



# CatWatch

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



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## IN THE NEWS ...

### Sounds Linked to Seizures in Older Cats — and More

An evaluation of 96 cats' medical records and owner questionnaires suggests that some high-pitched sounds can cause seizures in older cats. At the same time, the study uncovered a mystery: Half the evaluated cats were deaf or hearing impaired, according to their owners. How did they hear the sounds?

The University College of London School of Pharmacy and Davies Veterinary Specialists in the UK identified common triggers for seizures, such as crinkling tin foil; metal spoons clanging in ceramic bowls; tapping on keyboards; clinking coins and keys; nails hammering, even the clicking of an owner's tongue. Average age of seizure onset was 15 years.

Cats do hear higher frequency than humans. "We wonder if these cats have gone deaf to sounds people can hear but retain their ultrasonic frequency range," a researcher says. ♦

## The Impact of Those New Food Labels

*It could be tricky figuring portions because some foods can contain more calories than what is listed*

By the end of the year, almost all pet food labels will provide information on calories per cup as part of the growing movement in veterinary medicine to counter pet obesity. The change has been several years in the making and would seem make it easier to feed our cats, but just like the challenge of deciphering the terms on labels — guaranteed analysis, ingredients vs. nutrients and total crude protein — determining the calories might not be simple.



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One problem is that owners use all kind of cups — takeout food containers, sports cups — rather than the standard eight-ounce cup.

Nutritionist Joseph Wakshlag, DVM, Ph.D., at Cornell University College of Veterinary Medicine offers one example: "The average indoor cat's diet should be based on resting energy, similar to a human couch potato who watches TV most of the day. The problem is that pet food manufacturers' recommendations are based on a theoretical activity level that doesn't exist for most indoor cats."

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## Reducing the Risk of Lymphoma

*Cats infected with two viruses have a higher rate of the cancer, but vaccinations can help protect against them*

Lymphoma is the most common form of cancer in cats and unfortunately one of the most deadly. Although it has no cure, vaccinations against two viruses linked to the cancer can reduce your cat's risk of developing the disease.

Feline lymphomasarcoma is a malignant cancer of lymphocytes, cells in the immune system that travel the body through the lymphatic system — the network of tissues and organs that influences virtually every aspect of a cat's health. Lymphoma can arise in lymph nodes as well as organs, including the spleen, liver, intestinal tract and skin. The

disease can sometimes lead to tumors; however, the cancer usually involves the blood-forming organs and lymph tissue.

**Slow Detection.** "It is challenging because most of the time the cancer is internal, and it is not detected until the cat starts to feel sick," says Cheryl Balkman, DVM, ACVIM, senior lecturer and chief of oncology at Cornell University College of Veterinary Medicine.

The signs that cats will gradually experience can include decreased appetite and energy, vomiting, diarrhea, weight loss and increased drinking and urination.

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# CatWatch

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## SHORT TAKES

### A Survey Finds That It's Time For a 'Cattitude' Adjustment

Cute cat videos are all over the Internet and morning TV news shows, but to judge by a national survey of 1,023 people by PetSmart Charities, opinions about cats and their owners remain divided. A majority of respondents believe cats are intelligent, loving, cuddly and attractive but also invoked stereotypical adjectives such as moody, stubborn, aloof and grouchy. (You can bet "grouchy" cats have legitimate reasons for their mood, such as illness, pain or stress.)

The pejorative image of the "cat lady" also persisted, with 49 percent of respondents believing in it (think lonely "spinster" surrounded by cats). Some encouraging news did emerge: 71 percent agreed that stigmas about cat owners overall are outdated, and almost two-thirds believe too many people have negative impressions of cat owners.

"Our survey shows that America is ready for a major 'cattitude' adjustment. It's time to end the stereotypes around cats and cat people to help more cats get adopted," says Jan Wilkins, executive director of PetSmart Charities.

That starts with owners proudly sharing how cats enrich our lives, the charity says, encouraging owners to post selfies with their cats on social media.

Among other survey results: Three-quarters of respondents said cats make great pets, and 78 percent would be proud to say they have a cat.

The sad truth is that fewer than 25 percent of shelter cats are adopted, according to the charity, and more cats are euthanized than dogs because of lack of space. PetSmart Charities' adoption programs at its stores and events result in 400,000 dogs and cats finding homes annually. It focuses grant awards on spay-neuter services.

