

Cat Watch

December 2020 – Vol. 24, No. 12

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

THIS JUST IN

AAHA End-of-Life Accreditation

Ensuring peace and beauty

In an effort to help veterinarians elevate end-of-life care for pets, the American Animal Hospital Association (AAHA) developed an End-of-Life Care accreditation program.

The AAHA Standards of Accreditation have historically included standards for traditional and referral companion-animal veterinary practices, so adding this specialized accreditation was a natural move. Many of the standards are based on the 2016 AAHA/IAAHPC End-of-Life Care Guidelines.

Eligible veterinary practices—brick and mortar and/or mobile—are those that either provide only end-of-life care or practices that are already AAHA-accredited or preaccredited. Practices that are not AAHA-accredited and are not standalone end-of-life care practices are ineligible for AAHA's End-of-Life Care accreditation. ■



INSIDE THIS ISSUE

Feline Ocular Post Traumatic Sarcoma	2
Can Your Cat Imitate You?	2
Once-Daily Feeding of Indoor Cats	3
Children and the Death of a Pet	3
End-of-Life Guidelines	4
Feline Mycobacterial Infections	6
2020 Annual Index	7
Freeze-Dried Cat Food Concerns	8
Happening Now	8

Cats Demanding Food

Dr. Houpt suggests ways to stop your cat's begging

Q I feed my cats twice a day at the same time, but I'm finding that my cats start acting out an hour or so before feeding time. For example, in the mornings, they'll climb onto me in bed and start to paw at my face.

In the evening, they'll start to paw at my house plants (and recently even pulled one off the shelf and shattered it on the floor) and excessively chewing on things. It just started happening within the past year or so.

I was thinking they were just hungry, but honestly, it's starting to become annoying. I'm wondering if I should be feeding them the same amount, but spacing it out more throughout the day, or if there is any advice you can offer for how to mitigate their bad behavior before feeding times.



We've all experienced it: Cats are persistent when they want something.

A Katherine Houpt DVM, James Law Professor Emeritus, Section of Behavior Medicine at the Cornell University College of Veterinary Medicine, responds to our reader:

There are several steps in dealing with food-begging behavior. First, determine if your cats are fat, thin, or at an appropriate weight. If they are thin, feed them another meal a day. If they are fat, gradually switch them to a weight-reducing diet for cats. These high-fiber diets seem to reduce hunger while providing fewer calories.

If your cats' weights are just right, then you can feed multiple smaller meals so that they are getting the same number of calories in a greater number of meals.

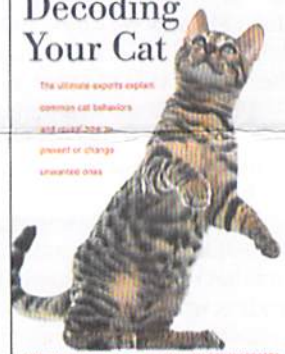
If your cats could, they would eat 12 mice a day apiece. With that in mind, it might be worth investigating one of the many automatic food-dispensing toys for cats or even the Hunting Feeder (No Bowl), which is a feeding method in which cat food is placed in plastic mice that then can be hidden around the house.

To deal with the specific problem of early-morning disturbances, you can purchase an automatic feeder that can be set for 6 a.m. or whenever the cats normally bother you. You may have to lead them to the kitchen a few times before they realize that the feeder opens, but most cats will then meow at the feeder rather than at you when they are hungry.

Finally, be sure that you give them regular evening play sessions with a fishing pole toy or laser pointer. Remember that a tired cat is a happy cat, if not a somnolent one. ■

Decoding Your Cat

The ultimate experts explain:
common cat behaviors
and what they mean
prevent or change
unwanted ones



AMERICAN COLLEGE OF VETERINARY BEHAVIORISTS

If you're looking for more scientifically accurate behavior information, *Decoding Your Cat* is the book for you. Released by the American College of Veterinary Behaviorists this year, it gives you an in-depth understanding of common cat behaviors and how to best handle them.

Feline Ocular Post Traumatic Sarcoma

A link between FOPTS and gentamicin may be possible

Tumors of the feline eye are relatively uncommon, but when they occur, they can significantly affect a cat's quality of life and may be a harbinger of disease elsewhere in the body. Feline ocular post traumatic sarcoma (FOPTS) is an aggressive form of ocular neoplasia (abnormal growth) that was first described in cats in 1983. FOPTS may be diagnosed in cats that have experienced trauma or severe intraocular infections and, while diagnosis is usually made between six and seven years after trauma/infection, latency periods may range between several months and 10 years after the presumed inciting event.

While a cause for FOPTS has not been definitively determined, a potential link between intravitreal gentamicin injections (a shot of the antibiotic gentamicin in the eye sometimes used to treat glaucoma pain) and FOPTS has been proposed. Enucleation (removal of the eye) is currently the therapy of choice due to this disease's aggressive nature, and this procedure is considered palliative, as enucleation does not appear to provide a survival benefit in cats diagnosed with FOPTS.

Long-term vigilance regarding ocular health in cats that have experienced trauma and/or severe intraocular infections remains vital. ■

J Feline Med Surg. 2019 Sep;21(9):835-842. doi: 10.1177/1098612X19870389.

