



# CatWatch

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



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Will a high-salt diet to manage bladder stones adversely affect her heart?

## IN THE NEWS ...

### Will Probiotics Protect Kittens from GI Disease?

Researchers at North Carolina State have launched a study to determine if probiotics can protect kittens from deadly gastrointestinal disease. More than 15 percent of kittens at animal shelters in the U.S. die or are euthanized before 8 weeks of age because of illness. The majority have diarrhea or GI diseases, says the Winn Feline Foundation, sponsor of the study.

Preliminary research has shown a strain of the bacteria *E. coli* called enteropathogenic *E. coli* (EPEC) is commonly cultured from ill kittens' feces, and its attachment to intestinal cells is linked to mortality. Healthy kittens, however, have been found to have a form of normal bacteria, *E. hirae*, attached to the cells.

In addition to studying the role of genetics and behavior, the goals of the research are to identify antibiotics for treatment and to measure the effectiveness of *E. hirae* or commercial probiotics in treating kittens with diarrhea due to EPEC infection. ♦

## Promising Drugs for Mast Cell Tumors

*Research shows that 50 percent of cancerous cases respond to treatment with certain chemotherapy drugs*

Mast cell tumors represent one of the most common types of tumors affecting the feline spleen, skin and intestines, yet few studies have focused on determining the optimal treatment for cats. While surgical removal of tumors continues to be the treatment choice for mast cell tumors (MCTs), new research indicates that certain chemotherapy drugs might offer promise for more serious cases of malignant MCTs.

"The true role of chemotherapy for the treatment of feline mast cell tumors is not known," says Cheryl Balkman,



The tumors affect cats of all ages, with Siamese at highest risk.

DVM, ACVIM, Senior Lecturer and Chief of Oncology at Cornell University College of Veterinary Medicine. "Chemotherapy is considered in cases where there is metastatic disease (in which the cancer has spread) or if a tumor can't be surgically removed."

### Treatment Response.

Studies have found that about 50 percent of cats with cancerous MCTs respond to treatment with a chemotherapy drug called lomustine, Dr. Balkman says. Another class of chemotherapy drugs called

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## Cataracts Strike Any Breed, Any Age

*They progress at varying rates and, if untreated, can lead to inflammation, painful glaucoma and blindness*

If your agile cat suddenly becomes clumsy, or your affectionate cat now flinches when you reach over his head to pet him, his vision may be cloudy because he has cataracts in one or both eyes.

Cataracts are opacities that develop within the normally clear lens, the structure inside the eye that is responsible for focusing. Cataracts block light from being focused on the retina, the membrane at the back of the eye whose tiny cells are responsible for generating images. In cats with cataracts, a haziness or cloudiness of the lens may be evident in the later stages of the condition.

**Unobvious Signs.** The incidence of cataracts is relatively low in cats — and they might not be apparent to owners — but left untreated over time, cataracts can cause blindness, says Seth Eaton, VMD, ACVO, former Staff Ophthalmologist at Cornell University Veterinary Specialists in Stamford, Conn. Cataracts can also lead to uveitis, an inflammation inside the eye, and glaucoma, a painful disease associated with elevated pressure inside the eye that can result in blindness.

Though inherited cataracts are uncommon in cats, breeds with an increased risk

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# CatWatch

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## SHORT TAKES

### Temperature and Light Can Affect Their Appetite

Researchers from the University of Liverpool and the Royal Canin Research Centre in the south of France monitored 38 cats' food intake over four years to study seasonality's effect on appetite. The cats ate as much as they wanted at food stations, where microchips on their collars permitted individual access.

The colony cats were healthy European shorthairs and purebreds with a median age of 8. Twenty-five had been neutered. About half were at ideal weight and the others overweight. They lived in groups of eight in indoor-outdoor runs, and caregivers engaged them in play for two hours a day.

While other studies have monitored food intake of farm animals, this was largest research on cats to date. The upshot: Cats ate about 15 percent less in summer. The extra effort to keep warm in winter and the temptation to rest during hot summer days contributed to difference, the researchers say.

The Royal Canin world headquarters in Aimargues was the setting for the study. Its Mediterranean climate has mild, wet winters and warm, dry summers. Periods of high and low food intake coincided with highs and lows in temperature and the length of day. "This seasonal effect in food intake should be properly considered when estimating daily maintenance energy requirements in cats," the researchers say.

