



CatWatch

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



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IN THE NEWS ...

Grants to Study FIP and Other Diseases

Investigations into potential treatments for feline infectious peritonitis (FIP), hypertrophic cardiomyopathy and chronic kidney disease were among ten projects selected by the Winn Feline Foundation from 44 proposals to receive \$174,018 in funding.

The investigation by Belgium researchers to evaluate the efficacy of a treatment for feline infectious peritonitis received the most funding at \$24,962.

A study led by Kathryn Meurs, DVM, PhD, of the North Carolina State University College of Veterinary Medicine received \$24,674 to focus on identifying the gene responsible for feline hypertrophic cardiomyopathy in the Sphynx cat. Identification of the gene could lead to a reduction in the prevalence of hypertrophic cardiomyopathy in the Sphynx cat and provide information on the disease in other breeds, as well. ♦

Understanding the Elderly Cat

Happily, our pets are living longer. But that means we need to be prepared for some behavioral changes, too.

Thanks to advances in all fields of veterinary medicine, it is not uncommon these days for a cat to live to the very ripe old age of 20 — roughly the physiologic equivalent of age 93 in a human. That's the good news.



The bad news is that cats, like humans, become increasingly susceptible to age-related disease conditions as they grow old, and most of these disorders are bound to have an effect on an animal's behavior. Arthritis, for example, is likely to cause a formerly rambunctious cat to slow down dramatically as it transitions through its so-called golden years; kidney and urinary tract disease may severely affect its litter box behavior; progressive periodontal disease and

tooth loss may alter its eating habits; and progressive hearing problems may make a cat decreasingly responsive to its environment.

In some cases, however, an elderly cat's behavioral peculiarities will — despite thorough veterinary examina-

tion and laboratory testing — remain unattributable to any underlying disease condition. In such a case, the animal is apt to be diagnosed as "senile," a vague term used to describe an animal that exhibits physiologically inexplicable cognitive dysfunction, the outward signs of which somewhat resemble those associated with age-related dementia and Alzheimer's disease in humans.

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Safeguard Your Pets Against Ticks

They're dangerous and disgusting. Here's what you can do to protect your cat — and how to recognize the warning signs.

Ticks are tenacious. They creep up tall grass, weeds and fences — waiting until a passing shadow, a vibration, an odor or even a whiff of exhaled carbon dioxide tells them a possible host might be passing by. Then they let go of their perch and fall, or reach out with their front legs to snag hold of a furry coat (or a pant leg). Once on board, they insert their mouths into their prey and begin their meal. During this feeding, tick saliva mixes with the host's blood.

Disease Carriers. As a result of this transfer of fluids, ticks rival mosquitoes as carriers of disease to both human and animal. Although ticks are most often associated with Lyme Disease, they can also transmit

ehrlichiosis (similar to Rocky Mountain Spotted Fever) and tularemia (Rabbit Fever) to cats. Contact your veterinarian immediately if you see any of the warning signs that your pet has contracted a tick-transmitted disease, such as fever, lameness, swelling in the joints or glands, listlessness, loss of appetite, loss of coordination, or difficulty with breathing, chewing or swallowing.

Carolyn McDaniel, DVM, a Clinical Sciences lecturer at Cornell University's College of Veterinary Medicine says that "tick control is a very important part of preventive medicine for dogs and cats in areas with ticks." Because a vast number of tick control products are available, with some of them

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CatWatch (ISSN: 1095-9092)
is published monthly for \$39
per year by Belvoir Media
Group, LLC, 800 Connecticut
Ave., Norwalk, CT 06854-1631.
Robert Englander, Chairman
and CEO; Timothy H. Cole,
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Postmaster: Send address corrections to
CatWatch, P.O. Box 8535, Big Sandy, TX
75755-8535.

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SHORT TAKES

Constipation and Dietary Help

Owners often bring their cats to the veterinarian due to a bout of constipation, which can have a variety of causes. Veterinary treatment includes determining and eliminating the cause, if possible, along with medical and sometimes surgical management. Medical therapy often includes the use of laxatives, enemas and prokinetic agents (like cisapride). Psyllium is a soluble fiber that produces a mucilaginous gel that helps to increase fecal bulk. It also adds to stool bulk by other water-holding properties. Psyllium has been found to increase stool frequency and consistency in humans with idiopathic constipation.

