THE CORNELL 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

Pets and Spousal Loss

They can ease the pain

A study from Florida State University shows, again, how important our pets are to us. Published in *The Gerontologist,* the study examined depressive symptoms and loneliness among people ages 50 and older who lost a spouse through death or divorce.

The researchers found people without a pet experienced more significant increases in depressive symptoms and a stronger feeling of loneliness than those who had pets. Those who had a pet and experienced the death or divorce of their spouse were no lonelier than older adults who didn't experience one of those events.



studiodar | iStock.photo

The study used data from a survey about human-animal interaction as part of the University of Michigan's Health and Retirement Study in 2012. The study then linked the data with additional data collected between 2008 and 2014. Pet owners were participants who had either a cat or dog.

Additional research is needed, but the study shows the potential for developing social policies, such as including companion animals in senior-living facilities. ■

Carr, D.C. et al. Psychological Health Benefits of Companion Animals Following a Social Loss. The Gerontologist, 2019; DOI: 10.1093/geront/gnz109 Science Daily.

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Resource Guarding

When one cat tells the others, "That's mine!"

Multiple-cat households can experience squabbles similar to two toddlers fighting over the last cookie. That's because cats need their own stuff, and they're going to find a way to claim it.

Technically called "resource guarding," these spats establish ownership over a valued thing, whether it's a favorite toy, person, food, or even the litterbox. For example, you may see one cat block access to the litterbox by lying in front of the entrance to the room it is in. The cat also may hide and pounce when the other cat enters the area, stopping the cat from using the litterbox.

"Resource guarding stems from the normal desire to maintain access to valuable resources," says Pamela Perry, DVM, PhD, behavior resident at the New York State College of Veterinary Medicine at Cornell. "It involves threatening behavior directed toward any individual—human or animal—that approaches the cat while he is in possession of or near something he does not want to relinquish." And it can worsen. If one cat "wins" a disagreement and the other cat (or dog or person) backs away, the aggressive cat has learned that putting up a fight works.

Handling resource guarding in your cat household requires a few wise moves on your part. Most importantly, don't punish the cat. It won't help, and it may make things worse. Instead, work with your cats to provide each with a safe place where he feels protected, such as his own bed, cardboard box, or perch. This also means providing several water bowls, food dishes, and litterboxes in separate areas of the household. You may even need several perches or cat trees. If you see one cat sleeping on the cat furniture when a second leaps up, hissing, swatting, or body positioning to take over that spot, that's likely resource guarding.

At feeding time, one cat may quickly gulp his food and then push another cat away from his bowl. Or he may block the entrance to the kitchen while you prepare the meals. He may hiss or even attack the other cat when food is present. An intimidated cat may hide and wait until the bully cat leaves to enter the kitchen and attempt to eat his meal. "The value of an item will vary among individual cats," says Dr. Perry.

Allow your cats to demonstrate their prey behavior during play by providing food puzzles and playing with wand toys with a feathery, fuzzy toy on the end. Treat each cat similarly (no favorites!). Allow as much human contact as each cat desires, whether that's petting, grooming, sitting in your lap, or playing. Avoid the use of scents, cleaners, or detergents around cat toys and beds, as smells can be regarded as a threat.

With toys, disrupt the interaction before it escalates into aggression by calling them away from the toy. Then, with the cats separated, engage them in play with separate toys. Try to rotate toys and schedule mini-play sessions.

If you have a battle between cats over a spot on your lap or for your attention, the best thing to do is to stand up and walk away. You can do this whether the aggressive cat is in your lap or on the floor. In other words, if a cat is guarding you as the valuable resource, take it away. Instead, spend some time alone with each cat in a closed room where everyone is comfortable. ■



krbobrim | iStock.photo

Symptoms of resource guarding may be subtle, such as this calico blocking her housemate from getting to the top of the stairs, usually in an attempt to stop access to a treasured thing.