### 'Tragically' Obese and Ill

A cat believed to be the fattest in Germany, if not the world, is being cared for at an animal welfare agency that has him on a weight-loss

diet plan to restore his health. Elvis, a European shorthair, weighed 38½ pounds when he was checked into Arche 90 (the Ark) in Dortmund. He has limited mobility and can take only a few steps before his rear buckles, and he has twice-daily insulin injections for diabetes.

Elvis first arrived at the agency at 31 pounds in 2010. (The typical European shorthair weighs 11 pounds.) He lost weight and was adopted, but his new owners turned him in to a clinic earlier this year, saying they couldn't care for him.



Mike Christian/Balcraft Media

**Elvis, a European shorthair,** weighed 38½ pounds when he was checked into an animal welfare agency in Dortmund, Germany.

A no-carb diet and measured portions have resulted in Elvis' losing several pounds. He's been featured extensively in European media, but response at Arche 90 has been subdued: "Our cat Elvis has become a tragic celebrity."

The agency says 7-year-old Elvis is a softie, a lovable cat who "claims his cuddles" and is curious about everything. He will remain in its care until his weight and health are under control, and then be placed in a loving, responsible home.

An estimated 58 percent of cats in the U.S. are overweight or obese, according to the Association for Pet Obesity Prevention. In addition to diabetes, the risks of excess weight in pets include osteoarthritis, high blood pressure, heart and respiratory disease, cranial cruciate ligament (knee) injury, cancer, and kidney disease. Their life expectancy can be shortened by two-and-a-half years. ❖



# When Rough Play Gets Out of Hand

*Stalking and chasing are normal but can lead to injury to other cats in the household — and you*

Your indoor cat needs and deserves daily play sessions to keep him physically and mentally fit. Play can help prevent him from engaging in destructive behaviors like shredding the sofa out of boredom or becoming obese from over-eating to pass the time.

"Play in kittens is important for muscle conditioning and neurological development," says Pam Perry, DVM, Ph.D., a behavior resident at Cornell University College of Veterinary Medicine. "In kittens, hunting-type behaviors are common in play, such as stalking, chasing, pouncing, biting and scratching. Social play is also important in teaching kittens bite inhibition."

**Bites and Scratches.** But rough play can sometimes get out of hand and lead to serious injuries to you and other cats in the household. If you are seriously bitten or scratched, you could develop cat scratch fever, an infection caused by *Bartonella henselae* bacteria. In general, treatment requires antibiotics, but in some cases, especially in people with weak immune systems, hospitalization is required.

Some indoor cats who don't have ample and suitable play outlets will lie in wait for you to walk down the hall so that they can pounce on your ankles.

Some unsheathe their

claws when people playfully attempt hand wrestling.

Protect yourself by tossing a toy mouse or even a paper wad down the hall in the opposite direction when you spot your cat crouched in wait for you. Instead of hand wrestling, invest in interactive toys like feather wands. Drag the toy along the floor and make erratic movements to motivate your cat to stalk, chase and pounce. You can also provide him with a soft plush pet toy he can grab, bite and kick with his back feet.

When it comes to play invitations, cats are far more subtle than dogs looking for a playmate — be it a favorite person or another cat in the home. "All cat play is predatory as opposed to dogs who also fetch and engage in other types of play," says behaviorist Katherine Houpt, VMD, Ph.D., professor emeritus at Cornell. "Most owners with dogs can tell when they are getting over excited but not so much in cats. Most cats do pounce and chase, but few fetch."

**A Mouse in the Bed?** One event that does spark curiosity and play in some cats is when an owner starts to change bed sheets. "Bed making brings out the play in many cats," says Dr. Houpt. "I'm not sure if it is due the hand being under the sheet that, to the cat, may be moving like a mouse or mole. Cats who play when a person is making the bed can get so excited that they may bite and may not inhibit their bite."

While any cat is capable of playing too rough, Oriental breeds, including the Siamese and Bengal, tend to be more prone to it than other breeds. "We're not sure why they are more overly playful, and this seems to affect males more than females," Dr. Houpt says.



**Cats don't have well-recognized play signals,** says behaviorist Katherine Houpt, VMD, Ph.D., at Cornell. "One cat may pounce on the other and think it is in play, but the other cat may think it is an attack."