This study involved assessing the use of a highly digestible dry food formula, with added psyllium, in two field trials involving 66 cats with constipation ("Uncontrolled study assessing the impact of a psyllium-enriched dry diet on fecal consistency in cats with constipation," *Journal of Feline Medicine and Surgery*, 2011).

The authors concluded from both trials that the test diet was palatable and well-accepted, clinical remission was noted in the majority of the patients, and that other symptomatic therapy was either not needed in clinical management or could often be discontinued or reduced without recurrence of clinical signs.

The authors also noted that both surgical management and euthanasia were being considered in a small number of cats, but were subsequently not required due to the success of dietary therapy.

Protein and Kidney Function

High dietary protein levels are very important for kittens during the growth phase, and are also considered beneficial for cats throughout all life stages. With more attention being paid to obesity and diabetes in cats in recent decades, there has also been a growing awareness of high protein (HP) diets in the management of both diseases. Meat is the major source of protein in HP diets and this contributes to increased intake of creatine and creatinine, which can result in increased serum creatinine concentrations.

This study evaluated the effect of dietary protein content on renal parameters in 23 healthy spayed female

cats ("Effects of dietary protein content on renal parameters in normal cats," *Journal of Feline Medicine and Surgery*, 2011). The objective was to determine if cats eating diets high in protein would have higher serum urea nitrogen (UN) and creatinine values without a detectable change in kidney function.

The cats were fed in two phases: in the first phase, they were randomly assigned either a (HP) or low protein diet. For the second phase, the cats were fed whichever diet they were not fed in the first phase. Blood and urine samples were collected every two weeks during the 10-week study period. The study results noted that dietary intake could result in statistically significant changes in UN and several other biochemical analytes, although all analytes stayed within normal reference intervals. This information illustrates a need to obtain an accurate dietary history in cat patients in order to account for dietary influences on renal parameters, especially UN.

Facial Dermatitis and Herpesvirus

Ulcerative dermatitis secondary to feline herpesvirus (FHV) infection is an uncommon disease that can sometimes resemble other cutaneous diseases, such as eosinophilic granuloma and mosquito bite hypersensitivity. The researchers compared two methods for diagnosis of FHV-associated dermatitis — polymerase chain reaction (PCR) for amplification and detection of viral genetic material and immunohistochemistry (IHC) for detection of viral protein ("Detection of feline herpes virus 1 via polymerase chain reaction and immunohistochemistry in cats with ulcerative facial dermatitis, eosinophilic granuloma complex reaction patterns and mosquito bite sensitivity," *Veterinary Dermatology*, 2011).

Skin biopsy specimens from 62 cats with ulcerative skin lesions were tested by both methods. Immunohistochemistry for viral protein is considered the best form of diagnosis. PCR detected the presence of FHV genetic material in 12 samples, while IHC was positive in only two. Because of its high sensitivity and ability to detect latent or vaccinal virus, the authors concluded that PCR alone could result in misdiagnosis of FHV-associated dermatitis. They recommend PCR as an initial screening test, and, if positive, confirmation testing should be performed using IHC. ♦



Cats and Separation Anxiety

Felines can experience stress when there's a change in the household. Here's what you should know.

Vacations are wonderful, but there's nothing like home sweet home. You drive home from the airport, excited at the thought of sleeping in your own bed, and seeing your beloved cat. And she does seem happy to see you at first, and you greet each other and cuddle several times. Then you go off to unpack and there she goes — right into your suitcase, urinating all over your folded clothes. To you, it may feel like your cat is angry because you left her — and this is the way she's making her feelings known. But can a cat really hold a grudge?

Cats and Vengeance. Ask many cat owners, and they will say “yes.” They swear that cats can and will be vengeful, at times. Besides suitcase antics, people point out the times their cats bite them minutes, or even hours, after they did something their cat disliked — such as grooming it. But animal behaviorists disagree. Anger involving grudges or revenge is solely a human emotion, explain experts. A cat may become aggressive, but not angry and vengeful in the human sense. So what accounts for be-

havior that looks like feline vengeance? Take the situation of your cat urinating in your suitcase after you return from a trip. One reason a cat urinates outside his litter box is stress. Your cat may experience stress when you disappear one day and then reappear after a prolonged absence.

