Cornell University
College of Veterinary Medicine
Feline Health Center

CatWatch

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

INSIDE

IN THE NEWS . . .

Research to Help Feline Kidney Disease

Chronic kidney disease (CKD) is one of the most common health problems in geriatric cats. Unfortunately, CKD is considered irreversible and progressive, and effective treatments are presently limited. A common co-existing condition seen in feline CKD patients is heart disease.

In this pilot study from Tufts University, pimobendan has been administered to cats with combined kidney and heart disease. The patients had developed congestive heart failure (CHF) secondary to intravenous fluid administration, a typical treatment for kidney disease.

In some patients, pimobendan resulted in a great improvement in kidney values and clinical response. Tolerability and safety of this drug has already been established in cats with heart disease. This study will assess the tolerability of pimobendan in cats with CKD and analyze benefits in comparison to the current standard of care. ❖

Helping Your Pets Beat the Heat!

You can do a lot to help keep your cat happy and healthy during the summer months. Here's some expert advice.

The vigilant protection of your cat's safety and good health should be a year-round priority for you. And unless you keep your cat indoors all of the time, the challenge facing you in this regard is likely to be most demanding during the summer months, when temperatures soar in most areas of the U.S. and cats, if given the opportunity, are more likely to wander from the secure and sanitary confines of their homes.

During extremely hot, humid weather, cats are increasingly vulnerable to heat exhaustion and dehydration. They are also more prone to assault by fleas, ticks and other insidious parasites. They can be dangerously exposed to cancer-causing sun rays. And they are more likely to come in contact with such noxious substances as lawn chemicals and rotting garbage.

Among the most serious of summertime risks facing the outdoor cat is the threat of being hit by a motor vehicle, says Christine Bellezza, DVM, a former consultant at the Cornell University School of Veterinary Medicine's Feline Health Center. "As the weather warms up," she points out, "cats tend to be outside more often. So they're more likely to roam around, cross streets and wander into the path of an oncoming car."

All things considered, advises Dr. Bellezza, you'll be doing your cat a huge favor if

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Is Your Aging Cat Slowing Down?

Consider the possibility that your beloved pet is experiencing pain in its joints. Here's what you should know.

At the age of 12, your cat seems to be slowing down a bit, and that could be perfectly normal. After all, a cat of her age — equivalent to the age of 65 or so in a human — has been living a full life and deserves to take it easy on herself. Nevertheless, it's a good idea to have the animal checked out by your veterinarian. It's quite possible that her diminished activity is a consequence not only of her advancing age, but of a debilitating pain in one or more of her joints.

Slowed-down, reclusive behavior is an indication of a joint problem in cats of any age, says Christine Bellezza, DVM, a former consultant at the Cornell University School of Veterinary Medicine's Feline Health Center. "Some of the signs are very subtle," she points out. "An affected cat may seem lethargic and may increasingly seek out comforting places to nap — in a warm corner of your home, for example, or in a spot of sunshine near a window." The reclusive behavior can also be attributed to a deeply ingrained feline instinct for self-protection. A cat may want to conceal its disability for fear of alerting a potential predator to its vulnerability.

More Obvious Signs. Other indications that a cat is suffering pain in one or more of its joints may not be so subtle. "The cat may have trouble hopping in and out of its litter box," says Dr. Bellezza, "and it may avoid going up and down stairs." It is also possible for a

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CatWatch

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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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Lymphoma and Body Weight

Lymphoma is the most common cancer diagnosed in cats, and while several prognostic factors have been documented, another factor recently considered to be important is weight loss. Body weight over time may be a simple, objective and useful marker of patient status.

It is common in clinical practice to use body weight as an assessment of the current therapy. This study looked at the significance of weight changes during treatment of cats with lymphoma ("Prognostic significance of weight changes during treatment of feline lymphoma," in *Journal of Feline Medicine and Surgery*, 2011). Another purpose was to compare weight changes according to baseline body weight, lymphoma cell type (large versus small cell) and also tumor location.

The records of 209 cats being treated for lymphoma with chemotherapy from 1995 to 2007 were evaluated. Cats with large cell lymphoma had a significantly shorter survival time if they had lost more than five percent of their weight at one month of treatment than those that had gained weight or had maintained a stable weight.

