



Cat Watch

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



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Among other attributes, they allow cats to land in tight spaces.

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IN THE NEWS ...

Batman the Four-Eared Cat Finds Fame and New Home

A black cat with four ears named Batman made national news only hours after being made available for adoption at the Western Pennsylvania Humane Society in Pittsburgh. "Just when you think you've seen it all, a four-eared cat comes in the door!" says Hala Nuemah, shelter managing director.

The 3-year-old's second set of ears is believed to be the result of a genetic mutation, the shelter says, adding that he is in excellent health and hears perfectly well.

Batman had been surrendered with other cats and treated for an upper respiratory infection for weeks before adoption, during which time



Batman

he was promoted on the shelter's Facebook post. A mother and daughter happily took Batman home, explaining they like superheroes. ♦

They Climb Curtains, Scratch the Sofa

What we label destructive is their way of exploring and communicating 'I, Sid, was here. Look how big I am!'

Cats can seem soft and gentle, but beneath the fur and the purr are claws that can rip and teeth that can bite into furniture, clothing, carpet and more. Scratching is the most common type of feline destructive behavior, but it can also take other forms.

"Cats may chew plants, climb curtains or knock over objects because they are playing and exploring, seeking owners' attention, or trying to get outside," says Pamela Perry, DVM, Ph.D., a resident in behavior and



Don't hide scratching posts. Cats use them and other means to leave visual and scent messages to be appreciated.

Lecturer at Cornell University College of Veterinary Medicine.

Delivery System. Some destructive behavior is normal. Scratching, for instance, is a means of communication. It helps cats groom and condition their claws by removing the old sheath so a new one can grow, but it is also a potent message delivery system, both visually and "scent-sually."

Claw marks leave a message: "I, Sid, was here. Look how big I am. See how high I can reach?" In addition, the underside of cat's paws contains sebaceous glands. When the cat scratches, these

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The Challenge of Long-term Steroids

Will the benefits of a low dose control a condition while at the same time make it worth the risk of the side effects?

Corticosteroids have proven effective in treating a variety of conditions from allergic reactions to brain disease, but they present a balancing act for both owners and veterinarians.

Owners, faced with their cats' experiencing any one of a long list of health problems, must weigh if long-term use is worth the risk of steroids' side effects. At the same time, veterinarians must determine the lowest dose of medication to control the condition.

Frequent Exams. "The question isn't whether side effects will be seen; the question

is when they will be seen — and how bad they will be," says dermatologist William H. Miller, VMD, a medical director of the Companion Animal Hospital at Cornell University College of Veterinary Medicine. "Frequent examinations by the veterinarian are recommended in these cases to detect the changes. Many can be reversed if the drug is stopped early."

Corticosteroids, commonly referred to as steroids or cortisone, are a class of steroid hormones produced in the adrenal glands. They're involved in a range of activities in the body, including nutrient metabolism and maintenance of blood electrolyte levels.

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CatWatch

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SHORT TAKES

'Whiskers Are All About Vibration, Airflow, Touch'

If you've ever been tempted to trim your cat's whiskers, it would be best to resist the impulse. Whiskers are essential to cats' navigation. They also serve as early warning systems and barometers of mood, says Leonie Richards, BVSC, head of general practice at the University of Melbourne Veterinary Hospital.

An article in the university journal *Pursuit* explores this remarkable feature, starting with the basics: Cats generally have a dozen whiskers arranged in four neat lines on each cheek, a few more where they have eyebrows, and some under their chin and behind their front paws.

"All of them basically serve the same purpose," Dr. Richards says. "They're sensory. They help cats work out where they are spatially. The whiskers on the back of their paws are arranged to make up for short-sightedness. If they've caught prey, it gives them an idea of where the prey is [in relation] to their feet."

Whiskers are made of keratin, a protein found in the outer casing of horns in cows and other animals. They don't feel sensation, but at the point where they're embedded in the animal, they're packed with nerve endings fed by a strong blood supply. That makes whiskers an ideal sensory organ, Dr. Richards says. "It's all about vibration, airflow and touch." Cats use the follicular feelers to determine if they can squeeze themselves into small spaces and find their way in the dark.