"Cats, like many humans, are more inclined to comfort eat when it's cold outside but, in their case, it's likely to be due to the extra energy they need to keep warm when out and about," says veterinarian Alex German, RCVS, author of the study published in the journal *PLOS One*.



**The largest study of cats' food intake** found they ate 15 percent less in summer, a finding that researchers say can be part of helping them maintain a healthy weight.

The take-away: "People should consider the amount of food their cats need at different times of year, as this can be part of helping them to maintain a healthy weight," Dr. German says.

### Update on Jerky Treats

Twenty-four cats and three people have become ill as a result of eating or being exposed to toxic jerky treats, according to an update from the Food and Drug Administration. The effect on dogs has been more widespread. More than 1,000 have died

in the past seven years, and the agency has logged reports of illness in 5,600 dogs that it says may be related to consumption of chicken, duck and sweet potato jerky, almost all of them imported from China.

The FDA has worked with a network of laboratories to find contaminants in the treats without success. It has

tested for *Salmonella*, arsenic, cadmium, irradiation levels, pesticides, antibiotics and mold, among other substances, and has asked the Centers for Disease Control to conduct additional studies.

Meanwhile, PetSmart says it will discontinue selling China-made treats by March 2015 and Petco will do the same by the end of this year.

Symptoms that may occur within hours or days of feeding the jerky treats are decreased appetite and activity, vomiting, diarrhea sometimes with blood or mucus, and increased water consumption and/or increased urination.

The FDA asks owners of pets who have experienced signs of illness to report it at [www.safetyreporting.hhs.gov](http://www.safetyreporting.hhs.gov). It also cautions that products labeled "Made in the USA" could still contain ingredients from China and other countries. ❖





# The Remedy for Excessive Licking

*It begins with an exam to identify one of the many causes, from illness and allergy to arthritis*

Some cats lick so much they take their fur off down to bare skin. They're what veterinary dermatologist William H. Miller, Jr., VMD, at Cornell College of Veterinary Medicine calls fur mowers. "If the animal licks without too much vigor, the licked area will be hairless but not inflamed or infected," he says, "but with more passion, the skin can be abraded and might become infected."

Excessive licking is a sign of one or more of at least three problems, Dr. Miller says: the licked area is itchy, the licked area is painful or the animal has a behavioral issue. These broad areas leave many possibilities. Cats can suffer from skin

disorders and painful conditions such as arthritis or illnesses that trigger pain. And while behavioral skin disorders are uncommon, obsessive licking must be considered. (See sidebar.)

**Thyroid Impact.** "A cat licking near his tail head could have anal sac disease, among all the other reasons for licking," Dr. Miller says. "Fleas are a biggie. Environmental allergies are a possibility. Some hyperthyroid cats will lick excessively for no apparent reason. Once the thyroid disease is resolved, the licking stops."

A veterinary examination is necessary to determine the cause. "Thousands of

different things must be considered," Dr. Miller says. "For instance, if the licking isn't triggered by behavior or pain, then all the various itchy skin diseases are fair game. First and foremost, the cat needs a good history and physical examination."

In addition, the veterinarian will ask about diet, medications or supplements, your observations about his licking behavior, daily routine, changes you may have noticed, a description of your home environment, new detergents or cleaning products and the other pets in the home perhaps showing similar signs.

The physical exam will include evaluating the body and coat condition, checking the ears, joints, bones and other areas for swelling, pain or parasites, and palpating the abdomen to assess the abdominal organs.

The itchy area may offer a clue. "If pain is the underlying cause, the area licked usually is very focal or regionalized," Dr. Miller says. "For example, a cat with arthritis might lick the painful area before the signs of lameness or pain become obvious to the owner."

**Top Contenders.** The history and exam can whittle the list of possible diseases to three or four top contenders. Laboratory tests may then be necessary. They might include skin scrapings, a fungal culture or blood work if an underlying disease is suspected.

Once the cause is identified, treatment may be as simple as a flea preventive, or it may require more detective work, such as putting the cat on an elimination diet to determine if a certain ingredient is making him itch or switching to an unscented detergent. Analgesics can be prescribed for arthritis or other painful conditions.

