



CatWatch

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



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Ask Elizabeth

The health risks when a cat uses an asparagus bed for a litter box.

IN THE NEWS ...

Wollie trekked six miles home – a stroll for feral cats

Wollie, a 3-year-old black cat, made national news when he walked six miles to find his way home from an animal shelter in Bedford, N.H. Barbara Oliphant had taken in the stray but gave him up when her husband became ill. When her husband improved, Oliphant's daughter adopted Wollie as a surprise for her, but the cat escaped his carrier in the shelter parking lot. He appeared at Oliphant's door three days later. The inevitable question: How did he do that? Behaviorist Katherine A. Houpt, VMD, at Cornell offers the likely explanation: "He was a stray and familiar with the area."

A study using radio transmitters to track 43 feral and pet cats found they roam far and wide (*Journal of Wildlife Management*, July 2011). One feral male had a range of 1,351 urban and rural acres. Pet cats averaged 4.9 acres. However he returned, Wollie promptly ate three cans of cat food and slept nearly 24 hours. ♦

The Future Basis For Diet Plans: Genetics

The emerging science of nutrigenomics may result in certain foods tailored to prevent and heal illness

Nutritionist Joseph Wakshlag, DVM, Associate Professor of Clinical Nutrition at Cornell University College of Veterinary Medicine, poses a question for owners: "If you knew that your cat would develop cognitive

dysfunction at age 12, and if feeding him an antioxidant-enhanced diet would delay that development, wouldn't you do it?"

That scenario may be possible in the not-too-distant future. If scientists identify a gene for feline cognitive dysfunction — and a host of other diseases with genetic risk factors — individualized nutrition and lifestyle



plans could be developed for cats based on their genetic tests. It has long been known that nutrition plays an important role in preventing and healing disease in humans, cats and dogs, but its role may be greater than we thought. Researchers

in the pioneering science of nutrigenomics stand squarely at the intersection of genetics and nutrition.

Gene Mutation. "Nutrigenomics is the study of how nutrition affects the genes and their expression," Dr. Wakshlag says. "We've now deciphered many animal genomes,

(continued on page 6)

Holiday Overload Can Affect Their Health

New people and situations can impact sleep, appetite, digestion, the immune system— even personality

With shopping, traveling and entertaining, the weeks between Thanksgiving and New Year's can be anything but relaxing. However, humans aren't the only individuals to suffer holiday overload. Cats can also become stressed, and if prolonged, the stress can result in changes in health and behavior.

"I could write a book about the physiology of stress," says Germain F. Rivard, DVM, Ph.D., a resident in behavioral medicine at Cornell University College of Veterinary Medicine. "A cat under stress would change personality as he loses his coping mechanisms. Often, the reac-



tion is avoidance with or without vocalizations, and if the cat cannot escape, he defends himself aggressively. That's why it is important to create a safe place ahead of time."

Two systems come into play when cats respond to stress:

- ♦ One consists of the hypothalamus, pituitary and adrenal glands (HPA).
- ♦ The other is the sympathetic nervous system, which increases heart rate, blood pressure, glucose production and availability of energy.

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CatWatch

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SHORT TAKES

CPR Standards for Cats

Two specialists in veterinary emergency and critical care have teamed up to help produce the first evidence-based guidelines for cardiopulmonary resuscitation in cats and dogs. When a preliminary survey showed little consistency in the rate of chest compressions administered by veterinarians during CPR, Daniel J. Fletcher, DVM, Ph.D., at Cornell and Manuel Boller, DVM, MTR, at Penn initiated a plan to develop evidence-based guidelines for CPR for veterinary patients.

Although more than 20 percent of human patients who suffer cardiac arrest in the hospital survive to go home, perhaps partially as a result of the variability in compression rate, only 6 percent of dogs and cats do, according to recent veterinary CPR research.

Drs. Fletcher and Boller enlisted more than 100 board-certified veterinary specialists around the world to review more than 1,000 scientific papers related to CPR. The result: 101 clinical guidelines on resuscitating dogs and cats in cardiac arrest.

Among the recommendations: Just as in people with cardiac arrest, push hard and push fast—perform 100 to 120 chest compressions per minute, and compress the chest a full one-third to one-half of its width, with the animal lying on his side. A special consideration for cats: "Cat chests are less stiff than dog chests, so it's easier to over-compress a cat chest," Dr. Fletcher says. "With dogs, we pretty much push as hard as we can, but with cats, it's important to be careful of the depth of compression so we don't damage the heart and lungs."

