



PURINA Pro Club

Update

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Radioiodine Treatment Helps Manage Feline Hyperthyroidism

Cat lover Norma Updyke of Hastings-on-Hudson, N.Y., adopted 7-month-old "Gatsby," a male tabby and seal point Siamese mix, when she was on a trip upstate. He quickly became a beloved family member and good friend with "Sen," Updyke's female Siamese.

Always on the go, Gatsby turned out to be "a friendly, vocal male who loves to be hugged," Updyke says. "People have always remarked that he has a presence about him."

When he turned 13, Gatsby became very ill. "He was anxious, lost weight,

throwing up often, drinking large amounts of water and having a pounding heart," Updyke says. "The veterinarian diagnosed hyperthyroidism and prescribed methimazole pills to be taken daily."

Finding the proper dosage was difficult, and Gatsby's sickness often returned. He lost more weight and his coat became increasingly shabby. Then, Updyke learned about a radioiodine treatment used to treat cats with hyperthyroidism. Still, she was apprehensive about the risks involved.

"It took me about a year to make

up my mind," she says. After Gatsby collapsed when he lost control of his back legs, Updyke knew she had to take action. "I had to do something or lose him."

She took Gatsby to Mark E. Peterson, D.V.M., DACVIM, at his Hypurrcat Treatment Center in Bedford Hills, N.Y., where X-rays and blood work were taken. After the preliminary testing was completed, Updyke agreed to schedule Gatsby's radioiodine treatment.

After the treatment, it wasn't long before "Gatsby was sitting in

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Exploring Elevated Liver Enzymes in Hyperthyroid Cats

For the last 29 years, the majority of Mark E. Peterson's research has focused on advancing understanding and treatment of feline hyperthyroidism, the most common feline endocrine disease.

"Based on a study we did several years ago, we found that one in every 300 cats we saw at The Animal Medical Center was hyperthyroid," says Peterson, D.V.M., DACVIM, who runs the radioiodine treatment center at The Animal Medical Center in New York City and also owns the Hypurrcat Treatment Center in Bedford Hills, N.Y. "Now, we are trying to learn why a percentage of cats cured of hyperthyroidism have persistently elevated liver enzymes and occasionally develop liver disease."

The study is funded by the Winn Feline Foundation, a nonprofit organization that funds and supports studies into feline medical problems. Peterson, along with researchers at The Animal Medical Center, is conducting the study. The goal is to learn about the relationship between feline hyperthyroidism and liver disease by examining the possibility of damage to the liver as a result of hyperthyroidism.

"What I've seen over the years is that about 75 to 80 percent of hyperthyroid cats have increased liver enzyme levels," Peterson says. "Elevations in the liver enzyme alanine aminotransferase (ALT) is a common marker for hyperthyroidism. We think it's a direct effect of the thyroid hormone, or that the thyroid hormone is inducing the liver enzymes to rise. Why this happens we don't know."

"Most of the time, within a week or two weeks after radioiodine treatment the liver enzyme levels start to come down, and in four to six weeks the liver enzymes are back to normal."

However, in a pilot study conducted several years ago, Peterson found that among cats with initially high liver enzymes, about 15 percent continued to have high liver enzymes even after radioiodine treatment. "The goal of the study is to investigate why this occurs," Peterson

says. "Is it another disease; is it somehow related to hyperthyroidism; and how should it be treated?"

"We may find that we don't need to treat it, that it's a benign elevation. Or, we may find that in a year or two the cats become ill and die. At this point no one knows." He notes that even though the liver enzymes continue to be high in these cats, the animals feel well and show no signs of illness.

Research Begins

Having recently begun the research, Peterson and his colleagues are screening cats based on blood work to determine whether they are hyperthyroid and thus eligible to be in the study. The research team is taking baseline information and screening cats that come to The Animal Medical Center and Peterson's Hypurrcat Treatment Center for treatment. About 200 cats will be included.