However, weight loss and other clinical signs experienced by cats undergoing lymphoma treatment may be a result of the disease itself as well as chemotherapy side effects. Sometimes, it can be challenging to tell the difference. The first two months of treatment may be the best time to begin therapeutic interventions and nutritional support in addition to chemotherapy to decrease weight loss.

Evidence of a New Feline Virus

Picornaviruses are small viruses infecting many animal species, including humans. This family of viruses includes many important human and veterinary pathogens including the common cold virus, poliovirus, and foot and mouth disease virus. Currently, picornaviruses infecting cats have not been identified.

The investigators screened fecal, urine, blood and nasopharyngeal swab samples from over 600 cats in Hong Kong over a three-year period for picornavirus using genetic detection methods ("Identification of a novel feline picornavirus from the domestic cat," *Journal of Virology*, 2012).

They found a novel virus which was ultimately found to be most closely related to — but distinct from — all known picornaviruses. Their findings indicated that infection of cats with this virus was quite common. While the cats tested in this study were considered to be healthy, further research will be required to fully understand the significance of this virus among cats.

Parvovirus in Cats and Dogs

Canine parvovirus emerged in the late 1970's as a variant of feline panleukopenia virus (FPV). By the early 1980's, this variant unfortunately was replaced by new variants that infected both dogs and cats. However, it is now believed that raccoons may have played a role in the evolution of FPV and its adaptation to dogs, and re-adaptation to cats.

Through analysis of all of these viruses and variants, the researchers were able to understand and describe the complex sequence of events, involving small changes in the virus were necessary for these changes in host adaptations ("The role of evolutionary intermediates in the host adaptation of canine parvovirus," in *Journal of Virology*, 2012).

Furthermore, they found that these changes had to occur together in order for the adaptation to be successful. These findings show how complex this adaptation to new hosts is, and why it is not a common occurrence among viruses. ❖

ERRATUM

Due to an editing error, the article "The Latest on Feline Hyperthyroidism" (published in *Catwatch*, May 2012) contained a quote from Dr. Ned Dykes, veterinary radiologist at the College of Veterinary Medicine at Cornell University, stating that in some cases, hyperthyroid cats treated with radioiodine therapy may be released to their owners immediately following therapy.

In accordance with established regulations, cats must be quarantined for a minimum of five days following radioiodine therapy for hyperthyroidism.

BE PREPARED FOR THE WORST. Obviously, you should maintain an insurance policy in case of disaster. But you can create your own plan to protect your pets in the face of tragedy.

Fire Safety Tips to Take Seriously

It's important to safeguard your possessions and your pets in case of an emergency. Here's how.

It's human nature to postpone preparing for a disaster, but it's vitally important that you take time now to put a plan in place before a fire occurs. Start by installing smoke detectors throughout your home and make sure the batteries are functioning properly. Change the batteries twice a year or more frequently if the smoke detector "beeps" to warn you that battery power is low. Many people put in new batteries when they change their clocks for daylight savings time.

Next, gather together other essential supplies: cat litter, litter box and scooper, collars and up-to-date identification tags and/or microchips (with your cell phone number as you may not be reachable at home), a week's supply of food (remember a can opener and spoon for serving wet food), bottled water, medications, current photos of your cats for ID purposes, and a few toys, towels and blankets. Finally, have a supply of paper towels and plastic bags on hand to dispose of used litter. Put everything in a large plastic storage bin with a lid and handles and keep it in an easily accessible area.

No Pet Left Behind. Taking your cats with you when you evacuate may seem like a no-brainer, but you'd be surprised to learn that many people flee without their four-legged friends in tow. And cats, it turns out, are left behind far more frequently than dogs. But why?

Nobody knows for certain, but theories abound. Many rescuers contend that pet owners assume their cats are very self-sufficient and can be left home alone for several days with only food and water. (In theory, this is true, but cats under stress can easily become ill and require immediate medical attention.) In addition, many evacuees are only given a few precious minutes to scoop up their cats during an emergency, and cats — unlike dogs, who usually run to people for comfort — can make themselves virtually invisible when the dreaded carrier appears (especially when they equate the carrier with a trip to the veterinarian).