The authors are developing an online training course for veterinary health professionals, leading to certification in veterinary CPR by the American College of Veterinary Emergency and Critical Care. Shortly afterward, a version of the course targeted at basic life support concepts for pet owners will be released. It will provide essential training on how to support a pet in cardiac arrest during transport to a veterinary hospital.

The CPR initiative, called the Reassessment Campaign on Veterinary Resuscitation, or RECOVER, is a joint effort of the American College of Veterinary Emergency and Critical Care and the Veterinary Emergency and Critical Care Society. The Journal of Emergency and Critical Care included the guidelines in its June issue. For more information, see the RECOVER initiative website at www.acvecc-recover.org.



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Finding the Way Home

A surprising number of owners who lost a dog or cat in the past five years recovered their pet, according to an ASPCA survey of 1,015 pet-owning households in the U.S. However, cat owners were less likely to find their pet: 74 percent of lost cats were recovered, compared to 93 percent of lost dogs.

The random-digit phone survey, believed to be the first of its kind on pet recovery, also revealed that:

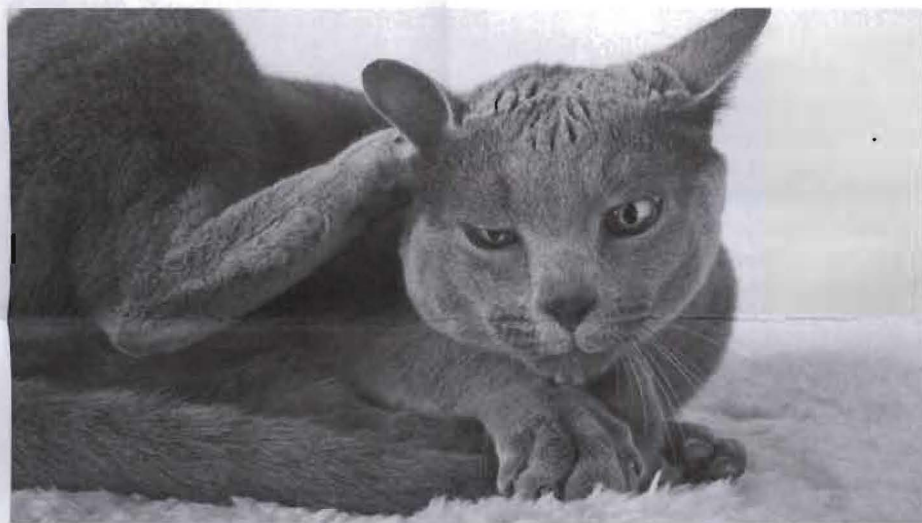
- ◆ The percentage of lost dogs compared to lost cats was nearly the same: 14 percent for dogs, 15 percent for cats.
- ◆ Fifty-nine percent of cats found their way home on their own.
- ◆ Thirty percent of owners found their cats by searching the neighborhood.
- ◆ Only 6 percent of dog owners and 2 percent of cat owners found their lost pets at a shelter.

"The research tells us that there is a possibility that a significant percentage of the stray dogs and cats in the shelters around the country do not have someone looking for them," says behaviorist Emily Weiss, Ph.D., Vice President of Shelter Research and Development for the ASPCA. "It also highlights the importance of ID tags and other forms of identification to ensure the quick return of lost pets."

Other keys to finding a lost pet: Immediately search the neighborhood, put up posters and check Internet opportunities. Some websites promise the pet equivalent of an Amber alert and will check with shelters and phone neighbors on your behalf. ♦

Is it Normal Shedding or Hair Loss?

A disease, compulsive disorder and even the stress of a veterinary visit can cause bald spots



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The most common form of hair loss occurs when a cat breaks off hair by excessive scratching and licking.

With the exception of hairless breeds such as the Sphynx, cats are known for their furry pelts, so if a cat starts to lose his coat, it's justifiably cause for concern. How can you distinguish between normal shedding and abnormal hair loss? It's easy: Shedding doesn't cause bald spots. If the skin is visible, best to schedule a veterinarian exam or ask for a referral to a dermatologist.