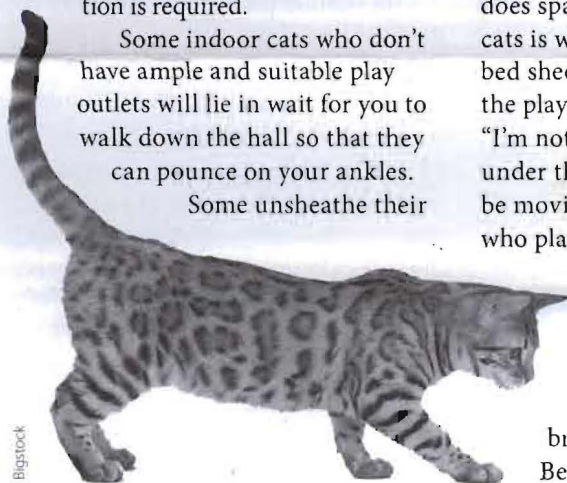
To keep yourself safe, stop playing with your cat if he displays any of these signs of impending attack:

- ◆ Dilated pupils, representing release of adrenaline and causing the cat to become overly excited.
- ◆ Tensing the body and standing up taller with the hind legs more extended than the front legs.
- ◆ Meows that evolve into hisses or growls.
- ◆ Lashing the tail and pulling the ears back.

Disrupt your cat's attack mindset by opening the refrigerator, shaking a bag of treats or making a loud noise. Withdraw attention as soon as he begins to play too roughly. Wait for your cat to calm down before resuming play, preferably with a wand toy, and never play wrestle with your hand. "Cats can also be taught to sit on a mat or touch a target with their nose for a reward or before play can resume," Dr. Perry says.

Unlike dogs who exhibit clear signals such as play bows and friendly yelps in their desire to play with another dog, it's trickier for a cat to know when another cat in the house wants to play. Cats are solitary by nature. In the wild, they sleep together, but each cat usually has his own hunting territories.

*(continued on bottom of page 7)*



**Oriental breeds,** such as the tiger-spotted Bengal, tend to be more prone to robust play than others — males more than females.



**LABELS...** *(continued from cover)*

Many pet food companies already list calorie counts on their labels. Now almost all will do so, with some leeway for the change in labeling. The Association of American Feed Control Officials (AAFCO), a membership association that issued the calorie recommendation, has no regulatory powers, but most states follow its guidance on model regulations.

Dr. Wakshlag, president-elect of the American College of Veterinary Nutrition, explains the calorie recommendations and offers advice on feeding cats in general in this Q & A.

**Q:** Why did AAFCO institute the new recommendations?

**A:** Pressure from both consumers and veterinarians provided much of the incentive. Human foods have long had labeled calorie counts, and since many pet owners today consider their pets part of the family, they expect the same in their pets' food.

**Q:** What will be the effects of the new recommendations?

**A:** Pet foods are already labeled with kcals/kilogram [a metric unit of



**Pet food labels** state only the minimum amount of fat, says nutritionist Joseph Wakshlag, DVM, Ph.D., at Cornell. "If there's a minimum of 12 percent fat, the product might actually contain 15 percent fat."

energy in food, essentially the same as calories], so pet owners could theoretically translate that into an appropriate amount. But now the kcals per cup will also be visible.

One problem is that when cat owners measure out a "cup" of pet food, everyone's cup is different. Some people use leftover Chinese food containers. Others

use a sports drink cup. So the larger problem is educating people about what an actual cup of dry food consists of — which is eight ounces.

**Q:** What other issues will the new recommendations not address?

**A:** Pet foods can contain more calories than the label says. There's a popular method of estimating calories called the 4, 4, 9 rule, which assumes that one gram of protein contains 4 calories, one gram of carbohydrate contains 4 calories, and one gram of fat contains 9 calories.

However, about 90 percent of pet food manufacturers have never done digestibility studies on their products, so the true caloric content of their foods is unknown.

Because they want to account for some foods that have lower digestibility, for years AAFCO has used another recommendation — the 3.5, 3.5, 8.5 rule — to calculate the calories that will be placed on the label. An owner might assume, for example, that they're serving their pet 340 kcals, when they're actually serving 375 or even 390 kcals. The owner, in providing the suggested amount of food, would actually be giving their pet 10 to 15 percent more calories than needed. This certainly will not help the obesity epidemic so prevalent in pets today.

Yet another problem is minimum fat. Pet food labels state only the minimum amount of protein and fat in their products. If there's a minimum of 12 percent fat, the product might actually contain 15 percent fat. From a calorie perspective, fat is the densest part of a pet's diet. The new labels will still not reflect the true calorie count if the fat count is much higher than what is labeled.