Feline Parasite Solution Gets FDA approval

The combination formula for internal and external pests

Merck Animal Health received U.S. Food and Drug Administration approval for an extended-duration topical solution that protects cats from fleas, ticks, and other parasites. Called Bravecto Plus, the drug is comprised of fluralaner and moxidectin, and can be used to treat both external and internal infestations. The formula offers cats protection for two months. ■

CBD May Affect Cats Differently

Researchers found problems in felines

PetFoodIndustry.com reports that cannabidiol (CBD) supplementation may cause problems in cats, according to research done by ElleVetSciences, a hemp CBD oil-infused pet treat and supplement company. An article in the October issue of *Animals* said that after 12 weeks of supplementation, cats showed "some behavioral changes, including excessive head shaking and licking." ■

Bad Breath in Cats

Solutions so you can get back to snuggling

What can you do to help combat bad breath in your feline companion? Rule out serious illness and get any dental problems treated and under control. You will need to follow up with regular preventive dental care. A course of antibiotics may be required to get any bacterial infections treated and eliminated.

Breath mints for pets may provide temporary relief, but daily brushing or rubbing teeth with a gauze and an approved veterinary dentifrice is the best preventive measure available. Consult the Veterinary Oral Health Council (VOHC). The council evaluates dental care products for pets for efficacy by looking at clinical trials. The council also keeps a list of approved products for cats. See http://www.vohc.org/VOHCAcceptedProductsTable_Cats.pdf.

There is at least one water additive that is approved for cat dental health. Be sure if you choose to use this product that you also put a second bowl of plain water out for your cat.

You may want to consider a dental health diet, although the usefulness of these products is debatable. With a little luck and help from your veterinarian, your cat's bad breath will be improved and you can go back to enjoying close contact. ■

When Feline Coats Get Greasy

Your cat's coat is an indicator of his health

One of the first signs a cat isn't feeling well is often his coat quality. Whether he isn't grooming because of arthritis, his diet is not complete and balanced, or he is suffering from any of a variety of diseases—including allergies, hyperthyroidism, or primary seborrhea (a rare inherited skin condition)—coat quality can be an important indicator of health.

Coat length can make it more difficult for the cat to groom away excessive grease. If this happens, a veterinary visit is in order. In some cases, referral to a veterinary dermatologist will be necessary. If the greasiness is due to a specific disease that is identified, treatment will usually be focused on addressing that disease. In the interim, you may have to assist the cat with grooming duties until the problem is resolved. ■



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CatWatch

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So Your Cat Thinks He's a Tiger

Why your cat attacks and how to redirect his instincts

Your young cat likes to dart out from under the table and grab your pant leg like a lion taking down a gazelle. This was cute when he was a two-pound kitten, but not so much now that he is 12 pounds of lean muscle. What can you do?

Play and Hunting

"Play aggression is a common behavior complaint, especially in young cats," says Pamela J. Perry, DVM, PhD, ACVB, behavior resident at the New York State College of Veterinary Medicine at Cornell. Like other species, including dogs and humans, young cats use play to practice and perfect life skills, and for an obligate carnivore such as a cat, hunting is an important skill to practice.

"Hunting behaviors are a common component of cat play behavior," says Dr. Perry. "Stalking, chasing, pouncing, and biting are typically seen in kittens and young cats (because they engage in play more frequently) but also can be displayed by older cats."

Kittens start trying out their moves on siblings or their tolerant mother. As they grow and explore their surroundings, other targets become apparent: toys, leaves, shoelaces. Eventually, young cats will start stalking live prey if the opportunity arises, and they continue to play to hone their skills. Adolescent cats have more energy, making play sessions longer, more frequent, and more intense. Dr. Perry warns, "If a cat does not have suitable outlets for these behaviors, he may target his owner."

Proper Outlet

As you hopefully do not have a mouse problem for your young hunter to deal with, your cat will need other appropriate channels for his ferocious instincts.

"Cats should be provided with suitable outlets for hunting behaviors in the form of toys that flutter, bounce, or move erratically to encourage the cat to stalk, chase, and pounce on them," says Dr. Perry. Wands with feathers or fuzzy toys on the end are perfect, because you can move them around to capture your cat's interest and they provide something to chomp down on when he catches it.