Which brings up an important point: Get your cat accustomed to a carrier before a disaster strikes. First, place the carrier in an open area of your home, like the middle of your living room floor. Put a couple of treats inside and allow your cat to explore the carrier and go in for the treat on her own. Next, quietly close the door while your cat is inside. Wait a minute or two and then let your cat out. Build up the time your cat spends in the carrier and pretty soon she'll either ignore it or decide it's a nice place for a nap.

Keep your cats separated by purchasing a carrier for each cat in your household. Even if your cats are the best of friends under normal circumstances, they can lash out during times of stress and accidentally injure one another. A sturdy, plastic "airline approved" carrier will not only help move your cats to safety, but if it's big enough, it can act as a temporary home in a pinch. (Cardboard carriers, on the other hand, are not designed for long-term use and will turn into a mushy mess if they become wet.)

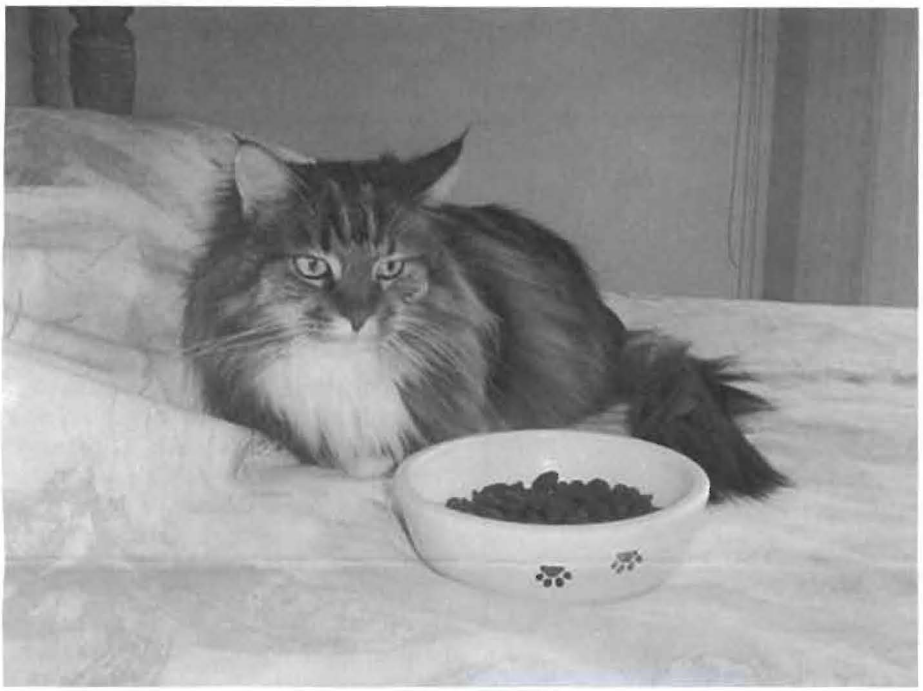
If you cannot keep your cats with you in the days and weeks following a fire (for instance, if you're staying at a public shelter, which does not accepts pets for health and safety reasons), make arrangements to take them to a family member, a pet sitter, a veterinary office or an animal shelter.

What if you're not at home when a fire breaks out? Bob Jensen, a fire engineer with the city of Santa Barbara, recommends placing rescue alert stickers (available at no charge from the ASPCA at www.aspca.org/pet-care/disaster-preparedness) on your home's front and back doors or a window to notify rescue personnel that cats are inside.

"As firefighters, when we arrive on the scene of a fire, we will often gain entry through the front door of a home," Jensen says. "If we see a sticker indicating that pets may be inside, we will look for those animals."

In addition to affixing rescue alert stickers to a highly-visible door or window, make preparations ahead of time with a close neighbor or friend who can care for your cats until you can return home (offer to do the same for them if you're the one at home when a fire erupts). Give this person a key to your home, as well as a list of emergency contacts. Be sure you have their contact information as well and keep copies in your wallet and at home.