Dr. Richards offers this guide to reading whiskers as clues to emotion:

- ◆ **If the whiskers are relaxed and droopy:** That's a calm, happy cat.
- ◆ **Pinned back against the face:** He's fearful.
- ◆ **Facing straight forward:** angry.

About trimming the whiskers: That will reduce cats' sense of spatial awareness.



Cats use their whiskers to determine if they can squeeze — or leap — into small spaces and also find their way in the dark.

"It makes them disoriented. It's harder for them to assess where their surroundings are," Dr. Richards says, noting that whiskers help cats safely leap large distances onto narrow landing areas.

Sometimes veterinarians have to cut the whiskers when, for example, they find an abscess in the cheek, Dr. Richards says. "The whiskers will grow back in a couple of months, and the actual cutting isn't painful because whiskers don't have nerve endings in them." But cats may feel somewhat frightened until the whiskers grow back.

Help for the Heart

The Winn Feline Foundation has awarded a grant to research at-home use of Holter monitoring in cats with hypertrophic cardiomyopathy (HCM). Cardiologist Katherine Scolan, DVM, ACVIM, at Oregon State University will be the principal investigator researching arrhythmias and the effects of structural heart changes on cardiac rhythm.

Cats wear the small monitors, also called ambulatory electrocardiography devices, to record the heart rate typically for 24 hours. Once the device is removed, the data can be downloaded to a computer for analysis.

HCM, the most common heart disease in cats, is characterized by thickened walls primarily the heart's left ventricle, which can affect the heart's ability to pump oxygenated blood to the body. Breeds prone to HCM include Maine Coons, American Shorthairs and Ragdolls. ♦

Cat Scratch Fever Spikes in January

The CDC reports a higher incidence of overall cases, but there's no need to panic — the disease is preventable

Hand-wrestling your kitten or newly adopted cat may seem like harmless play, but if either would happen to scratch you, you could develop an infection requiring treatment for cat scratch disease (CSD).

This rare but potentially serious condition is estimated to affect about 12,500 people annually in the U.S., including 500 hospitalized for treatment. The incidence is higher than medical experts anticipated, according to a new study released by the Centers for Disease Control (CDC).

Cat scratch disease is caused by the bacteria *Bartonella henselae*, which is spread primarily by fleas among cats and less commonly among dogs. Kittens and cats harboring flea infestations are especially prone to infection. In some cases, *B. henselae* may be transmitted from infected cats to humans via scratches or bite wounds. While most healthy people can recover, severe cases can affect the brain, eyes and heart.

However, "There is no need to panic," says cardiologist Bruce G. Kornreich, DVM, Ph.D., Associate Director for Education and Outreach at the Cornell Feline Health Center. "The best way owners can prevent their cats from becoming carriers

of this disease is to keep them indoors and practice good flea prevention. In addition, keeping cats away from other cats who spend time outdoors and/or who have fleas is important."

The Centers for Disease Control found the incidence of cat scratch disease in the U.S. to be highest among people who live in the South (6.4 cases per 100,000 people) and among children 5 to 9 years of age (9.4 cases per 100,000). Most diagnoses were made during the month of January for reasons that remain unclear.

Dr. Kornreich says that 25 to 40 percent of cats have *Bartonella henselae*, but diagnosis in cats is difficult and usually not necessary because most cats display no signs. He urges you to seek veterinary care if your cat displays any of these symptoms:

- ◆ Fever
- ◆ Redness/swelling of the gums and mouth
- ◆ Cloudiness or redness in the mucous membranes of the eyes
- ◆ Impaired vision
- ◆ Excessive blinking, closing of the eyes or sensitivity to light



Cuddling is OK. No evidence exists that simply cuddling cats increases your chance of infection, says the Centers for Disease Control: "Cat scratch disease is transmitted to humans by inoculation into the skin and bloodstream via scratches, licking a skin wound, and bites."

- ◆ Stumbling
- ◆ Depression or lethargy
- ◆ Seizures
- ◆ Rapid or difficulty breathing

"It is unclear why the vast majority of infected cats do not show signs of disease, but it is likely that some aspect of their immune function provides protection," Dr. Kornreich says.