Never use your hands to wrestle with your cat. This type of play encourages him to think of your hands as a playmate like another cat, and human skin doesn't stand up to play bites very well. If you have already been doing this with your kitten, stop now to break the habit, as those kitten nips will hurt a lot more when he gets bigger!

"If the kitty prefers sneak attacks (the "slash-and-dash" type of ambush), the owner can preempt these attacks by tossing a toy past the cat's hiding place, e.g., before walking down a hallway," says Dr. Perry. Pay attention to your cat's favorite lairs so that you know where he is likely to be waiting. Tossing the toy still gives him the thrill of a moving target, but then allows you to walk by unscathed.

Furniture Adjustment

For some overenthusiastic hunters, it may be necessary to rearrange the "jungle" to curb play attacks. If he likes to jump down from above, prevent him from accessing high perches. Shut him out of rooms with high shelving, or move shorter pieces of furniture that he can use as a stepping stone to a higher spot. If he likes to stage his hunts in areas where it is difficult for you to see his lair and be prepared, move his cover (for example, if he hides under an end table next to the door to pounce, move the end table to another room or get one that is taller with thin legs so it doesn't feel like as secure a hiding place).

In the Moment

Prevention is the cornerstone of controlling rough play, but there will be slip-ups. If your cat launches a sneak attack, redirect him with a toy. If he gets a hold of your pant leg, gently but firmly remove him and then redirect with a toy.

If your cat play bites when you are petting him, remove attention (and your hands) and ignore him for a few minutes. Then you can either try again or, if he seems to be pretty wound up, get a feather wand out to burn off some energy with play first. Keep in mind that cats often grab their "prey" with both paws and then draw it in to bite down—if your cat grabs your hand like this, he is not being cute and lovey. Free your hand as calmly (and boringly) as possible and then ignore him for a few minutes and/or redirect with an appropriate toy.

Dr. Perry warns, "Punishment should not be used because there is a risk that it could exacerbate the attacks or cause the cat to fear his owner." It can be difficult to stay calm when you abruptly find out that you've been assigned the role of Jogger 1 in your mini mountain lion's home movie, but it will get you better results in the long run. Pay attention to your cat's preferred strategies and come up with a plan of your own to outsmart him and prevent attacks from happening.

Seeking Help

"When the attacks are uninhibited, frequent, or cause injury, the owner should seek professional help," says Dr. Perry. "Although 'hunting' behaviors are most often seen in kittens and young cats, the seriousness of the resulting injuries should not be ignored." Contact an animal behaviorist who works with cats to come up with strategies to manage your cat's behavior and make your home safe for everyone. ■



A wand with a feathery or fuzzy toy on the end can arouse your cat's interest and satisfy her hunting instincts if you move it so it darts away like prey.

Nils Jacob | iStock photos

Foster Care: Are You a Candidate?

How to be a valuable volunteer for homeless cats

Shelters and rescue groups are often overrun with cats in need of homes, especially during the warm months when "kitten season" is in full swing with stray cats reproducing rapidly. While many cats can be processed and housed by the shelter, others require special care and attention for medical or behavioral reasons before they can be placed in a permanent home. Many shelter groups utilize foster homes to give these special-needs kitties the focused attention that they need.



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The care required by a newborn kitten is intense, and you can't expect to go to work and leave the kitten alone.

Kitten Care

Fostering kittens can be a ton of fun and very rewarding, but it is also a lot of work and has potential for heartbreak.

Kittens under 4 weeks old require frequent bottle feeding throughout the day and night. Some kittens in critical condition may need to be tube fed (via a small tube that is passed through their mouths into their esophagus). As they get older, they can be gradually switched over to regular food.

Young kittens also require stimulation to urinate and defecate. Normally, the queen does this by licking each kitten's bottom after they eat. You can simulate this with a warm, damp washcloth, but it takes some practice. They usually begin to urinate and defecate on their own when they switch over to regular food.