Finally, there's the dietary fiber issue. Currently, only crude fiber levels are on pet food labels, but total fiber is a very important dietary component. A certain amount of fiber is good for you and good for your cat. Hopefully, total dietary fiber will eventually appear on pet food labels — perhaps in another 10 years or so!

## TWO CRITICAL FACTORS IN FEEDING: PORTION CONTROL AND BODY CONDITION

Determining how much to feed your cat comes down to your portion control and his body condition, according to nutritionist Joseph Wakshlag, DVM, Ph.D., at Cornell.

"First, keep an eye on him and monitor his intake in conjunction with veterinary advice. The best way to feed cats the right amount of food is to get a kitchen scale and measure the food out in grams. One cup of food can weigh between 70 to 120 grams so one has to be careful when switching between brands."

Second, examine your cat. "If you can feel your cat's spine and hips, there should be a layer of muscle between the hip bones and a slight fatty covering under the skin," Dr. Wakshlag says. "That's a good sign he's at a healthy weight. But a clearer way to observe obesity might be to observe the 'apron,' the loose skin under the belly. If the apron is flapping around there is a good chance your cat is overweight. Normal average-sized adult cats should weigh about 8 to 10 pounds."



## THE IDEAL FOOD STORAGE: A COOL, DRY PANTRY

The best place to store pet food is in a dry, temperature-controlled environment like a pantry, says nutritionist Joseph Wakshlag, DVM, Ph.D., at Cornell. The best container: the original bag that you put into a storage bin rather than pouring food directly into it. Then keep the container in a cool area.

"The fat that stays on the inside of a container eventually goes rancid, particularly in warm weather," Dr. Wakshlag says, adding that the worst place to store pet food is a damp garage. "It varies too much in temperature and humidity, and vitamins can diminish quickly in that kind of environment."

**Q:** Why haven't all pet food companies previously provided calorie counts?

**A:** In the mid-1990s, Procter & Gamble did a large study of caloric intake among dogs. As a result of their findings, they changed the feeding recommendations listed on their bags to a reduced amount. Unfortunately, some energetic, "high-octane" dogs lost weight on these reduced portions, and P&G reverted back to older, more inclusive feeding guidelines, which included cats.

Since this was a strong disincentive to other companies to help address the pet obesity problem, pet food companies were basically stuck with the higher calorie recommendations. AAFCO is now making an attempt to be more informative with these new global calorie recommendations, which will likely be followed by all states.

**Q:** How does a cat's age figure in?

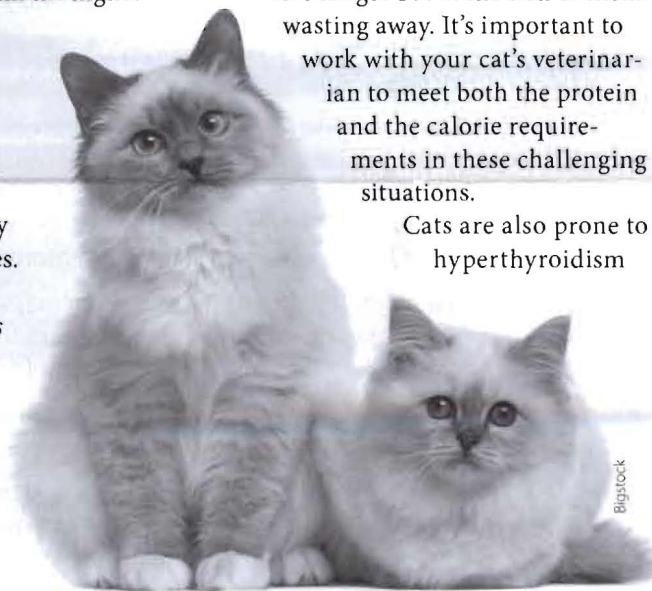
**A:** Adult cats pass through three stages: the adolescent/adult stage, the mature stage and the geriatric stage. From ages 6 through 12, most owners end up feeding their cats the same amount they

fed during the cat's adolescence, when they should be feeding their cats about 20 percent less due to their reduced activity level.

