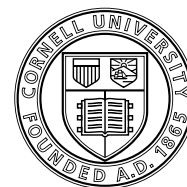




Cat Watch

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

THIS JUST IN

Herbals for LUTD

Study shows little promise

Lower urinary tract disease (LUTD) is a common condition characterized by crystal/stone formation and/or inflammation and discomfort in the urinary bladder and/or urethra of affected cats. LUTD can have significant negative effects on a cat's quality of life, and symptoms range from mild discomfort while urinating to potentially life-threatening urinary obstruction.

A number of strategies have been proposed to manage LUTD in cats, and anecdotal reports of success using various herbal preparations have been circulated through various media. A recent study tested the hypothesis that three of these compounds, San Ren Tang, Wei Ling Tang, and Alsima, would increase urine volume, decrease saturation of urine with calcium oxalate and struvite, and have salutary effects on urine pH, all of which would be expected to decrease the likelihood of crystal/stone formation.

This study found that these compounds did not achieve the above-mentioned effects, suggesting that they may not be viable options to decrease the likelihood of LUTD in cats. While further studies are warranted, these results do not support a beneficial effect of these herbal preparations in cats with LUTD. ■

J Feline Med Surg. 2018 Dec;20(12):1094-1099. doi: 10.1177/1098612X17748241.

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New Drug for Cats Battling Weight Loss

Even cats with chronic kidney disease may find help

A new FDA-approved medication called Elura (capromorelin oral solution) may make the battle to put weight on your older or ill cat a bit easier. This is the first weight loss drug for cats that is specifically approved for cats with chronic kidney disease (CKD) as well as healthy cats. Capromorelin is a ghrelin receptor agonist known to increase appetite and weight gain and is approved as Entyce for appetite stimulation in dogs.

A field study of cats with documented, unintended weight loss, and a history of CKD showed that cats given Elura gained weight, while cats in the control group lost weight. Although enrolled cats were in stable clinical condition, most had a variety of other conditions in addition to CKD, including hyperthyroidism and hypertension, which were managed with medications.

The second study used healthy cats and treated them with normal or excess doses of Elura for six months to watch for side effects. All the cats gained weight even though some had bouts of increased salivation and vomiting. Male cats were more likely to show side effects, for reasons that are currently unclear. Further studies are needed to verify this finding and to identify its potential cause. A third study in eight healthy juvenile male neutered cats was done to provide information on the drug's effects on the cardiovascular system and blood glucose levels. Elura resulted in transient decreases in both heart rate and blood pressure and transient increases in blood glucose. This is a prescription drug, so it must be prescribed by your veterinarian. ■



It can be pretty tough to get a cat who doesn't feel well to eat properly, and medication may help.

Angela Kottel / iStock Photos

Humans May Infect Pets with COVID-19

If you're infected, someone else should care for your pets

A study from the University of Guelph looked at the pets of owners who had been ill with or tested positive for COVID-19. Swabs from 17 cats and 18 dogs were taken within two weeks of a confirmed coronavirus infection or symptoms in their owners. They took blood samples from eight cats and 10 dogs whose owners had been diagnosed with SARS-CoV-2 infections within the past 14 days. The eight cats were believed to have had a respiratory illness about the same time their owners were ill. Two of the dogs had antibodies in their blood and one had a respiratory illness.

From the report in *HealthDay*: "These preliminary results suggest that a substantial proportion of pets in households of persons with COVID-19 become infected," says Dr. Dorothee Bienzle, a professor of veterinary pathology at the University of Guelph.

So far, all scientific evidence suggests transmission from people to their pets and not the other way around. To our knowledge, the only situation in which an animal is suspected of having served as a source of COVID-19 infection in people is during outbreaks in mink farms in both Europe and the United States. This evidence leads to the recommendation that if someone is sick with COVID-19, a different member of the household or a friend should take care of the pets. ■

Cornell Team Treats Bobcat's Fracture

First, they needed to clear an infection

Dottie the bobcat was only 3 months old when she arrived at the Cornell University Hospital for Animals (CUHA). Her keepers at the Claws 'n' Paws Wild Animal Park in Lake Ariel, Pa., noticed a limp in her hind legs and suspected she had fallen from a fence in her enclosure. Images taken at the local veterinarian's office showed a small fracture in Dottie's femur bone, so they referred her to CUHA for further care.