This stress may actually be a reflection of your cat's separation anxiety. Cats and dogs can become very attached to individual people or other house pets, and may experience separation anxiety syndrome when that attachment figure leaves. With cats and dogs, separation anxiety can sometimes even be worse than it is in humans. Therefore, when you return with your suitcase and leave it open, your cat may release his or her anxiety by marking your clothes with urine. (Your suitcase may even resemble a big litter box.) If your cat urinates in your suitcase when you first bring it out to pack for a trip, the animal may be associating your luggage with your absence.

Some experts offer another explanation for this behavior. The suitcase, which you have taken to another place,

IT'S NOT VENGEANCE. Bad behavior upon our return is regarded by experts as stress-related, so try to understand your cat's perspective.

carries lots of new smells. It may even smell of other animals. Therefore, your cat sprays those odors with his own scent to reclaim his property, which, in this case, includes your suitcase. Your cat may even spray your luggage because he perceives the unusual smells as a threat.

Preventing Unwanted Behavior.

Whenever you feel that your cat is acting out of revenge, remember that your cat is more likely reacting emotionally to whatever he or she is feeling at that moment. The way to prevent this scenario from playing out is to do what you can to lower your cat's anxiety level. Before you go on a trip, try to spend some extra time with your cat. You can even leave some special treats or new toys for your cat to discover in your absence.

If you have a neighbor or pet sitter who is going to care for your cat while you're away, arrange for that individual to come over before your trip. Encourage your cat and your caretaker to spend some time together — involving play, grooming and feeding. This way, when your pet sitter arrives, your cat won't see him as a threat. While you're away, your cat's anxiety may not rise as excessively. And when you return, your cat probably won't feel as nervous when you come in the door from your vacation. Hopefully, this will help prevent a nervous reaction in your cat, such as urinating outside the litter box.

You'll notice when you come in from being away how happy your cat is to see you. So when you do return, take this opportunity to spend a few extra minutes playing with and soothing your cat. Bring your cat a new toy to play with; this may distract her and lower her anxiety level. (This tactic can also work in cases where your cat seems to “seek revenge” against your ankles after a necessary but unpleasant bath or grooming session.)

Whether or not you attribute your cat's behavior to anxiety or a grudge (despite the scientific evidence that suggests otherwise), your best bet when you return from a trip is to let your cat welcome you home — and leave the suitcase closed until the coast is clear. ♦



Your Cat's Hearing: Is It Failing?

The cause could be a rampant overgrowth of yeast in the ear canals. Here's what you should know.

Among all acquired feline ear disorders, the most common by far is *otitis externa*, an infection of the outer ear canal that, if left untreated, can progress to the inner ear, damage the ear drum and seriously compromise an animal's hearing as well as its sense of balance. The most common cause of this unpleasant condition and its potentially deafening consequences is an assault on the ear by an outside invader, the ear mite. In some cases, however, the culprit is an organism that normally resides harmlessly within a cat's ear — a one-celled fungus, or yeast, known as *Malessezia*.

"All feline ears have *Malassezia* in them," explains William Miller, VMD, a board-certified veterinary dermatologist and medical director at Cornell University's College of Veterinary

Medicine. "It's just part of the natural flora. But if something changes the

FOLLOW VETERINARY INSTRUCTION. Only clean your cat's ears if it's warranted. Don't do it on a regular basis without a health reason.

climate in the ear, the organisms begin to multiply and become too numerous — and you end up with infection."

Contributing Factors. Several factors can precipitate the proliferation of *Malessezia*, which tends to live in a warm, damp environment, Dr. Miller points out. An allergic disease of some sort, for example, can make the surface of the ear canal abnormally moist and thus foster yeast growth. The excessive accumulation of wax in the canal may also be responsible, since yeast organisms feed on that gooey substance. A cat that likes to go swimming would be at greater risk, of course, but this would be an extremely rare cause of yeast growth, since, as Dr. Miller dryly observes, "Most cats, unlike dogs, fail to take pleasure in swimming."