Can Your Cat Imitate You?

Bringing the term "copycat" to life

A new dog training technique is called "do as I do." The trainer does an action, basically demonstrating it to the dog. Then the dog is encouraged to copy that action. Now, it appears that some cats may be open to the same training.

According to an article in *Science*, a cat in Japan showed that she could do this as well. Researchers have shown the Japanese feline can imitate the actions of her owner under controlled scientific conditions. This ability has only been seen in a handful of creatures, and the finding of this cat could suggest imitation arose relatively early in mammal evolution.

"It's really exciting," says Kristyn Vitale, a cat cognition researcher and animal behaviorist at Unity College. "People think of cats as solitary and antisocial," she says. "But this study reinforces the idea that they're watching us and learning from us."

An ethologist (behaviorist) working in Japan heard from a fellow dog trainer that her cat showed some "do as I do" training. The cat, Ebisu, lived in the trainer's pet store. She was very food motivated which made it easy to teach her some tricks and behaviors. Unfortunately she was also a bit skittish, so the behaviorist had to come to the store to video her behaviors.

First, they showed that the cat already knew to copy a number of behaviors, including things like opening a drawer. Then, it was decided to try two new behaviors: raising your right hand (paw) to touch a box and rubbing your face on the box.

Over a series of 16 trials, Ebisu carefully copied her owner more than 81% of the time. The researchers believe the fact that the cat used her paw and her face to touch the box when her owner used her hand and her face, respectively, indicates that the cat was able to map her owner's body parts onto her own anatomy.

Previously it was felt that only a few species, including dolphins, parrots, apes, and killer whales, truly imitate people. Adding another species, especially one known for being somewhat aloof suggests that this "copying" behavior may be widespread and have occurred early on in animal evolution. Unfortunately, Ebisu died in June from kidney failure. ■

doi:10.1126/science.abe9738 (Science Mag)



CatWatch

EDITOR IN CHIEF

Bruce G. Kornreich, DVM,
Ph.D., Dipl ACVIM

EXECUTIVE EDITOR

Cynthia Foley

TECHNICAL EDITOR

Debra M. Eldredge, DVM

ADVISORY BOARD

James A. Flanders, DVM, Dipl ACVS,
Associate Professor, Clinical Sciences

Margaret C. McEntee, DVM,
Dipl ACVIM, DACVR,
Professor of Oncology

William H. Miller, Jr., VMD, Dipl ACVD,
Professor Emeritus, Clinical Sciences

Pamela J. Perry, DVM, Ph.D.

Lecturer, Clinical Sciences,
ACVB Behavior Resident

CatWatch is an independent
newsletter produced in collaboration
with the Cornell College of Veterinary
Medicine Feline Health Center



Cornell University
College of Veterinary Medicine
Feline Health Center

For information on your cat's health, visit
the Cornell University College of Veterinary
Medicine, Cornell Feline Health Center
website at www.vet.cornell.edu/fhc/.

**Send Ask Dr. K questions
and letters to the editor:**
CatWatch*

535 Connecticut Ave.
Norwalk, CT 06854-1713
catwatcheditor@cornell.edu

Subscriptions: \$39 per year (U.S.) • \$49
per year (Canada). For subscription and
customer service information, visit
www.catwatchnewsletter.com/cs
or write to: CatWatch, P.O. Box 8535,
Big Sandy, TX 75755-8535. **800-829-8893**



CatWatch* (ISSN: 1095-9092) is
published monthly for \$39 per
year by Belvoir Media Group, LLC,
535 Connecticut Ave., Norwalk,
CT 06854-1713. Robert Englander,
Chairman and CEO; Timothy H.
Cole, Chief Content Officer; Philip L.
Penny, Chief Operating Officer; Greg King, Chief
Marketing Officer; Ron Goldberg, Chief Financial
Officer; Tom Canfield, Chief Circulation Officer.
©2020 Belvoir Media Group, LLC.

Postmaster: Send address corrections to
CatWatch, P.O. Box 8535, Big Sandy, TX 75755-8535.

Express written permission is required to
reproduce, in any manner, the contents of this
issue, either in full or in part. For more information:
Permissions, CatWatch, 535 Connecticut Ave.,
Norwalk, Connecticut 06854-1713.

Once-Daily Feeding of Indoor Cats

One study shows it keeps cats satiated and lean

Animal nutrition specialists from the University of Guelph found that feeding cats one large meal a day may help control hunger better than feeding them several times a day. The research revealed that cats that ate one meal a day were more satisfied, which they believe could result in less food-begging behavior.

The results also suggest cutting back feeding frequency could help reduce the risk of obesity by controlling cats' appetite and potentially making them eat less, an important discovery given that obesity is the most common nutritional problem affecting cats.

This is not the first study to examine the effects of meal frequency on cat behavior, but it may be the first to use a comprehensive approach analyzing effects on appetite-suppressing hormones, physical activity, energy expenditure and use of energy sources.

