



CatWatch

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



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IN THE NEWS ...

An Incentive to Encourage Feline Veterinary Visits

At the North American Veterinary Conference in Kissimmee, FL, the American Association of Feline Practitioners unveiled its "Cat Friendly Practice" in response to declining clinic visits by cat owners. This initiative hopes to help clinics increase veterinary visits for felines, and to also boost the level of healthcare that cats receive.

Certification requires that a practice has at least one staff member who is a member of the American Association of Feline Practitioners. Practices must comply with a 10-item checklist and send it to the AAFP for review. If approved, the clinic earns the "Cat Friendly Practice" designation and receives marketing materials to promote its new status to customers and will be listed in the "Cat Friendly Practice" online database.

The initiative shares similarities with the Cat Friendly Practice Makeover program launched in 2011 by the Catalyst Council. ♦

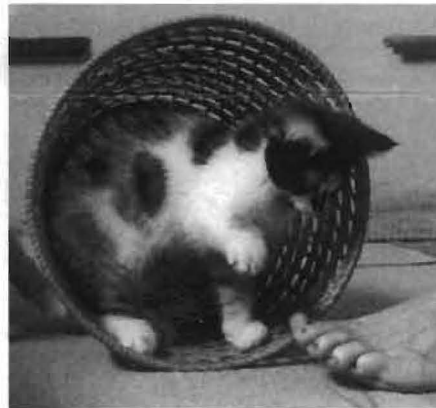
Deworming: A Must for Kittens

Immature cats are at elevated risk for serious roundworm and hookworm infection. Be sure to seek veterinary advice.

Few things in life are sweeter than the sight of a newborn kitten, nursing contentedly at its mother's nipple. A healthy kitten will nurse every 20 minutes or so, typically for about eight weeks, during which time its mother's milk will fulfill all of the kitten's nutritional needs.

Unfortunately, that milk can also contain the larvae of intestinal worms — parasitic creatures that can compromise a kitten's health and, if nothing is done to stem their proliferation, may lead to life-threatening illness.

For this reason, the Companion Animal Parasite Council (CAPC), the American Association of Veterinary Parasitologists (AAVP) and other organizations strongly recommend



that all newborn kittens be tested for these worms and be given medications that will kill the parasites — a process called "deworming" — on a routine schedule beginning when they are three weeks old.

Intrusive Creatures.

A parasite is an organism that inhabits and finds its nourishment inside another creature, contributing nothing beneficial

to its host's well-being, and often robbing the infected animal of valuable nutrients or otherwise damaging its health. Cats commonly serve as hosts for these organisms.

Among the most troublesome of feline parasites are certain helminths, worms that inhabit the feline gastrointestinal tract — the

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How to Curb Destructive Scratching

Redirecting your cat's natural behavior will require a two-pronged approach. Here's some expert advice.

Not long after you've invested in new furniture, your cat picks her favorite spot. And it's not where she wants to take a nap, either. It's the place she's chosen to give herself a pedicure, and soon that beautiful new sofa looks like it's gone through a shredder.

You may notice your cat using her nails when she first gets up and stretches or suddenly stop to sink her nails into the wall-to-wall carpeting as she crosses a room. She may scratch at the end of a burst of energy after playing with her favorite toy. Fabrics, carpet, wood, cardboard — anything in your house made of materials your cat can sink her nails into can ultimately become a target for her clawing.

"Clawing helps them to shed the outer

layer of their nails," explains Katherine Houpt, VMD, PhD, and the emeritus James Law professor of Behavior Medicine at Cornell University's College of Veterinary Medicine. In addition to having a practical purpose, clawing also serves a more esoteric function. Cats indoors and out leave olfactory and visual signals on the surfaces of whatever material they claw. "Indoors, cats leave the marks on well-traveled areas like doorways or in more obvious locations like the ends of a sofa," says Dr. Houpt.

Although your cat may be leaving her scent on the surfaces she claws, no one is entirely sure what these marks tell other cats. "The significance is not fully understood,"

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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/.



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SHORT TAKES

The Importance of Fecal Exams

In this recent study ("Prevalence of fecal-borne parasites detected by centrifugal flotation in feline samples from two shelters in upstate New York," in *Journal of Feline Medicine and Surgery*, 2011), fecal samples from 1,322 cats from two shelters and foster homes in upstate New York were processed for parasite detection over three-and-a-half years. All samples were processed by zinc sulfate and sugar double centrifugal flotation.