Identifying the cause of excessive licking can take time and patience. With treatment, however, your cat can return to normal. ♦

## WHEN OVER-GROOMING IS THE REASON

Compulsive disorders in cats are uncommon, usually affecting Siamese and other Oriental breeds. When cats lick themselves excessively, the cause is almost always medical, says behaviorist Katherine A. Houpt, VMD, Ph.D., emeritus professor at Cornell. "They might be stressed in the household, but a study shows that most of them have some other medical cause such as a parasite (fleas) or allergies."

Excessive licking and hair loss due to psychological problems is a rare condition known as psychogenic alopecia or, more commonly, over-grooming. It may also be described as a compulsive disorder. Licking releases endorphins, natural painkillers made by the brain that soothe anxiety.

Determining if a cat has a compulsive disorder is a process of elimination. It starts with ruling out medical reasons such as neurological diseases that might cause pain, discomfort or changes in sensation, as well as skin diseases or allergies.

If no medical cause is found, your cat's veterinarian may refer you to a behaviorist or a certified applied animal behaviorist. The behaviorist will ask about your cat's diet, activity levels, environment, other pets in the home and interaction with other pets and family members. Common causes of stress are the presence of a new family member or conflicts with other animals.

In the event that excessive licking is determined to be compulsive behavior, you may need to reintroduce pets in the household and make more positive associations between them, provide a consistent routine or enrich the cat's environment with a tall post for climbing, more playtime, food puzzles and treat balls. In severe cases, anti-anxiety medication may also help.

Most important, never punish the cat for the behavior. That can be counterproductive or even unintentionally cruel, Dr. Houpt says.



## CATARACTS... *(continued from cover)*

include Birmans, Persians and Siamese. "However, cataracts can develop in any cat at any age, and they can progress slowly or come on very quickly," says Dr. Eaton. "A cloudy spot grows inside one or both lenses, and at the microscopic level, the normally clear proteins in the lens are undergoing a progressive change that can eventually cause blindness."

While factors like aging can contribute to the development of cataracts in senior or geriatric cats, the most likely cause of cataracts in cats after aging is uveitis or inflammation inside the eye.

"There is a laundry list of infectious diseases that cats can get — feline leukemia, feline infectious peritonitis, feline immunodeficiency virus, as well as fungal and bacterial infections that can potentially induce uveitis in the eye," says Dr. Eaton. "Uveitis can also be caused by a blunt or sharp trauma to the eye that can alter the delicate environment of the lens and lead to cataract formation."

Other causes of feline cataracts include poor nutrition as a kitten, injury, inflammation, exposure to toxic substances, radiation and electric shock. Sometimes, the reason is simply unknown.

Because cats may mask outward signs of discomfort or pain, Dr. Eaton urges owners to be alert for these subtle behavioral changes:

- ◆ Bumping into furniture, such as the recliner or sofa that has not been recently moved.
- ◆ Miscalculating the distance from the floor to a favorite catnapping spot, such as the top of the sofa or sturdy shelf.
- ◆ Hesitating to use stairs, especially when descending.
- ◆ Forgetting the location of food and water bowls and litter boxes.
- ◆ Changing elimination and litter box habits.

"Cataracts may not cause any detectable visual impairment signs that are obvious to pet owners until advanced stages," says Dr. Eaton. "That's why we highly recommend that pets receive thorough



**Joey's eye infection** cleared up but not before he developed a full-blown cataract.

physical examinations at least once a year and that those exams include assessing the health condition of the eyes."

During an eye exam, a veterinarian may use an ophthalmoscope (a light-affixed magnifying glass) to study all parts of the eyes' structure and health. It's common for a veterinarian to turn off the lights and use the scope to conduct an evaluation without the glare from room lighting. "Evaluations of the structures of the eye are best performed in a dimly lit room," Dr. Eaton says.

**The Examination.** Various types of eye drops may be used during the examination, depending on the cat's age and health. To test eye pressure, the veterinarian applies a drop of topical anesthetic to numb the eyes' surface. A green dye called fluorescent stain may be used to

identify ulcerations of the cornea, and another drop may be applied to dilate the pupils. "This drop opens the pupil further to allow the veterinarian to look deep into the eye to evaluate the entirety of the lens and all the way back to the retina to make sure it is healthy," Dr. Eaton says.

If tests confirm the presence of cataracts, the most effective treatment is surgery. The best candidates are in good health with no evidence of any inflammatory conditions. "There should be no detection of inflammation in the eyes because the eye needs to be at a quiet state during surgery," Dr. Eaton says. "And any eye with uveitis will be more prone to inflammation internally after surgery."