The Cornell exotics service team sedated Dottie for radiographs and found that the young cat had septic arthritis in her left hip and a secondary fracture of the femur. The Cornell veterinarians sent the bobcat home on antibiotics to clear the infection before any surgery, saying the bacteria likely entered through an injury lower on the leg and traveled up the leg to the hip.

When her infection cleared and there were no signs of healing of the femur fracture, Dottie was brought back to CUHA, where they prepped her for a surgery known as a femoral head ostectomy (FHO). "The procedure eliminates the ball portion of the ball-and-socket joint so that it shifts the responsibility of weight bearing onto the muscles and tendons instead," says Dr. Ricardo de Matos, senior lecturer in the Zoological Medicine section.

Dr. Ursula Krotscheck, section chief of Small Animal Surgery, performed the operation. "Over a few months, scar tissue develops around what used to be the hip joint to make a 'false' joint, which will help the hips support the leg and bear weight," she says. "While it doesn't function as well as a true hip joint, our patients typically have excellent quality of life and fairly good range of motion after they recover."

While FHO procedures are primarily performed in domestic cats and dogs, the same process of the operation applied to the wild cat, except that the unusual feline patient required more sedation to ensure safety of the bobcat and the staff.

Dottie's FHO surgery went smoothly, and she recovered well, returning to her bright, purring self soon after. "She was walking around her cage and acting playful within one day," says de Matos. "We did notice a little muscle atrophy of her hind limb, so we prescribed some rehabilitation exercises for her keepers to do with her to help build that muscle back up."

While Dottie recovered after her surgery at CUHA, students and staff sent her keepers regular updates on how the kitten was doing. Unlike most orthopedic surgeries, FHO patients do not require complete rest and cage restriction. Dottie is now home at the Claws 'n' Paws Animal Park, where they are keeping her on an exercise regimen, making the bobcat walk in circles to ensure she continues to strengthen her injured leg. ■

Original story from Cornell Veterinary Medicine News, written by Lauren Cahoon Roberts.



Dottie the bobcat, at Cornell.



CatWatch

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CatWatch Earns Awards for Writing

Nine Certificates of Excellence from Cat Writers Association

CatWatch writers Kate Basedow LVT and Deb Eldredge DVM earned eight Certificates of Excellence for their contributions to CatWatch at the annual Cat Writers Association's Awards Program, an international competition that receives thousands of entries.

CatWatch also earned a Certificate of Excellence in the newsletter category. Entries earning a Certificate of Excellence are then further evaluated to determine the winners of their categories who get Muse Medallions.

Basedow won Muse Medallions for her article "Feline Physical Rehabilitation," which was in the Health and General Care category and "Temperament for Therapy Cats," which was entered in Behavior, Training, and Enrichment. ■

Does Your Cat Need Deworming?

Many cats need a regular deworming schedule

Did you ever see your cat throw up something that looks like spaghetti? Or find what look like grains of rice in her litter box? Not to wreck your dinner, but that “spaghetti” was probably roundworms, and the “rice” was likely tapeworm segments. The good news is that these parasitic infestations can be easily resolved with regular deworming.

Regular Deworming

Most cats benefit from regular deworming. “A cat’s living situation will dictate whether they should be kept on a regular deworming schedule. For example, an indoor cat in a rural setting may still have an opportunity to hunt rodents indoors, in which case they should be on a regular deworming schedule. Or, if a cat is indoors only but lives with other cats who are indoor/outdoor and hunting, they should also be on a regular deworming schedule. Cats that live with dogs that go on neighborhood walks or interact with other animals have a greater risk of exposure than indoor only cats living in a city high-rise,” says Leni K. Kaplan, MS, DVM, of Cornell University’s Small Animal Community Practice.