If untreated, an infected person can develop redness, swelling and blisters at the bite or scratch site, swollen lymph nodes, low-grade fever, fatigue, headaches and, in severe instances, systemic infections. Although rare, untreated systemic infections can lead to encephalopathy, or abnormality of brain function; neuroretinitis, inflammation of the optic nerve and retina in the eye; and osteomyelitis, a bacterial infection in the bones.

Importantly, severe complications of CSD are rare in people who have normally functioning immune systems. Those at greatest risk are people with compromised immune systems, such as the very young and the elderly, those receiving immunosuppressive chemotherapy, and those with HIV infections.

In addition to transmission via bites or scratches, exposure of a person's open wound to infected flea feces or to the saliva of an infected cat is also a risk factor. "While the possibility of infection occurring via the saliva of

(continued on page 5)

HOW TO REDUCE THE RISK

While cat scratch disease is not common, cat owners should be aware of the health concern and that they can take steps to minimize the likelihood of contracting it, says Bruce G. Kornreich, DVM, Ph.D., at Cornell. Preventive measures include:

- ◆ Providing year-round flea control.
- ◆ Keeping cats indoors.
- ◆ Not letting cats bite or scratch or lick your open wounds.
- ◆ Supervising/limiting interactions between cats (especially kittens) and immunosuppressed individuals.
- ◆ Washing your hands with soap and warm water after interacting with cats, and immediately washing any cuts or scratches with soap and warm water.

DESTRUCTIVE ... (continued from cover)

glands release chemical signals unnoticed by humans but readily recognized by other cats.

We don't have a "Mewsetta" stone to tell us what a cat's scratches mean, but experts have some theories. Cats could be delineating their territory: "Sid lives here. Keep out!" Or they could be communicating about themselves as individuals. "Scratching prominent objects may convey a territorial familiarity," Dr. Perry says.

Sucking or chewing on fabric can be soothing or relaxing. In some cases, it can be a response to fear, frustration or anxiety — the result of environmental and lifestyle changes. A cat may scratch if he's stressed by the presence of another cat, a dog who's tormenting him or the arrival of a new baby or significant other.

Whatever the case, you can take steps to save your furnishings, sanity and, most important, your relationship with your cat. Scratching can become destructive when it's practiced on furniture, doorways, windowsills or personal belongings instead of a scratching post, log or other acceptable target. It's more than unsightly. It can have serious consequences for cats who engage in it. They can face a range of abuse, from being yelled at or squirted with water to being declawed, put outdoors or surrendered to a shelter.

Getting Creative. Dealing with destructive scratching can call for



If your cat favors sharpening his claws on the sofa, put his scratching post next to it. An equally acceptable area to scratch will entice him to hone his claws there.

creative thinking and home rearrangement. Cats scratch in areas where their handiwork can be seen and appreciated. They want their message to be visible and potentially communicated to others. That means no hiding the scratching post in an out-of-the-way corner or room.

If your cat likes to scratch a certain chair or a particular area of the sofa, give it a once over from a feline perspective. Is it in a prominent part of the room where other cats and humans have a good view of it? Try moving the object so your cat will have less incentive to scratch it. Or put his scratching

post next to it so he has an acceptable place to scratch that is equally enticing.

You needn't worry if this will ruin your décor. Pet product manufacturers produce cat trees and scratching posts to suit almost any decorating scheme, from contemporary to traditional. Some cat trees or posts resemble elegant potted plants or striking modern sculptures.

It's also important to determine the posture your cat prefers when scratching as well as preferred textures so you can provide them in another way. Maybe he likes to stretch up the side of the sofa when scratching. Offer him a taller vertical surface covered in sisal.

Carpet Clawers. Cats who are carpet clawers may prefer a horizontally placed post lined with cardboard or a log on the floor. Some cats scratch by lying on their back and kicking. You can buy a scratching "tunnel" lined with rope or cardboard that will send him into raptures. If possible, offer a variety of scratching options and surfaces and place them in different spots so your cat can choose his favorite. Eventually, you may be able to move the chosen scratching item to an area of your choice, not your cat's.

