes, contributing to the bright-eyed, cheery expression that we all know and love.

Damaged or Missing Whiskers

Like all hairs, whiskers are shed and grow back in. There is no need to be concerned if you notice a couple whiskers missing. This is a natural process, and she won't shed all of her whiskers at once.

Cut or damaged whiskers can cause some difficulties for your cat, however. If whiskers are trimmed, they can't transmit correct information to your cat. She may misjudge distances or try to fit through an opening that is not big enough for her. This can cause confusion and distress.

To get an idea of what a cat whose whiskers have been cut is experiencing, close or cover one of your eyes as you walk around your house and pick up several items. You may find that your depth perception is a little off! The good news is that the trimmed whiskers will grow back, and in the meantime the cat will adjust.

Never pluck a whisker! It's painful, as whiskers are deeply rooted in the skin and have nerve endings in the follicle.

Hairless cats, such as the Sphinx, may have fewer whiskers than their fully-furred counterparts or have no whiskers at all, but they are used to processing the world around them without the input of these hairy sensors. ■

Did You Know?

Proprioception is the awareness of the position of the body in relation to the rest of the world. This is how we—and our cats—know which way is up and are able to maneuver our bodies around objects without paying much attention. Your cat's whiskers provide proprioceptive information that helps her to know where she is in an environment.



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Skilled Hunters

Whiskers are useful for cats on the hunt. As a tiny prey animal moves around, it creates vibrations in the air. Your cat's whiskers can pick up on these vibrations, which act almost like radar to allow her to determine where the prey is and to measure the distance between them. Whiskers are one of the many reasons that your cat can find and catch a mouse in your house before you even knew it was there!



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Your Guide to Pain in Cats

Learn to identify pain and ease that discomfort

Cats hide injuries and pain by instinct, a behavior that is important for survival in the wild. This forces us to be detectives when our cats are ill.

Some cats become aggressive, trying to keep you away from any body parts that ache. A cat in severe acute pain may sit in the back of a space such as a cage at the clinic, stay rigid, and hiss, growl, or strike at anyone who tries to touch her. These same behaviors might be noted at home if your cat is hurt and has hidden under the bed.

It's important to understand how to recognize and then gauge your cat's pain, so you can explain the symptoms to your veterinarian (see sidebar, p. 5).

Chronic Arthritic Pain

Degenerative joint disease is a common cause of chronic pain in cats. Joint pain is underdiagnosed in cats. An observant owner may pick up signs of joint pain, but these can be subtle and develop slowly over time.

Often, signs of arthritis get dismissed as "old age," but they shouldn't. You may notice that your cat is reluctant to go up and down stairs, and this is even more noticeable if litterbox use requires the cat to negotiate a set of stairs. "Accidents" around the house catch people's attention!

Your cat may pass on sleeping on the windowsill in the sun or may no longer want to chase a light. A decrease in self grooming can mean sore joints that make normal grooming painful.

A thorough history showing changes in behavior and radiographs are often required to make an accurate diagnosis of feline arthritis.

The American Association of Feline Practitioners (AAFP) says arthritis is much more common in cats than previously believed. "The most frequently affected joints appear to be the hip, stifle, tarsus, elbow, thoracolumbar and lumbosacral area (spinal areas)," says the AAFP. "For each one-year increase in a cat's age, the expected total DJD (degenerative joint disease) score increases by an estimated 13.6 percent. Moreover, there is a dramatic increase in the prevalence and burden of DJD beginning at about 10 years of age."

Surgical Pain

Knowing that a cat will feel some pain post operatively allows your veterinarian to plan pain management even before the pain starts. The injectable opioid buprenorphine provides good pain relief for cats. This medication may be incorporated into the preanesthetic protocol for your cat, administered during surgery, and/or given post op for pain relief. Bupivacaine, a local anesthetic, administered during surgery allows cats to wake up after a spay surgery with much less pain. With less pain, cats get back to normal eating, drinking, and mobility sooner.