The study involved eight healthy-weight, indoor cats under the age of 5. Each cat was exposed to both feeding regimens, each for a total of three weeks, with the same diet and amount being offered in either one meal or four meals. Some of the cats were fed only in the morning, while the others were fed the same amount in four smaller meals.

The cats were equipped with activity monitors on harnesses to measure their voluntary physical activity. Food intake was recorded daily, and body weight was measured weekly. Researchers also measured cat metabolism through breath and blood.

Physical activity was higher in cats fed four times a day, but overall energy expenditure was similar between the groups. The weights of the cats in both groups did not change over the study period, no matter which feeding schedule they were on.

Cats that ate just once a day had higher post-meal levels of three key appetite-regulating hormones, suggesting they were more satisfied. These cats also showed lower fasting respiratory quotient, suggesting they were burning their fat stores, which is key to maintaining lean body mass.

The cats that ate only one meal a day also had a larger increase in blood amino acids, meaning more protein

was available to them to build muscle and other important proteins. This is important given that many cats lose muscle mass as they age, a condition known as sarcopenia.

This study is not a call to change your cat's feeding program, as more study is needed. This approach is a tool to consider in managing your cat's weight,

and not one that cat owners should automatically adopt. It's important to consider this option only with the help of your veterinarian or a veterinary nutritionist. If you underfeed your cat, and he loses weight too fast, he could develop hepatic lipidosis, a potentially fatal liver disease (fatty liver). ■

Camara, A., et al. The daytime feeding frequency affects appetite-regulating hormones, amino acids, physical activity, and respiratory quotient, but not energy expenditure, in adult cats fed regimens for 21 days. PLOS ONE, 2020; 15 (9): e0238522 DOI: 10.1371/journal.pone.0238522. Science Daily.

Children and the Death of a Pet

The experience can lead to mental health issues

The death of a family pet can trigger a sense of grief in children that is profound and prolonged, potentially leading to subsequent mental health issues, according to a recent study by researchers at Massachusetts General Hospital (MGH). The researchers found that the strong emotional attachment of youngsters to pets might result in measurable psychological distress that can serve as an indicator of depression in children and adolescents for three years or more after the loss of a beloved pet.

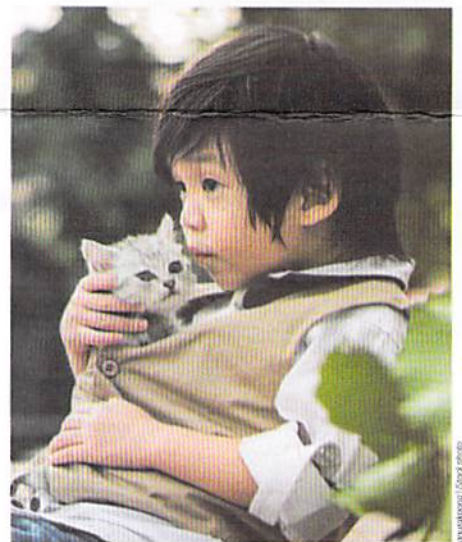
"One of the first major losses a child will encounter is likely to be the death of a pet, and the impact can be traumatic, especially when that pet feels like a member of the family," says Katherine Crawford, CGC, lead author of the study. "We found this experience of pet death is often associated with elevated mental health symptoms in children, and that parents and physicians need to recognize and take those symptoms seriously, not simply brush them off."

Roughly half of households in developed countries own at least one pet, and the bonds that children form with pets can resemble secure human relationships in terms of providing affection, protection, and reassurance. Previous studies showed that children often turn to pets for comfort and to voice their fears and emotional experiences, but this is the first study to examine mental health responses in children. Prior research has focused on the attachment of adults to pets and the consequences of an animal's death.

The analysis is based on a sample of 6,260 children from the Avon Longitudinal Study of Parents and Children, in Bristol, England. Researchers were able to track the experience of pet ownership and pet loss from a child's early age up to 8 years old.

Researchers found that the relationship between pet death and increased psychopathology was more pronounced in male than female children and that the strength of the association was independent of when the pet's death occurred during childhood, how many times a death occurred, or how recently it happened. ■

Crawford, KM, et al. The mental health effects of pet death during childhood: is it better to have loved and lost than never to have loved at all? European Child & Adolescent Psychiatry, 2020; DOI: 10.1007/s00787-020-01594-5



Children usually form a strong bond with their pets, close to the same level as they do with other humans.

End-of-Life Guidelines

As death is inevitable, preparation is wise

The death of a loved one, whether human or furry, is never easy. We all hold on to the hope that our cat will live a long, healthy life and that, when her time comes, she peacefully moves on to wait for us at the foot of the Rainbow Bridge. Often, though, we are not that lucky. Instead, many of us are forced to make tough end-of-life decisions for our beloved cats. While it's an emotional time, objective end-of-life guidelines can help us make the right decision, no matter how difficult.

The Animal Hospice Care Pyramid from the American Animal Hospital Association (AAHA) gives guidance in evaluating your cat's physical, social, and emotional well-being.

Physical well-being is usually the easiest to assess. You need to consider your cat's ability to:

- ▶ Eat and drink
- ▶ Eliminate waste
- ▶ Keep herself clean
- ▶ Live reasonably pain-free.