Abandoned kittens frequently suffer from upper respiratory infections and other illnesses, and may need to be given medications as well as basic nursing care (cleaning crusty eyes and nose, checking temperature, etc.). Ideally, kittens should stay with their mothers for the first eight to 10 weeks of their lives, so littermates should be kept together until that age if at all possible.

Growing up with their siblings is important for socialization and learning feline social skills. While this does mean adorable kitten pile-ups at bedtime, it can also mean a hoard of kittens climbing your curtains!

Consider what space you will need to contain a litter of kittens safely. A large dog crate is a great starter space for young kittens, but as they grow and become more active, they will need more space to play and exercise. Kitten-proof a room in your house or build an enclosure to keep them contained while providing space for food, water, litterboxes, sleeping spots, and playtime. A covered exercise pen intended for dogs can work well. Their space and toys should also be easy to clean to prevent transmission of infectious disease, especially if you plan to foster more litters in the future.

Medical Cases

Sick cats may require supportive care and/or medication administration. While cats with extensive medical-care needs should ideally be boarded at a veterinary facility or fostered by a veterinary professional, there is still a lot that can be done at home by the average caretaker.

Supportive care includes cleaning crusty eyes and noses, providing warm water bottles wrapped in blankets as a heat source, warming up food to make it more palatable, tube feeding or syringe

What Is Fostering?

Fostering a cat is providing a temporary home for a cat or kitten to give her time and care to get her ready to be adopted into a permanent home. While healthy adult cats may sometimes be in need of foster homes, in most cases, the cats selected to go into foster care require some extra care and help to be their best selves. This could mean medical care to recover from an illness or injury, socialization, or bottle feeding of abandoned kittens until they are old enough to be on their own.

In most cases, the shelter or rescue group provides all food and supplies for the foster cat or kittens and covers medical expenses. All you need to do is give your time and open your home.

The shelter or rescue group should also provide you with training so that you are prepared to give appropriate care to the cat or kitten(s) that you will be fostering.

How to Get Started

If you think you would be a good candidate for doing foster care, reach out to your local animal shelter or a feline rescue group in your area. Expect to fill out an application, which will ask for your basic information and likely your pet ownership history and any special areas of expertise, such as hand raising kittens or caring for a diabetic cat. You may be required to live within a certain geographical area to make it easier to check in with the shelter or if they have a relationship with a particular veterinary facility.

Be honest when answering questions. This allows the rescue staff to get an accurate picture of your life and background to determine what cats might be a good fit for you. Don't feel bad if you don't have any special experience! Everyone has to start somewhere, and it is much better to get help and training at the beginning than to jump in over your head and potentially jeopardize a cat's health.

Don't forget to ask questions yourself. Find out what care and supplies the shelter will cover or provide, and if there is a particular veterinarian that you need to take the cat to. Ask how long cats typically stay in a foster home, and notify them of any vacation plans you might have so that arrangements can be made for the cat's care.

feeding for cats not eating on their own, and giving subcutaneous fluids (inserting a needle under the skin to administer fluids to help with hydration and electrolyte imbalances). You also may need to monitor the cat's temperature and body weight.

Medications come in a wide variety of forms and will vary depending on what illness the cat may have. Some cats will eat pills in their food, but others are more discerning and will need to be pilled by hand using either your hand or a pill gun or pill popper (pill guns for cats are quick and easy, with less risk of getting accidentally bitten!).

Liquid medications can be mixed with food or squirted directly into the cat's mouth. Some medications, such as methimazole for hyperthyroidism, can be formulated as a transdermal gel that is applied to the skin on the inside of the cat's ear. Eye and ear drops may need to be given. Medicated baths may be required for cats with skin conditions. Diabetic cats will need insulin injections given under the skin (this is usually twice a day).

If you are uncomfortable giving a medication, let the shelter or rescue group know ahead of time so that they can either provide extra training or arrange for you to foster a cat that does not require that medication.