Hair loss, or alopecia, takes two main forms, says dermatologist William H.

Miller, VMD, Medical Director of the Companion Animal Hospital at Cornell University College of Veterinary Medicine:

1) "The hairs fall out spontaneously."

Though it's a rare occurrence, spontaneous hair loss can be related to stress, endocrine diseases such as Cushing's disease (an overproduction of cortisol by the adrenal glands), hyperthyroidism (excess production of the thyroid hormones), and some forms of cancer, including lymphoma, liver or pancreatic cancer.

SHEDDING HAS A GENETIC BASIS

A cat's fur consists of long, slender filaments of a non-living substance called keratin. Each hair has a shaft that is rooted in a follicle. Three layers make up the shaft: the outer layer is known as the cuticle; the middle layer is called the cortex; and the inner layer is called the medulla. The cells of the cortex contain the melanin that gives the coat its color.

Each hair grows to a genetically programmed length. Then, as the follicles produce new hairs, the old hairs fall out, causing the phenomenon known as shedding.

An unusual form of spontaneous hair loss can develop when cats go to the veterinarian or some other stressful place. The experience can activate the cat's arrector pili muscles, which are attached to the hair follicles. This causes him to suddenly shed massive numbers of hairs that have been in the resting phase of the hair-growth cycle. Fortunately, this condition is harmless, and the hair will grow back.

2) "The hairs are broken off by scratching or chewing." The condition is known as traumatic hair loss and is the most common form. "Cats with hair loss typically are licking the hairs off or pulling them out because they have an allergic or behavioral condition," Dr. Miller says. Allergies to substances in the environment such as pollen or ingredients in their diets can cause the skin to itch, and scratching and chewing ensue.

Determining the cause of hair loss requires a complete clinical and laboratory evaluation. In some cases, a skin biopsy may be necessary. If medical causes have been ruled out, the cat should be evaluated by a veterinary behaviorist to determine if he has a compulsive disorder causing excessive grooming.

Endocrine disorders and allergies can be treated or managed with medication, changes in diet or allergy shots. "If the cat has a treatable disease, he usually will respond nicely to treatment," Dr. Miller says. ❖

COMPULSIVE GROOMING CAN RESULT IN HAIR LOSS

When normal behaviors become repetitive, sustained and interfere with normal function, a cat may be diagnosed with a compulsive disorder. The behavior often takes the form of excessive grooming, resulting in the cat licking off or pulling out so much fur that the abdomen or another area is bare. Genetics and medical conditions can lie at the root of compulsive behaviors, as can emotional or environmental problems, such as a lack of stimulation.

Sometimes, however, the cause is unknown. Ruling out a medical cause is the first step in a diagnosis. Once it's clear that a behavior is compulsive, behavior modification and anti-anxiety medication can help. For instance, if a cat is having difficulty adjusting to the presence of new animals or a baby in the home, steps might include reintroducing the cat to the newcomer, making positive associations and prescribing medication such as clomipramine or Prozac to help resolve the anxiety. Gabapentin, an anticonvulsant that affects pain sensitivity, may also be effective.

Cuterebra Infestation Can Be Deadly

If the parasite migrates to the brain, it can result in aggression, seizures, spinal paralysis and blindness

Most owners know the parasites that can bedevil their cats, including fleas, ticks, mites and an abundance of worms. A lesser-known parasite, with far greater impact, is cuterebra (*kyüt-ə-rē-brə*). They're larva from adult botflies that can burrow under a cat's skin or, more alarmingly, enter through the nose and migrate to the brain.

The threat of infestation is not widely known for two reasons, says parasitologist Dwight Bowman, Ph.D., professor in the Department of Microbiology and Immunology at Cornell University College of Veterinary Medicine. "It tends to be more rural than urban and suburban." And the flies are prevalent only in the Western and Northeast U.S., and Southeastern Canada.

High-risk Infection. However, a cuterebra infestation has a distinguishing feature in cats that owners should be aware of: "If it ends up developing its lesion in the skin and migrates deep into the cat's body, it is lethal. The effects are neurologic," the form of infestation veterinarians tend to see in the Northeast, Dr. Bowman says. "Less significant infestations are subcutaneous big maggots the size of the end of the thumb under the skin."