In slightly over half of the samples (50.9 percent), at least one parasite was detected upon microscopic examination, and at least 18 different parasites ranging from 0.2 percent to 21 percent in prevalence were recovered in the process. The two most prevalent parasites in this study were *Cystoisospora* species and *Toxocara cati* (each had a prevalence of 21 percent). The next most prevalent was *Giardia* species cysts at 8.9 percent, followed by *Aelurostrongylus abstrusus* (the cat lungworm) at 6.2 percent.

The remaining parasites were each found in less than 4 percent of the samples: taeniids, *Cryptosporidium* species, *Ancylostoma* species, *Cheyletiella* species, *Dipylidium caninum*, *Otodectes* species, *Toxoplasma gondii*, *Sarcocystis* species, *Demodex* and *Spirometra* species, *Alaria* species and *Felicola subrostratus*. These results indicate prevalence determination based solely on fecal examination is likely to underestimate the true prevalence of infection in the population.

Many of the parasites detected in the study are acquired by predation, which is even possible in owned cats that have outdoor access or the potential for visits from mice and other transport hosts (such as fleas, etc.). These findings support the recommendations that all pets — even those under routine veterinary care — should have at least one fecal examination and should be placed on year-around prevention for internal and external parasites.

Big and Small Cats Share Diseases

Domestic cats, wild bobcats and pumas that live in the same area can share the same diseases — and domestic cats may bring them into human homes, according to results of a study of what happens when big and small cats cross paths. This study — published in the scientific journal *PLoS* by a group of 14 authors — provides evidence that domestic cats and wild cats that share the same outdoor areas in urban environments also can share diseases such as Bartonellosis and Toxoplasmosis. Both can be spread from cats to people.

The study looked at urban areas in California and Colorado. The three diseases



that the scientists tracked — Toxoplasmosis, Bartonellosis and feline immunodeficiency virus (FIV) — were all present in each area. The research also demonstrates that diseases can be clustered due to urban development and major freeways that restrict animal movement.

"The results are relevant to the big picture of domestic cats and their owners in urban areas frequented by wild cats such as bobcats and pumas," explained Sue VandeWoude, a veterinarian at Colorado State and co-leader of the project. "The moral of this story is that diseases can be transmitted between housecats and wildlife in areas they share, so it's important for pet owners to keep that in mind."

The researchers followed wild and domestic cats in several regions of Colorado and California to determine whether the cats had been exposed to certain diseases. The effort includes data from 800 blood samples from felines of all sizes, including 260 bobcats and 200 pumas, which were captured and released, and 275 domestic cats.

"As human development encroaches on natural habitat, wildlife species that live there may be susceptible to diseases we or our domestic animals carry and spread," said Kevin Crooks, a biologist at Colorado State and co-leader of the project. "At the same time, wildlife can harbor diseases that humans and our pets can in turn get. Diseases may be increasingly transmitted as former natural areas are developed."

The joint National Science Foundation (NSF) and National Institutes of Health (NIH) Ecology and Evolution of Infectious Diseases (EEID) Program funded the study. Scientists at Colorado State University and other institutions conducted the research. ♦



Obesity: A Major Health Risk

A reduced calorie diet can help most cats lose their excess weight. Here's why it's so important.

Obesity is a big problem for our beloved feline friends. Many serious health problems can result, such as arthritis, liver disease, heart failure and renal disease. And don't think you're the only one living with a fat cat.

"There is no question that feline obesity is the number-one nutrition-related disorder in cats today," Francis Kallfelz, DVM, the emeritus James Law Professor of Medicine (Nutrition) at Cornell University's College of Veterinary Medicine. "It is estimated, he notes, that 40 percent of all cats in the U.S. are either overweight or obese.

Revealing Signs. In most cases, he notes, you don't need this scale in order to determine that your cat is overweight. "You can tell by simply looking at the animal," says Dr. Kallfelz, who is board-certified by the American College of Veterinary Nutrition. "When you look at a cat of normal weight from above or from the side, you'll see a narrowing, or tuck, behind its rib cage. When that tuck disappears and the cat seems to be developing a pot belly, that's an indication that it is overweight or obese." Other clear indications of obesity, he adds, include

the accumulation of fat over the hips and rear end, and a reluctance to engage in strenuous activity.