Firefighters understand that it's never easy to "grab and go" during a fire, but by being prepared and taking some simple precautions, you can help both you and your cats remain calm and evacuate quickly and safely. "We have pets too, and we understand how much they mean to people," Jensen says. ❖



CHANGES IN EATING BEHAVIOR. Signs of inflammatory bowel disease can also include inappetence or a ravenous appetite.

Understand Intestinal Disorders

Persistent diarrhea and vomiting are among the common signs of a serious disorder. Here's why.

Of all feline health problems, intestinal disorders rank among those most frequently treated by veterinarians at local clinics and large referral hospitals throughout the U.S. According to Melanie Craven, BVM, an internist and researcher in gastroenterology at Cornell University's College of Veterinary Medicine, vomiting, diarrhea and dramatic weight loss are the most common signs of feline intestinal disease in cats. However, she notes, subtler signs such as lethargy and appetite fluctuations can also suggest the presence of an intestinal disorder.

Some of these disorders may be secondary to conditions originating in other organs, such as the thyroid gland, liver, kidneys and pancreas. But, Dr. Craven points out, the problems usually originate in either the upper or lower segments of a cat's intestines — the pliable, circuitous tunnel leading from an animal's stomach to its anus.

There are plenty of spots where problems can occur, since a cat's intestinal tract — if it were strung out end to end — is typically eight to 10 times longer than its body. So any suspicious signs call for prompt veterinary attention. In some cases, an intestinal disorder may require emergency treatment.

Major Complaint. The most prevalent feline intestinal disorder by far, says Dr. Craven, is inflammatory bowel disease (IBD), a chronic inflammatory disease of unknown cause. A variety of mechanisms for development of IBD have been suggested; it is currently believed that complex interactions between intestinal tissue immunity and the microflora that normally reside in the feline intestines are likely to be responsible. Overall, however, IBD remains an idiopathic condition — one whose origins remain largely unknown.

There is no obvious breed predilection, and the disorder is most frequently diagnosed in middle-aged to older cats, Dr. Craven points out. However, advanced age in itself has not been identified as a risk factor for the condition, and the disorder can affect animals of any age.

Although chronic vomiting, weight loss and diarrhea are the most common clinical signs of the condition, other indications that a cat is afflicted with IBD could include either inappetence or ravenous appetite; lethargy; frequent passing of gas; malodorous feces; increased frequency of defecation; difficult defecation; and blood or mucus in the stool.

Treatment of IBD usually involves dietary modification and the use of certain medications. Typically, an affected cat will be placed on a highly digestible novel protein diet, which, by itself, may be successful. If medications are required, they are likely to include an antibiotic such as metronidazole or an anti-inflammatory drug, usually a glucocorticoid, which suppresses the immune system response.

"The majority of cats diagnosed with IBD will respond well to treatment," says Dr. Craven. "Others will have intermittent clinical signs requiring continual treatment. And perhaps 10 percent to 20 percent of affected cats just won't respond to treatment."

Invasive Organisms. Although IBD is the most frequently diagnosed feline intestinal disorder, many other problems can result in significant disease. A definitive diagnosis of IBD, therefore, requires the ruling out of the other possible disorders, such as an overactive thyroid gland, diabetes mellitus, and chronic kidney or liver disease; food intolerance; viral, bacterial, fungal and parasitic infections; exocrine pancreatic insufficiency; gastrointestinal obstruction; and intestinal tumors.

One serious viral cause of intestinal inflammation (enteritis) in cats is the feline panleukopenia virus, a small organism that exists in the environment worldwide. Especially lethal among kittens and young cats, this virus was once the source of deadly epidemics in cat shelters and other confined areas with dense feline populations. Thanks to the development of effective vaccines, intestinal disease attributable to the panleukopenia virus rarely occurs these days.

Another type of virus that can cause severe intestinal inflammation, diarrhea and vomiting in cats, notes Dr. Craven, is the feline enteric coronavirus. In addition, she says, infection with the feline immunodeficiency virus and feline leukemia virus may have intestinal implications.