After the cats receive radioiodine treatment, blood work is repeated. "If a cat's liver function tests normalize after radioiodine treatment for the hyperthyroidism, that cat is finished with our study," Peterson says. "On the other hand, if the liver enzymes remain high after curing the cat's hyperthyroidism, then additional testing of specific liver enzymes would be conducted. If a cat's liver function tests do not improve in three months or so, we would recommend a biopsy of the liver to determine the pathological diagnosis."

"We really aren't taking extra steps," Peterson says. "This is exactly how we would manage a cat whose liver enzymes stay elevated following treatment for hyperthyroidism. The important aspect is that we are collecting baseline information when the cats are still hyperthyroid, so we can compare that data to what happens afterward in case a cat's abnormal liver function tests don't normalize. Perhaps we won't figure it all out, but I think we can learn a lot."

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his cat condo at the clinic, loving the attention the veterinary technicians gave him," Updyke recalls. Because radioiodine is a radioactive chemical, the law requires cats to be quarantined after treatment until the radiation level in the thyroid gland returns to a safe level, usually five to 10 days after treatment.

Owners are not allowed to visit cats in quarantine. To help make cats more comfortable, their crates at Peterson's clinic are furnished with perches and hiding boxes, and a wide-screen television shows videos of birds, squirrels and other creatures. Owners are allowed to leave a favorite toy or a small piece of clothing with their scent, although such items cannot be returned because they could be contaminated with radiation.

One of Updyke's favorite things about Hypurrcat Clinic was the Web camera that allowed her to see Gatsby while he was quarantined. "What a kick it was to be able to see Gatsby on my computer each day to check out his progress," she says.

When Gatsby returned home, Updyke noticed an immediate difference. "He was eating normally and putting on weight, getting his strength back," she says. "In a couple of months he was back to being his old self."

Understanding Hyperthyroidism

Peterson, who was the first veterinarian to treat hyperthyroid cats with radioiodine, began using the treatment in 1980. Head of endocrinology and nuclear medicine at The Animal Medical Center in New York City for 28 years, Peterson established his Hypurrcat Treatment Center in 2000. In addition to the Bedford Hills location in Westchester County, N.Y., he continues to treat cats with radioiodine at The Animal Medical Center. In his career, he has used radioiodine to treat more than 5,000 hyperthyroid cats.

A common disorder in middle-aged and older cats of both genders, hyperthyroidism occurs when a tumor, sometimes several tumors, develop in the thyroid gland, a double-lobed endocrine gland in the neck. This causes the overproduction of thyroid hormones triiodothyronine (T3) and thyroxine (T4). About 70 percent of hyperthyroid cats have tumors in both lobes of the gland. Since thyroid hormones regulate the metabolic rate, excessive thyroid hormones circulating in the blood speed up chemical reactions in the cat's body and cause changes in many bodily functions.

Signs of feline hyperthyroidism include weight loss despite increased hunger (although some cats lose their appetite), increased thirst and water intake, and increased urination. Poor coat condition usually caused by excessive shedding and hair loss could occur, as well as vomiting, diarrhea and cardiac conditions, such as a rapid

heart rate, pounding heart and arrhythmia. Behavioral changes could include anxiety, nervousness, hyperactivity and lethargy. The most common signs that owners notice are weight loss and increased appetite and thirst due to an increase in metabolic rate.

Even though 98 percent of thyroid gland tumors are benign, hyperthyroidism can still be fatal without proper treatment. In time the overproduction of thyroid hormones might impair internal organs and lead to severe

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disorders. Among these are metabolic dysfunction, heart disease, chronic emaciation, and muscle wasting. With appropriate treatment, however, cats can be cured of hyperthyroidism and go on to lead full and normal lives.

Disease Management Options

Cats and their owners have three treatment options for feline hyperthyroidism. The most appropriate treatment for an individual cat depends on the cat's age and health condition.