A Delicate Balance. The chief cause of feline obesity, says Dr. Kallfelz, involves "simply an equation of caloric intake versus caloric expenditure. There should be a direct balance of intake and expenditure in this regard. When a cat consumes more than it expends, it will gain weight." A diet that is high in carbohydrates is especially likely to cause weight gain, he notes, since cats are naturally equipped to eat and digest prey that is constituted mostly of water, protein and fat, but not much carbohydrate. "So, just like humans," he says, "a cat that consumes a diet that is overly rich in carbohydrates will store them as fat."

In addition to inhibiting a cat's normal penchant for physical activity, seriously compromising its quality of life and probably shortening its life span, obesity can exacerbate several disorders. Among the conditions include osteoarthritis and hip dysplasia. The most effective therapeutic approach to treating hip dysplasia is a weight control program that starts early in an affected cat's life,

GET EXPERT ADVICE. You may think your big boy is adorable — but your veterinarian can give you more objective insight about his health.

the purpose of which is to take as much pressure as possible off the animal's limbs.

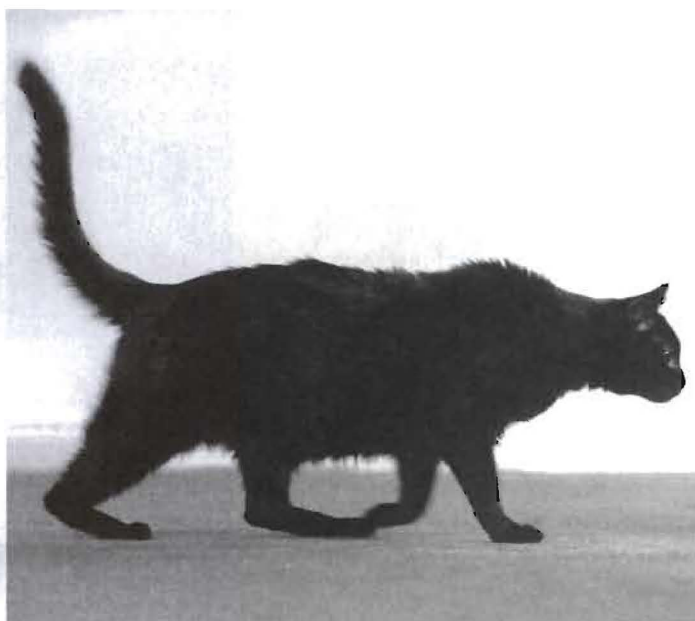
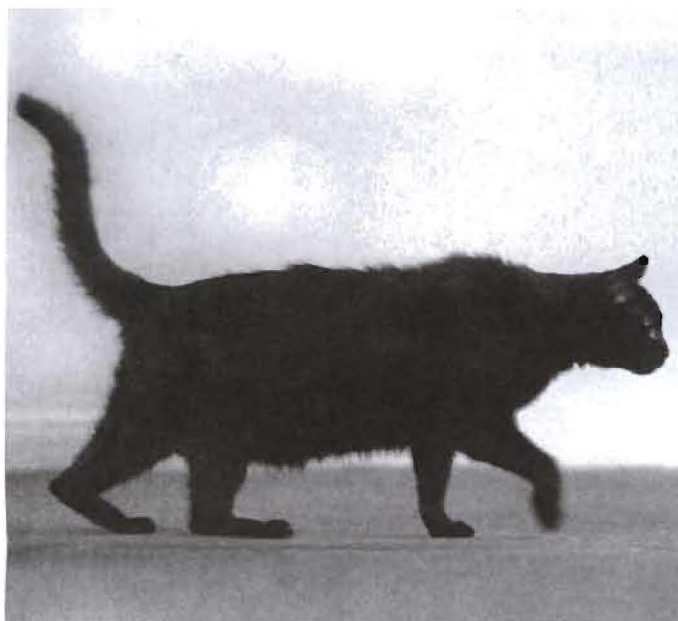
Feline obesity is also strongly associated with diabetes mellitus, a disease caused by insufficient production of or response to the hormone insulin, which is essential to the regulation of blood sugar. In addition, obesity has been linked to hepatic lipidosis, a very serious and potentially lethal liver disease.