**Q:** What diseases might affect intake calorie increases or decreases?

**A:** Cats are prone to decreased kidney function as they age. Uremia (the buildup of toxins from protein metabolism) can make them feel sick, which further reduces their appetite. These cats often exhibit weight loss and have trouble meeting their calorie intake requirements. Special low-protein diets may allow cats to live longer but at the risk of them wasting away. It's important to work with your cat's veterinarian to meet both the protein and the calorie requirements in these challenging situations.

Cats are also prone to hyperthyroidism



**Adult cats pass through three stages:** adolescent/adult, mature and geriatric. Most owners continue to feed their cats the same amount they fed during the adolescent stage, when they should feed about 20 percent less because of reduced activity.



Betty Luddick

**The Association of American Feed Control Officials**, which recommended calorie counts on pet food, has no regulatory powers, but most states follow its guidance.

as they age. Symptoms include losing weight yet exhibiting constant hunger and begging for food. Veterinary care can alleviate these symptoms and help these cats maintain a healthy weight.

**Q:** Would a cat's medications and supplements have an effect?

**A:** Soy proteins called isoflavones are sometimes used to lower blood cholesterol or decrease urinary incontinence in pets, though their efficacy is not proven. Some studies have linked the consumption of isoflavones with a temporary reduction in food intake.

**Q:** How often should pet owners feed their cat?

**A:** I'm a fan of feeding cats twice a day. We all enjoy sharing morning and evening mealtimes with our families. So when there are no medical problems, it seems appropriate to make mealtimes a family thing — regardless of whether or not your cat finishes his meal in two minutes! ♦



## LYMPHOMA ... (continued from cover)

Lymphoma has been closely associated with the feline leukemia virus (FeLV) and, to a lesser extent, the feline immunodeficiency virus (FIV). Cats of any age and breed can develop the disease, but those who have been infected with FeLV, or to a lesser degree FIV, have a higher rate of the cancer than the general cat population.

Cats infected with FeLV, a retrovirus that can be transmitted through saliva or nasal secretions, urine and feces, are 60 times more likely to get the disease than those without the infection, according to a retrospective study of cats with FeLV and FIV that was published in 1990. This means an estimated 12 percent of cats with FeLV will develop lymphoma. (No recent, large-scale studies have been conducted on the incidence of the disease in cats.)

**Limiting Exposure.** In light of these findings, unvaccinated outdoor cats are at an increased risk of lymphoma because of their exposure to FeLV infection, and veterinarians highly recommend vaccination for indoor cats allowed outdoors and those exposed to animals who have been diagnosed with the disease. Cats with FIV, a disease that severely weakens the immune system, have a risk six times greater than non-infected cats.

The causes of lymphoma, aside from FeLV or FIV, have not been determined. However, recent studies have found that cats who are routinely exposed to tobacco smoke are at greater risk of developing lymphoma in the gastrointestinal tract. Veterinarians advise maintaining a smoke-free environment to safeguard against lymphoma.

Years ago, when FeLV was the leading cause of feline lymphoma, young cats were more likely to be infected,



As part of their diagnosis, veterinarians might perform an ultrasound examination of the abdomen to see if lymphoma has affected the intestinal tract.

and the disease tended to affect the spine and lymph nodes in the chest. As vaccine awareness and education improved, the incidence of FeLV has decreased in the feline population. Today, cats who develop lymphoma tend to be older, 10 to 12 years of age, and

the disease is more prevalent in the gastrointestinal tract.

**Extensive Exam.** A thorough work-up is necessary to confirm or exclude lymphoma, including a physical examination, complete blood cell count, blood chemistry panel, urinalysis, chest X-rays and microscopic analysis of lymph node tissue samples. Veterinarians might also perform an ultrasound examination of the abdomen to see if the intestinal tract is affected. Fine-needle aspiration, a technique used to withdrawal small tissue samples, may be done for external lesions.

Results are usually known within 24 to 48 hours. If results suggest lymphoma, further testing of a larger portion of the affected lymph node or organ may be performed. The collection of tissue samples might require an endoscopic or surgical biopsy, particularly if the gastrointestinal tract is involved.