These conditions depend somewhat on her underlying health status, including any chronic illnesses. This is also where your ability to care for her, her tolerance for human help, and financial considerations are factored in.

Social well-being is a bit more subjective. Look at her interactions with you and any other pets you have. Can she still play, or does she even want to? Do

her favorite toys still get a reaction? Does she still enjoy her favorite perches?

Emotional well-being is difficult to measure and may take a little anthropomorphizing, which means momentarily ascribing your cat human emotions. Does your cat still enjoy life? Considering your cat's dignity may help you answer this question. Consider the same types of things that are considered in human health care, such as autonomy and respect from the other members of the household. Stress is another important factor. Some cats become stressed due to physical limitations, such as being unable to outrun the relentless, annoying dog.

There are no one-size-fits-all guidelines. Each cat has a unique set of circumstances surrounding their existence and their care. It's up to you, as your cat's caretaker, to determine what is most important. For those struggling, it can help to make an appointment with your cat's veterinarian to outline her prognosis (whether you're dealing with a disease or the infirmities of old age), a realistic path for a hospice or palliative care program, and how to handle the end of her life. "Realistic" means considering her health, your ability and time to care for her, and your finances.

Hospice vs. Palliative Care

The veterinary definitions for hospice and palliative care come from human medicine, in which the lines between the two types of care are becoming blurred. Both strive to keep the patient comfortable and as pain-free as possible. Palliative care generally starts with a diagnosis and overlaps the treatment protocol. So, palliative care, for example, would work to reduce your cat's pain and help her eat and drink while she is undergoing radiation therapy for cancer.

Hospice starts when treatment options have been exhausted and life expectancy is six months or less. For most of us, that means keeping kitty at home and comfortable until a natural death or euthanasia occurs.

Dr. Alicia Brown (Cornell DVM, 2013) emphasizes that you should seek quality, pain-free time with your kitty rather than just more time without respect to her well-being.

End-of-Life Decisions

Most of us begin to make end-of-life decisions when our cat has a terminal illness or she has aged to the point at which her life becomes difficult due to things like arthritis pain making it too hard to reach the litterbox in time or to move around easily. Either way, it comes down to available treatments and how aggressive you should be in fairness to your cat.

For example, if she has chronic kidney failure, will she tolerate receiving subcutaneous fluids from you at home? Do you have the time, skill, and comfort level to give her subcutaneous fluids? If both you and your cat are OK with this procedure, it can add months to her life. If it amounts to a wrestling match, panic, and bloody scratches, this is not quality time. You don't want your cat to run and hide whenever she sees you coming!

This is the time to go back to the Animal Hospice Care Pyramid and evaluate your cat's life.

Safety and Environment: Restrict her to keep her away from potentially dangerous places, such as a staircase or aggressive housemate pets.

Mobility: Use ramps to help her go to her favorite places to rest. Move litterboxes and food and water bowls to one level. Get a litterbox with lower sides so she can step into it more easily.

Nutrition: For some conditions and some families, an in-place feeding tube might be the best solution for a cat's final weeks if she cannot be prompted to eat via other means. If your cat won't eat her prescribed diet, it won't do her any good.

Hygiene: Can your cat eliminate on her own? If not, can you express her bladder and administer enemas as needed? There should be no guilt if you cannot. If she can't eliminate on her own and has incontinence, will she handle you cleaning her? If not, she can develop bad ulcers and infections. If your cat is at that stage, her time is likely limited, and she may not want the intense handling necessary for those procedures. Can your cat groom herself or will she allow you to groom her?

Pain Management: Most often, senior cats will experience some pain from osteoarthritis. Perhaps joint supplements and pain medications can help. Be aware that you and your veterinarian may need to attempt trials of different medications or a combination of medications to find the ideal fit for your cat. Virtually all medications come with



Keeping your cat as comfortable and pain-free as possible is the goal of palliative care.

"Euthanasia is one of the most unselfish and courageous decisions you will ever make."
Deb Eldredge DVM

some side effects, and you need to weigh these against your cat's overall comfort. Once again, you also need to look at your part in this. Can you easily pill your cat? How about once a day versus three times a day? Can you get a flavored compounded medication into her or mix it with her food?

When it comes down to social and emotional well-being, you may need to dig deep into your own soul to determine your cat's happiness. Take note of what she does. Is she happiest if you place her on her window seat in a sunbeam where she can watch your bird feeder? Does she want to lie on your lap in the evenings to watch TV? If she no longer enjoys playing with your other pets, do they realize and respect that?

While the thought of evaluating your cat's emotional wellbeing may seem difficult, most of us intuitively sense how are pets are doing. A cat who has urinary incontinence and doesn't want to be bathed regularly may give off more than a bad scent. You may also pick up on her unhappiness. You can sense frustration in the cat who has lost most mobility and clearly wants to go somewhere. Overall, your goal should be for your cat to have more "good" days than "bad" days.