A foster cat may be recovering from injuries from a cat fight or being hit by car. If she has had surgery, she may be wearing a cone or onesie to prevent her from chewing at her stitches. It is your job to make sure she keeps her protective gear on and is still able to do all of her normal cat things such as eating, drinking, and using the litterbox. Drains from abscesses will require daily gentle cleaning. Cats with injuries may also have exercise restrictions or require physical rehabilitation as they recover.

It may be your responsibility to bring the cat in for any follow-up exams. Some conditions, such as ear-mite infections, require minimal follow-up care, while others require more, such as repeated x-rays to monitor bone healing or recheck bloodwork to adjust insulin doses for a newly diagnosed diabetic cat.

Behavioral Cases

Some cats going into foster homes may be physically healthy, but need extra socialization. In most cases, these cats will be fearful and unaccustomed to being handled by humans, or they could have some bad habits from previous homes. It will be your job to keep the cat in a secure space where she has hiding places but can also observe and interact with you on her terms, and to gradually earn her trust and work on basic handling.

You can also do some simple training and behavioral management with a foster cat to help make her more adoptable. Teach her to go into her cat carrier on her own, or discourage play biting behaviors (see "So Your Cat Thinks He's a Tiger" on p. 3 in this issue).

If a cat placed with you seems to be truly aggressive, she may not be able to be safely placed into a home. Any bites to people or animals should be reported back to the shelter or rescue promptly.



Natalya Vilman | iStockphoto

An important part of replacing the queen will be simulating how she stimulates the kitten to move, defecate, and urinate.

Keep in Mind

When fostering a cat or kitten, it is not your cat. The shelter or rescue group ultimately makes decisions on medical care and how long the cat stays with you. Give feedback on how the cat is doing and ask about anything extra that you think she might benefit from.

If you have cats or other pets of your own, practice good hygiene to prevent illnesses from being spread (ringworm, for example, can be shared among cats, dog, and humans). Keep sick ,foster cats separate from your personal pets, and wash your hands thoroughly after handling them. If you have an immunocompromised cat, it may be best to hold off on fostering. Consult with your veterinarian and the rescue group that you are volunteering with to evaluate any possible risks.

If the foster cat is healthy enough, interacting with your personal pets may be beneficial both for enrichment and to determine whether or not the cat can be placed in a home with other animals. Any introductions for socialization purposes should be done gradually, as if you were adding a new pet to your family. If your dog is rough with or likes to chase cats, it is best to keep them separate.

You may end up a "foster failure" by fully adopting your foster cat, and there is nothing wrong with that! ■

WINTER POISONS ALERT

Smell Attracts Cats to Antifreeze

The Cornell Feline Health Center issues a reminder about antifreeze spills

Antifreeze and windshield wiper fluid are serious hazards for animals. The Humane Society estimates that 10,000 to 90,000 animals are poisoned each year. Commercially available automotive antifreezes contain ethylene glycol, which is extremely toxic to cats. Cats are most commonly exposed to this toxicity through spills or leaks of antifreeze in a garage or when owners leave containers of antifreeze uncapped. Unfortunately, the taste of antifreeze is attractive to cats.

Ethylene glycol toxicity primarily affects the cat's kidneys and central nervous system. Signs of intoxication include depression, decreased urine production, decreased appetite, vomiting, painful abdomen (kidneys) upon palpation, and salivation. But don't wait for symptoms! It is imperative that cats suspected of ingesting antifreeze are seen by a veterinarian immediately, as delays in treatment can significantly worsen prognosis. Treatment commonly involves hospitalization with intravenous fluid therapy to correct dehydration and promote normal kidney function and medications/procedures to promote elimination of ethylene glycol from the body. If treatment is instituted rapidly after antifreeze ingestion, the prognosis will be significantly improved. ■

Feeding the Diabetic Cat

It's a critical part of managing this common disease

If your cat is diabetic, pay extra attention to her diet. Management of feline diabetes involves more than providing insulin injections to control blood glucose, and there are important considerations in food selection.