This additional testing is designed to confirm the diagnosis of lymphoma and help determine its progression. The process, known as staging, provides a basis for treatment and prognosis. Tissue samples can indicate whether the disease is high or low grade and the type of chemotherapy that will be most

## MULTIPLE ORGANS CAN BE AFFECTED

Symptoms of lymphoma vary, depending upon the part of the body affected. In some cats, the disease is multi-centric, meaning that multiple organs are affected. This type of cancer tends to strike middle-aged and older cats who are usually not infected with FeLV. In cases of more localized lymphomas, the affected sites and their symptoms include:

- ◆ **The digestive tract:** loss of appetite, weight loss, vomiting and diarrhea. Like those with several organs affected, this form strikes middle-aged and older cats, usually those not infected with FeLV.
- ◆ **Lymph nodes in the chest:** difficult or rapid breathing. Those affected: younger cats, often those afflicted with FeLV.
- ◆ **Kidney:** loss of appetite, depression and increased thirst and urination. Those affected: middle-aged cats, some of whom might have FeLV.
- ◆ **Spine:** hind-limb weakness and paralysis. Those affected: younger and middle-aged cats, often those afflicted with FeLV.
- ◆ **Nasal:** discharge, nose bleeds, facial swelling and sneezing.
- ◆ **Those affected:** middle-aged and older cats, often clear of FeLV.



Studies show that cats exposed to tobacco smoke are at greater risk of developing lymphoma in the gastrointestinal tract.



effective. Additional tests can measure organ function and how well the cat might tolerate chemotherapy.

**Narrowing the Diagnosis.** A PARR test — which stands for a type of DNA test called Polymerase Chain Reaction for Antigen Receptor Rearrangement — can also be used to help differentiate lymphoma from other diseases. In some cases, veterinarians might also recommend examination of samples taken from the bone marrow to aid in diagnosis and staging.

“Unfortunately, lymphoma is not curable, but it can respond well to chemotherapy,” Dr. Balkman says. Multi-drug chemotherapy helps an estimated 65 percent of cats go into remission. In some cases, veterinarians might recommend surgery to remove a tumor in the abdomen. Radiation therapy may also be used in cases of nasal lymphoma.

With chemotherapy, a combination of different drugs is given for about six months. In general, cats tolerate chemotherapy very well. If side effects, such as vomiting, become severe, doses can be modified to decrease the effects and improve quality of life during treatment.

At the six-month mark, if a cat is found to be in remission, chemotherapy will be discontinued. However, the cat

should be rechecked monthly for signs of recurrence. If the cancer reappears, chemotherapy can be restarted. However, it’s likely that later remission periods will be shorter than the first. Cats infected with FeLV or FIV have a lower rate of response to treatment.

Unlike lymphoma in dogs, in which new treatments show great promise, treatment of feline lymphoma in cats has changed very little. New drugs are tried regularly, but results tend to be similar to current widely used drugs.

**Typical Costs.** The expense of diagnosing and treating lymphoma can be substantial. Diagnosing and full staging of the cancer can cost about \$1,000. A typical six-month course of chemotherapy is \$5,000 to \$6,000. Other treatments, such as a single chemotherapy drug, offer fewer, less expensive treatments but do not extend life significantly.

Cats treated with multi-drug chemotherapy have a median survival time of



**Because lymphoma tends to develop in older cats,** veterinarians recommend that cats 7 years of age and older undergo twice-yearly physical examinations including blood chemistry testing.

seven months. Without treatment, cats with high-grade lymphoma usually live only four to six weeks.

However, an estimated 55 to 70 percent of cats with small cell gastrointestinal lymphoma will have a complete remission — meaning all signs of cancer are gone — for 20 to 30 months. Many of these cases tend to be lower-grade cases, which can be treated with oral chemotherapy agents at home.

Early detection of lymphoma can improve the chances for survival. It’s recommended that cats 7 years of age and older undergo twice-yearly physical examinations that include blood chemistry testing and palpation of the body. ♦

## ROUGH PLAY... (continued from page 3)

“There is not a well-recognized play signal in cats,” says Dr. Houpt. “One cat may pounce on the other and think it is in play, but the other cat may think it is an attack. When you think about it, play is something that house cats have the luxury to do, but feral cats outside working to find food to survive do not.”

Adds Dr. Perry: “One may stalk the other cat, ambush him, hop sideways, often with the tail erect, and then retreat. Sometimes, a cat will paw, bite or attempt to wrestle with the other cat to initiate play.”

Genuine play between two cats in the same house generally involves Cat A chasing Cat B and then Cat B chasing Cat

A. But if the play begins to escalate into a fight, intervene safely. Cats have flexible spines and are capable of biting and clawing with their front and back claws. “Call them or make a loud noise to stop a fight,” says Dr. Houpt. “Or drop a towel or blanket over the aggressor to give the other cat a chance to escape.”