It is plain to see that cats that go

outside will be exposed to parasites, but it can be easy to forget that indoor-only cats can be exposed. Any animal that your cat interacts with that goes outside could potentially be bringing unwanted parasites into your household, and it is even possible to bring in parasites yourself (for example, if you step in infected feces outside and your cat sniffs your shoes).

For cats that are at low risk for internal parasites, such as indoor-only cats that do not hunt regularly or indoor-only cats that live with other indoor-only pets, regular deworming is often not necessary. You can always deworm your cat if you notice a problem.

If you are uncertain about whether your cat needs to be regularly dewormed, honestly discuss his/her environment and lifestyle with your veterinarian or a veterinary technician.

Signs of Intestinal Parasites

Signs that your cat may have intestinal parasites include:

- ▶ Weight loss
- ▶ Distended abdomen (especially in kittens)
- ▶ Unthrifty with poor hair coat
- ▶ Presence of worms in stool
- ▶ Presence of worms in vomit
- ▶ “Grains of rice” on hair around anus

If you suspect that your cat has worms, bring a stool sample to your veterinarian’s office for a fecal exam. The staff can evaluate your cat’s stool

for the presence of parasite eggs and sometimes even larva or adult worms. Your veterinarian may also want to examine your cat, particularly if the fecal is negative (no signs of parasites).

A fecal exam only evaluates a small amount of feces, so your veterinarian may still suspect that worms are the cause of the problem based on the information you provide and his or her physical examination findings.

Choosing a Dewormer

There are a variety of deworming products on the market (always look for the name of the active ingredient, not the brand name, if you buy over the counter). “I strongly suggest that owners consult with their veterinarians regarding which deworming products are given for a cat,” says Dr. Kaplan. “Considerations regarding products include what specific internal parasites need to be targeted for a given patient and the most effective way of delivering the deworming medication (for example: oral vs. topical).”

Treatment frequency will depend on the product being used and whether it is being used as a preventive or to resolve an active infestation. Most dewormers only target specific stages of a parasite’s life cycle, so it is often necessary to give a second dose a few weeks after the first dose to be sure that treatment is successful. For routine preventive use, most products are given monthly.

After your cat has been given a dewormer, don’t be surprised if she passes worms in her stool or vomits some up. Some dead worms are absorbed in the intestines, but many pass out with the cat’s feces. ■

Deworming Drugs

Epsiprantel: Tapeworms

Febantel: Tapeworms

Ivermectin: Hookworms

Milbemycine oxime: Mites, roundworms, tapeworms, whipworms

Moxidectin: Hookworms, mites, roundworms, mites

Piperazine: Roundworms

Praziquantel: Tapeworms

Pyrantel Pamoate: Hookworms, roundworms

Selamectin: fleas, heartworms, mites, roundworms, hookworms

Feline Parasites Common to the United States

Parasite	Infection Route	Zoonotic
Roundworms	Ingesting eggs or eating rodents with larvae; kittens from mother’s milk	Yes, but rare
Hookworms	Larvae penetrate cat’s skin or are ingested	Yes
Tapeworms	Ingesting fleas, rodents	Yes, but rare
<i>Isospora (coccidia)</i>	Ingesting infected flies or cockroaches	No
<i>Giardia</i>	Ingesting cysts in feces of another infected animal	Yes
<i>Toxoplasma</i>	Ingesting cysts in infected prey, raw meat or contaminated water sources	Yes

Rescue or Rotten?

Some rescue groups cross the line into hoarding

Whether you want to adopt a cat or volunteer for a shelter or rescue group, checking out a new group can come with some surprises. Many rescue operations, whether they are a local animal shelter, private rescue group, or an individual with a penchant for rehabilitating cats in need, do an excellent job. The cats in their care receive medical attention as needed, are well-fed, housed in a safe and clean setting, and are adopted out as soon as possible to loving homes. But other operations get in over their heads and may leave you feeling a bit uncomfortable and concerned about the cats' well-being.