When It's Time

When it becomes clear that you can no longer keep your cat happy or comfortable, you must decide between a "natural" death and euthanasia. A "natural" death is often not pleasant. If your veterinarian feels that this is not an option for your cat, he/she will advise you of this. The oath taken when becoming a veterinarian compels your veterinarian to advocate for a humane end of life for your cat.

Many veterinary clinics have special arrangements for euthanasia, with a quiet time and place for the procedure. In some cases, your veterinarian may be able to go to your home or connect you to a veterinarian who provides that service. Sedatives are given to your cat first, so a catheter can be placed without discomfort. If you can stay with your cat, she may be calmer as she passes. If you are too distraught, however, it's OK.

Sedation can provide a sense of calm to cats during the euthanasia process.

The passing itself is usually quick and peaceful. While there may be a final breath, and bladder and bowels may be released as they pass, the combination of drugs used for feline euthanasia is believed to provide a pain-free, stress-free transition in the majority of cases.

Preferably, your family has decided ahead of time how to handle your cat's remains. You might choose burial in a

pet cemetery (some states allow home pet burials, some do not), or you may prefer a private cremation so you can take the ashes home. Again, whatever is most comfortable for you is right.

"Euthanasia is one of the most unselfish and courageous decisions you will ever make," says Debra M. Eldredge, DVM (Cornell, 1980). You are accepting your heartache in return for a safe and humane ending for your pet. This is a decision made from love. ■

Feline Quality of Life Scale

The HHHHHMM Quality of Life Scale

Feline caregivers can use this scale to evaluate the success of their Pawspice program. Grading each criterion using a scale of 0 to 10 will help caregivers determine Quality of Life for sick cats. Score criterion:

H: 0 - 10 HURT - Adequate pain control, including breathing ability, is the first and foremost consideration. Is the cat's pain successfully managed? Is Oxygen necessary?

H: 0 - 10 HUNGER - Is the cat eating enough? Does hand feeding help? Does the patient require a feeding tube?

H: 0 - 10 HYDRATION - Is the patient dehydrated? For cats not drinking or eating foods containing enough water, use subcutaneous fluids once or twice daily to supplement fluid intake.

H: 0 - 10 HYGIENE - The patient should be kept brushed and cleaned. This is paramount for cats with oral cancer. Check the body for soiling after elimination. Avoid pressure sores and keep all wounds clean.

H: 0 - 10 HAPPINESS - Does the cat express joy and interest? Is the cat responsive to things around him (family, toys, etc)? Does the cat purr when scratched or petted? Is the cat depressed, lonely, anxious, bored, afraid? Can the cat's bed be near the kitchen and moved near family activities so as not to be isolated?

M: 0 - 10 MOBILITY - Can the cat get up without help? Is the cat having seizures or stumbling? Some caregivers feel euthanasia is preferable to a definitive surgery, yet cats are resilient. Cats with limited mobility may still be alert and responsive and can have a good quality of life if the family is committed to providing quality care.

M: 0 - 10 MORE GOOD DAYS THAN BAD - When bad days outnumber good days, quality of life for the dying cat might be too compromised. When a healthy human-animal bond is no longer possible, caregivers must be made aware that their duty is to protect their cat from pain by making the final call for euthanasia. The decision needs to be made if the cat has unresponsive suffering. If death comes peacefully and painlessly at home, that is okay.

*Total= * A total score >35 is acceptable Quality of Life for maintaining a good Feline Pawspice. (Created by Dr. Alice Villalobos. Visit her website at www.pawspice.com.)

Reprinted with permission from author Alice Villalobos, DVM, a founder of the Veterinary Cancer Society and a pioneer of hospice care for pets. Now retired, this 1972 graduate of the University of California at Davis School of Veterinary Medicine and former president of the Society for Veterinary Medical Ethics (svme.org) believes, "Veterinarians have to communicate compassionately yet frankly with clients regarding options for pets with cancer and other terminal diseases."

Feline Mycobacterial Infections

A rare infection that usually targets outdoor cats

Mycobacteria are a class of bacterial pathogens that can be difficult to treat, causing chronic conditions. In people, these bacteria cause illnesses like leprosy and tuberculosis. Fortunately, feline mycobacterial infections are rare.

Many cats that develop mycobacterial infections are immunocompromised, usually due to a chronic health condition or viral infection with feline leukemia virus or feline immunodeficiency virus, although infection in healthy, immunocompetent cats is possible. Siamese and Abyssinian cats are believed to have a genetic predisposition to *M. avium* bacterial infections (see sidebar).

The most common clinical signs of mycobacterial infections in cats are granulomatous skin nodules, non-healing sores and ulcers, and enlarged lymph nodes. If the disease spreads beyond the skin wounds, fever, difficulty breathing, multiple enlarged lymph nodes, and sometimes even lameness associated with bone pain may be noted.

Diagnosis

Most infections are diagnosed by cytology or histopathology (microscopic examination) of the skin lesions. A positive finding on acid fast staining is indicative of a mycobacterial infection. Culture in the laboratory is difficult. Polymerase chain reaction (PCR) studies can narrow down the exact species of bacteria involved.

