



THIS JUST IN

Hip Replacement

Surgery performed on a cat

When a two-year-old Bengal cat started to have left-hip problems in 2017, Purdue Veterinary Medicine's Veterinary Teaching Hospital performed a femoral head ostectomy (FHO), which involves removing part of the femur bone and has been done for decades. A year later, the right hip started to give the cat trouble. The owner returned to Purdue, but this time the veterinarians decided to perform the first feline hip replacement.

"The technology has been around for years; it's just that the availability of the systems and training for the people performing the procedures weren't as commonplace in the past," explains Dr. Sarah Malek, assistant professor of small animal orthopedic surgery. "Now it's much more commercially available and technically feasible."

Dr. Malek said the first human hip replacement actually was inspired by a procedure originally performed in dogs, and it has taken some time for the process to work its way from people back to small animals. She says total hip-replacement surgery better addresses quality of life issues than the FHO procedure.

The cat is doing well, currently in rehabilitation, just like any hip-replacement patient. ■



Entice Your Cat to Drink More

A nutrient-enriched water might be an answer

A conundrum for many cat owners is getting their cat to drink more. While eating dry kibble can be nutritionally adequate (and some cats definitely prefer kibble to canned), most cats could benefit from drinking more. More fluid going in helps with hydration and can help to flush the kidneys and bladder with more urine production. A recent study reported in the *American Journal of Veterinary Research* in July 2018 looked at trying to entice cats to drink more using a nutrient-enriched water option.

The cats in the study were all fed dry kibble but given different water options. Initially, they all got tap water to establish baselines for drinking amounts and urine production. Then groups were set up to get plain tap water or to get nutrient-enriched water. For a third go around, the cats had both fluid options available—tap water and nutrient-enriched water.

The cats with the enriched water did drink more and produce more urine. Certainly, this is good news for healthy cats, and perhaps for cats with health problems, this may be beneficial. If your cat has certain kidney and/or urinary problems, consuming more liquid could alleviate clinical signs and possibly prevent the escalation of problems or at least slow the progression of some health conditions. Having an option that your cat would readily choose to entice her to drink more would be easy for owners to follow through with and would also be acceptable for multi-cat households. ■

American Journal of Veterinary Research, Vol 79 No 7 July 2018



Many of us will do almost anything to ensure our kitties drink enough water.

Allergy Trends

Fleas came out on top

Banfield Pet Hospital looked at allergy trends among their patients across the country, which includes over 2.5 million dogs and 500,000 cats. Not surprisingly, flea allergy came out on top. Cases of flea allergies have been increasing, especially among their cat clients. As we all know, even one flea bite can lead to misery for a flea-allergic feline.

Environmental allergens also made a strong showing. While many people immediately jump to plant pollen as the culprit for an itchy cat, your house may also contribute to feline allergies. Dust mites, mold, fabrics, and cleaning solutions are all suspect for many cats with a year-round itch. The addition of seasonal pollens may tip your feline friend from slightly itchy to very uncomfortable.

Food allergies are real but rare. Infected, itchy ears are often the main indication of a food allergy, not gastrointestinal signs, which may indicate a food sensitivity or intolerance. The Banfield study states that itch-inciting proteins for cats include: beef, lamb, seafood, corn, soy, dairy products, and wheat gluten. If your cat has a proven food allergy, you will need to avoid that protein in her food. ■



Constant scratching could indicate an allergy.

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Pleural Effusions Have Serious Causes

Fluid buildup in the chest can make breathing difficult

An article in the July 15, 2018, *Journal of the American Veterinary Medicine Association* looked at a French study on feline pleural effusion. Pleural effusion is a buildup of fluid in the pleural space, which is the space in your cat's chest between the protective linings covering the lungs and the walls of the chest cavity itself. Normally, there is only a small amount of fluid in that area. Large amounts of fluid mean less room for the lungs to expand, which causes difficulty breathing and getting adequate oxygen to your cat's body tissues.

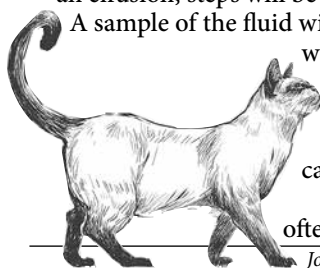
Congestive heart failure accounted for about 40 percent of the cats with problems, followed by cancers at about 25 percent. Various infections and trauma accounted for most of the other cases.