Potential bacterial pathogens of the feline intestinal tract include *Salmonella, Campylobacter, Clostridium perfringens, E. coli* and *Helicobacters*, says Dr. Craven. However, she adds: "These bacteria may also be present in normal cats, so it can be difficult to determine whether they are responsible for an animal's clinical signs."

Cats can also harbor intestinal parasites. Although these organisms tend to cause few if any problems in mature cats, they can be significant sources of disease in kittens. The most common parasites include roundworms, hookworms and tapeworms, as well as protozoal organisms, the most frequently identified of which is *Giardia*. "Parasitic infections are often asymptomatic or self-limiting," says Dr. Craven, "unless a cat is immunosuppressed or has another underlying intestinal disease that may cause either a heightened or muted intestinal immune response."

Miscellaneous Causes. Dr. Craven cites several other potential sources of feline intestinal dysfunction, including, but not limited to:

◆ *Neoplagias Tumors, either benign or malignant, can develop anywhere within the intestinal tract or can spread to the intestines from other parts of the body.* Lymphoma is the most common type of intestinal neoplasia in cats, and may be discrete or diffuse, resulting in variable clinical signs including lethargy, anorexia and weight loss, vomiting, diarrhea and gastrointestinal bleeding. It is a lethal type of cancer, although cats with a certain type of lymphoma (lymphocytic) may respond favorably to treatment with chemotherapy.

◆ *Intestinal obstruction: Possible causes of intestinal obstruction include ingestion of foreign objects; intestinal torsion; constipation; and congenital malformations.* Clinical signs can include gagging, anorexia, lethargy, weight loss, vomiting and abdominal enlargement. Complete intestinal obstruction is a potentially life-threatening problem, often calling for emergency medical and surgical intervention.

◆ *Exocrine pancreatic insufficiency (EPI): Affected cats often have an oily, unkempt coat and produce large volumes of pale, soft, malodorous stool.* EPI is treatable with pancreatic enzyme supplementation.

◆ *Allergies: Intestinal inflammation can result from an allergic reaction to or intolerance of food or an environmental allergen.*

◆ *Hairballs: A cat will normally spit up a hairball from its stomach when the mass becomes large and irritating.* It is possible, however, for a hairball to pass from an animal's stomach into its intestines and create a potentially life-threatening blockage.

◆ *Poisons: Feline intestinal tissue can be severely assaulted by the ingestion of such toxins as ethylene glycol, the main ingredient in antifreeze, and by certain poisonous plants, such as Easter lilies and rhododendrons.* ❖

SEEK VETERINARY INTERVENTION. The majority of cats diagnosed with IBD will respond favorably to treatment.

THE DIGESTIVE PROCESS

The activity that normally takes place within the feline gastrointestinal tract begins when a cat takes food into its mouth, chews it into small pieces with its teeth, and allows it to move to its pharynx, the hollow structure at the back of its mouth. From this holding area, the food is swallowed, passing into the esophagus — a slender tube that travels down through the animal's chest and opens into its stomach.

Within the stomach, a muscular, bag-shaped organ, the ingested food mixes with potent acids and enzymes that are produced by the stomach lining and then moves through a narrow sphincter (pylorus) into the first section of the small intestine (duodenum).

There the food mixes with bile, a potent alkaline liquid secreted by the liver, as well as a fluid that is produced by the pancreas. These substances and their enzymes play a key role in neutralizing the harsh stomach acids and breaking down proteins, fats, and carbohydrates so that they can be absorbed through the intestinal lining and into the cat's bloodstream.

From the small intestine, the food passes into the large intestine, which absorbs additional nutrients and also a substantial amount of the water remaining in the ingested food. In addition, a section of the large intestine — the colon — serves as a storage area for the solid waste that is left over following the digestive process. This material — the feces — is eventually evacuated from the colon via the rectum and anus.

HELP YOUR PETS BEAT THE HEAT! ...

(continued from cover)

you simply keep him or her indoors in a safe and secure environment. This is true all year round, she says, but especially during the summer months.