Treatment

Treatment, if elected, requires long-term antibiotic administration, and



Outdoor cats who have chronic health conditions are at the highest risk for mycobacteria infections.

multiple antibiotics may be necessary. The prognosis for cure is generally guarded to poor, and usually poor if a cat is immunosuppressed. These bacteria can often survive in macrophages, which is partially why they are difficult to eliminate. Rifampicin is often the anchor drug. Doxycycline and clarithromycin also may be given. Ideally, pharmacological therapy is combined with surgical removal of any lesions. Antibiotics should be given for at least two months past resolution of clinical signs. Some cats may require medication for as long as 12 months. Recurrent lesions may be surgically removed in some cases, with wide margins if possible.

Pilling a recalcitrant cat for months is not a positive experience, and some owners have opted for an esophagostomy tube for ease of medication. Gel capsules versus pills can be easier to administer.

Any cat with non-healing or recurrent skin ulcers, especially if that cat has access to the outdoors, should be considered a potential case of mycobacterial infection. Immunocompromised cats are likely at increased risk (and shouldn't be going outside anyway!). It is important to have any lesions of this type looked at by your veterinarian, especially if you have immunocompromised people in your household, as while not highly likely, transmission of mycobacterial infections from cats to people is possible. ■

Feline Mycobacteria Infections

Three classes of feline health problems are caused by these bacteria:

The "Tuberculosis (TB) complex."

This includes *M. tuberculosis*, which is rare in cats, and *M. bovis*, which is more common. Cats living in endemic areas may pick up the infection if they are allowed outdoors.

In North America, eating raw deer, raw elk, raw bison, and unpasteurized (raw) milk are risk factors. Because there is an active testing program for dairy herds, the risk associated with drinking cow's milk is considered low. Feral swine may be responsible for an uptick in mycobacterial infections of this class.

M. microti causes tuberculosis in voles and cats. Cats seem to be naturally resistant to tuberculosis, however, there have been cases documented of infected humans passing this pathogen to cats. Male cats are more susceptible, and these infections are most often diagnosed in adult cats.

M. leprae and *M. visibilis*.

Small rodents can carry this bacteria, so an outdoor cat that hunts is at risk. A form of feline leprosy caused by *M. visibilis* has been identified in cats in Idaho and Oregon. These cats have a diffuse skin condition, with ulcers primarily on the head (including in the mouth and on the tongue) and limbs. Systemic spread may be seen, and these bacterial infections are often aggressive and may recur locally.

The non-tuberculosis (NTM) group.

The most common class of feline mycobacterial infections comes from the NTM group, which are present in the environment. These are saprophytic organisms, which means they need dead or decaying organic matter to survive. *M. avium* is the most common culprit. These bacteria have the most potential for zoonotic spread, though almost always to immunocompromised people. Cats can become infected with these bacteria through wound contamination.

Zoonotic Infections

Feline mycobacteria infections are zoonotic (passing from people to animals and vice versa), although cats are not believed to be highly contagious to people. Cats are likely a "spillover" host, and the risk of transmission from cats to humans is highest with people that are immunocompromised. In a spillover host, the pathogen of concern has overcome the many naturally occurring barriers necessary to "spill over" from one species to another.

2020 Annual Index of Articles

ASK ELIZABETH/Dr. K

- ▶ Ear canal tumor 10/20
- ▶ Elizabeth, thank you 07/20
- ▶ Endoscopy 01/20
- ▶ Freeze-dried cat food 12/20
- ▶ Behavioral drugs for cats 05/20
- ▶ Carbohydrate tracking 09/20
- ▶ Demanding food 12/20
- ▶ Kitty won't scratch 11/20
- ▶ L-lysine for FHV 03/20
- ▶ Optimal weight 06/20
- ▶ Vaping and cat health 08/20
- ▶ Vegetable loving cat 02/20
- ▶ Vision, sudden loss 04/20

BEHAVIOR

- ▶ Resource guarding 02/20
- ▶ Cats that hide 05/20
- ▶ CBD affects cats differently 02/20
- ▶ Excessive grooming stress 07/20
- ▶ Feline affection 10/20
- ▶ Head rubbing 11/20
- ▶ Panting 09/20
- ▶ Play aggression 02/20
- ▶ Pica 08/20
- ▶ Scratching, stop 06/20
- ▶ Unique behaviors, 5 things 11/20
- ▶ Veterinary visits, 5 things 03/20

DENTAL

- ▶ Bad breath 02/20, 06/20
- ▶ Cats without teeth 01/20

HEALTH

- ▶ Antibiotics, understanding 07/20
- ▶ Antifreeze and cats 02/20
- ▶ Ascites 07/20
- ▶ Cancer, mast cell 07/20
- ▶ Cerebellar hypoplasia 07/20
- ▶ Constipation 05/20
- ▶ Coronavirus in cats 04/20
- ▶ COVID-19 08/20
- ▶ Diagnostic decisions 11/20
- ▶ End-of-life guidelines 12/20
- ▶ Epilepsy 07/20
- ▶ Essential oils, 5 things
- ▶ Eye ointments 07/20
- ▶ FIP treatment 10/20
- ▶ Gallstones 03/20
- ▶ Glyphosate (Round-Up) 04/20
- ▶ Hair coat problems 11/20
- ▶ Hairballs (trichobezoar) 08/20
- ▶ Illness detective 01/20
- ▶ Inappetence 08/20
- ▶ Incision care 04/20
- ▶ Inflammatory bowel disease 09/20
- ▶ Influenza transmission 09/20
- ▶ Interstitial cystitis 10/20
- ▶ Long-term care, 5 things 04/20
- ▶ Myobacterial infections 12/20