THEY'RE CURIOUS — NOT BENT ON REVENGE

Some owners blame their cat's destructive behavior on spite or revenge. It may seem as if your cat is getting back at you for some perceived crime on your part, such as not scooping his litter box quickly enough or feeding him Turkey Surprise instead of Salmon Delight, but despite their high level of intelligence, cats don't think at that sophisticated level.

"We should not impart malicious intentions to pets," says Pamela Perry, DVM, Ph.D., a resident in behavior at Cornell. "Most destructive behavior is a manifestation of the pet's normal investigative play or behavior in the absence of a more suitable or more appealing outlet. They are curious creatures who have a strong desire to explore their environment. It is up to us as owners to provide them with ample suitable outlets for their inquisitive natures."

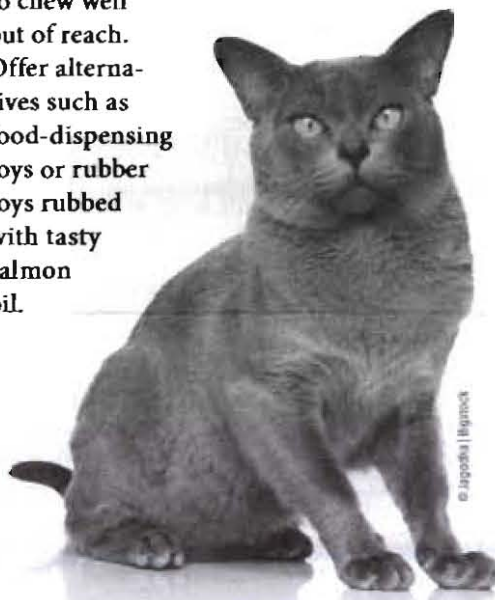
Whatever you choose—or build—make sure it is sturdy and stable. Your cat will never want to use a scratching post again if it falls over with or on him. Encourage your cat to use the post by treating it with fresh catnip. Run your fingers up and down it so he's attracted by the motion and sound. Place it on or near the area he likes to scratch. Give treats and praise when you see him using it.

Never punish a cat for scratching by squirting him with water or yelling at him. He has no idea why you're attacking him for what is a perfectly natural behavior. Punishment may work temporarily but make your cat afraid of you. Plus, he will probably learn to scratch when you're not around. One simple way to discourage scratching is by setting harmless booby traps such as a pile of paper cups that will fall over onto him if he scratches the forbidden item.

Some cats find comfort in sucking or chewing on fabric. They suck on or knead wool blankets, sweaters or other items made of fabric. This habit may develop in kittens who were separated from their mother at too early an age. The sucking or kneading behavior seems to mimic the warmth and comfort kittens feel when nursing their mother. Fortunately, this behavior is rare. It's often seen in Siamese, Burmese or other Oriental breeds and may have a hereditary component.

While sucking wool is generally not harmful to cats, it's important

to put a stop to it. Cats who ingest synthetic fabrics instead of real wool can develop intestinal blockages or swallow other dangerous items such as buttons, pins, rubber bands or needles. Put items your cat likes to chew well out of reach. Offer alternatives such as food-dispensing toys or rubber toys rubbed with tasty salmon oil.



While chewing or sucking on fabric may not generally be harmful, Oriental breeds such as Burmese, who are predisposed to the rare disorder, may develop intestinal blockages if they swallow synthetic material.

Start With the Vet. Cats can't tell us with words what's behind their destructive behavior, but a veterinary exam is the first step. "Cats with gastrointestinal issues may chew, lick or consume plants, carpeting or other material," Dr. Perry

says. "Fabric chewing in cats also may be due to a compulsive or dietary disorder." One of the easiest treatments is to provide food free choice; obesity is less of a risk than a blockage.

She suggests using a "cat cam" to determine your cat's activities when you're not around. You may find that another pet is bullying the cat, for instance. It's also important to make sure basic needs are met. These include easy access to food and water, toys and playtime, and appropriate amounts of attention from the humans in the household.

Enriching your cat's environment with toys, window perches and other items to engage him may help. Give him a few minutes of playtime with a fishing-pole toy or peacock feather. Some cats like to chase small balls. Puzzle toys can keep their brains stimulated. Consider a cat's age as well, Dr. Perry says. "Younger animals tend to be more destructive because they play and explore more than adults."