The American College of Veterinary Anesthesia and Analgesia notes, "Unless drugs with analgesic properties (i.e., opioids, a-2 agonists, local anesthetics, nonsteroidal anti-inflammatory drugs) are used, rapid recovery from anesthesia is often associated with intense acute pain following a surgical procedure … The more invasive the procedure, the greater the tissue damage and the greater the degree of postoperative pain." A cat having an uncomplicated spay won't be



fantom_rd | Deposit Photos

A cat who is normally out with the family that is found hiding in a dark place may be indicating pain is an issue.

Manage Pain Using the PLATTER Approach

You may need to try different options to find the pain management plan that works for your cat. The American Association of Feline Practitioners (AAFP) and the American Animal Hospital Association (AAHA) suggest managing a cat's pain as the **PLATTER** approach:

PLan - Every case should start with a patient-specific pain assessment and treatment plan from your veterinarian.

Anticipate - The patient's pain management needs should be anticipated so that preventive analgesia can be provided. If the cat is in pain, treatment should start as soon as possible.

TreaT - Appropriate treatment commensurate with the type, severity, and duration of pain that is expected (acute vs. chronic).

Evaluate - The efficacy and appropriateness of treatment should be evaluated, possibly using a client questionnaire or an in-clinic scoring system. Keep a notebook to write down dates, times, and observations to help your veterinarian devise the perfect plan for your cat.

Return - Arguably the most important step, this action takes us back to the patient, where the treatment is either modified or discontinued based on an evaluation of the individual cat.

Types of Pain

The American Association of Feline Practitioners guidelines break down pain into three categories:

- Nociceptive pain, which occurs when peripheral neural receptors are activated by noxious stimuli (e.g., surgical incisions, trauma, heat, or cold).
- Inflammatory pain, which results from activation of the immune system in response to injury or infection.
- Pathological pain, or "maladaptive pain," happens when pain is amplified and sustained by molecular, cellular and micro anatomic changes, collectively termed peripheral and central hypersensitization.

as painful as a cat having a broken leg repaired. Surgeries involving the eyes and surrounding structures and dental surgeries can be quite painful.

Local anesthetics applied around the area where the surgery will be performed can serve two purposes. These drugs provide direct analgesia by "numbing" the nerves in the area and allow your veterinarian to reduce the amount of systemic anesthetics needed.

Medications

Dog owners have a variety of NSAIDs (non-steroidal anti-inflammatory drugs) available to treat arthritis, but cats have a greater risk of serious side effects. Liver, kidney, and gastrointestinal side effects are common and, in some cases such as acetaminophen, may be fatal. Robenacoxib (Onsior) and meloxicam (Metacam) are NSAIDs that have been safely used in cats. Both drugs have the potential for side effects and should be dosed EXACTLY as prescribed. Only robenacoxib is approved for oral use in cats at this time. Meloxicam is sometimes used "off label" and is approved for use in cats in Europe.

Note: As always, but especially with many pain medications, you need to be sure your veterinarian is aware of any and all medications and supplements your cat is taking, as well as any other health problems she may have. Side effects and drug interactions are common and could prove fatal.

Polysulfated glycosaminoglycan (Adequan) is an injection to help both protect and stimulate healthy cartilage. A variety of nutraceuticals, such as glucosamine and chondroitin sulfate, may help to keep an arthritic cat mobile and comfortable. Omega 3 fatty acid supplements with DHA and EPA can also add to your cat's wellbeing.

A study from North Carolina State University, published in the July 2016 *Journal of Veterinary Internal Medicine,* took a novel approach to treating feline recurring degenerative joint disease. Researchers injected feline-specific anti-nerve growth factor antibodies via subcutaneous (under the skin) injection. The treatment had shown to have analgesic (pain-relieving) effects in rats, dogs, and humans, so the researchers wanted to see if that would extend to cats, and it did. Positive results, with increased mobility, lasted for about six weeks, with no deleterious effects noted.

Support Therapies

Acupuncture is helpful for some cats for pain control (see "Acupuncture for Cats Heads Mainstream," August 2016, at catwatchnewsletter.com).

Weight loss is highly recommended for overweight cats—discuss a proper weight loss plan with your veterinarian to avoid complications such as hepatic lipidosis, which may occur with rapid weight loss (see "Fat Cats—Obesity Isn't Fun or Healthy," December 2017).