- ▶ Mosquitoes and cats 06/20
- ▶ Neonatal isoerythrolysis 04/20
- ▶ Obstruction, yarn/string 09/20
- ▶ Panleukopenia 05/20
- ▶ Preanesthetic testing 08/20
- ▶ Primordial pouch 09/20
- ▶ Ringworm 03/20
- ▶ Runny eyes 08/20
- ▶ Steroids for control 11/20
- ▶ Streptococcus infection 08/20
- ▶ Terminal diagnosis 11/20
- ▶ Vision loss 06/20
- ▶ Vaccines, choices 06/20
- ▶ Voice changes 01/20

GROOMING

- ▶ Dandruff 03/20
- ▶ Greasy coats 02/20
- ▶ Nails, grinding 03/20

NEWS

- ▶ AAHA end-of-life accreditation 12/20
- ▶ Bravecto Plus FDA approval 02/20
- ▶ Cat enters dog race 03/20
- ▶ Cat foils and dog in tree 03/20
- ▶ Cat matchmaker 11/20
- ▶ Cat rides in engine 09/20, 10/20
- ▶ Cat steals shoes 11/20
- ▶ Child raises money for cat café 05/20
- ▶ Cinder-Block's weight loss 01/20
- ▶ Cloned cat, first, dies 07/20
- ▶ Coconut meal 1/20
- ▶ Colectomy performed 08/20
- ▶ COVID anxiety 09/20
- ▶ COVID in cat 10/20
- ▶ COVID overwhelms shelters 07/20
- ▶ Credelio, Selarid FDA approved 05/20
- ▶ Dog rescues kittens 02/20
- ▶ Dog nurses orphaned kittens 12/20
- ▶ FDA: Cats are minor species 09/20
- ▶ Feline Historical Museum 05/20
- ▶ Feline social club 04/20
- ▶ FFV in Pumas 05/20
- ▶ Fido Bag to firefighters 09/20
- ▶ Hoarding case record 12/20
- ▶ Italian food craving 03/20
- ▶ Jail break shelter cat 02/20
- ▶ Jail time for feral-cat feeder 04/20
- ▶ Madagascar forest cats 06/20
- ▶ Microchip bill in Georgia 06/20
- ▶ Mirataz sold 06/20
- ▶ PACT Act 01/20
- ▶ Pet store animal sales 07/20, 08/20
- ▶ Poisons, 2019 top 06/20
- ▶ Prosthetic paws 05/20
- ▶ Rabies on the rise 04/20
- ▶ Ranitidine recall 07/20
- ▶ Research grant, Cornell 07/20
- ▶ Smuggling dead birds 05/20
- ▶ Stray cat seeks help for kitten 07/20

- ▶ Stray cat goes shopping 07/20
- ▶ Technology sales up 12/20
- ▶ Transdermal med, heartworm 10/20
- ▶ Wildfires, injured cats 05/20
- ▶ World's oldest cat dies 09/20
- ▶ World's worst cat 04/20

NUTRITION

- ▶ Choosing cat food 09/20
- ▶ Diabetic cat feeding 02/20
- ▶ Feeding human foods 03/20
- ▶ Hyperthyroid cats, feeding 05/20
- ▶ Mineral levels 03/20
- ▶ Palatability of cat food 04/20
- ▶ Supplements, 5 things 02/20

MISCELLANEOUS

- ▶ Allergy control, human 04/20
- ▶ Catio 01/20
- ▶ Fun facts, 5 things 10/20
- ▶ Harness, choosing 10/20

RESCUE

- ▶ Foster care volunteers 02/20
- ▶ TNR and unowned cats 01/20

RESEARCH

- ▶ Antibiotics and UTIs 07/20
- ▶ Cachexia with heart failure 05/20
- ▶ Cat food inconsistency 05/20
- ▶ Cat imitates person 12/20
- ▶ Chemo for lymphoma 07/20
- ▶ Chronic stress, measuring 03/20
- ▶ COVID feline medicine 11/20
- ▶ COVID genetic study 10/20
- ▶ Death of pet and children 12/20
- ▶ Epidurals, urethral obstruction 07/20
- ▶ Feeding, once daily 12/20
- ▶ Indoor cat activity 09/20
- ▶ Intestinal problem samples 06/20
- ▶ Liver cancer, link 01/20
- ▶ Music and cats 06/20
- ▶ Mycobacteriosis rising 05/20
- ▶ Nasal illnesses 03/20
- ▶ Ocular post traumatic sarcoma 12/20
- ▶ Pain control for spays 06/20
- ▶ Pain, checklist 11/20
- ▶ Pain, measuring 07/20
- ▶ Peace in a mixed household 11/20
- ▶ Pet nutrition worrisome trend 10/20
- ▶ Phenobarbital transdermal 05/20
- ▶ Ringworm susceptibility 11/20
- ▶ Ringworm treatment 09/20
- ▶ Sedative alternative 06/20
- ▶ Septic peritonitis 04/20
- ▶ Skeletal remains 1,000 years old 10/20
- ▶ Snake bites and clotting 08/20
- ▶ Spousal loss, pets 02/20
- ▶ Topical anesthetic, venipuncture 10/20
- ▶ Transitional cell carcinoma 03/20
- ▶ Urinary tract infections test 01/20
- ▶ Whiskers and food bowls 09/20