In the surgical procedure called phacoemulsification, the affected lens is removed, similar to procedures in people, and an artificial lens may be implanted. The procedures, which are performed under general anesthesia, generally take 45 minutes to one hour per eye.

In some instances, veterinarians remove the cataract, and the lens remains, causing blurry vision because the cat becomes farsighted, unable to see as well at a distance. Veterinarians will examine the cat's eyes in post-surgical visits and commonly prescribe antibiotics and anti-inflammatory medications. They will conduct additional tests to make sure the retina is healthy and functioning properly.

*(continued on bottom of page 5)*

## WHY DIABETES ISN'T A COMMON FACTOR

Diabetes is not a common cause of cataracts in cats, as it is in dogs, says ophthalmologist Seth Eaton, VMD. One reason: An enzyme known as aldose reductase. Diabetes causes high glucose levels in the blood, and when it gets into the lens in excessive amounts, it can't be metabolized efficiently.

"The activity of this enzyme leads to 'trapping' of the sugar in the lens, causing fluid buildup and protein changes that lead to cataracts in dogs," says Dr. Eaton. "It's a completely different story in cats. We know that the aldose reductase inhibitor enzyme inside the lenses of adult cats is not as abundant as it is in adult dogs. It's a protective feature of cats that doesn't allow this enzyme to alter the sugar in the eyes as it does in dogs. So unless there is a development of diabetes in a young cat, diabetic-induced cataracts are rare."



## Why Do They ... Like to Hide?

*They're most often predator-stalkers following the instinct to hunt or fearful cats escaping stress*

*This is another installment in an intermittent series on cats' often-intriguing behavior. If you would like to suggest a topic, please email [catwatcheditor@cornell.edu](mailto:catwatcheditor@cornell.edu) or write Editor, CatWatch, 800 Connecticut Ave., Norwalk, CT 06854.*

**T**hey lie in wait around corners, ready to pounce on your ankles. They hunter in the outer reaches of closets, eyes gleaming in semi-darkness, or they stake out favored spots under the bed, in the clothes dryer, and in bags, boxes, mattresses and easy chairs.

Cats who like to hide have very different motivations, says Tracy Kroll, DVM, who completed her residency at Cornell University College of Veterinary Medicine and specializes in animal behavior in Fair Lawn, N.J. "It depends on the personality of the cat."

**Concealing Themselves.** Two general categories tend to prevail, however: hunters and 'fraidy cats. "The predatory subgroup of hunter-stalkers is social, and their hunting and play behaviors are

intrinsically tied together. Often they're male cats and they like small areas where they can wait for their prey. It makes sense because cats in the wild hunt rodents and want to conceal themselves. Their prey can see their eyes and whiskers so they make themselves small."

To avoid being human prey: "Put a bell on the cat," Dr. Kroll says. "Many collars already have them. Have a cat toy and throw it ahead of you as you walk by. If you have a cat who likes to stalk, get rid of the hiding spot."

Timid cats seek comfort and safety by escaping stress — noise, new family members, changes in routine. "Fearful cats love dark areas to hide," Dr. Kroll says. "They're often young and from outdoors or shelters. They hide for environmental reasons."



**Timid cats tend to seek comfort** from noise, new family members and changes in routine.

**Medical Causes.** Some cats hide when they're ill or in pain. "They're vulnerable, and, if they can't defend themselves, it's natural to want to conceal themselves," Dr. Kroll says. If this is a new behavior for your cat, a veterinary exam can rule out medical problems.

Multiple-cat households can be a challenge if one is a bully. "Then the other cat is forced to hide," she says. "Give the victim a safe place to hide and build his confidence with exercise and play. We grossly underestimate and under-stimulate our cats. I hear people say they got a cat because they 'didn't have time for a dog.' Their cats are not getting their needs met, and they'll find a way to meet them themselves." ♦

## MEDICINE

### CATARACTS... (continued from page 4)

The rate of surgical success in cats has not been determined, so each cat's candidacy must be considered individually. Immediately after surgery, patients are fitted with a special collar to prevent clawing or rubbing of the eye. Ideally, the collar should be clear rather than tinted so the cat can better see his surroundings.