Red Flags

"Many rescue groups and shelters out there operate beyond their capacity to care for animals on a regular basis," says Lena DeTar, DVM, DACVPM, DABVP-SMP, Assistant Clinical Professor in Maddie's Shelter Medicine Program at the Cornell University College of Veterinary Medicine.

"However, when it comes down to it, they are usually aware of that fact. These groups may struggle to make ends meet on donations and volunteer labor, may put up with overcrowding because they think they're saving more animals if they don't turn any away, may lack ready access to veterinary care, lack behavior or enrichment programs, may feel strongly that animals shouldn't be euthanized, and hang onto hope that donors or adopters or transport partners will step up to help them keep their heads just above water. Education, access to grants and other

funding, and minimizing unnecessary barriers to adoption can often significantly help these organizations

"The difference between these situations and hoarding is that hoarders have a hard time accepting that the animals in their care are suffering, even when they are on death's doorstep. They often don't see how the overcrowded unsanitary conditions, usually due to overflow of pet urine and feces, adversely affect the animals' health and their own. They are often extremely unwilling to part with animals, even to good homes, when available," says Dr. DeTar.

"Hoarders may go looking for more animals even when they are totally over capacity, may allow their population to breed unchecked, and may also retain bodies of dead animals, either as sentimental objects or because they don't see them behind all the clutter.

"Hoarding tendencies range from mild to severe: It's a complicated psychology that often includes aspects of obsessive-compulsive disorder, attachment disorder, and mental processing difficulties. Some people who hoard animals can be extremely charismatic and attract a following of dedicated enablers working at their rescues or sanctuaries," says Dr. DeTar.

Scoping It Out

Get some background information before committing to adopting a new cat. Go in with open eyes when volunteering for a shelter or rescue group. If you are adopting, you want to have an accurate idea of the cat's temperament and health

"Hoarding tendencies range from mild to severe: It's a complicated psychology that often includes aspects of obsessive-compulsive disorder, attachment disorder, and mental processing difficulties."

status (you might be up to the task of a special needs kitty, but the rescue should be up front about the cat's needs and issues). If you are volunteering, be honest with yourself about the conditions in the facility and whether the cats are being properly cared for. You are just one person, and while your contribution will help, a poorly managed rescue operation can quickly turn into a case of neglect.

Determining whether a person or group is a legitimate rescue helping cats versus a hoarding situation masquerading as a sanctuary can be challenging. Dr. DeTar says, "Slick social media portrayals may not accurately reflect how animals are actually housed or cared for." She advises considering three things before volunteering for or donating to a shelter or rescue organization:

How are the animals cared for?

Animals should be kept in a clean space free from their waste, offered fresh food and water daily, receive prompt treatment for medical problems, and not feel distressed by their environment.

Basic preventive medical care should be provided by the rescue and spay/neuter should be promoted or provided. A quick site visit can probably determine this (use your nose!), but a video tour can be helpful if that is not possible. Talk to other volunteers and adopters. Determine how healthy the animals appear to be.

What is the adoption process like?

Animals entering the shelter or rescue should have a reasonable turn-around time to adoption, usually under a month or two on average for adults. (Of course, many cats will go much faster and some much slower. Faster is better.) It should be a relatively easy process to adopt a pet from the organization, and they should be eager for people to do so.

What is the euthanasia process?



It can be all too easy for a well-meaning shelter to become a hoarding situation as they attempt to accommodate too many homeless cats.

Just like cat owners, rescue organizations with animals that are suffering significantly from serious behavioral or end-stage medical conditions should be prepared to make the difficult decision to euthanize if treatment is no longer possible. The welfare of the animal should be the primary consideration; “no kill” should not be interpreted to mean “never euthanize.” Dr. DeTar says, “If the euthanasia rate at a shelter is 0%, it makes me very nervous.”