Among all causes, he observes, the most typical is the prolonged and inappropriately routine use of liquid ear cleaners by overzealous owners who are unaware that the constant lubrication of an animal's ear canals is bound to be counterproductive. Says Dr. Miller, "Some owners just can't keep themselves from futzing around with their cats' ears." (See sidebar on this page.) All cats are susceptible to *Malessezia* proliferation in their ears, he notes, although animals living in warm, humid climates are at greater risk.

Clear Indications. The signs of what

LEAVING WELL ENOUGH ALONE

"Some people want to clean their cats' ears just because they're there," says Dr. William Miller. "Don't do that! The only reason to clean an animal's ears is if there is a specific medical condition and your veterinarian has prescribed the appropriate medication and has carefully instructed you on how to use it."

Often, he laments, an owner will routinely clean a cat's ears with water or alcohol. "If you do this too often or if you use too much of these liquids," he points out, "you're likely to upset the natural microclimate within the cat's ears and damage the flora — the fungi and bacteria — that exist there."

If you destroy the natural yeast, you may be making the animal susceptible to other fungal invasions in the ear canal. Normal cats don't need ear care. If you think there's a problem, see a veterinarian. Otherwise, leave well enough alone!"

Dr. Miller refers to as “yeast otitis” are the same as those associated with otitis externa in general: The cat’s outer ear is likely to be inflamed, and the animal will hold its ears flat back against its head, scratch at them incessantly and shake its head frequently — as if trying to dislodge a bothersome object. The cat may walk unsteadily, behave in an uncharacteristically lethargic manner and respond as if in pain if its ears are touched.

Otitis externa caused by various other infections can potentially spread to the middle ear, eardrum and inner ear and cause deafness. However, *Malessezia* is eminently treatable, Dr. Miller says, noting that he has never seen a yeast infection that progressed beyond the outer ear, even though the natural flora in a cat’s ears normally thrive as far as the ear drum and even beyond. “The yeast can cause irritation in the ear canal,” he says, “and there can be a lot of debris and goo in there that can affect a cat’s ability to hear; but a yeast infection will rarely cause permanent deafness.”

Relieving the Blockage. Diagnosis will usually entail a review of an animal’s medical history and a thorough physical examination, with special attention given to the affected ear or ears. For this, the veterinarian is likely to use an otoscope — a flashlight-like instrument that provides a magnified view of the ear’s inner depths.

Also, says Dr. Miller, “We’ll clean out the ear and use a microscope to examine a sample of the debris in the ear canal — and with *Malessezia* infection, there will be lots of it. If we determine that a yeast overgrowth and nothing more is the problem, we’ll institute antiyeast therapy — eardrops or pills. The clinical signs will usually disappear entirely within two to four weeks. If they don’t, we’ll try to find out what other ear condition is causing the problem.”

Dr. Miller strongly cautions owners against trying to relieve a cat’s ear problems on their own. If the signs of a hearing disorder in an animal become apparent, it’s important to seek veterinary consultation, he advises. ♦

MOVIES FOR CATS: A GOOD DAYTIME BABY SITTER

A bored cat is often an unhappy cat. Just like humans, cats need stimulation; when left on their own too long, they can experience loneliness and even depression. An unhappy cat may lose or gain weight, stop grooming itself or even become destructive. And a cat with nothing to do will often sleep the day away instead of getting needed exercise.

For those of us who must leave our pets alone for long hours while at work or elsewhere, the solution could be just a click away: Turn on the TV and put on a movie designed just for cats.

Even a cat who has shown no interest in Brad Pitt’s charms or Jay Leno’s jokes may lose its nonchalance when shown a movie specially produced for cats. The difference lies in the camera work. Cat videos are scaled for feline sensibilities and shot from a cat’s-eye-viewpoint. The camera focuses on prey just as a cat on the hunt’s gaze would be, with no superfluous car chases or bubbling fountains to distract attention. Because cat eyes have evolved to perceive movement more acutely than detail, cats usually find the simple moving images on screen captivating.

Videos and DVDs for cats feature birds, squirrels, chipmunks, fish, insects, butterflies — all the creatures cats love to stalk. The creatures flit, creep, hop and fly across the screen, an almost irresistible lure to feline hunting instincts; and many will watch for hours, focused and intent, just as if they were tracking live prey.