Compared to the other options, the anti-thyroid medication methimazole is relatively inexpensive in the short term. However, this treatment requires owners to pill their cats once or twice (usually twice) daily. Though the medication helps to control hyperthyroidism, it does not cure the disorder. The thyroid gland tumor could continue to grow.

If a cat is relatively young, the cost of the medication quickly adds up since the medication must be given for the rest of the cat's life. Within several years, owners may find that the cost of the medication rivals the cost of the other two treatments. The cost for methimazole varies considerably based on the daily dosage required for an individual cat. For most cats, the cost ranges from \$15 to \$60 per month. In addition, medical treatment requires continued monitoring of thyroid hormone levels and recheck examinations, which add to the cost of the treatment. As with Gatsby, regulating the dosage can be difficult and signs may reappear.

Relapses are common and response to the treatment is poor in some cats. Secondary effects also are common, accounting for the need for veterinary checkups and blood work every three

to six months. Approximately one in four cats has side effects, such as lethargy, loss of appetite and vomiting. Serious side effects, such as liver failure, are rare.

Some cats do not cooperate with taking pills, particularly every day over a long period. If so, daily pilling could become a trial that might damage the trust the cat has for the owner. Also, since the pilling must be done each day without fail, it's hard to go away for a long weekend — or even a short one — without having a cat sitter, relative or friend who is experienced in pilling felines come by each day. Even then, the cat may hide under the bed when the person arrives.

The second disease management option is thyroidectomy, or surgical removal of the tumors. The surgery provides the quickest cure for hyperthyroidism, usually in one to two days, and it usually is permanent. However, since thyroidectomy is major surgery that requires general anesthesia and one to three days of hospitalization, it's considered the most hazardous of the three treatments. This is particularly true since the cats being treated are usually middle-aged or older, with 13 being the average age of felines with hyperthyroidism.

Thyroidectomy also could be a difficult surgery since the thyroid gland is located in the neck where it might be difficult to distinguish and remove all of the tumorous tissue. If all of the tumorous tissue is not removed, the hyperthyroidism has a good chance of continuing or recurring. It's also possible to damage surrounding glands and tissue, causing problems such as vocal cord paralysis, injury to nerves within the surrounding area, and hypocalcemia, or low calcium levels, if the parathyroid glands, which control blood calcium levels, are damaged or removed during the surgery. Additionally, the surgery runs around \$1,200 to \$2,000, without complications.

The third treatment option — radioiodine — has the highest cure rate and is considered the safest and simplest treatment for many cats. The procedure involves injecting an affected cat subcutaneously with a single dose of a radioactive form of iodine called I-131. The procedure destroys thyroid tumors regardless of location and without invasive surgery.

"The only reason for iodine in our diet is to make thyroid hormone," Peterson says. "With this treatment, we make iodine into a radioactive form that is processed by the body just like normal iodine. The difference is that when it's in the thyroid, it irradiates tumors, essentially making them disintegrate."

Radioiodine doesn't damage normal thyroid tissue, and the cure is usually permanent, with radioiodine having the lowest hyperthyroidism recurrence rate of the three treatments. No anesthesia is needed and

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usually no serious complications occur. A cat needs limited monitoring after successful treatment and no ongoing therapy afterward.

Thyroid function in cats treated with radioiodine returns to normal within one to four weeks. "Over 95 percent of cats treated never need future treatment," Peterson says. "If the first treatment doesn't cure the disease, then a second treatment will. If it doesn't, it means something is unusual, like the cat doesn't have

typical benign hyperthyroidism."

The treatment costs about \$1,200 to \$1,800. Treated cats must be quarantined for five days to two weeks, as required by law. The owner is allowed no visitation during that time, since the cats are basically radioactive until the radioiodine flushes out of the body. In addition, cats with other life-threatening medical conditions may not qualify for the therapy.

Getting Back to Normal

For Updyke and her Siamese mix Gatsby, the radioiodine treatment provided a return to a normal lifestyle.