Cats with heart failure had consistently lower body temperatures, so while this might be a quick screening test for cats with effusions, low body temperature can be caused by many health problems. If your cat presents at a veterinary hospital with an effusion, steps will be immediately taken to diagnose and treat the condition.

A sample of the fluid will be drawn via a sterile needle aspirate through the chest wall. That sample will be evaluated for signs of infection or cancer. Additional fluid may be withdrawn to relieve some of the pressure on the lungs and help your cat to breathe more easily. Further treatments are customized to the cause of the effusion.

Unfortunately, the causes of pleural effusions in cats are often serious and may carry a poor prognosis. ■

Journal of the American Veterinary Medicine Association July 15, 2018



Cat Food Ingredients Owners Want to Avoid

We're all starting to read cat-food ingredients lists

As reported in *Pet Food News*, a Nielsen survey listed ingredients owners want to avoid when choosing a food for their pet, although the rationale the owners used for making the choices is not readily clear.

- ▶ **GMO (genetically modified organisms) food:** 28.8 percent of owners want to avoid GMO foods. That only applies to grain and plant sources.
- ▶ **Corn:** 7.8 percent of owners prefer not to have corn in their pets' food. However, corn can be a healthy addition for some pets (but never corn cobs!). Corn is rarely associated with food allergies.
- ▶ **Hormones:** 4.8 percent of pet owners say they don't want hormones in their cat's food. This would apply to meat sources where livestock feed might have been supplemented with hormones. This practice is on the decline in the industry anyway, but owners often actively avoid foods with these hormonally supplemented meat sources.
- ▶ **Filler:** Fillers are not approved by 4.3 percent when choosing a food for their pets. In reality, "fillers" are often gluten meals that contribute to the protein content of a food. They may come from plant sources but are still useful nutritionally to your pet.
- ▶ **Artificial preservatives (4.2 percent) and artificial coloring (3.9 percent):** There may be value to avoiding these as ingredients, as some preservatives and colorings have caused problems for some cats, but many are well tolerated and considered benign.

Our take on this: Educate yourself and read ingredient labels carefully. Don't jump on a bandwagon without knowing if the item you're told to avoid is a problem for your cat. Don't hesitate to ask your veterinarian, consult a veterinary nutritionist (acvn.org/directory/) or call the manufacturer information phone number to get clarification on the ingredients you're concerned about. ■



CatWatch

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



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For information on your cat's health, visit
the Cornell University College of Veterinary
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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,
Executive Vice President, Editorial
Director; Philip L. Penny, Chief Operating Officer;
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Head Games

Why does your cat rub his face against you?

It's a feline social thing: Rubbing against your leg or on other objects. "Head rubbing (also referred to as butting or bunting) is a normal social behavior," says Dr. Leni Kaplan, DVM, MS, Lecturer in the Cornell University College of Veterinary Medicine Community Practice Service. "Head rubbing is one way cats can deposit their scent on objects which signifies comfort and familiarity and is a way to communicate with other cats."

Your cat has scent glands on various parts of his body, including several on his head. When he rubs his face on an object, a human, or another cat, he is leaving a scent mark behind. Female cats also have these scent glands.

Territory

Cats can use scents to mark territory—when another cat encounters a scent marking, they know that a cat has been in that area. By the same token, a cat encountering his own scent marking knows that he is on familiar ground—kind of like how your parents' house has its own unique smell that reminds you of your childhood. Bunting seems to be mostly used for this reason—a way of marking creatures and things that the cat knows and likes, helping to create a cozy sense of home.



Head rubbing, which leaves the cat's scent on the object he is rubbing, is a social behavior that signifies comfort and familiarity.

Cats sometimes rub their faces against each other. While it isn't snuggling in the same sense as humans do, it is a bonding behavior. Cats bunt with their friends to show affection. And your cat may expect you to respond with petting and attention.