"Cuterebra don't lay eggs on cats," Dr. Bowman says, explaining that adult flies deposit eggs near rabbit and rodent burrows and runs. Larvae — small maggots — hatch from the eggs and can attach to a passing cat who's exploring or hunting.

In the next step, the maggot crawls through the cat's body, making its way back to the skin from the inside. It then

develops a cyst with a breathing hole in the center that is visible to the naked eye. It's easy for owners to spot this infestation: "There's a lump under the skin," Dr. Bowman says. A purulent discharge may also be seen around the opening.

He cautions that owners should not try to remove the parasite. "If you see one, go to a veterinarian. You can't control it if it breaks." Complications such as chronic infections can develop if the larva isn't removed in one piece. Anecdotal reports have also cited cases of anaphylactic reactions.

Using a local anesthetic and scalpel or surgical scissors, the veterinarian will remove the cuterebra, disinfect the area and perhaps prescribe antibiotics. The prognosis for recovery is generally favorable.

If not removed, the larva will exit the skin in about 30 days, drop to the ground, pupate and become an adult fly.

Neurologic Damage. Cases in which cuterebra enter the nose, mouth, eye, anus or vulva and migrate to the brain or spinal cord have a guarded prognosis, Dr. Bowman says. That's because the signs don't appear early. Cats may show minimal respiratory problems regardless of the orifice the larva used to enter the body. It's only when a full-blown case of a disease called feline ischemic encephalopathy (FIE) develops that signs become evident. Damage to the middle cerebral artery and other areas of the brain can result in seizures, circling and aggression. "There also can be spinal paralysis and blindness in one eye," Dr. Bowman says.

Veterinarians use urine and spinal fluid tests to diagnose FIE, but the most effective diagnostic tool is a CT scan. If the maggot is accessible, veterinarians can surgically remove it in some cases. Drug treatment can kill the parasite in all the stages of the infestation but a cat's reaction is a concern even when the maggot is only under the skin. Other medications can ease the signs of the infestation and help prevent seizures. And with proper identification and treatment of the infestation, some cats do recover. ♦



Flies lay eggs near rabbit and rodent burrows, and when larvae hatch, they can attach to a passing cat.

HUMAN AND CANINE INFECTIONS ARE RARE

Parasitologist Dwight Bowman, Ph.D., at Cornell has a possible explanation for dogs' rarely suffering cuterebra infestations. "We don't see it much in dogs, and we don't know why, but many dogs are on heartworm and flea and tick preventives, and they may have an effect in protecting them."

His recommendations for owners: Put your cat on the same preventives if he's not already on them. And don't let him outdoors until after the first frost, when botflies, which produce cuterebra, become inactive. Better yet, consider keeping him indoors all the time.

Finally, don't worry that you could be at the risk for an infestation from your cat. "Pet owners cannot get cuterebra from their pets," says Susan P. Montgomery, DVM, at the Centers for Disease Control and Prevention. "This is a fly larva — it's the fly that transmits, so handling a pet that has a larva infection does not lead to human infection. Human infection could happen the same way that pet infection happens."



Cuterebra larva can grow up to inch long and a half-inch in diameter.

HOLIDAY... (continued from cover)

The HPA releases hormones, such as adrenaline, which affect the sympathetic nervous system's functions. The responses prepare the body to deal with stress by running from it, freezing in place or aggressively fighting the stress.

"Chronic stress disrupts the HPA axis, and several brain structures can be affected by excessive hormone exposure," Dr. Rivard says. "Some negative effects include increased sleep time, decreased appetite, behaviors that are out of context or stereotypic (compulsive) behaviors."

Continued stress can also suppress the immune system, says Katherine A. Houpt, VMD, Ph.D., diplomate of the American College of Veterinary Behaviorists and emeritus James Law Professor of Animal Behavior at Cornell. "When the immune system is suppressed, sub-clinical problems may become clinical. For example, a bladder infection may appear."

Goodbye, consistency. Dr. Rivard points out that new people, animals and situations can be difficult for many cats. "They can create anxiety and conflicts, as can competition for resources such



Until you know canine visitors will get along with the resident cat, best to keep the dog on leash or use a baby gate to separate them.

THE ESSENTIALS OF A CAT REFUGE

If your cat wants to retreat to a quiet place in his home during the holidays, it's best to let him do so. In fact, experts suggest you create a safe haven where he can escape during the festivities.