Dire Consequences. A major concern during extremely hot weather is heat exhaustion, a debilitating disorder that can easily progress to a potentially fatal attack of heatstroke — a traumatic event that could lead to multiple organ failure. The condition most frequently occurs in cats as the result of being confined within an airless and overheated area — a parked automobile, for example — especially if the animal does not have access to drinking water. The initial signs of feline heat exhaustion include rapid panting, muscle weakness, staggering, rapid heartbeat, fainting, tremors and possibly vomiting.

Unless a cat that is experiencing heat exhaustion is cooled down immediately, heatstroke is likely to ensue. When that occurs, the animal's panting will become increasingly labored and rapid, and as it pants, it will be pulling in air that is likely to be hotter than its normal body temperature (typically between 100.4° F and 102.5° F.). If the overheating (hyperthermia) is unrelieved and the cat's body temperature reaches 105° F. or higher, cell damage will start to occur, which can result in kidney, liver and gastrointestinal dysfunction, lowered levels of blood oxygen, destruction of skeletal muscle tissue, impaired brain function, heart failure and death.

Obese cats and older cats with age-related conditions, such as advanced cardiovascular disease, are at greater risk for heatstroke than are young, healthy animals. Densely coated cats (Himalayans and Persians, for example), whose bodies are less able to dissipate heat are also at elevated risk, as are brachycephalic breeds, those with flat faces and short noses, who may lack sufficient nasal space to allow the cooling of inhaled air.

Dr. Bellezza also advises owners to minimize their cats' exposure to bright sunlight, since the sun's ultraviolet rays greatly increase the risk of squamous cell carcinoma, a type of skin cancer that, she points out, usually manifests itself on an animal's nose or ear margins and can be locally destructive. Most susceptible are white or lightly pigmented cats. All cats, however, should be discouraged from basking for extended periods in harsh sunlight. Limit their time outdoors, she advises, and use ultraviolet blocking film on their favorite sunbathing windows.

Other Threats. Dr. Bellezza cautions owners about several additional hot weather threats. Be aware of the increased exposure to fleas, ticks and other parasites, which proliferate during warmer months. "Cats are also at risk for dangerous encounters with dogs, coyotes and other animals in the outdoors during the summer," she points out. And, she adds, they can get into violent and potentially lethal fights with cats that might be harboring the feline leukemia virus (FeLV), the feline immunodeficiency virus (FIV), or other contagious microorganisms.

Prevent contact with environmental hazards, such as poisonous pesticides and lawn chemicals. Dr. Bellezza also warns that antifreeze, which commonly gurgles out of overheated automobiles during hot weather, is a sweet-smelling liquid that is very attractive to cats and is commonly found during the summer months puddled in parking lots or garage floors. The ingestion of ethylene glycol — the main ingredient in most automobile antifreeze products — can cause serious damage to a cat's system and, if untreated, can lead to death from kidney failure within 24 hours.

Falling from high places, a phenomenon commonly referred to as the "high-rise syndrome" is a danger to your pet, as well. A cat sustains serious injury by leaping or accidentally tumbling from an open window or balcony far above ground level. "In hot weather," says Dr. Bellezza, "people start opening windows. If the windows don't have screens or if the screens they do have aren't latched properly, a cat can easily fall out."

Considering the various hazards that your cat can encounter while roaming around outdoors during hot weather, Dr. Bellezza strongly encourages you to avert potential disaster by simply keeping the animal indoors. Of course, the cat should always have access to cool drinking water, the interior of your residence should be comfortably air-conditioned and ventilated ... and obviously you should make sure that any open windows are securely screened. ❖

EMERGENCY TREATMENT

If your cat is showing signs of heat stroke, she's going to require prompt emergency care. While making arrangements to transport the animal to a veterinarian as quickly as possible, you should try one or a combination of the following techniques:

Wipe the cat's body with a cool, wet rag. (Do not, however, immerse the animal in cold water!) Apply ice to its head and inner thighs. Move the cat to an air-conditioned room or to a room with a fan.

Monitor the cat's temperature constantly to assess whether efforts to lower its body temperature are succeeding. (To be prepared for such an eventuality, ask your veterinarian to teach you how to do this using a rectal thermometer. An instructional video on taking a cat's temperature, produced by Cornell's Feline Health Center, is available online at http://felinevideos.vet.cornell.edu).