Never attempt to pick up one of the cats. “You risk redirected aggression by this cat who is likely to lash out at you,” says Dr. Houpt. “And never pick up a cat by the scruff of the neck. You are putting them in fight mode.”

**Up the Amenities.** One effective way to reduce the likelihood of two cats

sparring is to provide plenty of amenities (litter boxes, water and food bowls, cat trees and comfortable beds) in separate locations. “Cats need suitable outlets for predatory behavior, including toys they can chase, pounce and attack,” says Dr. Perry. “Food-dispensing toys also provide mental stimulation and stimulate hunting.”

Teaching your cat to play effectively and safely can improve his social skills and fitness. Play helps keep feline hearts healthy, joints limber and muscles strong. Play also allows cats to practice hunting and play-fighting skills. And don’t underestimate the added bonus of bolstering the connection between the two of you. ♦





Elizabeth

Elizabeth is thankful for the assistance of **Bruce G. Kornreich, DVM, Ph.D., DACVIM**, Associate Director 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](mailto:catwatcheditor@cornell.edu).

**COMING UP ...**

❖  
**HYPERTENSION**

❖  
**GLAUCOMA**

❖  
**ACID REFLUX**

❖  
**HOME HOSPICE**

## Understanding the Incidence of Deafness in White Cats

**Q** I am a breeder of Turkish Angoras, and recently I'm seeing references stating that the incidence of deafness in white cats is 80 percent. This is much higher than the approximately 30 percent that we have seen in our breeding population. Can you shed some light on this discrepancy?

**A** I understand your concern and confusion regarding this issue, as a variety of numbers regarding the incidence of deafness in white cats has been thrown around over the years. While it is certainly true that white cats have a higher incidence of deafness than their non-white counterparts, there are a number of factors to be considered when interpreting these figures. Perhaps a brief review of what is known about deafness in white cats would be helpful.

Deafness in white cats has been recognized for more than 100 years. In fact, Charles Darwin made the observation in 1868 that white cats are commonly deaf. The problem with these kitties is that they have an inherited degeneration of the cochlea, the part of the auditory system that contains tiny hair cells that are normally induced to vibrate by sound waves that strike the eardrum.

In the normal individual, these vibrations in the cochlea are converted to electrical signals that travel to the brain and are perceived as sound. In white cats with inherited deafness, there is a loss of these sensory hair cells, so sound waves cannot be converted into auditory signals that are perceived as sound. This deafness may affect both ears or may be present only in one ear of affected cats.

The genetic mechanism of inheritance of deafness in white cats has been studied, and it appears to involve a gene referred to as the W-locus. The prevalence of deafness in white cats varies and is dependent upon the genetic



**Some studies suggest that the incidence of deafness in white cats is lower in purebreds compared with cross-bred cats, but the finding is controversial.**

status (and the resultant traits, such as fur pigment and eye color) of their parents.

For example, one study showed that matings between white cats and cats with pigmented (non-white) coats resulted in litters in which approximately 25 percent of kittens were hearing impaired. In another study, the breeding of two white cats resulted in litters in which as many as 95 percent of kittens were hearing impaired.

Another factor to consider is the eye color of cats. For example, studies have shown that the prevalence of deafness in one or both ears in white cats with one blue eye is approximately 40 percent. This prevalence increased to as high as 85 percent in white cats with two blue eyes. Other studies have suggested that the incidence of deafness is lower in purebred cats compared with cross-bred cats, although this finding is considered controversial.

The diagnosis of deafness in cats, and specifically in determining whether it is present in one or both ears, is ideally achieved by a study called Brainstem Auditory Evoked Response (BAER). BAER is carried out by monitoring the electrical activity of the areas of the brain involved with sound perception (using small, painless electrodes placed under the skin at specific sites on the head) while exposing cats to sounds of known frequency and intensity. This test is relatively innocuous, although some cats may require sedation to undergo this study, as they must sit relatively still for the duration of the test. BAER testing is performed by specialists in this field, and can be obtained at clinics throughout the United States.

I trust that this brief explanation highlights why there is confusion about deafness in white cats. Studies investigating this well-known, complex condition are ongoing. For a brief discussion of this and other causes of deafness in cats, please visit the Cornell Feline Health Center's website at: [www.vet.cornell.edu/FHC/health\\_information/Deafness.cfm](http://www.vet.cornell.edu/FHC/health_information/Deafness.cfm).

—Best regards, Elizabeth ❖

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