"When a cat rubs her head on a person, it can be a scent marking behavior demonstrating a bond and signifying comfort and familiarity with that person, an attention seeking behavior, or both scent marking and attention seeking behaviors. There is no way to tell exactly what is driving the cat's head rubbing behavior," says Dr. Kaplan, but it is a positive action.

Cats may also bunt as a coping strategy when they are anxious. The scent

marking makes them feel more at home, like they are surrounded by familiar smells and things.

Head Pressing

Head pressing is different from bunting and is a cause for concern. "Head pressing involves the cat pressing its head/forehead into a firm object (a wall, corner, or furniture)," says Dr. Kaplan. "They may not be mentally aware or capable of releasing themselves from this position."

"Head pressing itself is not a source of pain," explains Dr. Kaplan. "[These cats] often have an altered mentation and are not aware of pain or their circumstance.

Rarely, a patient may be painful (head pain or sinus pain) and head pressing may actually relieve the pain or pressure."

The bottom line here? "If a cat is head pressing, there is an underlying medical condition causing this behavior and the pet must be evaluated by a veterinarian," says Dr. Kaplan. ■

Scent Gland Locations

On his face, your cat has scent glands on his cheeks, under his chin, over his eyes, and on his ears. He also has scent glands between his toes and at the base of his tail. And who could forget the stinky ones that scent his urine and feces so that even mere humans can smell them!

© DID YOU KNOW?

Pheromones May Calm Anxious Felines

Consider these in stressful times

You may have seen pheromones advertised to calm anxious cats. Feline facial pheromone is precisely what your cat releases from the scent glands on his face. Products like Feliway are synthetic pheromones designed to be used to calm cats. Pairing the synthetic pheromone with a familiar item, such as a blanket, may help to keep your cat relaxed during stressful events such as a trip to the veterinarian. ■



A familiar blanket can be extra calming when sprayed with a synthetic pheromone.

Head Tilts

A head tilt, when the cat holds his head tipped to one side or the other, is cause for concern. This indicates that something is wrong with the cat's sense of balance and his relation to the horizon (see "Tilting Heads and Drunken Walks," September 2018, available at catwatchnewsletter.com). A head tilt can be caused by head trauma or an infection. Once the underlying condition is treated, the cat may resume normal head carriage or may keep the head tilt forever.

Feline Lymphoma

It's not what (or where) it used to be

Lymphoma is the most common feline cancer. Over the years, however, with increased testing and vaccination for retroviruses like feline leukemia virus (FeLV) and feline immunodeficiency virus (FIV), the exact type of lymphoma seen in cats has changed.

Both FeLV and FIV have been associated with the risk of lymphoma in cats. FIV-infected cats have been reported to be at five times higher risk for lymphoma than uninfected cats. Prior to testing and vaccination programs, FeLV infection was associated with a higher risk of developing lymphoma as well—and cats who were FeLV positive had a poorer prognosis if they did develop lymphoma.

Lymphoma involves cells of the lymphatic system. This is a network of channels throughout the body that work in concert with blood vessels to bring oxygen to tissues, collect metabolic waste, and remove other debris that might build up in various organs, such as dead cells, cells that fight infection, and pathogenic agents such as bacteria and viruses. Along with the vessels, the lymphatic system also has lymph nodes where cells of the lymph system are collected and stored. The thymus (in the chest cavity), spleen, bone marrow, and lymphoid tissue lining the intestinal tract are all part of this body-wide system. The liver also has lymphoid tissues and may become involved in lymphomas.

Three Types

Cats have been shown to suffer from

Symptoms to Know

Clinical signs of feline lymphoma

- ▶ Unexplained weight loss
- ▶ Decreased activity
- ▶ Lack of appetite
- ▶ Enlarged peripheral lymph nodes
- ▶ Masses in the abdomen
- ▶ Vomiting
- ▶ Diarrhea



Genetics may be involved in some cases of lymphoma. Siamese cats seem especially susceptible to this type of cancer—both gastrointestinal following inflammatory-bowel disease and mediastinal. The mediastinal version seems to follow a recessive pattern of inheritance for risk.

three basic types of lymphoma:

- ▶ Mediastinal (in the chest cavity and usually involving the thymus)
- ▶ Multicentric (in lymph nodes throughout the body as well as organs with concentrations of lymphoid tissue)
- ▶ Alimentary or gastrointestinal (in the lymphatic tissues of the gastrointestinal tract)

The first two types are often associated with FeLV infection and sometimes FIV infection. Since more cats are being tested and isolated if positive or vaccinated if negative, the incidence of mediastinal and multicentric lymphomas in cats has decreased, but intestinal lymphomas have picked up.