Freeze-Dried Cat Food Concerns

Picky kitty may make this less of an attractive option

Q Thank you for your thorough publication. I have a question about feline nutrition and dehydrated cat foods. I recently introduced my 12-year-old Siamese cat to a raw, grain-free, freeze-dried dry cat food. He took to the food straight away but only eats the turkey/liver pieces. Do these freeze-dried pieces provide balanced nutrition? Will they dehydrate him? What are the pros and cons of freeze-dried feline food? Thanks for your consideration.

A Thanks for getting in touch, and these are good questions for discussion. There has been much debate regarding the best foods to feed cats recently, and some of the controversies are likely made much more obvious by trends in pet-food development over the past couple of decades. Perhaps a general discussion of some of these principles would be helpful.

In choosing a cat food, we recommend you look for a package label from the American Association of Feed Control Officials (AAFCO) stating that the food is nutritionally complete and balanced for the cat's stage of life (i.e., kitten versus adult). Pet-food companies can meet AAFCO guidelines by either making sure that a food has the appropriate nutrient composition in its formula or by conducting feeding trials

in cats. Generally, the latter is preferable, but either choice is fine.

To answer your question about your kitty only eating the freeze-dried turkey liver pieces and not the rest of the food, it is quite possible, if not likely, that this will not provide a nutritionally complete and balanced diet. Even if this food does have an AAFCO statement on it, this would refer to cats eating all of the food and not just some components of it. You can verify this by contacting the company that produces the food.

It is not likely that these freeze-dried pieces would dehydrate your cat provided that you provide enough fresh water and that your cat is healthy. However, cats do get a significant portion of their water intake through their diet, so regular veterinary check-ups may help in this regard (this should be provided for all cats anyway).

Your question also raises a couple of

other points. The first is that the feeding of raw foods, even if it freeze-dried, may expose cats and their owners to potentially harmful pathogens such as bacteria and parasites. This issue is the subject of ongoing research, but we don't generally recommend that owners feed raw foods for this reason.

The other issue is that there has been some concern regarding the feeding of grain-free foods to both cats and dogs, as this practice has, in some cases (rarer in cats than in dogs) been associated with the development of heart muscle problems (called cardiomyopathy).

This issue has been significant enough that the FDA released a statement of caution about it, and this is also the subject of ongoing research. For this reason, out of an abundance of caution, we do not recommend the feeding of grain-free diets to cats. This position may change as we learn more, but we feel that it is best to be safe until we have a better understanding of this phenomenon.

I hope that this is helpful, and that this note finds you well. Please send us an update when you can. ■

If kitty is picking out her favorite pieces of food, she may not be eating a balanced diet.



Elizabeth's popular column is being continued by Bruce Kornreich, DVM, PhD, DACVIM, Director of the Cornell Feline Health Center and Editor-in-Chief of

CatWatch. You can write to Dr. Kornreich at catwatcheditor@cornell.edu or CatWatch, 535 Connecticut Ave., Norwalk, CT 06854. We welcome digital photos of your cat to consider for use with your question.

© HAPPENING NOW...

Technology Pet Sales Are Up—Pet Product News reports that sales of “smart” pet products—those using Bluetooth, GPS, or radio-frequency identification (RFID), or able to connect to the internet—rose 11% in 2019, hitting \$491 million. Top items were: invisible fencing systems and smart pet doors (36% of the sales), collars/tags (28%), toys (21%), cameras/video systems (7%), and feeders/treat dispensers (5%). Interestingly, smart litterboxes made up only 3% of the sales.

Record-Breaker—The Brandywine Valley SPCA added 182 cats and one dog that were seized in a suspected animal

cruelty case near Dover, Del., says the *Daily Local News*. The investigation is ongoing with charges pending, but it's believed to be the largest hoarding-case seizure in the state's history.

Georgia Rescues Kittens—Georgia was frantic when her premature puppies died. The Phoenix, Ariz., area rescue put out a notice, asking if anyone needed a lactating dog. The answer came in the form of three orphaned kittens, reports *Arizona ABC15*. The four animals formed an instant bond. Georgia nurses the kittens, cleans them, and protects them as if they were her babies. The kittens appear to have no idea Georgia is canine. ■



Coming Up ...

- ▶ *What You Need to Know About Deworming*
- ▶ *Is It a Shelter or a Hoarding Case?*
- ▶ *Senior Feline Kidney Disease*
- ▶ *Frenetic Random Activity Periods (Zoom!)*