The good news is that you don't have to live with ravaged furniture, clothing and plants. By thinking like a cat and practicing some clever management strategies, you can protect your home and belongings and fulfill your cat's natural need to express his nature. ♦

SCRATCH ... (continued from page 3)

an infected cat getting into the eye of a person exists, I cannot find a documented case of this occurring in the scientific literature," says Dr. Kornreich. "This is not to say that the eyes cannot be affected in people with CSD, as this can happen in very rare cases, but documentation of infection occurring via this route is lacking."

CSD is diagnosed in people based on a health history that includes con-

tact with cats and the symptoms listed above. In some instances, a blood test may be performed to see if a person has developed antibodies to Bartonella (suggesting exposure to the bacteria), and in very rare cases, swollen lymph nodes may be aspirated to look for the presence of the bacteria. A number of effective antibiotics are available for treatment.

Dr. Kornreich's parting advice: "It's important to realize that CSD is not a new disease and that the benefits of

cat ownership far outweigh the risks of CSD provided that these precautions are taken." ♦

FOR MORE INFORMATION

The Cornell Feline Health Center has more information on cat scratch disease under Health Topics/Zoonotic Disease, at www.cornell.edu/fhc.

STEROIDS...*(continued from cover)*

Due to their anti-inflammatory properties, corticosteroids are a valuable class of medications typically used to suppress the inflammation associated with allergies. In higher doses, they can suppress the body's immune system when a disease causes it to wrongfully attack healthy cells (called autoimmune disease). Most corticosteroids are synthetic and more potent and longer-lasting than the naturally occurring forms. These include:

- ◆ Prednisone
- ◆ Prednisolone
- ◆ Dexamethasone
- ◆ Triamcinolone
- ◆ Methylprednisolone

"Steroids address the symptoms of medical conditions rather than the conditions themselves," Dr. Miller says. "They don't cure anything. They just control signs of disease."

Side effects can include increased infection rates and the development of diabetes. According to VCA Animal Hospitals, about 30 percent of cats on long-term steroid treatment suffer a urinary tract infection.

Cats tend to be more resilient than dogs when it comes to steroid side effects, but they may experience both ini-

tial and long-term changes. Among the early effects are:

- ◆ Increased thirst and urination
- ◆ Increased appetite with weight gain
- ◆ Loss of energy
- ◆ Development or worsening of infections, especially bacterial skin infections
- ◆ In rare instances, vomiting and diarrhea

Cats undergoing long-term use of steroids may face an even longer list of possible effects, including:

- ◆ Internal metabolic changes, such as increased cholesterol, altered liver enzymes and changes in the ability to process glucose
- ◆ Altered appearance of the coat and skin, such as a dull coat, hair loss and increased frequency of skin infections
- ◆ Altered appearance of the body, such as fat pads over the hips or a pot belly due to weakening of the abdominal muscles
- ◆ Loss of muscle mass, especially on the head
- ◆ Weakened ligaments
- ◆ Thinning of the skin to the point where it can tear easily
- ◆ Development of diabetes in some pre-diabetic cats

Older cats are more susceptible to steroids' effects than young ones. The changes' type and severity depend on the patient's health, the drug used, its dosage and route of administration (oral, topical or injectable), and — most important — the length of administration, Dr. Miller says.

Lowering the dosage can often minimize side effects. Alternately, the veterinarian might prescribe another type of corticosteroid. Many newer drugs like cyclosporine and treatments are available as alternatives, but their considerable expense might deter owners

Most Common Use. In cats, itchy skin disease is the No. 1 reason for chronic use of steroids, Dr. Miller says. "Next come autoimmune disorders of the skin or other

CALMING AN OVERACTIVE IMMUNE SYSTEM

Steroids have strong anti-allergic and anti-inflammatory effects and can help calm an overactive immune system. Among other diseases and conditions, they can treat the following:

Allergies:

- ◆ Environmental allergic reactions
- ◆ Allergic reactions to flea bites, bee stings or spider bites
- ◆ Allergic bronchitis

Inflammatory conditions:

- ◆ Osteoarthritis
- ◆ Trauma, especially to the head
- ◆ Soft tissue injuries like sprains or strains
- ◆ Gingivitis, a common form of gum disease

Autoimmune disorders:

- ◆ Stomatitis, inflammation in the mouth
- ◆ Pemphigus, a skin disease in which numerous pustules form on the skin
- ◆ Autoimmune hemolytic anemia, a condition associated with an abnormal breakdown of red blood cells
- ◆ Certain kidney diseases

organ systems like the bone marrow," he says. "Many neurologic conditions also require the prolonged use of steroids."