Cardiovascular health can also be impaired by obesity, he notes. "Certainly," he says, "an extra burden is placed on a cat's heart and vascular system when they have to move blood through all of this excess tissue."

The Right Stuff. Given these risks, says Dr. Kallfelz, it stands to reason that a cat's life span may be substantially extended and its quality of life significantly improved if its owner carefully manages — and appropriately restricts — the animal's caloric intake. However, he advises, a weight-loss program should not be undertaken without the consultation of a veterinarian, since many signs of obesity may be caused by physical abnormalities or diseases that require specific treatment.

If no underlying disease is discovered, the veterinarian is likely to recommend a weight-reduction program comprising two elements: a decrease in the cat's daily caloric intake and an at-home exercise program geared to help the animal burn more calories each day than it consumes.

Regarding the feline diet in general, Dr. Kallfelz offers the following advice: "Make sure you're feeding a food that's guaranteed to be complete and balanced for the life stage of your cat, and make sure you're feeding your animal the proper amount. You can find a nutritional guarantee on the label of virtually every cat food on the market today. And make sure that you don't overfeed the animal. Watch its weight. An adult cat at maintenance weight should be neither losing nor gaining. As long as the label carries the appropriate life-stage guarantee and is a properly formulated diet, it shouldn't make any difference whether it's wet or dry food." ♦



Diagnosis: Diabetic Neuropathy

Does your cat seem to be dragging his heels? If so, this disabling consequence of diabetes could be the cause.

If you ever try to move around your home very, very quietly — to avoid waking a slumbering child, for example — you may be in the habit of walking on your tiptoes. Normally, however, you will employ what's termed a "plantigrade" stance. That is to say, you'll stand and walk with the entire sole of your foot touching the floor.

Cats are different from you and your fellow humans in this respect. Unless they've suffered an injury or are afflicted with a physical condition that makes it painful or physically impossible for them to do otherwise, they will, by nature, walk on the front part of their feet.

Notable among the feline disorders whose presence is signaled by a cat's inability or unwillingness to walk on its toes is a condition called diabetic neuropathy. This condition is characterized by progressive muscle weakness, especially in an affected animal's hind limbs, and its habit of walking on the back part of its legs — the hocks — rather than just on its toes.

A Frequent Complaint. Diabetic neuropathy occurs as a consequence of diabetes mellitus, explains Marnie

FitzMaurice, VMD, PhD, an instructor in the Department of Biomedical Sciences at Cornell University's College of Veterinary Medicine. "About 10 percent of cats with diabetes mellitus develop diabetic neuropathy to the extent that it becomes alarming to a cat's owner and is clinically recognizable at a veterinary clinic," she says.

"There are probably many more diabetic cats afflicted in a less severe way. But since cats don't usually complain if something is bothering them, there may actually be a lot of mild cases of this disorder that are undiagnosed, explains Dr. FitzMaurice.

At the Source. The source of the disorder — feline diabetes — may be generally described as a disease resulting from the insufficient production or improper utilization of insulin, a hormone produced by the pancreas that's needed to regulate the flow of glucose from circulating blood into the body's cells.

Without glucose in its cells, an animal — feline or otherwise — cannot survive, since this sugar provides the energy needed to sustain life. However, an excess of glucose in the bloodstream

— a condition called hyperglycemia — can ultimately prove to be lethal.

There are two kinds of feline diabetes: insulin dependent and non-insulin dependent. These conditions correlate roughly to the categories of the disease in humans that are known as type I and type II diabetes.

◆ In type I diabetes (also referred to in humans as juvenile-onset diabetes), the body produces little or no insulin due to an insufficient number of pancreatic cells capable of performing this complex task. Treatment for the condition typically involves a carefully controlled diet and, in almost all cases, insulin therapy that requires daily injections of the hormone.

◆ In type II diabetes (also referred to in humans as adult-onset diabetes), the pancreas may produce normal amounts of insulin, but the body's cells have difficulty making efficient use of the hormone — a phenomenon called *insulin resistance*. This form of the disease can typically be treated with a combination of dietary adjustment, weight control and the use of insulin therapy or medications that increase insulin secretion.

A Complex Process. Felines, like humans, are susceptible to both forms of the disease, although type II is diagnosed far more frequently than type I in cats. However, says Dr. FitzMaurice, diabetic neuropathy, which results from high blood sugar, occurs in both types of diabetes.