In-person visits may not be an option at this time due to COVID, even to meet a prospective new pet. This makes evaluations even more challenging. If you are not able to visit the rescue yourself, Dr. DeTar recommends talking to someone who has worked closely with the organization to get a good idea about how it is run. Larger organizations may also have public annual reports that you can review.

Reporting Hoarding

If the rescue seems to be in over its head but the people are truly trying to do right by the cats, do what you can to steer them in the right direction. Maddie’s Shelter Medicine Program at Cornell University (vet.cornell.edu/hospitals/maddies-shelter-medicine-program/shelters/shelter-resources) has a variety of resources available on their website, including options for a consultation to help your shelter or rescue be the best that it can be. But if the conditions are awful and the cats are suffering, intervention is necessary.

“The result of true hoarding situations is animal neglect, which is a crime, but human suffering is also occurring,” says Dr. DeTar. “If you suspect that a person or an organization is hoarding animals (i.e., they have more than the normal number of animals, that both the animals and humans are suffering because of it, and they are unwilling to seek help or reduce their population size), you should contact the Humane Investigations team at your local SPCA or Humane Society. If that does not exist or is not possible, call the non-emergency police tip-line or fill out an online crime report on your municipalities’ law enforcement website.

“In some places, governmental human services departments may offer hoarding assistance, and social workers may also advertise their services. Any of these resources can help get the ball rolling on the appropriate intervention,” says Dr. DeTar. ■

Judging a Rescue Group

You need to go in with your eyes wide open and look at the situation

Good Signs

- ▶ Cats appear happy and healthy
- ▶ Facility is clean and has minimal odor
- ▶ Rescue has a working relationship with at least one veterinary facility
- ▶ Adoption policies are in place
- ▶ Enrichment programs to keep cats mentally stimulated
- ▶ Organized staff and/or volunteer base
- ▶ Track and limit intake
- ▶ Euthanizes cats that are ill and suffering or are unfit to be rehomed

Potential Issues

- ▶ Cats show mild-moderate signs of stress or illness
- ▶ Cat living spaces and litter boxes show signs of infrequent cleaning
- ▶ Crowded conditions
- ▶ Doesn’t track number of cats in the facility and/or no limit to intake
- ▶ Has difficulty accessing veterinary care
- ▶ No enrichment programs
- ▶ Insufficient staff and poor volunteer base
- ▶ Resists euthanasia in all cases
- ▶ Excessive or unrealistic requirements to adopt

Major Red Flags

- ▶ Large percentage of sick cats
- ▶ Little or no veterinary care provided
- ▶ Unsanitary living conditions
- ▶ Strong odor due to urine and feces
- ▶ Crowded conditions
- ▶ Uncontrolled breeding
- ▶ Resists euthanasia in all cases
- ▶ Dead cats
- ▶ Unwilling to adopt cats out



Zoom, Zoom, Zoom!

What's behind the feline whirlwind run

You are resting on the sofa after a long day and suddenly your young cat comes blasting through the room like a whirlwind and then is gone. Outbursts of FRAPing (Frenetic Random Activity Periods) are a fact of life for owners of young cats. Think of this as a case of the “zoomies.” Older cats can experience this too, but it is much more common in kittens and teenage cats.

Your other cats may watch in awe or it may be a group activity, with cats from young to old flying through your house. Sometimes one cat will zoom and once she has stopped, another one will pick up the urge to run—or they'll join up. Your dog may or may not choose to join in as well.

Why the zoomies? Especially at night, when you were sleeping comfortably? FRAPing is generally felt to be a chance for your cat to blow off some excess energy. Cats normally sleep up to 17 hours a day. That doesn't leave much time for eating and exercising. Some behaviorists believe that FRAPing may provide practice for hunting behaviors.

Cats have a variety of versions of FRAPing. The classic kitten version starts with a sideways dance toward you, with back arched and tail high and kinked (you can picture this!). Hissing and hair standing on end may be part of this ritual as well. Then, suddenly, there is a mad dash off, again usually with tail kinked. Some cats will yowl or hiss while running or meow loudly.