If your cat isn't a good candidate for surgery, the usual plan calls for more regular veterinary examinations, with assessments once or twice a year by an ophthalmologist to detect the cataract's progress and presence of any other ocular condition. "Cataracts, over time, become denser and that can lead to sudden inflammation in the

eye and induce further uveitis in the eye that will need prompt treatment," Dr. Eaton says. "We also want to keep tabs on the eye for any elevated pres-

### NOT TO BE CONFUSED WITH CATARACTS

If the lenses of your older cat's eyes have taken on a smoky blue appearance, it's not necessarily a sign of cataracts. It may be nuclear sclerosis, a natural age-related hardening of the lens that doesn't require surgery. The condition requires no treatment and usually does not impair vision.

sure (glaucoma) that can cause pain to the cat."

No medication is available to treat or prevent cataracts in cats. Over-the-counter nutritional supplements and topical eye drops will not cure cataracts, Dr. Eaton says. "We would love to have a topical medication available, but there has been no good scientific evidence to prove these products will prevent or reverse cataracts."

In the end, you can play a pivotal role in the short and long-term health of your cat's eyes by examining his eyes monthly and reporting any changes in them or in his behavior to his veterinarian. And be sure to include an ocular exam as part of your cat's annual or semi-annual veterinary exam. ♦



## MAST CELLS... (continued from cover)

tyrosine kinase inhibitors (Palladia, Kinavet) has anecdotally been reported as being effective in treating certain tumors in cats as well. However, to date, no large controlled trial has been done to evaluate the true potential of these drugs.

The incidence and severity of MCTs are much lower in cats than in dogs, which accounts for much of the research into new treatments being focused in the canine realm. In cats, MCTs are the most common splenic (spleen) tumor, the second most common cutaneous (skin) tumor and the third most common intestinal tumor. Treatment and prognosis can vary dramatically based on the location of the tumor or tumors. They can range from benign (non-spreading, non-life-threatening) to malignant (spreading, life-threatening).

Kelly Hume, DVM, ACVIM, an oncology researcher and specialist at the Cornell University Hospital for Animals, urges owners to have any abnormality on a cat's skin investigated promptly.

A cutaneous MCT might appear as a small, firm, raised bump. The bumps can become itchy and red, often the result of a cat irritating the area. This is because, when aggravated, MCTs can release histamine and other inflammatory substances into surrounding tissues.



Owners should regularly check their cat's skin for small, firm raised bumps and report any abnormality to his veterinarian.

**Systemic Illness.** Often, cats with skin MCTs seem otherwise healthy; however, although more than 90 percent of MCTs in the skin are benign, internal (visceral) tumors often behave more aggressively. Cats might show signs of systemic illness, such as loss of appetite, weight loss and vomiting.

Dr. Balkman recommends that cats with multiple cutaneous MCTs be evaluated for visceral mast cell disease because the skin tumors can be a symptom of internal disease that has spread.

"It is also important to realize that mast cell tumors exist on a spectrum,"

says Dr. Hume, adding that treatments appropriate for one pet may not be appropriate for another.

In cats, mast cell tumors are most often seen in the skin of the head or neck, though they can occur anywhere in the body. They're most common in cats over the age of 4 but have been seen in cats of all ages, including kittens. Siamese cats are at higher risk than other breeds.

Veterinarians typically diagnose MCTs by obtaining cells from the mass via a fine-needle biopsy and performing a microscopic examination (cytology) of the cells. This takes only a few minutes for skin tumors and can often be done without sedation. If a splenic MCT is suspected or an intestinal mass is detected via ultrasound, a needle biopsy can also be performed, though it might require sedation.

If a lymph node surrounding the mass is enlarged, it could indicate that the disease has spread. In such situations, a needle biopsy and cytology might also be performed on the lymph node.

Blood tests can help in MCT diagnosis. The analysis, called a buffy coat test, generally indicates the presence of a mast cell tumor somewhere, but it's not clear how the finding correlates with its spreading or prognosis. The test uses an anti-coagulated blood sample containing most of the white blood cells and

## HOW MAST CELLS DEVELOP

Mast cells are a type of white blood cell in the immune system. They're formed in bone marrow and migrate to all the tissues as they mature, concentrated in the skin, respiratory tract and digestive tract.

Mast cells produce a variety of chemicals, including histamines, released in response to stimuli, often inducing an inflammatory response. They are vital to allergic responses and healing.