Before nonsteroidal anti-inflammatory drugs (NSAIDs) became available for cats, steroids were typically used to control arthritis and other orthopedic disorders, but their use in these conditions has declined as NSAIDs have proven to be effective and relatively safer for long-term treatment than most steroids, Dr. Miller says.

"In most animals, two weeks of steroid administration isn't likely to cause



Increased thirst and urination are among the early hallmarks of steroid use.

THE ESSENTIAL MONITORING TESTS

Because steroids suppress the immune system, cats taking them can be vulnerable to viruses, bacteria and other infections. While healthy cats should see their veterinarians for checkups twice a year, those taking long-term steroids should see their veterinarians more often.

During these visits, veterinarians will conduct urine and blood tests to screen for infections or signs of damage and make sure the cat is handling the steroid medication well. They might decide to alter the dosage or switch to an alternative medication if certain side effects become evident.



Owners should work with their cats' veterinarian to monitor the effects of long-term steroid use and make adjustments as necessary.

any long-lasting damage," he says. "With longer administration, changes can be identified. Some will disappear quickly when the drug is stopped, while others will persist long term or permanently."

The best way to counter or avoid the effects of long-term steroid use in cats is to explore alternate means of treating the underlying condition. The faster a cat's underlying health problems are treated, the fewer steroids he'll have to take.

Possible Alternatives. For example, if your cat is taking a steroid for skin disease, you and his veterinarian should investigate all possible causes for the itching. "If the cause can be identified and eliminated, the need for steroids will disappear," Dr. Miller says. "If the condition can't be 'cured' — as in a case of chronic environmental allergies such as atopic dermatitis — ask to try some medications or treatments other than steroids."

For example, Atopica for Cats is a common nonsteroidal drug used to control allergic skin disease. However, its cost can be more than four times that of steroid treatment, with prices varying considerably from practice to practice.

Many nonsteroidal methods can manage chronic itching in cats. Allergy testing and immunotherapy are options in some cases. However, the expense for this type of testing and subsequent

treatment can quickly tally into the hundreds of dollars. "To treat the autoimmune conditions, the immune system has to be suppressed," Dr. Miller says. "There are many drugs that can do this, but they can be more expensive and dangerous for the animal."

Likewise, various neurologic diseases often require steroidal therapy. These can include brain tumors and trauma to the brain, as well as spinal cord injury and disease. However, surgical options that can correct some of them are becoming increasingly available. Owners should consider these surgeries as a means of avoiding chronic steroid administration in their pets. However, like certain drug alternatives to steroids, surgical costs can be prohibitive, leaving steroids the only option.

"If steroids are the only acceptable way to manage a condition, the animal should receive the lowest dosage possible, as infrequently as possible," Dr. Miller says. "In skin disease, it's better to leave most allergic pets a little itchy rather than increase the drug dosage to completely eliminate the itching."

While corticosteroids can be life-saving medications for many cats, owners need to work with their cats' veterinarian to ensure that these drugs are administered as safely as possible and should seek alternatives that could potentially improve their pet's long-term quality of life. ♦

THIS IS NOT YOUR WEIGHT-LIFTERS' STEROID

Many of the most common steroids prescribed for cats — including prednisone, prednisolone, dexamethasone, triamcinolone and methylprednisolone — are a class of synthetic corticosteroids known as glucocorticoid steroids.

These are vastly different from anabolic steroids, which are synthetic variations of the male sex hormone testosterone that are often abused to increase muscle mass in people. Glucocorticoid steroids are not linked to the behavioral development of aggression, which is typically associated with anabolic steroid use in people.

THE RARE RISK OF CUSHING'S DISEASE

In rare cases, excessive corticosteroid production by the adrenal glands may cause hyperadrenocorticism, or Cushing's disease, in cats. When a cat is on long-term, high-dose steroid therapy, the risk that he will develop medication-induced, or iatrogenic, Cushing's disease increases.