Lymphoma tends to be a disease of middle-aged or young senior cats—generally 10 to 12 years of age. An exception, however, involves young Siamese cats who develop intestinal lymphomas (believed to be secondary to inflammatory bowel disease) and Siamese cats who develop mediastinal lymphoma, which tends to strike cats under two years of age. Regular physical examinations, with thorough histories and basic bloodwork can help in early diagnosis.

Your veterinarian will do basic bloodwork, with radiographs or an ultrasound evaluation to look for any abnormalities. Bloodwork may show an increase in liver enzymes, an increase in values associated with kidney function, and/or anemia. Generally, a biopsy of an enlarged lymph node or a section of intestines will be recommended if gastrointestinal lymphoma is expected.

The microscopic evaluation of the tissues can help your veterinarian/veterinary oncologist stage the cancer and decide on the best treatment for your cat.

Intestinal lymphomas tend to be small-cell lymphomas. “Small-cell” refers to the type of lymphocytes found in the tumors. Cats with small-cell lymphomas usually have a better prognosis, response to treatment, and longer survival times than cats with large-cell lymphomas. Cats with a lymphoblastic cell type of lymphoma have a more grim prognosis long term.

Treatment

The gold standard for treatment of lymphomas is chemotherapy. A common starting place for chemotherapy for lymphoma in cats is often a steroid, such as prednisolone, combined with a standard chemotherapy drug such as chlorambucil. Your veterinarian may refer you to a veterinary oncologist to develop a treatment plan for your cat.

Both prednisolone and chlorambucil are pills. This makes it easy (relatively, given the ability of some cats to resist pill taking!) to treat your cat at home. You should wear gloves when handling the chlorambucil. Your cat will still need to visit the veterinary hospital for bloodwork to watch for any side effects of the medications and to track progress in fighting off the cancer cells.

After a month of treatment, most cats (50 to 75 percent) show improvement, with resolution of their clinical signs and a reduction in the cancer volume. At this time, some veterinarians may discontinue treatment altogether if the cat shows enough improvement. Usually, the cancer is “beaten back” but not totally defeated. Observant owners can watch for any signs that the cancer is recurring. At that point a “rescue” protocol of chemotherapy will commonly be instituted.

Lymph Node Locations

Some of the easiest lymph nodes to palpate are the submandibular ones (under your cat's chin) and the popliteal ones (located behind the stifles on your cat's rear legs). If these are enlarged, your veterinarian may perform a biopsy to evaluate for cancer and/or inflammation. Cats can afford to lose a lymph node or two with no problem.

A rescue protocol may consist of the same original drugs (in the case above, another round of prednisolone and chlorambucil) or your veterinarian may try a different set of medications. That may mean hospital visits for intravenous injections. Rescue medications may include lomustine, cyclophosphamide, or vincristine. One study looked at using low levels of radiation delivered over two days as a “rescue protocol” for cats whose lymphoma was confined to the abdomen. Ten out of 11 cats showed improvement and lived almost a year post treatment.

Bottom Line

While no cancer diagnosis is a reason for celebration, feline lymphoma can be responsive to treatment. Most cats tolerate chemotherapy reasonably well. It now appears that many cats can go off chemotherapy after resolution of their clinical signs and still respond to a rescue protocol later if one is needed. In one study of cats with small-cell lymphoma, the survival times averaged over 1,300 days, with at least one cat living for an additional 2,479 days after treatment started. This suggests that lymphoma is, to some extent, a treatable cancer.

How can you best avoid lymphoma risk for your cat? Start by testing any cat or kitten before you bring them home for FeLV and FIV. Then, even if your cat will be strictly indoors, consider vaccinations. At least for the first year of life, FeLV vaccine is usually considered a core vaccine—one recommended for all cats—though FIV vaccine is not (recommended in certain circumstances). Discussions with your veterinarian about these issues is the best way to inform yourself of the risks and benefits of vaccination against these viral diseases. Avoid smoking or allowing anyone else to smoke around your cat, since tobacco smoke is associated with an increased feline lymphoma risk.