If your clinic has a rehabilitation area, laser and underwater treadmill sessions can be wonderful. You may receive exercises to do at home to keep your cat limber as well as some environmental modifications to reduce stress on her sore joints. For more information, see "Feline Physical Rehabilitation," April 2019. ■

Scales to Help Judge How Much Pain Your Cat Is In

You can gauge your cat's pain using one of several pain-scoring systems developed for animals. Colorado State University, shown here, and the University of Glasgow both use behaviors to judge an animal's discomfort, such as when the cat tries to lick at a surgery site, the position of her ears, her body posture, if she is silent, crying, purring, etc. (download a copy at https://tinyurl.com/CSUpain). The Glasgow system uses 28 descriptors in seven categories to rate a cat's pain. While it is designed for veterinary professionals, you can download a copy at: https://tinyurl.com/Glasgowpain2.

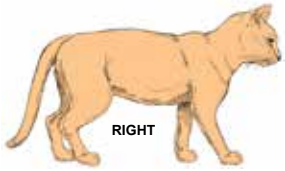


matic | Depositphotos

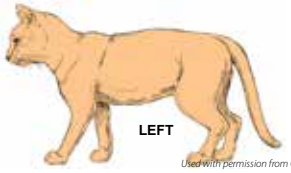
Colorado State University Feline Acute Pain Scale

Rescore when awake
- ☐ **Animal is sleeping, but can be aroused - Not evaluated for pain**
- ☐ **Animal can't be aroused, check vital signs, assess therapy**

Pain Score	Example	Psychological & Behavioral	Response to Palpation	Body Tension
0		☐ **Content and quiet** when unattended ☐ **Comfortable** when resting ☐ Interested in or **curious** about surroundings	☐ **Not bothered** by palpation of wound or surgery site, or to palpation elsewhere	Minimal
1		☐ **Signs are often subtle and not easily detected in the hospital setting**; more likely to be detected by the owner(s) at home ☐ Earliest signs at home may be **withdrawal from surroundings or change in normal routine** ☐ In the hospital, may be content or slightly unsettled ☐ **Less interested** in surroundings but will look around to see what is going on	☐ May or may not react to palpation of wound or surgery site	Mild
2		☐ Decreased responsiveness, **seeks solitude** ☐ **Quiet**, loss of brightness in eyes ☐ **Lays curled up or sits tucked up** (all four feet under body, shoulders hunched, head held slightly lower than shoulders, tail curled tightly around body) with eyes partially or mostly closed ☐ **Hair coat appears rough** or fluffed up ☐ May intensively groom an area that is painful or irritating ☐ Decreased appetite, **not interested in food**	☐ **Responds aggressively or tries to escape** if painful area is palpated or approached ☐ Tolerates attention, may even perk up when petted as long as painful area is avoided	Mild to Moderate **Reassess analgesic plan**
3		☐ Constantly **yowling, growling, or hissing** when unattended ☐ May bite or chew at wound, but **unlikely to move** if left alone	☐ **Growls or hisses at non-painful palpation** (may be experiencing allodynia, wind-up, or fearful that pain could be made worse) ☐ **Reacts aggressively** to palpation, **adamantly pulls away** to avoid any contact	Moderate **Reassess analgesic plan**
4		☐ Prostrate ☐ Potentially **unresponsive** to or unaware of surroundings, difficult to distract from pain ☐ Receptive to care (even aggressive or feral cats will be more tolerant of contact)	☐ **May not respond** to palpation ☐ **May be rigid to avoid painful movement**	Moderate to Severe **May be rigid to avoid painful movement** **Reassess analgesic plan**



○ Tender to palpation
✕ Warm
■ Tense



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A Crystal Ball in Your Cat's Urine

Urinary crystals mean watch for urinary stones

Finding crystals in a urine sample can be a warning that painful urinary stones and/or deadly blockages may be forming. Persian and Himalayan cats have an increased risk for urinary crystals and stone formation.