Warning Signs

Dilated eyes are often a sign of a FRAP about to happen. This is a good warning sign (don't try to pick up or cuddle your cat when her eyes are dilated) that is often accompanied by a twitching tail. She is revving her motor, so to speak, and at that moment she might bite or scratch you. This is a state of extreme arousal.

The stimulus? Possibly a bug. Possibly an imaginary foe. Maybe you twitched your foot or exhaled loudly. Tapping your finger on the floor. It doesn't take much to get her going when your feline companion is overflowing with energy. FRAPing commonly occurs after a bath

or thorough grooming, and for some cats, after using the litterbox.

“I think it is more evolutionary than anything physiological like a melatonin drop,” says Katherine Houpt, DVM PhD DACVB James Law Professor Emeritus, Section of Behavior Medicine at the Cornell University College of Veterinary Medicine. “I think it is a form of play.”

But the sudden sprint is possibly related to hunting techniques, says Dr. Houpt. “You don't usually see it in farm cats, who have to work for a living,” she says. “Their predatory behavior involves sitting beside a mouse hole for hours, then pouncing.”



It's double the excitement when family members join in!

Use Caution

While it can be fun to watch your pet cat do cheetah imitations, if your cat insists on these wild runs in the middle of the night, you might be losing sleep. It is also possible for your cat to get hurt. If these wild runs are common, you might want to put heavy throw rugs on slippery floors so your cat doesn't wipe out. Block off stairs to prevent a fall. You might be able to stop a zoom attack by waving a toy like a feather wand as your cat flies by, but don't count on it.

If other pets tend to join in, try to distract or intervene. When in this excitable state, there is a risk of pets turning on each other or even nipping you if you get in the way. Let your cat calm down for 10 minutes or so after a zoom before you try to pick her up.

If your senior cat suddenly starts

having the zoomies, consider having her checked for hyperthyroidism. This common cause of increased activity level is usually associated with weight loss and a voracious appetite. Senior cats with dementia may also become active at night, but they tend to walk and meow, not run.

For healthy young cats, frequent zooming may be a sign that your cat needs more exercise and attention. Schedule daily play times with a wand toy or work with your cat on fetching. Many cats will go after a ball of crumpled up aluminum foil or paper. Food puzzle toys for her to interact with when you aren't home are a good idea.

Some cats will learn to walk on a harness and leash, and supervised outdoor walks can be helpful (make sure your cat is up to date on vaccines if you choose this option).

Work on enriching your cat's environment. Put a bird feeder outside a window where your cat can watch. Add an aquarium (with a cat-proof cover!). Provide a paper bag (not plastic!) that your cat can play in. An empty box can provide plenty of fun time for your cat. Switch out different cat trees and toys periodically so your cat has new stimulation. If you can, set up a catio so your cat gets some outdoor time in a safe place when you aren't around.

Consider adding a calming pheromone dispenser, especially to run at night if you aren't getting enough sleep. If you are home during the day, schedule those play times regularly, so hopefully your cat will sleep at night.

Most cats gradually outgrow the zoomies. You may find yourself missing the days of the wild charges through the house (but not the drape-climbing leaps, of course). ■

Signs of FRAPing

- ▶ A sideways dance
- ▶ Arched back
- ▶ High tail (maybe kinked)
- ▶ Dilated eyes
- ▶ Hair standing on end

Pet Worries: The Top Five Toxins

Be careful to keep your curious cat safe

1 Sago palm. All parts of this plant are toxic, and even one or two seeds can be deadly. Three organ systems can be impacted: the gastrointestinal tract, the liver, and the central nervous system. All exposures are potentially life-threatening. Pets who survive exposure may end up with chronic liver failure. Sago palms are used in landscaping in tropical areas, such as Florida, but are also sold as houseplants. While dogs are more likely to chew on plants, cats can also grab leaves or dig in potted plants and be exposed.