TREAT THE DISEASE. There's no specific therapy for diabetic neuropathy (at left). It's best to try to get the diabetes under control.

She describes what she terms "a pretty complicated mechanism" as follows: "High levels of sugar in the blood affect a number of metabolic pathways, resulting in dysfunction of the neurons and the cells — called Schwann cells — that support the neurons. These cells provide a sheath made of a substance called myelin that surrounds the neurons and helps them to function. This myelin sheath breaks down as a result of high blood sugar levels, and the nerves cannot work properly. In addition, diabetes causes constriction of blood vessels, which compromises blood flow to the nerves."

In diabetic neuropathy, explains Dr. FitzMaurice, the dysfunction resulting from nerve damage is generally symmetric, manifesting itself in both hind legs. "One of the first signs a pet owner will usually notice," she says, "is the plantigrade stance, with the affected cat walking flat on its hocks. This is the classic appearance. The cat may also have generalized muscle weakness, usually noticeable at first in the hind legs, and the loss of muscle mass may eventually become visible."

Disease Progression. Although the rate at which the neuropathy progresses is variable, debilitating signs will usually become more severe over a period of weeks or months, she notes, to the point at which a cat may lose its ability to run and jump. The condition may gradually begin to affect the front limbs as well. "The greatest risk factor," says Dr. FitzMaurice, "is the degree of hyperglycemia that is present due to the cat's diabetic condition."

At present, she notes, there is no specific medical therapy for diabetic neuropathy. "The only way in which the condition can be relieved," she says, "is to treat the underlying diabetic condition. All you can do is to try to get the diabetes under control to the extent possible, although treating the diabetes may not completely reverse the neuropathy." ❖



Take Your Cat For a Walk!

Training your cat to accept a harness and leash can provide extra stimulation for the indoor pet.

Bucky, a striking gray tabby with bright green eyes, touches blades of grass with his nose, rolls around on the sunny deck and sniffs blackberry branches. It's all part of his regular walk around the fenced backyard with his human companion, who supervises his short outings. Since he is not particularly agile, his owner doesn't worry about quick escapes or even a leash.

Bucky's feline buddy, however, is a different matter. Jade, an agile black cat, loves the great outdoors as much as Bucky, but her athletic prowess easily has her up, up and away in a matter of seconds. Walking Jade outside requires an appropriate harness and leash.

Whether you live with a Jade or a Bucky type, walking your cat will bear little resemblance to a conventional walk with the dog. Your cat probably will not like striding along at a brisk pace on a concrete sidewalk. That doesn't mean, however, that taking a walk with your cat isn't a great idea.

Experts feel that taking your cat outdoors in a safe, supervised manner

is excellent enrichment for those cats that enjoy it. Obviously, each cat's particular situation will determine whether outdoor time is a good option.

Leave Destination Up to Kitty.

Not surprisingly, your cat will decide the nature of your walks together. Some cats explore the environment by walking slowly and sniffing. Older kittens will make mad dashes for anything that moves, especially that butterfly. Others prefer to settle themselves outside and quietly watch the world pass by.

To help your cat experience the world, stretch those feline muscles and share time with you, consider the following expert tips:

Choose a quiet area with few dogs and little traffic. If the only place for your cat to be outdoors is a busy, noisy, city street, he may be happier staying inside. (He will definitely be safer.)

Use the right equipment. A variety of sturdy, adjustable harnesses are available for cats, including figure-eight, H-

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DESTRUCTIVE SCRATCHING

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says Dr. Houpt. "Cats are rarely seen investigating other cats' claw marks."

Clawing may be the feline version of graffiti. While it serves as a form of communication, another cat may notice it, but paint right over it with his own scent until layer upon layer builds up. "It's such a normal behavior among cats that get along, as well as in ones that don't — that no one's really sure what the message is," explains Dr. Houpt.

Of concern is the cat in a multicat household that isn't marking with its claws. "If one isn't marking, you know that cat isn't comfortable in the territory," says Dr. Houpt.

Expressing Individuality. Cats have been known to claw the carpet, upholstered furniture, cardboard boxes, wood surfaces like kitchen cabinets or table legs, anything resembling a tree or even the fake bark on an artificial Christmas tree trunk. "It's just individual preference," says Dr. Houpt. "Sisal, for example, is supposed to be a prime clawing material, but some cats don't like it."