The most common types of crystals are struvite and calcium oxalate, and these can be distinguished by their unique shapes under a microscope. Each type requires different treatment, so a urine analysis is important.

Urine samples need to be fresh—ideally examined within 30 minutes. Your veterinarian may do a cystocentesis (using a needle to draw a sample through the abdominal wall) to get a truly fresh, unadulterated urine sample.

What You Can Do

- Provide plenty of fresh, clean, and cool water
- Add some water to her food
- Consider using a pet water fountain or leave a faucet dripping
- Feed more wet food to increase water intake
- Report any signs of cloudy/bloody urine to your veterinarian
- Watch for signs that your cat is straining to urinate

Struvite Crystals

Made of magnesium ammonium phosphate, struvite crystals are usually found in clean urine. They rarely have an infection associated with them, so there's often no need for antibiotics. Struvite crystals can usually be managed successfully to prevent the formation of struvite stones (see "What You Can Do" sidebar).

There are some illnesses that may predispose a cat to struvite crystal formation. Cats with idiopathic cystitis (bladder inflammation of unknown cause) may have struvite crystalluria (struvite crystals in the urine). Chronic use of diuretics, some kidney problems, and the use of antacids may increase your cat's risk of developing these crystals.

Struvite formation occurs in an alkaline pH, so your veterinarian may recommend a change in diet to one that promotes healthy acidic urine. A cat's normal urine usually has a pH between 6.0 and 6.5. (Remember chemistry 101? 7.0 pH is neutral; anything below that is acidic and anything above 7.0 is alkaline.)



If your cat refuses to change diets, you may need to give a urinary acidifier such as methionine.

There are prescription diets, such as Hill's Prescription Urinary Care s/d, that can dissolve struvite stones. These diets are generally fed short term, as long as needed to dissolve any struvite stones in your cat's bladder. If your cat has repeated urine samples with struvite crystals, your veterinarian may prescribe a specific long-term diet designed to prevent crystal/stone formation.

Calcium Oxalate Crystals

Calcium oxalate crystals tend to develop in older cats. Male cats are at a higher risk, especially neutered males. Unlike struvite, calcium oxalate is more likely to form crystals in acidic urine.

High levels of calcium in the blood can predispose a cat to form calcium oxalate crystals. Excessive consumption of vitamin D and/or sodium can also influence the presence of these crystals. Ethylene glycol (antifreeze) poisoning can cause formation of calcium oxalate crystals.

Using potassium citrate can help to raise the urinary pH. Vitamin B6 supplementation may also help. There are normal bacteria in feline intestines called *Oxalobacter formigenes* that survive by metabolizing oxalate. The population of this bacterium is affected by many antibiotics, so using medications only as needed can help to maintain helpful gastrointestinal flora. Prescription diets won't dissolve calcium oxalate crystals or stones, but they can help maintain an ideal pH in the urine.

Prevention

Important aids in avoiding any crystal or stone formation include encouraging drinking and feeding canned food so your cat intrinsically takes in more liquid.

While crystalluria doesn't represent an emergency by itself, it is a warning that your cat could develop urinary calculi or stones that may lead to a blockage. Urinary blockage is a medical emergency.

If your cat is straining in the litterbox but not passing urine or passing tiny amounts, he could be blocked. Watch for frequent trips to the litterbox with little urine produced as well as any hematuria (blood in the urine). Passing small amounts of urine outside the litterbox can also be a tip. When in doubt, consult your veterinarian.■

Accidents and Injuries Happen

The most common accidents requiring immediate care

We round up our series on when to use an emergency clinic with a look at common feline injuries. Believe it or not, cats have their own set of accidents to which they are prone. In this article, we discuss some of the more common problems seen in veterinary emergency clinics. Obviously, not every possible emergency scenario is listed here, so if you're not sure, always err on the side of caution and take your cat to the ER if your cat has been injured.