"Gatsby's now 17 years old and doing great," she says. "He's much more relaxed now, and so am I. I'm so glad Gatsby gets to live out his normal life. How can we ever thank Dr. Peterson for developing this breakthrough, making it possible to extend the lives of our special feline friends." ■

Purina appreciates the support of the Winn Feline Foundation and particularly to Susan Little, D.V.M., DABVP, president of Winn Feline, in helping to identify topics for the *Purina Pro Club Update* newsletter.

Pro Plan Introduces New Size of Entrées

Purina Pro Plan is introducing a new, 5.5-ounce size of *Pro Plan* Adult Cat Chicken & Rice Entrée, Adult Cat Salmon & Rice Entrée, and Adult Cat Urinary Tract Health Formula. The larger-size Canned Entrees are intended for owners of multiple cats.

Adult Cat Chicken & Rice Entrée is made with real chicken in gravy, and Adult Cat Salmon & Rice Entrée

is made with real salmon in sauce. Made with real chicken in gravy, Adult Cat Urinary Tract Health Formula helps to maintain urinary tract health by reducing urinary pH and providing low dietary magnesium. All three Canned Entrée formulas provide complete and balanced nutrition for adult cats to help support a strong immune system.



Starting in July, the new *Pro Plan* Canned Entrees can be purchased at PetSmart, PETCO, pet specialty stores, Farm & Fleet retailers, and from veterinarians. For information, visit the www.proplan.com Web site or call (800) PRO-PLAN, or (800) 776-7526, from 9 a.m. to 4 p.m. CST Monday through Friday. ■

Purina Pro Club Reminds Members of Terms & Conditions

Purina Pro Club, a membership program for breeders and owners of purebred cats, offers members Kitten Starter Kits, checks good toward the purchase of *Purina* brand cat and kitten foods, and the *Purina Pro Club Update* newsletter. Here are some of the terms and conditions of the program.

- Members must care for five or more cats and/or breed one litter of kittens per year and live in the United States.
- Only one membership per household.
- Cat food bought by *Pro Club* members under the terms of the *Purina Pro Club* will be fed to cats owned by the *Pro Club* member or under the *Pro Club* member's direct supervision. (*Purina Pro Club* is not a pro-

gram for institutional organizations, such as rescue groups, humane societies or animal shelters.)

- Only weight circles, not UPC codes, are valid for submission and credit to your account.
- Purina recommends that you mail your weight circles by certified first class mail or some other traceable delivery method to ensure proof of delivery verification in the event *Pro Club* does not receive your weight circles.
- Weight circles and points from redeemed weight circles cannot be purchased or otherwise transferred.
- Points expire three years from the date of last activity.
- You are responsible for any taxes

that may be owed as a result of points earned and/or redeemed. Please consult your tax advisor if you have any tax questions about the program.

- Purina checks issued through the *Pro Club* program have a one-year expiration and cannot be reissued if recipient allows them to expire.
- Purina checks should be protected like cash by *Pro Club* members. Purina is not responsible for replacement in the event of loss, theft or destruction after issuance. Purina checks will not be reissued.
- Visit www.purinaproclub.com to see the complete Terms and Conditions or to review your Purina Point balance. ■

Purina Sponsors Third International Genome Conference

Leading genetic researchers studying feline and canine diseases will meet in August at the University of California Davis for the third international Advances in Canine and Feline Genomics conference.

Sponsored by Purina, the conference will include talks related to understanding the genome, normal and abnormal simple and complex traits, gene expression, gene therapy, cancer, and immunogenetics. Nearly 150



scientists, including those studying comparative genetics, hereditary diseases, and polymorphic traits, are expected to attend the program.

Keynote speakers include Stephen O'Brien, Ph.D., chief of the Laboratory of Genomic Diversity at the National Cancer Institute in Frederick, Md., who will present on the annotation of the feline genome sequence. Elaine Ostrander, Ph.D., chief of the Cancer Genetics Branch at the National

Human Genome Research Institute, part of the National Institutes of Health, will talk about mapping of complex traits in the domestic dog, and Gordon Lark, Ph.D., of the University of Utah at Salt Lake City, will cover genome architecture.