"Cats choose their own getaway places, often under a bed," says Katherine A. Houpt, VMD, Ph.D. "Let them do it. Wherever the cat is hiding, close the door to that room, and leave a litter box plus some food and water. Try to spend time playing interactively with the cat."

A darkened room with an interactive feeding device can be a welcoming haven for a cat, says Germain F. Rivard, DVM, Ph.D.



Cats often find their own getaway under the bed.

Adding a synthetic pheromone can further help a cat to relax. It's a synthetic version of the feline facial pheromone that cats use to mark their territory by cheek rubbing. The marking helps them feel safer and more secure.

as consumables, possessions, attention, affection and activities." Even a simple change in routine can be stressful because cats generally cherish consistency.

Immediate physical signs of stress include vomiting, diarrhea, refusal to eat and skin problems. Behavioral changes include excessive self-grooming, turning the body away, walking or running away completely and what Dr. Houpt calls the meatloaf pose: The cat lies on his stomach with his legs tucked and hidden under his body. He may be hyperactive or, conversely, may act apathetic and non-responsive. Some cats may hiss when approached. Others may spray urine on vertical surfaces. A behaviorist should be consulted if the cat's primary care veterinarian finds no sign of disease.

Dr. Rivard points out that if the cat cannot cope appropriately, there are adjunct therapies, including pheromones, and (anti-anxiety) medications such as anxiolytics prescribed by a veterinarian that can alleviate the response to stress.

"Medical treatment in combination with a behavior modification plan should be considered," he says.

Forestalling the manifestations of stress requires a little vigilance and common sense from the owner:

- ◆ **Manage canine visitors.** Until you know how your cat will react, "Keep the guest dog on leash," Dr. Houpt says. "And use baby gates to separate the dog and cat."
- ◆ **Supervise children.** They may not realize when a cat has had enough attention. If your cat squirms or otherwise is clearly trying to get away from a child, call the child away.
- ◆ **Consider boarding if your cat does well with it.** For some cats, being away is preferable to being in a home filled with holiday chaos and visitors. "It's better than a lawsuit that could result if the cat bites," Dr. Houpt says.
- ◆ **Chill.** Cats may become stressed if they sense that their owners are anxious. "Reduce your own stress," Dr. Houpt says. "Don't be a perfectionist." Finally, when the holidays seem to overwhelm you, set aside some private time for you and your cat to enjoy each other's company. Time spent with loved ones is what the holidays are really all about. ♦

NUTRITION

(continued from cover)

including humans', but we still don't know exactly how to influence them. We do know that genes get expressed via a 'promoter,' which in turn is triggered by a variety of things. For example, you may have a mutation that causes a disease, but your diet—or even your mother's diet when you were in utero—can influence the manifestation of that disease. So can your environment, exercise habits and even your brain use in certain neurologic diseases. The question we're now asking is whether it is possible to delay the onset of diseases such as Alzheimer's and diabetes—diseases that affect both humans and animals."

The impact of nutrigenomics research on cat owners hasn't really been felt yet, Dr. Wakshlag says. "Research on rodents has taught us certain things. For example, omega-3 fatty acids can beneficially influence how some genes are expressed by making the promoters more or less active. So can vitamin B12 and folate, and fat-soluble vitamins like D and A. But we already add healthy amounts of these nutrients to commercial cat food—regulations require that we do. So there's actually not a lot of concern about whether cats are getting enough."

Is There a Fat Gene? Today, most nutritional research is obesity-related. "Because it's the No. 1 health problem in dogs, cats and humans, such research is better funded," says Dr. Wakshlag. "The research being done on humans sometimes crosses over to dogs and cats. The question remains as to whether there is a particular gene profile for obesity in dogs and cats—there