"First is palatability for the cat. If your cat won't eat a diet you're trying to feed even though it is a great food for a diabetic cat, it isn't worth it," says John Loftus DVM, PhD, DACVIM, Assistant Professor, Section of Small Animal Medicine at the New York State College of Veterinary Medicine at Cornell. That means you may have to compromise on the ideal diet versus what your cat will eat.

Diabetics should ideally have a consistent schedule for eating so that insulin injections can be given at ideal times with respect to feeding. This means no more free access food dishes (grazing) in most cases. Meals should ideally be fed at specific times (twice daily works best for most cats) and the amount of food eaten should be monitored. "There are some types of insulin (e.g., glargine) that may allow for grazing (free feeding) if a cat won't adjust to meal feeding. For other types of insulin, cats really should be meal fed exclusively," says Dr. Loftus. The goal for managing a diabetic cat is to establish a regular protocol of feeding and insulin administration.



NorthStar203 | iStockphoto

Wet food offers many advantages to owners of diabetic cats, and most cats like it.

What to Feed

Dr. Loftus notes that the nutritional content of the food your cat eats is critical. "The most important thing nutrient-wise in a feline diabetic diet is to go low on the carbohydrates. Your veterinarian can help you, and there are some websites that can help you and your veterinarian with diet selection. Our nutrition service at Cornell is available for assistance with some specific choices". (visit www.vet.cornell.edu/hospitals/services/nutrition).

It's helpful to feed wet food whenever possible, as dry food is generally higher in carbohydrates, and the higher water content in wet foods can be beneficial to diabetic cats.

It's important to note that not all wet cat food is ideal for cats with diabetes, though. Look for ones with the lowest carbohydrates. Avoid gravy in wet foods, too, as they are usually high in carbs."The prescription diet Purina DM is an example of a good choice. There are plenty of over-the-counter choices too. Many Friskies or Fancy Feast choices are appropriate. Blue Buffalo's Carnivora line is also very low in carbs," explains Dr. Loftus.

According to the Feline Nutrition Foundation (www.feline-nutrition.org), to find the carbohydrate amounts in any type of food: "Add the percentages listed on the label for protein, fat, fiber, moisture and ash. Ignore the other listed amounts, as these will be for minerals included in the ash percentage or be so small as to not affect the calculation. Subtract this number from 100 to get the carb percentage on a wet matter basis."

While calculating the carb percentage is useful, research has not yet determined an exact figure for "high carb" and "low carb" levels for diabetic cats. Currently available research suggests that 12% or less of energy derived from carbs is a good ballpark estimate. Remember that diseases like liver or kidney problems may influence food choices as well. Consulting your veterinarian who knows your cat's history is important in making food selections.

Dietary fiber can level out blood glucose levels to a certain extent, minimizing extreme highs and lows, so fiber is an important consideration in choosing a diet for diabetic cat. In addition, fiber can help with weight loss for the overweight diabetic cat by making him feel "fuller". Since obesity is associated with a decreased response to insulin, attaining and maintaining a healthy body weight is a very important aspect of managing this disease.

All cats should eat top quality protein sourced from meat (cats cannot survive on a vegetarian diet), and since diabetic cats can lose muscle mass, this is a very

Low Blood Sugar

If you suspect your cat is having a hypoglycemic (inappropriately low blood glucose) crisis, immediately put some honey or corn syrup on her gums and repeat this as needed until improvement is observed while you contact your veterinarian. Most hypoglycemic cats will respond fairly quickly to this emergency measure, but it is still important to get her to your veterinary clinic or an emergency service as quickly as you can.

Symptoms of hypoglycemia include:

- Changes in appetite (loss of appetite or increased hunger)
- Disorientation
- Weakness
- Anxiety
- Shivering



yayoyoyo | iStockphoto

Did You Know?

In type I diabetes, glucose concentrations are high because of a decrease in the production of insulin. In type II diabetes, glucose levels are high because cells in the body do not respond appropriately to insulin. Cats with diabetes most commonly suffer from type II diabetes. Between 0.2 to 1% of cats are believed to suffer from diabetes.