The actual cause of mast cell tumors is unknown. Like other cancers, MCTs form when mast cells begin to grow and multiply abnormally. Multiple tumors are often present in the skin. They can recur after surgical removal, but it is relatively unusual for them to spread to other parts of the body.

Mast cell tumors of the skin are always considered malignant.



platelets after centrifugation (spinning) of blood — it's usually buff in color.

"Most solitary mast cell tumors found on the skin of cats behave in a benign manner," Dr. Balkman says. "However, cats are more likely than dogs to get primary visceral (internal) mast cell tumors in their spleen."

**Surgical Removal.** Most feline skin MCTs are removed surgically, and this is usually curative. A single round of surgery can remove the entire problem.

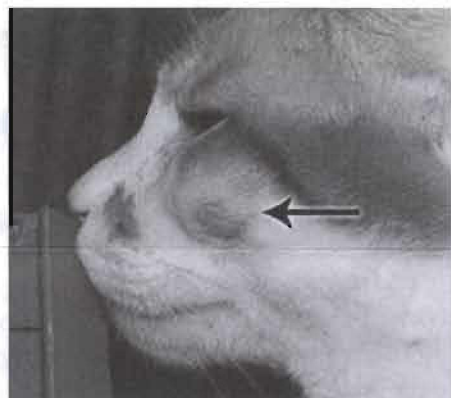
Cats with internal MCTs can face more complex treatment. Surgical intervention is often indicated. Treatment for splenic MCT often involves splenectomy — the removal of the spleen. Although the procedure is invasive, its effectiveness is well established. "Cats can do quite well, with survival times being over a year in many cases," Dr. Balkman says.

As previously noted, non-surgical therapy options for feline MCTs also continue to be explored, although published research regarding effectiveness is still limited. The chemotherapy agent lomustine, often recommended for malignant MCTs, has the common side effect of bone marrow suppression. This can lead to a low-white blood cell count and increased susceptibility to infections in cats, Dr. Balkman says.

Tyrosine kinase inhibitors, approved for use in dogs, are increasingly being used in an off-label manner for cats often in conjunction with surgery; and

this mode of therapy may be effective for feline MCT. Common side effects include diarrhea and decreased appetite, although a lowering of white blood cells and increased protein loss through the kidneys can also occur.

"These drugs should be considered true chemotherapy agents, and it is very



**Mast cell tumors** are most commonly seen in the skin of the head or neck.

important that patients receiving these drugs be monitored routinely via physical exam, blood work and urinalysis," Dr. Hume says. "For owners with pets receiving these medications, it is also important that they communicate any abnormalities they note in their pet to the prescribing veterinarian."

**Preventing Effects.** In addition to chemotherapy, cats with MCTs typically receive antihistamines to help prevent side effects from mast cell degranulation

(the release of chemicals from within the cells), such as inflammation or stomach ulceration. Steroids are also useful in decreasing inflammation associated with the tumors.

The cost of diagnosis and treatment for MCTs depends on tumor location, number and progression. Fine-needle biopsy and cytology alone can cost approximately \$75, depending on the clinic. Surgery fees can range from \$250 to \$2,500, depending upon the complexity of the procedure. If chemotherapy is indicated, protocol and the size of the patient determine the cost, which often runs \$300 to \$700 per month. Any additional imaging, such as chest X-rays or ultrasound, would be an additional \$200 to \$300.

"If owners feel the options presented to them are not feasible, they should consider what is financially feasible and work with their cat's veterinarian to determine an appropriate course of action within their means. It does not have to be an all-or-nothing approach," Dr. Hume says, adding that many clinics offer payment plans and financial support.

Likewise, owners of cats diagnosed with MCTs should not despair. Many cats with skin MCTs live for years with appropriate therapy. And although internal MCTs are more complex and invasive, the right combination of therapies enables many cats to live well over a year after diagnosis. As research into new drugs and novel therapies continues, that prognosis is likely to only improve. ♦

## BEHAVIOR

### House Soiling's Causes and Solutions

If you have a cat who fails to use the litter box consistently, you may want to alert his veterinarian to a new set of guidelines for preventing and treating the problem.

The American Association of Feline Practitioners and International Society of Feline Medicine have issued the comprehensive 21-page document in an effort to decrease the number of house-soiling

cats who are abandoned or relinquished to shelters, where, they say, "Many are euthanized as unadoptable."