Hunting Instinct. Videos are a harmless way for cats to satisfy their natural instinct to hunt. They can stalk the prey prancing across the screen and paw the images without harm either to live animals or your television set. As a side benefit, the sight of your cat leaping at a cinematic butterfly can provide plenty of human amusement, too.

One owner marveled at her cat’s determination to catch the flying insect that had appeared on the video: When the insect disappeared from the

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TICKS (continued from cover)

containing dangerous pesticides, including pyrethrin (pyrethroid), organophosphate insecticides and carbamates, Dr. McDaniel urges pet owners to consult with their veterinarians to come up with a tick prevention program tailored to their animals. "For animals at risk of tick exposure this will always include a tick prevention product along with avoiding high risk natural areas when possible, and daily tick checks," she says.

The ideal tick prevention method for cats is to keep them indoors. If your cat does go outside, always consult a veterinarian before using any tick product on your pet. Never use a product intended for a dog on a cat. Cats will ingest more of topical products because of their frequent grooming, so it's essential to follow instructions exactly. And don't use pesticides on a pet that is elderly, pregnant, ill or very young unless your veterinarian has instructed you to do so.

Natural tick deterrents exist, such as Geranium, American Pennyroyal or Neem seed oil, but Dr. McDaniel notes that there are "are no dependable studies

showing any efficacy of many of them, and they have their own potential risks. Unfortunately, they are often used by well-meaning owners without the benefit of first receiving veterinary advice."

Checking your pet daily for ticks can make all the difference, since a tick has to be feeding for longer than 24 hours to transmit Lyme Disease. If your cat likes to be groomed, make the tick check part of its daily grooming. You should pay particular attention to the paws, face,

ears, mouth area and genitals, although ticks can attach anywhere. Sometimes your pet's behavior will indicate where a tick is hiding, as in the case when a cat chews at its paw because of a tick between the pads.

Many of the folk methods for getting a tick to release its hold can do far more harm than good. For the sake of you and your cat's health, play it safe and carefully follow the directions of your veterinarian for tick removal. ♦



OUTDOOR CATS AT RISK. You need to take extra precautions to keep your pets safe from fleas and ticks if you allow them outdoors.

MOVIES FOR CATS (CONTINUED FROM PAGE 5)

screen, the cat leaped on top of the television set to catch it as it came out the other side.

The first videos intended specifically for cats were produced a couple of decades ago. Since then, dozens of videos have hit the market. Some, like "Catnip for Cats," emphasize a "natural soundtrack"; Kitty Show claims its productions use a special "sepia filter" which "enhances the colors cats see best on TV." But judging from the enthusiastic testimonials of cat owners, it hardly matters which video or DVD you choose.

Elissa Wolfson, author of *101 Cool Games for Cool Cats*, says its best to start with your cat about three feet away from the TV, at eye level. She suggests putting a chair or stool at "pawing distance" from the TV, in case your cat wants to get closer to the action later — although your cat may ignore the stool in order to get as close as possible to the TV. The first time you play the video, focus your cat's attention on the screen by darkening the room, turning off radios or other sources of sound, and minimizing the number of people present. Turn on the video and gently tap the TV screen. But, says Wolfson, "don't make a fuss about the video or try to force your cat to watch it." Not every cat will find the moving images compelling.

Wolfson says she tried everything "short of rubbing catnip on the TV screen" to get her three-year-old cat interested, but she refused to watch. Her one-year-old cat, on the other hand, was almost immediately "mesmerized."

Cats recuperating from illness or injury are particularly good candidates for becoming "kitty couch potatoes." Just like with humans, watching a good movie can distract cats from their pain and provide entertainment without the need for physical exertion.

Most of the videos are designed to operate on an endless loop, providing hours of entertainment without the need for human intervention. Most cats delight in watching the videos over and over. Like small children, some cats apparently even memorize their favorite parts. Turn off the TV and some cats will continue to stare at the empty grayness, clearly determined not to miss whatever might appear next. ♦

THE AGING CAT ... (continued from cover)

Feline senility is by no means uncommon. Indeed, one study has shown that as many as 80 percent of cats over the age of 16 years show signs of the condition, often associated with post mortem changes in their brains (such as beta amyloid plaques) that are seen in the brains of humans with Alzheimer's disease and senile dementia.