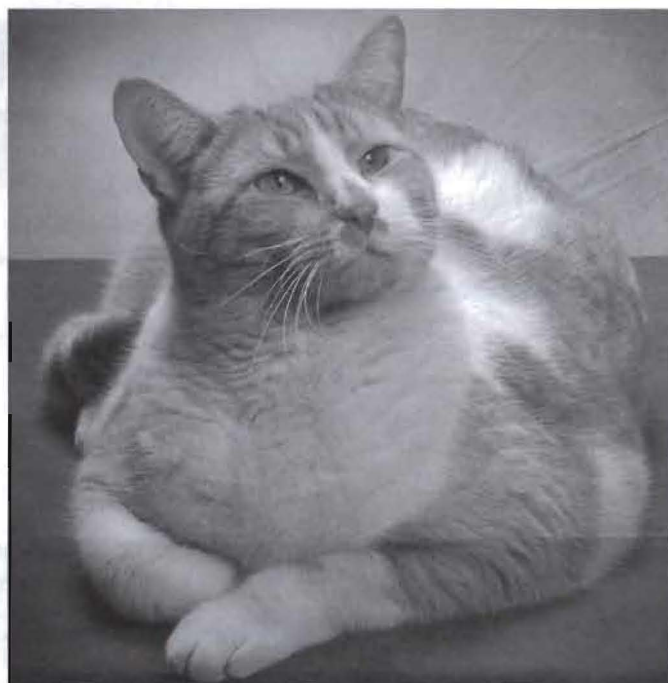
is as yet no consensus on that."

Osteoarthritis is also well studied, and the human research being done has crossover implications. At Cornell, surgical specialist Rory Todhunter, BVSc, Ph.D., is conducting cutting-edge research in this area, but primarily in dogs. "Our primary goal is having cats and dogs walk with less pain," says Dr. Wakshlag. "Whether we can influence the genetic control of osteoarthritis with early intervention and diet is still to be determined."

Pet food companies are leading the charge on nutritional studies, but having invested considerable research and marketing dollars on therapeutic foods, the companies aren't particularly motivated to publish their findings. "The data they are collecting is proprietary, and they want to reserve the right to patent any potentially profitable products that may come of it," Dr. Wakshlag says. "Unless there is a link to a related human arena, there's not much funding for veterinary research at universities."

Meanwhile, what can owners do to provide the best food possible for their cats and their cats' genes? Some considerations:

Enhanced nutrients: It's commonly believed that certain nutrient-enhanced pet foods—for example, those con-



Most nutritional research is obesity-related because it's the No. 1 health problem in dogs, cats and people.

taining blueberries—are healthier because you can actually see blueberries and other whole foods on the label, Dr. Wakshlag says. "However, diets that contain many different kinds of fruits and vegetables tend to contain very little of each one. And I don't believe that a few blueberries are enough to warrant a \$10 increase in price per bag."

Omega-3s: Cats can benefit from marine-based oils in their food because they can't produce long-chain omega-3 fatty acids themselves like dogs and humans, Dr. Wakshlag says. "On the other hand, cats are also more sensitive to over-dosages of fish oil. And too much lipolic acid, ingested, for example, from over-the-counter human supplements, can kill a cat."

DOES YOUR CAT NEED SUPPLEMENTS?

Given the alphabet soup of nutritional supplements, ranging from antioxidants to zinc, it can be difficult to know the ones most beneficial for our cats. The choices can be even more daunting because supplements lack stringent oversight.

Under the Dietary Supplement Health and Education Act of 1994, manufacturers are responsible for marketing safe products. "FDA does not review these products for safety or

effectiveness prior to marketing," says press officer Tamara Ward in its Office of Public Affairs.

Fortunately, today's high-quality cat foods make nutritional supplements unnecessary, but in general, says Dr. Joseph Wakshlag, if owners are seeking certain nutrients, pet supplements will deliver far more of those nutrients than fruit- and vegetable-enhanced pet foods.

So just because it is good for you may not mean it's good for your cat."

Low-carb Diets: Some owners of overweight cats with type 2 diabetes have turned to low-carbohydrate diets. It's a way to influence the glycemic index to an extent in diabetic cats, says Dr. Wakshlag. "That said, probably the best way to prevent feline diabetes is to get your cat a treadmill!"

Antioxidants: When cats with chronic illnesses like cancer are fed commercial therapeutic food, antioxidants are often a common additive. Antioxidants work by quenching free

radicals — reactive oxygen molecules that can contribute to cell damage, which is one of the hallmarks of cancer initiation and malignancy, says Sally Perea, DVM, president-elect of the American College of Veterinary Nutrition and senior nutritionist at P&G Pet Care.

An example of an antioxidant is vitamin E, which prevents oxidation in lipids, or fats, Dr. Perea says. "Different enzymes such as glutathione act like antioxidants, too. Some elements, such as copper, zinc and manganese, help antioxidants function better, and selenium helps glutathione work."