Nutrition Experts

Your veterinarian may suggest a consultation with a board-certified veterinary nutritionist to help figure out the best food for controlling cats with complicated health conditions. You can go to the website of the American College of Veterinary Nutrition (www.acvn.org) for additional information.

important consideration for them. Since protein restriction is an important aspect of managing feline kidney disease, managing coexisting diabetes and kidney disease in cats requires walking a fine line to balance the nutritional needs for these two common problems.

Keep It Simple

Once you have a diet that seems to be working, don't rock the boat. Even changing flavors or brands with the same flavor can mean different nutritional content. This is not the time to experiment.

It is possible for some diabetic cats to be maintained with just diet once they have been stabilized with insulin therapy. Dr. Loftus emphasizes, however, that this is not achievable in many cats. "It is important to know that the best predictor of remission is good glycemic (blood sugar/glucose) control. This is best achieved with insulin in most diabetic cats. However, cats that go into remission are probably more likely to stay in remission if they are on a good diet for diabetes mellitus. Cats that are pre-diabetic or 'mildly' diabetic may be ok with diet changes alone at first, and if they don't respond well then you need to add insulin."

Many cats will need lifelong insulin once they develop diabetes. Even so, a proper diet can keep required insulin amounts to a minimum and reduce the likelihood of a hypoglycemic (low blood glucose) crisis.

Diabetic cats need a regular health plan to control their illness. Periodic blood glucose curves that require a day in the hospital for serial blood tests can help to verify the true glycemic status of your cat. Owners can also monitor their cat for glucose in the urine at home (normal cats do not have glucose in their urine, and high blood glucose can cause "spillage" of glucose into the urine) using testing strips that can be provided by their veterinarian. Periodic urine cultures can catch urine infections early on, since bacteria tend to grow more easily in urine that contains glucose.

You Can Do It

Having a cat with diabetes requires effort on the part of the owner, but with proper education, planning, and support, diabetic cats can be effectively managed and can live full, active lives. Diet is a critical part of this management, so don't hesitate to consult your veterinarian or ask for a referral to a board-certified nutritionist for assistance with this aspect of health care for your diabetic cat.

Although there's no cure for feline diabetes, this disease is manageable with proper diet and medications. Cats with well-controlled diabetes can live for many years with a high quality of life, but owners must be vigilant. ■

What You Should Know

Wet food offers advantages for diabetic cats

- It is easier to monitor food intake and appetite.
- Portion control and regular timing of meals is simpler to achieve.
- Most cats prefer canned foods.
- Canned foods generally provide lower levels of carbs.
- Cats can eat a higher volume of canned food and obtain the same caloric intake as smaller volumes of dry food.
- Additional water intake.

5 THINGS

5 Things about Supplements

Without FDA oversight, let the buyer beware

1. Unlike medications, supplements are not regulated by the FDA. While this regulatory agency frowns upon supplement manufacturers making unproven claims about their products, some companies may skirt this line to draw you in. Talk with your veterinarian before beginning a supplement. He or she is your best resource regarding the safety and effectiveness of vitamins, nutraceuticals, herbs, or other additives.

2. When considering a purchase, read the label. All labels should have lot numbers, the name of the manufacturer and a website or phone number for contacting them.

3. Look for a complete list of active and inactive ingredients (including amounts of each) on the label.

4. Read the website and look for information about possible drug interactions and side effects.

5. Look for a seal from the National Animal Supplement Council. The NASC has standards for labeling, quality assurance, and how to report any side effects from the use of supplements. NASC member manufacturers are subject to audits and quality control testing. ■



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Read the label before you purchase a supplement for your cat. If you're not sure about it, don't make that purchase.

Veggie-Loving Cat's Urine Concerns

First step is ruling out other causes for a high pH level

Q Dear Elizabeth,
I am a 5-year-old neutered male who loves reading your column and maybe you can ask your veterinary doctor friends for some advice. Most "cat staff" don't support an omnivorous cat, but besides my excellent dry cat food, I love veggies. Especially kale, green beans, peppers, spinach, and cucumbers. Here is the problem: My urine has a very high pH, in the range of 9.5, but I don't have any symptoms of infection, difficulty in urinating, pain, or any other signs.