Signs of Senility. The clinical signs of feline senility — which can become noticeable in cats as young as 10 years of age — vary from animal to animal and are not exclusively associated with age-related dementia. They include spatial disorientation; wandering in unfamiliar territory; diminished playfulness; excessive sleeping; shifting patterns in cycles of sleep and wakefulness; long periods of staring into space or at walls; indifference to food and water; sudden, prolonged and seemingly unprompted vocalization; and elimination outside the litter box.

According to Katherine Houpt, VMD, PhD, the emeritus James Law Professor of Animal Behavior and director of the Behavior Clinic at Cornell University's College of Veterinary Medicine, the most dramatic and most frequently reported behavioral indication of feline senility is an elderly cat's persistent vocalization during the night. "They howl and screech constantly between midnight and dawn," says Dr. Houpt. "That's the behavior that owners complain about the most. People usually don't mind if a cat is just active at night. But the constant yowling keeps them awake, and that's why we hear about it so often."

Why would this strange vocalizing behavior occur in elderly cats that have no apparent underlying health issue, like hyperthyroidism? "It's probably anxiety," Dr. Houpt surmises. "There may be something like the fear of death at the base of it. They don't feel quite right, and they can't do anything about it. We don't know why this occurs at night, but that's when old dogs and, for that matter, old people also become anxious."

Another behavioral indication that may, in the absence of an underlying disease, be considered a sign of senility is a change in the animal's socializing pat-

terns. "Certainly," says Dr. Houpt, "senile cats do tend to withdraw from other cats. For instance, a cat that may have always slept with another cat may stop doing that. On the other hand, while senile dogs tend to become less affectionate with their owners, old cats usually become more affectionate." As they age, she points out, they tend to become increasingly "clingy," increasingly willing to lie purring in an owner's lap for extended periods of time.

Erratic litter box behavior is a confusing issue, says Dr. Houpt, because it often occurs in geriatric cats with diagnosed diseases as well as in those for which this behavior may be a sign of senility. "House-soiling due to cognitive dysfunction in old cats almost always involves defecation," she points out. "They'll often go to their box to urinate, and they'll do that. But then they'll defecate outside the box. We don't know why they do this. Obviously, it's not an arthritic problem, since they're able to get into the box to urinate."

Cognitive Dysfunction? It may be presumed that older cats, like humans, can experience a decline in their mental processes due to age-related degeneration of their brain tissue. But feline senility remains largely a mystery. While an old cat may show signs of confusion, lack of interest and odd behavior, there is no way objectively to assess a decline in its cognitive functions — that is, there are no standards comparable to those that are used for assessing creativity and the use of language as a means of diagnosing human cognitive dysfunction.

"The problem," says Dr. Houpt, "is that we don't train cats to do anything.

Probably the only cognition problem that a cat owner would pick up would be an animal's inability to find its food dish. And this, of course, could simply be due to a lack of perception. Maybe the old cat's eyesight is weak. Or if it doesn't respond to you, maybe that's because it can't really hear you anymore."

Giving Comfort. Certain measures might help prevent or delay the onset of senility, says Dr. Houpt, while others will ease the discomfort of an already affected cat. For example, she suggests that cats 15 years of age and older be fed a diet rich in vitamin E, carnitine (found in meat, dairy products and seeds) and antioxidants, substances that are known to retard the effects of aging. Such diets are readily available without a prescription. "These substances seem to be protective and to some extent curative," she says. "I would certainly feed them to an old cat as long as there is no medical reason for its having to be on a different kind of diet."

Also, she advises, owners should try to reduce stress in an aging cat's daily life. "Don't bring another cat or a dog into the household," she says. "This can be very stressful during this period of an animal's life." If the aging cat has trouble going up stairs or jumping onto a bed, she suggests providing a ramp to help the animal. And make sure that its litter box is readily accessible and that the animal can get in and out of it easily.

Take the cat to the vet for routine checkups. If its unusual behavior is due to an underlying illness, the veterinarian can recommend treatment. If senility is diagnosed, the veterinarian may recommend medications to ease the signs. ❖



LITTER BOX BEHAVIOR. Try to help your aging cat by keeping boxes in convenient locations throughout your house.



Please send your behavior and health questions to: "Ask Elizabeth" CatWatch, Box 13, Cornell University College of Veterinary Medicine, Ithaca, New York 14853-6401

We regret that we cannot respond to individual inquiries about feline health matters.