Keep your cat as fit and healthy as possible, so that if she does develop lymphoma she is in the best possible condition to fight it. ■

No Smoking!

Exposure to tobacco smoke has been associated with the development of gastrointestinal lymphoma. Clearly, second-hand smoke exposure is bad for your cat (for many reasons) and could even be deadly in the long run.

When That Bite Abscesses

Don't wait to seek veterinary care on this one

Your sweet, peace loving feline companion sneaks out between your legs as you take the trash out. Despite searching, there is no sign of her, so you are thrilled to hear her meowing at the door the next morning. She fusses a bit when you pick her up, but you figure she is just upset at being out all night.

A couple of days later, you rub your hand down her back and when you get near the tail, she hisses. At this point, you may examine the area and not find anything—or do you? You may note two tiny pinprick size spots that look a bit red. Or you may feel a soft lump that opens and drains foul-smelling, thick liquid all over your hand and your cat's tail and rear. With all three scenarios, the odds are that your cat was bitten while “out on the town” and has an abscess brewing.

Anecdotally, it seems that female cats and young males get bitten in the rear most often. Older tom cats tend to have face abscesses. Presumably the female cats and young males are running away from trouble while the older males are fighting back.

Cat bites almost invariably lead to abscesses in other cats (they can cause nasty infections in people too). The sharp points of the canine teeth can “inject” bacteria under the skin. These bacteria are comfortable moving from one cat to another. The tiny openings often heal closed, trapping pathogenic bacteria, such as *Pasteurella multocida*, inside. These and other bacteria that can flourish in an anaerobic atmosphere grow rapidly.

Your cat's immune system reacts to bacterial invaders. Even if these bacteria normally exist in one area, such as your cat's oral cavity, the body recognizes that they don't belong under the skin in other areas. The immune response leads to a collection of pus, which may have a tough fibrous capsule layered around it. Almost always, as the material and pressure builds up inside, the abscess will ultimately rupture.

Prior to rupture, you may feel a swollen area on your cat's body. It generally will feel warm and may be painful to the touch. Cats with abscesses tend to run fevers and may be lethargic. If the abscess is developing on a leg, you might notice lameness. Certainly, most cats who are developing an abscess will



Because of the natural bacteria on a cat's teeth, a cat bite is likely to abscess.

be irritable. If you suspect an abscess, schedule a veterinary visit promptly.

Abscesses need to be opened and drained. If the abscess opens on its own, the area still needs to be thoroughly flushed and cleaned. The goal is to remove all bacteria and have the now-open wound heal slowly from inside out without the development of any more “pockets” of infection. If your cat has multiple abscess pockets, your veterinarian may need to place a drain. The drain serves to keep the wound open, allows oxygen into the area and forces slow, careful healing.

Go Ahead and Ask

If your cat is notorious for not taking antibiotics well, talk to your veterinarian about getting a flavored version compounded. Injectable antibiotics are also an option.

What Is Pus?

Pus is an accumulation of dead immune cells, bacteria, dead tissue cells, and serum. It generally has a foul odor. Color may vary depending on the bacteria involved—from yellow to red/brown to green/gray. It can also be off white. Ideally, pus should be drained by your veterinarian from the abscess capsule it has collected in. Your veterinarian may examine a sample of the discharge under the microscope to determine the primary type of bacteria present. This can help to guide antibiotic choices.

Your cat may need to wear a “collar” to keep her from licking at the site and possibly removing any drains. There are a variety of Elizabethan collars—some are made of stiff plastic, some of softer materials, and even some in “donut” shape—that stop your cat from reaching the site. Some cats do best wearing a doll’s size T-shirt to cover the wound area or a baby onesie with a tail hole cut into it. The goal is to prevent licking so experiment to find what works best for your cat. You may need to remove the collar to allow your cat to eat and drink freely. Keep her under observation when the covering/collar is off.