Determining what your cat prefers enables you to give her an alternative to your belongings. "Some people spend a lot of money on scratching posts made of one kind of material, and their cats don't like them," says Dr. Houpt. "You

need to provide her with something she can get her claws into, something that will show her marks and maintain her claws." Additionally, some cats prefer to claw vertical surfaces while others like horizontal or even sloped surfaces.

A Two-Pronged Solution. Physical punishment is rarely successful as an aversion technique for any inappropriate behavior. "You always have to catch the cat exactly at the moment of misbehavior every time she misbehaves," says Dr. Houpt. "Eventually, the cat just learns to claw when you aren't around."

Getting your cat to stop scratching your belongings requires a two-pronged approach. "You need to make whatever your cat is scratching less desirable and provide her with something more desirable," says Dr. Houpt.

To make surfaces less desirable for clawing, try attaching double-sided tape, which cats don't like to feel on their paws. Cover sofa and chair ends with aluminum foil to deter clawing. If your cat attacks an area of the carpet, cover it with a plastic runner, knobby side up. Scented oil that your cat doesn't like sprayed onto a surface may keep her away from it. "Test the fabric for stain resistance and make sure the scent of the oil is not overpowering for you or your cat," says Dr. Houpt.

Provide a Cat-Friendly Spot. At the same time that you're dissuading her from clawing certain places, you need to provide your cat with objects to claw. "If you don't give your cat something else, you've only fought half the battle," says Dr. Houpt. "Your cat is scratching there for a reason. If you cover the couch corner, put a scratching object next to it so the cat can use it."

Scratching objects certainly don't need to be complex or expensive. Cardboard scratchers, a piece of driftwood or even swatches of carpet may be all your cat needs. "Many cats like to scratch the back side of carpet remnants," says Dr. Houpt. To encourage your cat to use the post, spray it with catnip scent, but don't take your cat to it and make her scratch the post. "Cats don't like to be forced," says Dr. Houpt. Place scratching options where your cat will use them. ♦

FUND DURABLE FABRICS. Other cat owners and furniture manufacturers can provide suggestions about materials that are most resilient.

WALK YOUR CAT!

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style, and walking-jacket designs. One style of feline walking jacket features an L-shaped section made of sport nylon that curls under the stomach for comfort and support; three nonbinding, adjustable straps buckle on the same side for easy fitting.

Choose a style that fits your cat well and try it out in your home — your cat should be comfortable and **secure** before you open the door. (A correct fit: Your finger should barely fit between your cat and the harness.) Attach your cat's harness to a lightweight leash or a lead with a secure clip.

Do not attach a leash to your cat's collar. Cats easily slip out of collars, especially when pulling against a leash restraint, and using one during a walk will place pressure on a cat's neck. And avoid retractable leashes — this type of leash requires pulling pressure to move, which cats don't enjoy, and can leave your cat too far afield — not a good idea in a world where bicyclists, cars and dogs can suddenly appear.

Consider Safety First. Any cat that steps outside should be tested for feline immunodeficiency virus and feline leukemia virus and be up-to-date on recommended vaccinations and heartworm preventative. During walks, be aware of your surroundings and on the alert for things that might startle or frighten your cat. Ensure that your cat is identifiable (ID tag, microchip and/or tattoo) in the unlikely but possible event that you are separated. In addition, never leave your cat unsupervised during even the briefest outings; for instance, cats should not play on balconies or decks alone.

Other Options. No matter how pleasant or enticing you try to make it, however, some cats won't enjoy walks and should not be forced to go. Remember: What may seem pleasurable to you, or to another animal, may be stressful and scary for your particular pet.

If, despite your best efforts, your cat clearly communicates "NO" to outdoor adventures in the form of hissing, tail thrashing, growling or hiding, other options do exist. For example, try giving your cat scheduled attention, training time and play sessions and rotate her interactive toys. ♦



WORMING YOUR KITTEN...

(continued from cover)

stomach and intestines. According to Dwight Bowman, DVM, PhD, a professor of microbiology and immunology at Cornell University's College of Veterinary Medicine, the two helminths most frequently found in cats are roundworms and hookworms. Both are classified as nematodes — worms with distinctively cylindrical, unsegmented bodies that are narrowed at each end.