Signs of this condition can include increased thirst and urination, an increase in skin or urinary tract infections, a pot-bellied appearance and thinning skin and hair loss.

To minimize the risk, veterinarians will try to gradually reduce corticosteroid doses over time. If iatrogenic hyperadrenocorticism does occur, it's also usually managed by gradual withdrawal of the corticosteroid.



Elizabeth

Elizabeth is thankful for the assistance of the Cornell Feline Health Center in providing the answer on this page.

**PLEASE
SHARE YOUR
QUESTIONS**

We welcome questions on health, medicine and behavior, but regret that we cannot comment on prior diagnoses and specific products. Please write CatWatch Editor, 535 Connecticut Ave., Norwalk, CT 06854-1713 or email catwatcheditor@cornell.edu.

COMING UP ...

- ❖
- MARKING
- ❖
- SAFE CPR
- ❖
- MAGNETIC
RESONANCE
IMAGING
- ❖
- VOMITING
- ❖

Will Ionic Air Cleaners Pose Safety Risks for her Kittens?

Q I live in a three-room apartment with three beautiful, adorable kitties. I have two ionic air cleaners, a large one next to my kitties' litter box and a smaller one in the living/dining/kitchen area. There is a warning on them not to breathe the air that comes out of them. Is there any potential for harm to my beloved kitties from these units?

A I understand why you may want to use these devices for cleaning the air with three kitties in the house, and you are certainly not alone in doing this. Although kitties smell great to me, households with cats can sometimes generate odors that some people find objectionable, and there are a number of ways that owners choose to deal with this. Ionic air cleaners are one of the newer technologies that have been developed to address air pollutants.

Ionic air cleaners work by generating charged particles, or ions, that are dispersed into the environment. The theory is that these ions will attach to pollutant particles that are floating around in the air and, by virtue of their charge, cause the particles to either stick to surfaces (i.e., walls and furniture) or to other particles, causing them to settle on surfaces in the room.

In theory, these units, which are commonly portable, should work fairly well for pollutant particles; and there is evidence to suggest that in some cases, they may decrease the concentration of circulating pollutant particles in rooms in which they are used. This effectiveness appears to be very dependent upon the size of the pollutant particles; however, and to our knowledge, evidence that the use of these units results in a decrease in any particular disease process that is mediated by airborne particles (i.e., asthma, allergies) is lacking. These units are also not effective at decreasing gaseous pollution.

The potentially harmful effects of ionic air cleaners are the subject of debate. The primary concern

is that in the process of producing ions, the units produce small amounts of ozone. Ozone is a molecule composed of three oxygen atoms, and many people are familiar with the importance of atmospheric ozone in protecting the earth from the potentially damaging ultraviolet rays of the sun.

While the ozone layer in the atmosphere is beneficial to us all, ozone at ground level may cause irritation and damage to mucous membranes and respiratory tissues. This effect is dependent upon the concentration of ozone molecules in inhaled air, with greater potential for negative health impacts expected with higher concentrations of ozone. The amount of ozone produced by these units varies considerably, and definitive answers about the effects of ozone on health are still not available.

Having said this, however, it makes sense that the highest concentration of ozone associated with these units occurs in their immediate proximity, so recommendations to avoid directly breathing in air as it leaves them is good common sense. There is no proof that ionic air cleaners will harm your kitties, but there is also no proof that they cannot cause harm. Given the current status of our knowledge concerning this issue, decisions regarding the use of these units will likely remain a personal choice that balances their potentially harmful effects with their perceived effectiveness.

The U.S. Environmental Protection Agency has a website that addresses a number of issues regarding air purification, including effectiveness and the potentially harmful effects of the various methods of cleaning the air. Please see this link for additional information: www.epa.gov/iaq/pubs/residair.html.

In the interim, I think that if you are considering the continued use of ionic air cleaners, taking steps to assure that your kitties (and you) don't breathe in the air that is in close proximity to them is a good idea. I hope that this clears the air with respect to your concerns, and please drop me a line to let me know how you're doing when you get the chance. ❖

—Sincerely, Elizabeth

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