Your veterinarian will almost always dispense antibiotics for your cat to assist healing and prevent further infection. Follow directions exactly as given and be sure you use all of the antibiotic up, even if you think she’s doing better (not finishing a dose can add to the antibiotic-resistance problem both the veterinary and human medical fields are experiencing). You also may be given directions for compressing, flushing or cleaning the wound area. Cats aren’t always the most cooperative, but use of special treats may make this less traumatic for both of you. ■

You Should Know

A concern with a cat bite from an unknown cat is the spread of feline viruses such as feline leukemia virus, feline immunodeficiency virus, and rabies. If your cat is vaccinated against these viruses, the risk of infection is generally much lower, but not non-existent.

Rabies virus is of particular concern to public health, as it is transmissible to people from cats and is usually fatal if not addressed before signs of infection develop. It’s wise not to take any chances.

Any cat that has a puncture wound of unknown origin should be treated as a potential rabies suspect (particularly if he/she has been outside) and should see a veterinarian promptly.



Nuts and Bolts of Anxiety Meds

Medicine can help bad behavior and anxiety, but be sure the treatment doesn’t cause more headaches

While some feline behavior problems can be resolved at least partially with environmental management strategies, sometimes medication becomes necessary. This is often due to behaviors that pose a risk to the cat, owner, or other pets in the household, or may be to simply break the cycle of a very stressed cat. Before you ask for an anti-anxiety medication, you should understand what the drug does and how to use it.

Seeing Results

Many behavioral medications need several weeks to build up sufficient levels in the cat’s system to show effects. If your situation requires more immediate results, your veterinarian may choose a different medication or may initially prescribe two medications for your cat: the one that he or she wants your cat to be on long-term and another that will start working immediately to provide relief while the other medication is building up in the system.

Always follow prescription instructions closely. Cats are sensitive to many medications and giving too much or too frequently often could cause an overdose. Likewise, not giving the medication on the recommended schedule could decrease its effectiveness.

If you have trouble medicating your cat, tell your veterinarian your concerns. Pill guns and pockets are useful for getting pills into cats, but you also can investigate different formulation options that may be more appealing to your cat. Some medications can be compounded with flavoring, such as catnip or chicken. Others can be sprinkled on your cat’s food or made into a gel that can be absorbed through the skin on your cat’s ear. If you can’t give a medication twice a day, ask about once-daily alternatives.

Types of Medication

The five classes of drugs used most commonly for feline anxiety disorders are azapirones, benzodiazepines, monoamine oxidase inhibitors, tricyclic antidepressants, and selective serotonin reuptake inhibitors.

Azapirones stimulate serotonin



A cat who is unnecessarily anxious may be helped by an anti-anxiety medication.

receptors and block some adrenergic receptors. Serotonin levels have been linked to depression and anxiety, and adrenergic receptors stimulate fight-or-flight behaviors. Stimulating serotonin can be beneficial for your cat’s mental state, while blocking adrenergic receptors helps to keep her calm. Azapirones are not addictive and have a low potential for abuse by humans.

Benzodiazepines enhance the effects of gamma-Aminobutyric acid (GABA), a neurotransmitter that causes sedation and muscle relaxation, among other things. These medications work fast but also have a potential for abuse.

Monoamine oxidase inhibitors (MAOIs) allow the neurotransmitters serotonin, dopamine, and norepinephrine (adrenaline) to stay active within the brain longer (monoamine oxidase removes these neurotransmitters).

Tricyclic antidepressants (TCAs) also prevent the removal of serotonin and norepinephrine from the brain.

Selective serotonin reuptake inhibitors (SSRIs) work by preventing the removal (or reuptake) of serotonin within the brain. One of the advantages to these medications is that they seem to specifically target serotonin, while other neurotransmitters are unaffected.

Every medication has the potential for drug interactions, so it is important to notify your veterinarian of any and all medications and supplements that your cat may be taking.