When the cat's temperature appears to be approaching normal, cease the aggressive cooling measures, which, if excessive, could result in a dangerously low body temperature (hypothermia).

The cat should then be rushed to a veterinary clinic immediately for a thorough examination and any additional professional care that might be needed. This may entail, for example, intravenous fluid therapy to help restore circulation and correct chemical imbalances.

JOINT PROBLEMS ... *(continued from cover)*

cat with a severe joint problem to become constipated because it can't position itself properly to defecate. Furthermore, due to joint pain, an affected cat may be unable to groom itself thoroughly.

A Common Disorder. The most frequently diagnosed feline joint disorder, according to Dr. Bellezza, is osteoarthritis, otherwise known as degenerative joint disease (DJD). This condition may be caused by an injury to a joint, by gradual wear and tear on a joint that takes place over time, or as the secondary consequence of a disease that compromises the internal structure of a joint.

In all cases, DJD is characterized by the erosion of cartilage, the smooth tissue that protects the ends of bones from rubbing directly against one another within a movable joint. When this protective tissue is worn or torn away completely, the bone ends come immediately into contact, and the persistent grinding of bone against bone results in inflammation and pain of varying severity.

HOW YOU CAN HELP

The cat owner can actually play a significant role in helping your cat cope with a painful joint disorder. For example:

Provide an environment in which the cat is as comfortable as possible. Make sure that its bed is soothingly soft yet firm enough to support its joints. A heated bed may be especially appreciated.

Provide ramps so that the cat can move comfortably from one floor to another or to its favorite resting spots. Position its food bowls in a convenient area on the floor, and use a litter box with low sides so that the cat can get into it easily. You may need to place the food dishes and litter boxes in several areas of your home if your cat has difficulty getting around.

Make sure that the cat's diet is carefully managed in order to avoid a weight gain that is likely to exacerbate its joint pain.

All joints in a cat's body can be affected by DJD, but those that become most visibly apparent to the owner will be the movable joints, most often the shoulders and elbows. But the knees, wrists and hips are also frequently affected. Outward signs of the condition will vary, depending on which joints are most painful, the extent of damage and the animal's age.

The earliest visible sign of DJD is likely to be apparent stiffness and a subtle reduction in an affected animal's activity. Altered gait may eventually occur as the disease progresses or if the joint disorder has resulted from an injury.

Risk Factors. There is no gender predisposition for DJD; male and female cats are equally susceptible to the condition. It is seen more frequently in obese cats than in those of normal weight, since overweight animals constantly exert excessive pressure on their weight-bearing joints. The only notable breed disposition for DJD is in Maine Coons who, due to their naturally stocky bodies, are more susceptible to hip dysplasia than other breeds.

The most prevalent contributing factor for DJD is age. In one study, researchers carefully analyzed X-rays of the spines and limbs of 100 middle-aged or elderly cats (10 years of age or older). The study found that very few of the animals had perfectly normal joints and that most of them had obvious radiographic signs of arthritis. Indeed, the X-rays revealed that 90 percent of cats over the age of 12 showed evidence of DJD. Young cats, however, are by no means invulnerable. The findings of another study suggested that 20 percent of all cats one year of age and older are already arthritic to some extent.

Other Conditions. Although DJD is, by far, the most frequently observed feline joint disorder, a wide variety of other conditions affecting the joints may be responsible for a cat's sudden or gradually occurring lameness. For example, being hit by an automobile or falling from a significant height can fracture or dislocate one or more bones in an animal's joints. Most frequently, says Dr. Bellezza, these traumas occur in the front or hind limbs, although such fractures can also occur in a cat's pelvis or spine.

In some cases, a cat may be born with a so-called developmental defect — a genetically inherited condition — that affects the joints. Among these conditions, the most frequently occurring is hip dysplasia. In a normally formed animal, the top end of the thigh bone fits snugly into the ball-and-socket joint of the hip but is free enough to glide and partially rotate to allow an animal's movement. In a cat with hip dysplasia, the ball and socket are misaligned and loose, a structural abnormality that causes the bones in the joint to rub painfully against each other.