But antioxidants vary with animal species, Dr. Perea says. "For example, because cats can make their own vitamin C, they don't need it as a supplement in their diet. And though beta carotene is not an antioxidant in humans or dogs because it is rapidly converted to vitamin A, it is for cats, who cannot efficiently make vitamin A from it. Added to a cat's diet, it can help treat chronic kidney disease."

There are many supplements for cats on the market that are antioxidants, including s-ade-

nosyl methionine and the long-chain omega-3 three fatty acids in fish oil, but caution should be taken with cats. Not all over-the-counter supplements can be used safely, and before starting any supplements, checking with your veterinarian is a wise idea, Dr. Wakshlag says. "Fruits and vegetables can be used in small quantities if you find ones that your cat enjoys. Just make sure to avoid onions and garlic, as they can cause red blood cell problems."

Home-cooking Trend. Some owners, wanting to know exactly what goes into their cats' food, have turned to home cooking. Concerns about safety after pet food recalls have also spurred this trend. "An incident of salmonella contamination at a South Carolina pet food manufacturing plant this year affected 40 different brands of pet food," Dr. Wakshlag says. If you're considering an entirely homemade diet for your cat, consult a veterinary nutritionist to make sure it's nutritionally balanced.

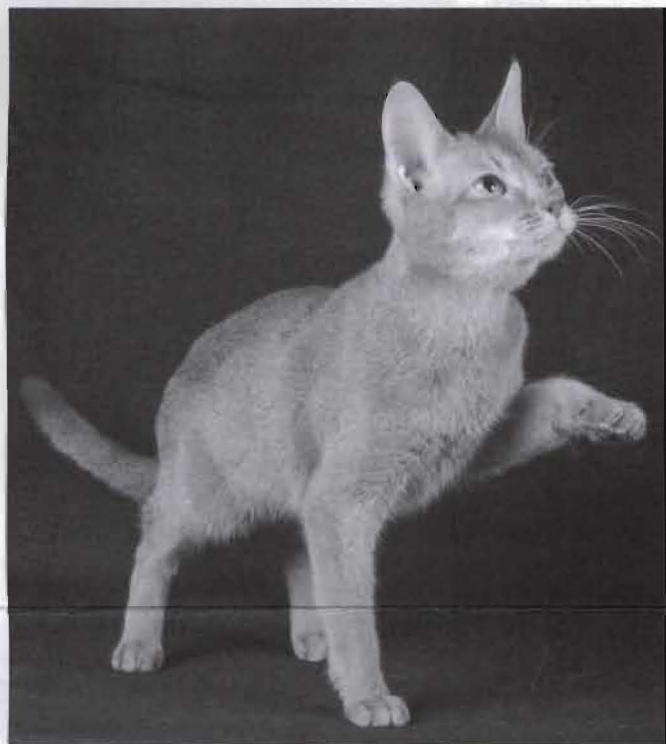
Dr. Wakshlag's recommendations for owners wanting to take a simpler route: "Read cat food labels to be sure there are quality ingredients and that the diet meets AAFCO [American Animal Feed Control Official] standards."

Whatever diet you choose, consider nutrition an integral part of preventing and treating feline diseases. Says Dr. Wakshlag: "An appropriate diet in conjunction with appropriate veterinary care can make a big difference in how your cat feels." ♦

NUTRITION-SAVVY VETERINARIANS

If you believe nutritional therapy is the right approach for your cat, your chances of finding either a veterinary nutritionist or a general practice veterinarian open to it are better than ever. A growing number of veterinarians and specialists offer nutritional advice. To obtain the best results, Dr. Joseph Wakshlag cautions, "Make sure he or she knows exactly what foods and supplements you are giving your cat to be sure you are both on the same page."

Scientists sequenced the DNA of a then-4-year-old Abyssinian cat named Cinnamon in 2005. A small vial of her blood gave them the ability to map the feline genetic structure, allowing them to study each gene's function.



University of Missouri College of Veterinary Medicine

GLOSSARY

- ◆ **Nutrigenomics:** The study of the way in which nutrients alter the expression of genes in humans and animals.
- ◆ **Genome:** The genetic information encoded in an individual's DNA. The domestic cat genome for a cat named Cinnamon was first sequenced in 2007; the genome of humans was sequenced in 2003.
- ◆ **Gene expression:** The translation of information encoded in a gene into proteins with specific action in the body.