High-Rise Syndrome

Cats are incredibly flexible, and when given enough time (not very much at all) during a fall, they can rotate midair to land on their feet. In a study using data obtained from cases in which cats fell from various heights, researchers surprisingly found that a fall from one or two stories caused more injury than slightly higher falls. Anytime a cat falls more than a few feet, she should be checked by a veterinarian. Internal injuries such as organ rupture (bladder, spleen, kidney) may not manifest immediately, and cats are very good at masking the signs of orthopedic and other injuries. When evaluated and treated quickly, cats can survive falls from surprisingly high places in many cases.

Degloving Injuries

A degloving wound means that the skin is torn off from the underlying tissue. As gruesome as it sounds, it's often treatable. When it involves the chin, as is frequently seen in cats that have either fallen from a high place or been hit by a car, the cat has scraped her chin along the ground and the skin can be peeled back, revealing the mandible (jawbone). Surgical repair is usually indicated, and most emergency veterinarians are familiar with the condition.

Another common feline degloving injury involves the tail. Outdoor cats frequently seek shelter in the engine of cars when it is cold outside, making them susceptible to a fan-belt-induced injury. When the car is turned on and the engine begins to rotate, the fan belt catches the skin of the tail, creating a degloving injury. In these cases, shock can result, and immediate veterinary care is critical. The tail is commonly amputated, and most cats recover well provided that they don't have other complicating injuries.



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Especially for outdoor cats, accidents are waiting to happen, requiring emergency care.

Toxin Ingestion

We've talked about cats ingesting poisonous plants, situations that require immediate treatment. In addition, emergency clinics commonly see acetaminophen (Tylenol) poisonings in cats.

While this drug may be used to manage pain in dogs (there are better options available), it is contraindicated in cats. They cannot properly metabolize acetaminophen and can develop methemoglobinemia, a situation in which red blood cells cannot deliver oxygen to the tissues of the body, making an affected cat anemic and extremely weak. Acetaminophen toxicity is commonly fatal, and if you suspect your cat has eaten this drug, contact your veterinarian without delay.

Several over-the-counter flea medications contain a class of compounds called permethrins. For reasons we do not understand, some cats are extremely sensitive to them. Using permethrins (also pyrethrins) can lead to generalized tremors, seizures, and death. Avoid over-the-counter flea medications until you have consulted with your veterinarian, and be aware that many canine flea/tick medications are not safe for cats. Never use any products meant for use in dogs on a cat without consulting your veterinarian.

Abscesses from Bites

Cats that go outside are at risk for numerous injuries, which is one of the many reasons we recommend keeping cats indoors (they can go outdoors in an enclosure, like a catio). One of the most common is a cat bite. If you have an outdoor cat, it is critical to maintain vaccines and have annual feline leukemia (FeLV) and feline immunodeficiency virus (FIV) tests. Cat bites can transmit FIV and rabies, and it is common for them to become infected by bacteria, leading to painful abscess formation, fever, and possibly infection of various organs. Better to bring your cat to a veterinarian immediately after discovery of any potential bite wounds than to risk complications.

Snake Bites

Cats are surprisingly savvy about snakes, especially compared to dogs! However, cats do get bitten by snakes and, because of their smaller size, they are more prone to severe side effects. The initial symptoms are often swelling and pain, with weeping tissue at the site of the bite, but other signs, such as tremors, vomiting, diarrhea, dilated pupils, and/or paralysis may develop depending upon the species of snake involved. Immediate treatment is critical, even for non-venomous snake bites, as these can become infected with bacteria, leading to abscess formation (see above).

Garage Door and Recliner Injuries

Cats are fast and wily, but sometimes not quick enough. Garage door and recliner crush injuries may leave no immediate external signs of injury, but these accidents can cause serious blunt trauma. If your cat is caught in a garage door or a recliner, see a veterinarian immediately, even if you suspect the cat is OK. As with all blunt trauma, injuries aren't always readily apparent, so a check-up is in your cat's best interest. Note: Kittens are particularly prone to these accidents.