I love my veggies—but am I at risk for a serious health issue?

Fondly,
Squatchy Burger



Squatchy Burger munching on green beans.

A Dear Squatchy,
Thanks for getting in touch, and I am happy to hear that you are doing well, with no obvious signs of any health issues. Urine pH is an important topic in maintaining optimal feline urinary tract health, and 9.5 is pretty high pH for cat urine, so perhaps a brief discussion of things that can promote high urine pH and the potential problems that can arise from elevated pH in cat urine would be helpful.

"Potential of hydrogen," or pH, refers to the hydrogen ion concentration in a solution. The pH scale of 1 to 14 measures how acidic or basic a solution is, with pure water having a pH of 7, acidic solutions having a pH lower than 7, and basic (alkaline) solutions having a pH of greater than 7. Normal cat urine pH should be in the range of 6 to 6.5, and various conditions can either raise or lower urine pH in cats.

A major consideration is that abnormal urinary pH can promote the formation of crystals/stones that can irritate and/or obstruct the urinary tract. The consequences of such irritation/obstruction can range from an increased urgency to urinate or blood in the urine to potentially life-threatening obstruction and inability to urinate.

For this reason, any cat that shows signs of increased urinary frequency with small amounts of urine produced, painful urination, difficulty urinating, blood in the urine, or inability to urinate should be seen by a veterinarian immediately.

The type (i.e. chemical composition) of crystals/stones that can form in cat urine depends, in large part, upon urinary pH. Struvite crystals (the most common type in cats, composed primarily of magnesium, phosphorus, and ammonium) form more readily in alkaline urine, while calcium oxalate crystals are more likely to form in acidic urine. (You can read more in our May 2019 article "A Crystal Ball in Your Cat's Urine," available at catwatchnewsletter.com.)

A number of medical conditions can cause urinary pH to be too high or too low in cats, including diabetes and kidney disease, which can cause low urinary pH. Bacterial infections and hyperthyroidism can promote alkaline urine (high pH), and diet and (less commonly) chemical properties of drinking water can influence the pH of cat urine.

While I cannot determine the cause of your high urine pH from afar, having your "cat staff" speak with your veterinarian about ruling out a urinary tract infection and hyperthyroidism seems like a reasonable first step.

If these are not present, the possibility of the vegetables in your diet contributing to this finding is a reasonable notion to consider (depending upon how much of your diet is composed of vegetables), as high vegetable intake can promote high urine pH in cats. It may be that this will be difficult to rule out without temporarily eliminating vegetables from your diet (sorry!).

Your veterinarian is your best resource for a more in-depth discussion of how to rule out other potential causes of your urinary pH issues, how to manage your urinary pH so that it stays in the normal range, and the potential consequences of chronic urinary pH abnormalities, but I hope that this brief explanation is helpful and will prompt your staff to take appropriate steps to assure your continued good health.

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

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

Coming Up ...

- *Grinding Nails and Choosing a Tool*
- *Dry, Itchy Skin Remedies*
- *Wagging Tail Communications*
- *Truth and Myths about Feeding Human Foods*

HAPPENING NOW...

Dog Rescues Kittens—A stray dog in Ontario, Canada, was found on a road sheltering five kittens from the cold, according to CTV News. A Good Samaritan called Pet and Wildlife Rescue (P.A.W.) to help. The shelter representative said it was unlikely the five-week-old kittens would have survived otherwise. Offers to adopt the dog, named Serenity, are pouring in.

Jail Break—The Friends for Life Rescue and Adoption Organization in Houston, Texas, posted a Facebook story about a special cat. Quilty can get out of anything, they say, and then he's happy to let pals out, too. The shelter staff wants someone to adopt Quilty because they are tired of cat wrangling each morning. There's even a "Free Quilty" teeshirt available to help raise funds. ■