2 Ethylene glycol. This compound is commonly found in antifreeze. If you suspect that your cat has been exposed (usually by ingesting antifreeze, which appears to have an attractive taste to cats), seek immediate veterinary attention and have either a picture of the antifreeze container or the container itself with you so that the exact type of antifreeze and its ingredients can be evaluated. Symptoms of poisoning include lethargy, gastrointestinal signs (i.e., vomiting), central nervous system problems (i.e. incoordination, seizures, coma), and potentially fatal kidney failure (evidenced by increased or decreased to no urine production and dehydration). Cats are extremely sensitive and should ideally be treated aggressively within eight hours of exposure for best outcome.

3 5-fluoruracil, or 5-FU. This chemotherapeutic medication can be dispensed to human cancer patients in topical (for skin conditions) or systemic (oral or injection) forms. As is typical of many chemotherapeutic agents, it acts by disrupting cell division. Intestinal crypt cells and stem cells in the bone marrow are sensitive. Signs of intoxication include vomiting, diarrhea, incoordination, tremors, and seizures. Unfortunately, cats with severe signs of intoxication carry a poor prognosis.

4 Minoxidil. Primarily used as a topical medication to stimulate hair growth in people (i.e., in the product Rogaine), this is a cardiotoxic drug that cats are extremely sensitive to. Signs of intoxication include increased respiratory rate and effort, lethargy, and collapse. Immediate veterinary attention must be sought out if a cat is believed to have been exposed.



5 Cane Toad. Contact with a cane toad and absorption of its toxins (which are found primarily on its back) can cause increased salivation, followed by disorientation, incoordination, vomiting, diarrhea, seizures, and increased respiratory rate. Immediate veterinary attention should be sought out if exposure is suspected, and washing an affected cat's mouth out with water (with its head held downward to prevent inhalation of water) immediately after exposure can improve its outcome. Cane

toads are found primarily in the southern United States. ■

Feline Genetics

A cat named Cinnamon helps researchers identify novel gene for dwarfism

A new, improved map of the domestic cat genome (genetic material) developed by feline research teams at the University of Missouri and Texas A&M University is helping confirm existing gene variants and new candidate genes underlying diseases in cats. The 94 million cats in the United States suffer from many of the same diseases as people, but scientists don't generally have the depth of genetic tools necessary to develop new tests and treatments for cats.

To help correct this deficit, a team of researchers developed a new, high-quality genome sequence from an Abyssinian cat named Cinnamon, which greatly improves the ability to identify more complex DNA variants that cause diseases.

They used 54 additional cat genomes from the 99 Lives Cat Genome Project (a group effort to better understand feline genetics) and compared them to Cinnamon's genome to identify genetic variations possibly causing disease. One of their discoveries was a gene disruption that had not previously been linked to dwarfism in humans and may, in rarer cases, be involved in the human form of the condition.

The new high-quality cat genome, and the genetic variants it has helped uncover, demonstrate the value of this resource for discovering genetic explanations of diseases in domestic cats. In future work, the team plans to expand the use of precision genomic medicine for cats using this resource and others, which could provide veterinarians with more informative genetic screening, earlier disease detection and improved therapeutic options that will give better outcomes with fewer side effects.

In addition, wildlife conservation research and investigations into how cats came to be domesticated and split into different breeds could also benefit from the new genome. ■

Buckley, R.B. et al. A new domestic cat genome assembly based on long sequence reads empowers feline genomic medicine and identifies a novel gene for dwarfism. *PLOS Genetics*, 2020; 16 (10): e1008926
DOI: 10.1371/journal.pgen.1008926

Adopting an FIV Positive Cat

You will need to be proactive and vigilant

Q Recently, I trapped a feral cat who had appeared at my front door. He tested positive for FIV, so releasing him was no longer an option. Since he is a relatively young cat, I decided to keep him indoors even though I currently have two other healthy adult cats.

Do you feel that this FIV positive feral cat can ever be integrated into my feline family?