Bottom Line

Being proactive—keeping your feline friend vaccinated and minimizing the chance of an accident by removing hazardous conditions and materials—will go a long way toward avoiding an emergency visit. However, despite your best efforts, accidents may happen. Talk with your veterinarian in advance so you know how to contact an emergency clinic in your area, and keep its phone number and location available in an easily accessible place.■

New Hope for FIP

This question is timely due to recent promising research

Q I recently lost a cat to feline infectious peritonitis (FIP), and this was a dreadful experience. No matter what we did, he continued to accumulate fluid in his chest and abdomen, and my veterinarian told me that there is no cure for this condition. All we could do was repeatedly remove the fluid until his quality of life became so poor that we decided to have him euthanized. Are you aware of any research that is being done that may improve this situation for other cats afflicted with FIP?



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Cats are part of our family. Fortunately, researchers are working hard to improve our access to effective therapies.

A Thank you for getting in touch, and I am so sorry to hear of your recent loss. I know that managing cats with FIP can be very sad, and its routinely poor prognosis makes the situation even that much more devastating. More recently, though, studies suggest that there may be some promise for an effective therapy for FIP (see p. 2). Perhaps a quick review of FIP and these studies will be helpful in understanding what FIP is and how we may be able to treat it in the future.

FIP results from the mutation of the ubiquitous coronavirus, which most commonly resides in the GI tract of infected cats (called the feline enteric coronavirus, or FeCV). Cats infected with FeCV most commonly show no signs of illness, except perhaps some mild GI upset (vomiting/diarrhea) that is self-limiting. In approximately 5 percent of cats infected with FeCV, the virus will undergo one of several different mutations (called FIPV) that change where the virus travels in the body and how it behaves.

Depending upon which mutation(s) take(s) place, the virus may cause a systemic inflammatory reaction that causes the accumulation of fluid in body cavities (called the "wet form" of FIP), or it may travel to the central nervous system, where it causes what's been referred to as the "dry form" of FIP, in which cats most commonly develop neurologic signs. The prognosis for both wet and dry forms of FIP is poor, with the dry form carrying perhaps a more favorable outlook.

There is currently no definitive therapy available for cats with FIP, and management of cats with this infection is focused on maintaining quality of life by intermittently draining fluid from body cavities and addressing any other health issues that are identified. Recently, though, a clinical trial with a type of drug called a nucleoside analog (GS-441524) produced relatively long-term survival in naturally infected cats that would have otherwise been expected to succumb to FIP. While more work needs to be done to verify the safety and effectiveness of this drug for the treatment of FIP, it represents a ray of hope in what has until now been a dark tunnel of despair for those cats and owners that have been confronted with FIP infection.

We hopef this class of drugs will ultimately become available for use by the general public, and we eagerly await the results of follow-up studies. It is likely to be some time before commercialization brings this drug to market if it is proven safe and effective, but the notion of an option to treat what has previously been considered an untreatable disease gives us hope for a future in which cats with FIP infection can look upon a much for favorable prognosis than we have now.

Please accept my deepest condolences once again, and keep your eye out for updates on this exciting news. We know that we will, and we will certainly inform the public of any advances as we become aware of them.

All my best,
Elizabeth



Elizabeth works with the Cornell Feline Health Center to provide answers on this page (vet.cornell.edu/fhc/). Write to her at catwatcheditor@cornell.edu.

Coming Up . . .

- *What You Need to Know: Acute Heart Failure*
- *Worrisome Drooling Cats*
- *The Scoop on Keeping Paws Healthy*
- *Solutions to Dry Skin and Dandruff*

HAPPENING NOW. . .

Pet Week - May is a big month for our feline friends. The 35th Annual National Pet Week is May 6–11.

Distracted Driving - The Florida state Senate is considering adding interaction with pets while driving in your car to the current distracted-driving law.

Animal Cruelty Law - Virginia is close to a signed law that makes any type of animal cruelty a penalty. As we go to print, it has passed both the Virginia House and Senate.



AlexBannykh | Deposit Photos

Subscriptions - Did you know that you can subscribe to *CatWatch* for 40 percent less if you go online to catwatchnewsletter.com?

New Travel Rules - The U.S. Department of Agriculture's Animal and Plant Health Inspection Service has made some changes to its APHIS Pet Travel website (aphis.usda.gov/aphis/pet-travel), which includes more simple travel rules about required tests and country-specific regulations, according to the American Veterinary Medical Association. ■