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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.

COMING UP ...

- ❖
**A NEW DRUG
FOR EPILEPSY**
- ❖
VOCALIZATIONS
- ❖
**NATURAL
PRESERVATIVES**
- ❖
STUD TAIL
- ❖

Q Dear Elizabeth: Recently one of my cats has taken to using my asparagus bed for a litter box. Does this make the asparagus unsafe to eat? If so, will cat diseases linger in the soil for a long time? Thank you, Green Thumb

A Dear Green, I'm sorry, but not surprised, to hear about your kitty's decision to use your garden as a litter box. While this may be convenient and feel natural to your baby, however, there are some potential concerns regarding zoonotic diseases (i.e., diseases that humans can catch from animals) that you should be aware of.

Toxoplasmosis is caused by the protozoal parasite *Toxoplasma gondii*, which requires passage through a cat to produce infective oocysts that can subsequently infect other warm-blooded animals. Cats usually acquire toxoplasmosis by eating infected prey, and approximately 20 percent of cats will begin to shed toxoplasma oocysts in their feces after ingesting toxoplasma.

Oocysts in cat feces take between 24 and 48 hours to become infective for other animals, so if you are able to remove the feces from your garden within 24 hours (wearing gloves and washing hands thoroughly afterward), you will significantly decrease the likelihood of having your vegetables be a source of toxoplasma infection.

Irrespective of whether you are able to do this, all vegetables from your garden should be washed thoroughly before preparation for meals. Oocysts can survive for years in moist soil, and the degree of environmental contamination can be quite high. Toxoplasmosis does not cause problems in most people, but immunosuppressed individuals are more susceptible to developing symptoms of toxoplasmosis, which may range from mild flu-like symptoms to potentially life-threatening central nervous system disease. Of particular concern is the possibility of pregnant women ingesting toxoplasma oocysts, as toxoplasmosis can cause serious health problems for a developing human fetus.

Other protozoal parasites that may be passed on to humans by cat fecal contamination of food items and/or water sources include cryptosporidium and giardia. These organisms most commonly cause gastrointestinal signs such as diarrhea in affected people, and regular checkups with your veterinarian and treatment, where appropriate, can minimize the likelihood of your kitty passing these bugs onto humans

who eat contaminated food or water. Giardia and cryptosporidium are passed almost exclusively via contaminated water sources, and they do not survive well in dry soil, so it is not likely that your kitty will pass these on via defecating in your garden.

Salmonella is a bacteria that can cause diarrhea in affected cats. Although unlikely, it is possible that humans who eat food items contaminated with cat feces may contract salmonellosis. The best way to minimize this possibility is to thoroughly clean all vegetables from your garden before to preparing them for meals.

Another potential cause for concern is intestinal parasites. Roundworm and hookworm eggs may be shed in cat feces and persist for a long time in the environment. Eating vegetables that have been contaminated with cat feces may expose humans to infestation by these parasites. Roundworm infection can cause a syndrome called visceral larval migrans in people, which is caused by the larvae of the roundworm migrating through the tissues of an infected person. Regular fecal examinations in your cat and appropriate anti-parasitic therapy will minimize the likelihood of people becoming infected with these parasites by eating vegetables contaminated with cat feces.

The following recommendations will decrease the risk of humans contracting the above mentioned conditions from your asparagus garden:

- ◆ Carefully wash all food items from your garden before preparing them.
- ◆ Wear gloves when working in your garden, and wash hands thoroughly after doing so.
- ◆ Be careful with children, immunosuppressed individuals and pregnant women who may be working in or handling food items from your garden. It is best to not have these individuals working in a garden that may have been contaminated with cat feces. If people falling into these categories do work in a garden, assure that they wear gloves and wash their hands thoroughly after doing so.
- ◆ Make sure that your cat visits your veterinarian for regular checkups, and follow your veterinarian's recommendations regarding treatment and prevention of infestations/infections.

I hope that this information is helpful and that you continue to eat your vegetables. If you would like more information on this topic, visit the Cornell Feline Health Center website at www.cornell.edu.

Best regards, Elizabeth

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