A host of other problems can compromise the joints in the feline body, such as dietary and hormonal disorders, bone cancer, diabetes, rheumatoid arthritis and ligament ruptures. Fortunately, these conditions, insofar as they impact the joints, are relatively rare in cats, especially when compared with the frequent occurrence of DJD.

Veterinary diagnosis of a cat that seems to be experiencing a joint problem focuses, therefore, on confirming the presence of DJD and excluding, to the extent possible, the presence of other conditions that might affect the joints. According to Dr. Bellezza, diagnosis will entail a complete medical history and overall physical examination of an afflicted animal, followed by an orthopedic exam and X-rays of the cat's joints.

A number of surgical procedures, such as bone fusion or joint replacement, may relieve a cat's problems, but such procedures can also restrict an animal's activities. So palliative treatment — relying largely on pain medication and attentive home care — is most often recommended. The goal is to relieve the patient's discomfort and provide him or her with a reasonably good quality of life. ❖

LOOK FOR DIMINISHED ACTIVITY. Your once-active cat may now seem like a couch potato if she's suffering from degenerative joint disease.

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: We adopted a new kitten from a local rescue group last month, and she is just perfect. Although she had been tested for the leukemia virus and FIV by the terrific group that saved her from the street, we took her to our veterinarian right away so that she could be examined before we introduced her to our two older cats. After a clean bill of health, we brought Bunny home, and she has become part of the family. The problem is that before we scheduled her spay surgery, she came into heat. What a scene!*

We woke up to the most unusual meowing I have ever heard and found Bunny in a state: She was rolling around on the floor, yowling and seemed for all the world to be in pain. We rushed to our veterinarian fearing the worst for our new girl. After talking to us about our observations, and doing an examination, our veterinarian diagnosed ..... puberty! I had no idea that a cat in heat could behave in such a dramatic fashion (however, now I know what 'caterwauling' is!).

Our veterinarian suggested that we wait for the heat to finish before having Bunny's spay surgery, which we're happy to do. Our concern is that we're noticing an enlargement of her mammary glands. At first we presumed that the enlargement was simply due to the hormonal changes of her heat, but her mammary glands are continuing to get bigger. They are actually kind of hard to the touch and seem to be bothering Bunny a bit. Is this a normal part of the heat cycle for a young cat? I think we should go back to our veterinarian again, but wondered if you could give us some advice in the meantime.

A Congratulations, my friends, on taking a cat in need into your hearts and your home. Bunny is a lucky girl to have landed with you! I agree: You should take Bunny back to your veterinarian to have her mammary glands examined. There is a list of possible causes for lumps and bumps associated with the breasts; it will take an examination, along with a history from you, to help sort out Bunny's problem. In addition, your veterinarian may recommend further testing such as cytology or biopsy to reach a definitive diagnosis for your girl.

From my privileged desk-top position as the FHC Spokescat, I'd be willing to bet my favorite catnip toy that Bunny has a condition called 'mammary hypertrophy/hyperplasia syndrome.' The cause has not been entirely worked out, but it is thought to be an abnormal or excessive response to progesterone. It is seen most often in young, unspayed female cats who have recently been in heat, but occasionally occurs in cats after spay surgery. Another category of affected cats are males and females who have been treated with progesterone hormones. The syndrome is characterized by rapid, firm enlargement of one or many mammary glands. Initially, there is little apparent discomfort, but as the mammary glands grow they can become painful, possibly due to stretching of the overlying skin.

If I'm correct about Bunny's diagnosis, the treatment for her will be ovariohysterectomy (spay) surgery to remove her source of progesterone. Even so, it may take several weeks for her mammary glands to regress. If her glands have gotten so large that they interfere with the usual incision site for spay surgery, your veterinarian may suggest a flank approach. Alternatively, he or she may discuss medical therapy aimed at reducing the size of her glands in preparation for surgery.

I am a betting cat, and wager that your healthy, young, intact, cycling cat has mammary hypertrophy/hyperplasia, but do make that appointment to be careful! Your veterinarian will want to rule out infection and neoplasia — two of the other possible causes of mammary gland enlargement. *Love, Elizabeth* ❖

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