Depending on the cause and severity of your cat's anxiety disorder, anti-anxiety

medication may be a short-term solution to alleviate symptoms while you make adjustments to his environment to decrease stress, or it may be a long-term medication that he receives for the rest of his life. With most long-term medications, your veterinarian will want

to do bloodwork every six to 12 months to monitor liver and kidney function. This regular bloodwork is important to make sure that the medication is not impacting the rest of your cat's body in a negative way and allows you to catch any developing problems early. ■

Feline Anti-Anxiety Medications

Medication (Brand), Drug Class	Useful Information	Side Effects
Alprazolam (Xanax), Benzodiazepine	If being used to calm the cat during specific events or triggers, it should be given 30 to 60 minutes beforehand. Usually in tablet form, but can be compounded as a liquid suspension.	Sedation, irritability, depression, increased appetite, temporary balance/mobility issues; should be used with caution for cats with liver or kidney disease.
Amitriptyline (Elavil), Tricyclic antidepressant	Can be given once or twice a day. May take weeks to see results. Make sure the cat has access to plenty of water. Dosage must be tapered if you discontinue this medication.	Sedation, constipation, urinary retention, excessive drooling, anorexia, vomiting, clotting disorders, irregular heartbeat; should be used with caution for cats with seizure disorders.
Buspirone (BuSpar), Azapirone	Given 2 to 3 times a day. May take a week or longer to see results. Can be given on an empty stomach, but if the cat vomits, the owner should try giving it with a meal.	Behavioral changes such as increased affection and assertiveness; should be used with caution in cats with liver or kidney disease.
Clomipramine (Clomicalm and Anafranil), Tricyclic antidepressant	Given once a day. May take several weeks to see results and is most effective when used with behavioral management. Dosage is usually started low and then gradually increased and should be tapered if the medication is discontinued. Can be given with or without food. Avoid giving your cat aged cheeses while he is on clomipramine.	Vomiting, diarrhea, sedation, dry mouth, increased heart rate, urinary retention, constipation; should be used with caution in cats with seizure disorders, liver or kidney disease, arrhythmias, constipation, or urinary retention.
Clonazepam (Klonopin), Benzodiazepine	Longer-acting than most benzodiazepines. Dosage should be tapered if discontinuing. If using to calm a cat during specific events or triggers, it should be given an hour beforehand. Can be compounded in a liquid suspension.	Sedation, ataxia, liver problems, increased appetite; should be used with caution in cats with liver disease, narrow angle glaucoma, or myasthenia gravis.
Diazepam (Valium and Diastat), Benzodiazepine	Should not be given to cats who have been exposed to the pesticide chlorpyrifos.	Sedation, ataxia, liver failure, irritability, depression, increased appetite; should be used with caution in cats with liver or kidney disease. Because of the potential for liver problems, diazepam is controversial for use in cats.
Fluoxetine (Prozac and Reconcile), Selective serotonin reuptake inhibitor (SSRI)	Given once a day. Can be given with or without food. May take several weeks to see results. When discontinuing, dosage should be tapered gradually.	Anxiety, irritability, altered sleep cycles, anorexia, altered elimination patterns; should be used with caution in cats with diabetes mellitus, seizure disorders, or liver disease.
Paroxetine (Paxil), SSRI	Given once a day. May take days to weeks to see results. When discontinuing, dosage should be tapered gradually. Avoid flea collars while giving paroxetine.	Anxiety, irritability, altered sleep schedules, anorexia, constipation, altered elimination patterns; should be used with caution in cats with heart, kidney, or liver disease.
Selegiline (Anipryl, l-deprenyl, Eldepryl), Monoamine oxidase inhibitor	Given once daily, usually in the evening for cats. May take several weeks to see effects. It is FDA-approved for cognitive dysfunction syndrome in dogs.	Vomiting, diarrhea, restlessness, lethargy, drooling, anorexia, hearing loss, itching, licking, tremors.
Sertraline (Zoloft), SSRI	Given once daily. May take weeks to months to see results. When discontinuing, dosage should be tapered gradually. Avoid flea collars while giving sertraline.	Sedation, anorexia, vomiting, diarrhea, irritability, anxiety, altered sleep schedules; should be used with caution in elderly cats or those with liver disease.

Microchips and Fibrosarcoma

The benefits of microchips outweigh the risks

Q One of our cats recently escaped and was missing for three days before we (thankfully) found him at the local shelter. While we were picking him up, the associate discussed our cat being microchipped. While we understand that this can be helpful, we are concerned about the possibility of this inducing a fibrosarcoma, which we understand is possible with this procedure. Can you provide some guidance?