One type of roundworm — *Toxocara cati* — is especially common, says Dr. Bowman. It is known to thrive everywhere in the U.S., and can survive in any climate, although, he notes, it tends to do less well in very hot, dry regions. Mature roundworms are not a pretty sight, the typical adult being a white, spaghetti-like creature about three to five inches long.

In most cases of roundworm infection, a cat will harbor dormant larvae in its body for years, possibly throughout its life, without harmful consequences. But if enough of the larvae develop into mature worms and enter the gastrointestinal system, serious vomiting and diarrhea can result. And if 40 or 50 adult worms collect in the intestine, they can create a potentially life-threatening blockage. Roundworm infection is especially dangerous for kittens and for elderly cats with other health problems, notes Dr. Bowman.

Depending on the species of roundworm, cats can become infected in three different ways: by ingestion of eggs passed in the stool of an infected cat, by eating a rodent that harbors roundworm larvae or by ingesting worm larvae that are present in the milk of an infected queen. Although the larvae in the mother cat may be dormant, they become active during pregnancy, migrate to the mammary glands and subsequently invade the mother's milk. This transmammary route is common, and explains why kittens account for the vast majority of felines at risk for serious worm-caused illness.

Another common threat to kittens — whose bodies and immune systems are less well developed than those of adult cats — is hookworm infection. These creatures cause blood to leak from the intestinal lining into the small bowel of the host; if not treated promptly, the resulting blood loss can lead to life-threatening anemia.

There are several ways in which an uninfected cat can get hookworm parasites into its body: by ingesting the worms' lar-

vae in soil or on vegetation that has been contaminated by an infected cat's feces, by larvae penetrating its skin or by eating the tissue of a prey animal — such as a mouse — in which larval worms can persist in a dormant phase.

Signs of Infection. A cat's physical reaction to the presence of roundworms in its system is often not apparent. In fact, says Dr. Bowman, most owners of adult cats won't know their cats are infected until they are hosting large numbers of fully grown worms. "But that's not to say that a problem doesn't exist," he notes. "No one would like to have five-inch-long worms swimming around in their intestines."

A cat that is experiencing advanced roundworm infection may develop serious diarrhea, a natural process for ridding the intestines of the irritating worms. Or an animal may have frequent bouts of vomiting and weight loss; this process can be futile, however, since many of the regurgitated worms are apt to be swallowed and, thus, to regain entry into the digestive system. The most severe health threat is an impacted intestinal tract — caused by the sheer physical mass of harbored roundworms — and the possibility that, as the worms move about, they might cause a perforation of the bowel wall, which can lead to lethal infection or hemorrhage.

The clinical signs of acute hookworm infection are different. The most telling among them is the presence of black, tarry, perhaps bloody feces. In chronic cases, the blood is lost at a slower rate, and no obvious signs of infection may be present, but the cat will nevertheless be anemic.

Kittens are especially vulnerable if infected with either of these parasites, Dr. Bowman notes. "They're smaller and their tissues are thinner," he says.

Diagnosis and Treatment. To test for the presence of roundworm or hookworm infection, a veterinarian will do a fecal flotation test in which a stool sample taken from an animal is mixed in a cylinder with a special solution that causes any eggs that are present in the liquid to float upward and collect on a microscope slide placed on top of the cylinder. A microscopic study of the liquid will then identify the culprit.

According to Dr. Bowman, there are numerous medications available that are both safe and effective in preventing — and getting rid of — roundworms and hookworms. All of the deworming drugs

can be administered by a cat's owner, he notes. The frequency with which a cat should be dewormed will be determined by a veterinarian and will depend largely on an animal's age, the apparent severity of worm infection and the animal's general health.

Noting that roundworm and hookworm infection should be suspected in all young cats, however, Dr. Bowman recommends fecal examination — and deworming if needed — as a standard component of any kitten's earliest health care. "I would like to see all veterinarians routinely conduct fecal examinations and, when appropriate, use these medications," he says. Following are the recommendations for feline deworming that are currently promoted by CAPC and AAVP:

Every kitten should be tested and dewormed starting at three weeks of age. The deworming should be repeated at eight and 10 weeks and monthly thereafter until the animal is six months of age, after which it should be dewormed on an adult schedule.

◆ All adult cats should be tested and dewormed routinely (every three months or so).

◆ Females should be dewormed prior to nursing and at birthing.

◆ Nursing queens should be tested and dewormed according to the same schedule as that of their offspring.