Elizabeth is thankful for the assistance of **Ryane Englar, DVM**, a veterinary consultant at the Cornell Feline Health Center, in answering your questions.



COMING UP ...

❖
**RABIES
VACCINATIONS**
❖
PURRING
❖
URINE MARKING
❖
**MANAGING A
DESTRUCTIVE
CAT**
❖
**FIV AND FELV
TESTING**
❖
**LENTICULAR
SCLEROSIS**

Q Dear Elizabeth: For the past year, my wife and I have used a scent diffuser, a little device that sprays a gentle, lavender-scented mist into the air. For some reason, the diffuser stopped working a while back, so we checked online to see where we could obtain a new one. In the course of our research, however, we read that the fumes released into the air by aromatherapy-based machines can be quite dangerous — possibly fatal — to cats. Is this true?

A Aromatherapy, for readers who may not be acquainted with the term, is the practice of releasing the essences of various botanicals into the air for beneficial effects. Some essences are utilized as a form of alternative medicine and are said to ease pain, diminish inflammation, fight infection and reduce stress, among other things. Other essences are used, as is the case for you and your wife, for aesthetic purposes because they smell good. While the medicinal value of aromatherapy is debatable (and contested by some medical experts), there is no doubt that any household can get a pleasant boost from such delightful fragrances.

Most aromatherapy products are created by steam distillation. In this process, steam is forced through a plant creating such intense heat that it breaks down and releases aromatic compounds. When cooled in the final stages of production, these compounds separate out into two categories: the non-water soluble portion (or essential oil) and the water-soluble portion (or hydrosol). Both can be of value in providing a scent that you desire.

For hundreds of years, people have tried to capture fragrances. It began with dried bundles of herbs, or potpourri, left in dresser drawers, laundries, living rooms or bathrooms. Then came the burning aromatic candles. And now we have diffusers, which come in several varieties. Some are electric, aerosol-based devices, like the one that you described, which spray a fine mist of fragrance into the air. Others enclose a pad dabbed with essential oils; when plugged into an outlet, these diffusers release a constant fragrance.

Although essential oils and hydrosols are pleasing to our sense of smell, they are not all benign. Toxicities can and do occur — although inhalation is probably the least dangerous route. Most

of the time, trouble arises when certain essential oils are accidentally ingested by, for example, a cat that has accidentally stepped in an oil and then grooms its paws. Several essential oils — including, but not limited to eucalyptus, fennel, hyssop, pennyroyal, rosemary and sage — can, if ingested, adversely affect a cat's nervous system and cause it to have convulsions.

Lavender can also be toxic — primarily to a cat's skin and gastrointestinal tract. For example, lavender-scented litter, which has been commercially available, can potentially cause irritation of a cat's paw pads. If ingested, it can cause vomiting, anorexia and depression. This is because the feline liver lacks certain detoxifying enzymes that are present in other species. As a result, cats are significantly handicapped when it comes to metabolizing certain compounds — alcohols, phenols, terpenes and limonenes, for example. This means that it doesn't take much of any of the above compounds to build up in the bloodstream and reach toxic levels. So you have to be exceptionally cautious when it comes to exposing your cats to lavender. In light of this, I would not recommend any free-standing oil candles; there is too much risk involved. Your kitties could spill the oil on their skin and be burned; or they could ingest the spilled oil when grooming.

Aerosol diffusers and those that contain hydrosols in lieu of essential oils are, however, considered to be relatively safe. They contain very dilute forms of the lavender compounds, and they emit the fragrance into the air as a mist rather than from a container that is open and easy for a nosy cat to access.

At the same time, you must be very careful if either of your cats has asthma or any kind of respiratory allergy, since even the lavender scent may trigger a flare-up. Be sure to store any essential oils in a safe place, and if your diffuser is leaking, get a replacement for it immediately. I would encourage you to have a talk with your vet about any other potential risks to your cats. I also suggest that you keep your local poison control center's telephone number handy in case of any emergency that might arise. Overall, I would say that it is probably all right for you to continue using your lavender-scented diffuser in your home — but use it with appropriate care. Love, Elizabeth ❖

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\$39 per year (U.S.)
\$49 per year (Canada)

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