A Thanks for getting in touch and for your obvious concern for and care of these fortunate kitties. The question of how to manage cats that are FIV-positive is a common one, and recent studies have provided us with useful information in this regard.

Feline immunodeficiency virus (FIV) is a retrovirus that is closely related to human immunodeficiency virus (HIV), although there is no evidence that humans can be infected with FIV nor that cats can be infected with HIV. Our best estimate is that between 1 and 14% of cats are infected (depending upon locale), and while infected cats may be more susceptible to other infectious agents because of the immunodeficiency that can be caused by FIV, recent studies suggest that cats infected with FIV can live high-quality lives for years, often for as long as cats that are not FIV-infected.

It is important, though, to be



Introductions are better made through a screen or a gate than face-to-face.

proactive about the care of FIV-infected cats. Promptly consult your veterinarian if you suspect any health problems and have your veterinarian examine this FIV-positive cat twice yearly. It is important that you ensure that your other cats are healthy before bringing in this new cat, and determining whether they are FIV-infected prior to bringing in this new kitty (if you have not already done this) is probably a good idea.

It is, of course, important to prevent infection of other cats with FIV. We know that transmission of FIV occurs primarily through bite wounds that can occur during fights, so the most important thing is to make sure that there is no conflict between this new kitty and the cats that you are currently living with during their introduction.

I'd suggest that you make the introduction slowly, by first isolating the new cat in a room with his own food and water bowls and litter box. For

the first few days, it can be helpful to intermittently take something with his scent on it (a blanket, for example) and let your current kitties investigate/smell this, and vice versa.

After this, I'd recommend introducing them through a screen or baby gate in the doorway of the isolation room so that they can see and smell each other but cannot physically interact. It can be helpful to feed them in close proximity through this gate/screen and to reward them with verbal praise if they behave well (i.e., no signs of aggression).

Once they feel comfortable interacting through the screen/gate for a couple of days, you can try introducing them without the gate in a neutral place (i.e., not in the room that the new boy is being housed in). It would be ideal to have the new cat on a harness/leash so that you can intervene easily if you see signs of aggression. If you do see any aggression, I recommend reverting to the last interacting situation that did not result in aggressive behavior and then slowly moving forward with the plan.

The goal is to gradually have them become comfortable with each other while eliminating barriers to their physical interaction (i.e. gate, screen, carrier, harness/leash) until they are able to interact without aggression and without your intervention in the same space, ultimately moving away from having the new cat isolated. You can learn more about this process by visiting the Cornell Feline Health Center's website at: tinyurl.com/CornellFHC-Aggression.

Working closely with your veterinarian in this process is important, and in some cases, consultation with a veterinary behaviorist can be helpful.

Best of luck, and please send us an update when you can. ■



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 or CatWatch, 535 Connecticut Ave., Norwalk, CT 06854. We welcome digital photos of your cat to consider for use with your question.

Coming Up ...

- ▶ Telemedicine: Is It Here to Stay?
- ▶ Renal Failure in Senior Cats
- ▶ Fecal Transplants for IBS/Diarrhea
- ▶ Panniculitis, Inflammation

© HAPPENING NOW...

No, Thank you—A rare two-headed southern black racer snake was recently found at a home in Palm Harbor, Fla., reports WFTS in Tampa Bay. Kay Rogers said her cat brought the snake into the home through the doggy door. The cat placed the snake on the carpet. Her daughter placed the snake in a plastic container and set up a habitat for it.

Joining In—KSAT.com reports that San Antonio, Texas, may be joining the ever-growing ban on selling purebred pets in retail stores, in an effort to halt kitten and

puppy mills. The city council is studying the proposed ordinance.

600 Pets Airlifted—According to a CNN report, 600 cats and dogs were airlifted from Hawaii to the U.S. mainland in the largest animal rescue flight in history. Dubbed "Paws Across the Pacific," a chartered Hercules C-130 plane flew across the Hawaiian Islands in October, picking up dogs and cats from overcrowded shelters (due to the COVID-19 crisis and the economic downturn) and put up for adoption. ■