◆ All newly acquired cats should be dewormed immediately — beginning no later than two weeks after adoption. ♦

HOW TO REDUCE THE THREAT

The combination of routine fecal flotation testing, deworming and use of preventive medications for roundworms and hookworms, says Dr. Bowman, "will pretty much guarantee prevention of initial infection or reinfection." He also advises cat owners to "minimize the animal's hunting — keep your pets indoors."

Control the presence of rodents and other creatures that your cat might prey upon.

Remove feces from your cat's litter box daily.

Keep your property clear of feces.



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.



Q Dear Elizabeth: Last summer, my husband and I became the proud keepers of Miss Looci, a four-week-old rescue cat. She's a lovely, strictly indoor cat — long-haired and pure black. Since she's been with us, Looci has become my home-bound husband's constant companion, and she's become quite big and strong. We love her, and she gets plenty of attention. But here's our problem: Looci has the habit of suddenly biting me, my husband or our guests while she's being petted. Why does she do this, and how can we stop her?

A You can consider yourself fortunate on two counts. First, you've had the pleasure of opening your heart to a cat you love. Second, you're lucky that Looci's annoying biting habit has not caused you, your husband or your guests any serious injury. Those sharp little fangs of hers can pose a significant health threat if they break the skin, since an open wound can allow bacteria to travel deeply into a bite-victim's system. Over time, this can create a deep-seated infection marked by redness, swelling, pain and fever. As the infection progresses, the bite victim can experience fever, fatigue and headaches, and the implications can be severe — especially if the cat is harboring a dangerous bacterial species, such as *streptococcus*, *staphylococcus* or *pasteurella*.

Let's consider several possible reasons for Looci's undesirable behavior. The first thing to rule out is an underlying medical issue. Such a problem seems unlikely, given Looci's young age and indoor-only status, but we must still consider the possibility that she has an area of pain or extreme sensitivity that, if touched, is causing her to react by biting. Cats react in a variety of ways to pain, and Looci's first instinct may be to bite. A physical examination and X-ray imaging may be necessary to rule out any skeletal or muscular problems.

I should also mention a condition called feline hyperesthesia syndrome, which is chiefly characterized by a cat's abnormal sensitivity of the skin. Cats with this condition are typically resistant to petting, especially along the spine down to the base of the tail. And since Looci seems to enjoy being petted — at least for a while — I doubt that this is her problem. But again, a veterinary examination is in order.

To my mind, Looci's biting is most likely the consequence of her having been adopted by

you when she was only four weeks old. Generally speaking, shelters do not put a kitten up for adoption before it is eight to 12 weeks of age. This allows the kitten to spend a lot of time with its mother and its litter mates, during which period it learns appropriate social interactions and skills, among which is what veterinarians refer to as "bite inhibition." A kitten comes to understand that biting is hurtful, as its mother scolds it and possibly removes it from the company of its playmates. This is an important period of learning and socialization, and if a kitten is taken away from its mother and siblings when it is only four weeks old, it will not have had enough time to learn proper manners.

I suspect that this is the cause of Looci's biting habit. She missed out on an important phase of socialization during which her mother would have taught her what behavior is appropriate and what isn't. Keep in mind that this type of biting — called play aggression — has nothing to do with ill will or a desire to inflict injury. Looci simply hasn't learned that this way of playfully relating to her siblings can really hurt and perhaps cause injury. So now, without knowing any better, she's persisting in this play aggression, with you, your husband and your guests now substituting for her feline playmates. It's her weird way of bonding with you.

There are several warning signs that Looci has had enough petting and is about to bite. She is likely to squirm a bit in your lap; her ears may flatten against her head; her tail may swish; and she may stare directly into your face. If she displays such signs and seems about to bite, shout sharply at her and gently move her off of your lap. Also, you may want to invest in one of those infrared laser pointers that emit a beam of light to distract her and take her mind away from biting you. If you're lucky, this biting behavior may simply resolve as she matures. If it persists, you may want to consult with a veterinary behaviorist. It's possible that Looci might need to be treated with a pacifying medication.

Meanwhile, I suggest that no one other than you and your husband hold and pet Looci. Until her potentially dangerous biting behavior has ceased, advise your guests to admire her from a distance and to avoid close contact with her. Good luck! Love, Elizabeth ❖

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