A Thanks for getting in touch, and I am so glad to hear that you and your kitty have been reunited. I know that losing a feline friend can be stressful (imagine how it is for us kitties!), and the fact that you are back together warms my heart.

I understand your concern about a microchip inducing a fibrosarcoma, as this phenomenon has been reported in a very few select cases; but it's important to realize that in spite of the fact that millions of microchips are implanted in cats (and dogs), there are only a couple of case reports of fibrosarcomas being found at the site of microchip implantation. These tumors are more likely to be found at the sites of vaccination, which is why current recommendations are to give



Without a microchip, a lost cat has a 2 percent chance of being returned to her owner. With it, the odds increase to 40 percent.

feline vaccines in the distal limbs, so that if a fibrosarcoma arises, the tumor is more amenable to surgical excision than it would be if it were found between the shoulder blades, which is where vaccinations have historically been administered to cats.

Even considering the case of vaccine-induced sarcomas, though, the incidence of this phenomenon is believed to be between 1 in 1000 and 1 in 10,000. In the vast majority of cases, the risk of a cat experiencing health problems as a result of infection by a disease that is preventable via vaccination is far more likely than the development of a vaccine-induced sarcoma, so vaccination remains a cornerstone of preventive medicine in cats (and many other species).

It's also important to realize that

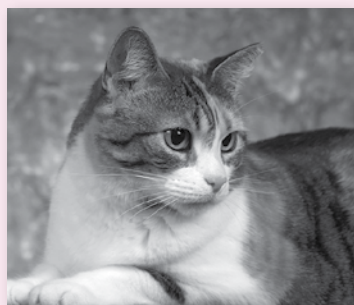
microchips significantly improve the odds of a lost cat being returned to their home. It's estimated that a lost cat that has not been microchipped has about a 2 percent chance of being reunited with his/her owner and that microchipping increases this likelihood to approximately 40 percent.

This number would probably be higher if owners of microchipped cats were more diligent about appropriately registering the microchip. In many cases, the reason that a microchipped cat is not returned home is that the owners never provided updated contact information to the microchip registry.

While the cause of these fibrosarcomas remains to be determined, it is quite possible (if not likely) that, in most cases, merely the trauma of having an object implanted under the skin (and the associated inflammation) is not sufficient to induce this type of cancer. There has been speculation that activation of the immune system by one or more of the contents in a vaccine is more usually the cause of vaccine-induced-fibrosarcomas in cats, but the jury is still out on this issue.

Given the things we know about fibrosarcomas associated with microchips in cats, it's safe to say that this is a very rare occurrence, and my opinion is that the benefits of microchipping cats far outweigh the risks (the same is true for appropriately administered vaccinations). My recommendation would be to pursue having your cat microchipped and to carefully monitor the site for any signs of a mass developing. If you are concerned about the possibility of a problem at the site of implantation, your veterinarian is the best resource to seek out for advice.

All my best,
Elizabeth



Elizabeth works with the Cornell Feline Health Center in providing the answer on this page (vet.cornell.edu/fhc/).

Coming Up ...

- ▶ Feline Calicivirus
- ▶ Nutrition for Senior Cats
- ▶ What to Do If Your Cat Goes Into Shock
- ▶ Screening Blood Test Benefits

© HAPPENING NOW...

Cornell Places First Spinal Pin: A 13-year-old feline became the first cat in the United States to receive a surgical spinal technique that involves placing a metal pin in the spine for spinal compression. Called the minimally invasive transilial vertebral (MTV) blocking, the surgery was performed by Dr. Emma Davies, section chief of neurology at the Cornell University Hospital for Animals, and assisted by Dr. Baye Williamson.

D.C. Cat Count: Livescience.com says the project D.C. Cat Count is being put together to better manage cats living in the Washington, D.C., area. The project will take three years and cost \$1.5 million. Scientists, animal welfare organizations, and citizens will do

counting using camera traps, household surveys, and analyses at shelters. The group hopes to create a phone app that will allow citizens to send in photos of cats they see in the area. ■