The groups stress that house soiling isn't due to spite toward the owner, but the cat's physical, social or medical needs being unmet. In fact, they replace the terms "inappropriate urination" with "house soiling" to avoid suggesting cat misconduct.

The guidelines cover medical and behavioral causes, methods to optimize litter box use, and ways to enrich the environment, such as providing opportunities for scratching, play and predatory behavior, and consistent human interaction.

The "2014 AAFP/ISFM Guidelines for Diagnosing and Solving House-Soiling Behavior in Cats" is available at [www.cat-vets.com/guidelines/practice-guidelines/house-soiling](http://www.cat-vets.com/guidelines/practice-guidelines/house-soiling). A brochure specifically for cat owners is forthcoming. ♦





Elizabeth

Elizabeth is thankful for the assistance of **Bruce G. Kornreich, DVM, Ph.D., DACVIM**, Associate Director of the Cornell Feline Health Center, in providing the answer on this page.

### PLEASE SHARE YOUR QUESTIONS

We welcome questions on health, medicine and behavior, but regret that we cannot comment on prior diagnoses and specific products. Please write CatWatch Editor, 800 Connecticut Ave., Norwalk, CT, 06854 or email [catwatcheditor@cornell.edu](mailto:catwatcheditor@cornell.edu).

### COMING UP ...

❖  
CAT FIGHTS  
❖  
SAYING  
GOODBYE  
❖  
PURSUING THE  
DEADLY FCV  
VIRUS  
❖  
HALLOWEEN  
SAFETY  
❖

## Will a High-Salt Diet Help Manage Bladder Stones?

**Q** My kitty was just diagnosed with bladder stones, and her veterinarian recommended a high-salt diet to make her drink more in an effort to dilute her urine and prevent future bladder stones. While I understand why we may want to make her drink more, I'm worried about the effects of a high-salt diet on her heart because I know that people with heart disease shouldn't have much salt. Can you provide advice?

**A** First, I'm very sorry to hear about your kitty's urinary bladder stones. These can be a pain (literally!), and managing them can take time and dedication, but I am confident that with your efforts on her behalf, your kitty will do well. Please continue to work with her veterinarian to assure adequate therapy for this very common feline disease. Dilution of urine by promoting increased salt in the diet is a common and reasonable component of the management of bladder stones in cats.

I understand your concern regarding the effects of a high-salt diet on your kitty's heart because studies have shown that high-salt diets can be dangerous for people with certain types of heart and kidney disease. This is primarily due to the fact high-salt diets promote the retention of water in the kidney, and this increased water retention increases the volume of blood in the blood vessels.

As many types of heart disease are characterized and/or exacerbated by increased volume of blood in the blood vessels, increasing the volume of blood further by increasing dietary salt (primarily sodium) may worsen heart disease and/or promote an elevation in blood pressure (hypertension). Hypertension is a serious disease in its own right, and it may predispose to or worsen a number of diseases of the heart, blood vessels and kidneys in both people and animals.

With the knowledge of these facts, there is reasonable concern regarding the effects of using an increased dietary salt intake to promote increased thirst in cats with bladder stones. We certainly do not wish to harm the heart, blood vessels and kidneys of cats while trying to decrease the likelihood of bladder stone formation. That would be like robbing Peter to pay Paul. And what a price that would be!

Fear not, though. A number of studies have been carried out to answer the all-important questions of what a high-salt diet will do to the heart and kidneys of cats. These studies suggest that high-salt diets containing the amount of salt usually recommended for the management of bladder stones in cats does not result in hypertension or any significant heart or kidney problems.

It is important to note that these studies were performed in older adult cats with normal kidney and heart function, with no history of hypertension. Whether these results translate to all cats remains to be determined, but older cats are generally more prone to heart and kidney disease and to hypertension, so it is quite possible that these results will be applicable to all healthy adult cats. Studies to answer this question are ongoing.

So, as far as we know, if your kitty has normal heart and kidney function and does not have hypertension, there is no evidence to suggest that increasing her salt intake to the levels usually recommended for the management of her urinary bladder stones will cause her any harm. Of course, you will have to work closely with her veterinarian to monitor her progress as you move forward, but I do not think that you need to worry about the effects of this diet on your baby's kidneys, blood vessels and heart, as long as they are healthy to start with.

I hope this is helpful, and please keep us up to date regarding how she is doing.

Oh, could you pass the salt, please?

—Best regards, Elizabeth ❖

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