Conference contributors are the AKC Canine Health Foundation and the Winn Feline Foundation. The three-day program is co-hosted by the Veterinary Genetics Laboratory and the Center for Companion Animal Health at the University of California Davis School of Veterinary Medicine. ■

Steps to Prevent Feline Lower Urinary Tract Disease

A health concern of cat owners is a condition known as feline lower urinary tract disease (FLUTD). Signs of FLUTD include frequent, often nonproductive trips to the litter box, blood in the urine, pain or evidence of straining when urinating, excessive licking of the genital area, depression, poor water intake, lack of appetite, and vomiting.

FLUTD can be serious. Owners who suspect their cat might have the condition should promptly seek veterinary treatment. Factors associated with lower urinary tract disease include stress, obesity, viral and bacterial infections, anatomic abnormalities, and genetics.

One myth about FLUTD is that dietary ash causes the disorder. Ash, a measure of the total mineral content in a particular cat food, neither causes nor contributes to urinary tract disease. Rather, ash refers to the inorganic portion of a measured pet food sample following a laboratory analysis in which the sample is burned at 600 degrees Celsius for two hours.

A necessary part of any nutritionally complete and balanced cat food, ash contains essential minerals such as calcium, phosphorus, sodium, potas-

sium, magnesium, and manganese. A diet low in ash could be low in calcium or any of these nutrients, and thus be detrimental to a cat.

Another myth is that magnesium may play a role in the dietary management of FLUTD. Research in the 1970s showed that diets high in magnesium oxide could cause an obstruction in cats. Fortunately, this form of magnesium is not used in commercial cat foods. When diets were fed using magnesium chloride at high levels, no blockage occurred. This form also helped to acidify the urine.

Studies determined that the acidity, or pH, of the urine of a cat is important. Acidity interferes with the formation of struvite crystals whereas alkaline urine can contribute to their formation. At a pH level of 6.6 or higher, struvite crystals might form and blockage could occur, but if the pH is below 6.5 crystals are less likely to develop and urinary blockage is less likely to occur. A normal range for feline urinary pH is from 5.5 to 8.0. Diets that result in a pH level below 6.5 decrease the likelihood of struvite crystal and stone formation.

A feeding schedule also can influence the acidity of a cat's urine. After eating, cats tend to have an alkaline

tide, meaning that the pH of the urine increases but returns to a normal acidic range several hours later. When cats are fed free choice, the alkaline tide is minimized. Cats experience little peaks and valleys because they nibble at their food over a period of several hours. The result is a lower, consistent acidic urine pH, especially if the diet is formulated to produce lower urine pH in adult cats. It also is important to try to increase water intake for cats with a history of FLUTD. The goal is to increase urinary volume resulting in a dilute urine.

Steps to help minimize the likelihood of FLUTD include:

- Provide fresh drinking water at all times in a clean bowl.
- Allow the cat to eat whenever he wants by free-choice feeding.
- Minimize stress factors such as changes in environment or diet, exposure to harsh weather conditions, and emotional upsets.
- Keep cats at a proper weight. If you have questions about your cat's body condition, consult your veterinarian.
- To help ensure your cat's overall good health, always schedule regular veterinary checkups. ■

Send Us Your Questions

Have questions about your Purina Points or how to redeem weight circles for rewards and rebate checks? Contact Purina Pro Club at (877) PRO-CLUB, or (877) 776-2582, between 7 a.m. and 5 p.m. CST Monday through Friday. You also may visit www.purina.proclub.com to review and redeem Purina Points.

Want to Reach the Editor?

Have comments about *Purina Pro Club Update*? Send them to us at: *Purina Pro Club Update*, c/o Editor, Nestlé Purina PetCare, 2T Checkerboard Square, St. Louis, MO 63164 or via e-mail at today'sbreeder@purina.com.

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