



RADIOACTIVE IODINE (I-131) Therapy for hyperthyroid cats

What causes hyperthyroidism?

Hyperthyroidism is an overproduction of thyroid hormone by the thyroid gland. In the vast majority of cats, this is caused by a benign hyperplasia (overgrowth) of the thyroid gland. Malignant thyroid tumors causing hyperthyroidism are very rare, estimated to be 2-5% of all hyperthyroid cats. What causes the thyroid gland to become hyperfunctional in the first place is not known. There is ongoing research in this area.

Why should hyperthyroidism be treated?

Thyroid hormone is very important in regulating the body's metabolism. Excessive amounts of thyroid hormone cause a hypermetabolic state, leading to some or all of the typical signs of hyperthyroidism: ravenous appetite, increased thirst and urination, weight loss, rapid heart rate, abnormal heart rhythm, heart murmurs, intermittent vomiting, diarrhea, and unkempt coat. Some cats can have subtle signs, such as poor appetite and lethargy. To many owners, it is clear why hyperthyroidism should be treated - it has made their cat very ill. For others, this may be less clear, since many hyperthyroid cats, when diagnosed early, may have little evidence of the detrimental effects of the disease. If left untreated, however, hyperthyroidism is a very debilitating and eventually life-threatening disease.

How does radioactive iodine (I131) work in the treatment of hyperthyroidism?

The thyroid gland normally uses iodine absorbed from food to produce thyroid hormones. When hyperactive thyroid tissue develops, normal thyroid tissue atrophies because thyroid hormone production by the abnormal tissue is excessive. When radioactive iodine (**I131**) is given as a single injection under the skin, it is rapidly

absorbed by the hyperfunctioning thyroid tissue. Radioactive iodine localizes in the abnormal tissue, emits beta and gamma rays, and destroys the abnormal thyroid tissue.

What other treatment options are available?

(I131) is considered to be the treatment of choice for hyperthyroidism. There are two other treatments available: medical therapy with *Tapazole* (methimazole), and surgical removal of the thyroid gland. *Tapazole* works by temporarily blocking the synthesis of thyroid hormone; it does nothing to destroy the underlying hyperfunctioning thyroid tissue itself. Although uncommon, serious side effects may occur from Tapazole treatment, including abnormalities of the white blood cells, platelets, or red blood cells. It also requires the administration of medication 2 times a day for the remainder of the cat's life. *Surgery* may be very risky in hyperthyroid cats, many of whom are older and debilitated by their disease. There is risk of damaging the parathyroid glands during surgery (parathyroid glands are very important in regulating the body's calcium metabolism). If they are damaged, a life-threatening low blood calcium may occur after surgery. In addition, there may be other areas of hyperfunctioning thyroid tissue that can be missed at the time of surgery or that cannot be surgically removed, resulting in failure of the surgery to cure the hyperthyroidism.

Are there any risks or side effects of the treatment?

(I131) is considered the safest treatment available for hyperthyroidism. There are *virtually no direct side effects* reported. There may be a transient inflammation of the thyroid region as the (**I131**) does its work, which may result in some increased salivation or difficulty swallowing. However these signs are very mild, uncommonly seen, and if this does occur, it will occur during the time your cat is hospitalized.



If your cat should become seriously ill during the treatment, either due to the effects of hyperthyroidism, or some other separate disease process, we will be limited in the amount of critical care that can be provided, because of radiation safety concerns. While we do our best to address any serious medical concerns prior to giving the radioactive iodine, an unexpected problem could arise.

While not a direct effect of (I131) itself, cats with both pre-existing kidney insufficiency or failure *and* hyperthyroidism *may* experience deterioration of their kidney function following treatment of the hyperthyroidism. This occurs because hyperthyroidism is believed to exert a temporary protective effect on kidney function, by increasing blood flow to the kidney, as well as by providing a stimulus for eating and drinking. However, this does not mean that the hyperthyroidism should not be treated in cats with kidney disease, because if left untreated hyperthyroidism itself is a very debilitating and eventually life-threatening disease. If your cat has evidence of kidney problems on his or her blood work, your doctor will discuss these issues with you and make specific recommendations regarding monitoring and managing the kidneys during and after the treatment for hyperthyroidism. In most of these cases, treatment with methimazole prior to (I131) will help to determine if (I131) therapy is safe.

Will this treatment cure my cat's hyperthyroidism?

The majority of cats (85-90%) *are cured with a single treatment* of (I131). Rarely, some cats may require two or more treatments. Most cats return to normal thyroid function within 1 to 3 months after treatment. Some cats develop *low* thyroid function following treatment. Though it is rare, some cats may require thyroid supplementation.

How long will my cat be in the hospital?

The radioactive iodine treatment itself occurs as a single injection on Monday, soon after admittance, and only takes a matter of seconds. However, we must hospitalize your cat until his or her levels of radioactivity decline to levels deemed

acceptable for release by the California Department of Radiologic Health Services. **We plan to release your cat after 4 days (on Friday morning.)** There is a slight chance that your cat would need to stay an extra day or two, depending on how rapidly they metabolize and excrete the iodine. This is variable and depends on many factors, including the size and activity of the thyroid gland and the individual metabolism of the cat. Once admitted for therapy, your cat cannot *under any circumstances* be discharged until current state limits are achieved.

May I visit my cat while he or she is in the hospital?

Visitors are not permitted in the therapy suite, and your cat is not allowed out of the treatment area as mandated by federal and state guidelines.

May I bring things from home to stay with my cat?

We provide disposable padded bedding for your cat while hospitalized. You may bring old toys or blankets if you wish, but they must be disposed of as radioactive waste after your cat's release - you will not get them back. The food provided during your pets stay at Santa Cruz Veterinary Hospital is nutritionally balanced and prepared individually. You may bring your cat's favorite food or snacks if you wish, especially if he or she is a fussy eater.

How will I be informed of my cat's condition while he or she is in the hospital?

You will be updated on a regular basis as to how your cat is adjusting to the hospital environment, how he or she is eating and feeling. You may also call us during business hours Monday – Friday. If we are unavailable, you may leave a message on the voicemail system and we will return your call as soon as possible.

What precautions must I take when my cat comes home?

1. We will give you detailed written instructions along with a litter box kit. In general, it will be important to avoid long periods in close proximity to your cat for three weeks after treatment. It is safe to pick up your cat for



short periods of time. It is not recommended to hold your cat for extended periods or to sleep next to them in bed.

2. You must use **flushable cat litter** in the litter box.
3. The litter box must be kept in a minimally occupied area e.g. bathroom, laundry room, service porch, garage, etc.
4. Pregnant women and children should not handle the soiled cat litter.
5. **Keep your cat confined to your home.** Other individuals are not aware of the necessary precautions.

How do we know if the treatment worked?

You will have your cat's **T4** (thyroid hormone) levels checked by a blood test at 1 and 3 months after the treatment. This may be done by your regular veterinarian, or with your specialist at Santa Cruz Veterinary Hospital. The levels should be back into normal range by 3 months; some cats may take as long as 6 months. If the level is still high at the 3 month check-up, we will discuss a plan for further monitoring. Most owners notice significant improvement in their cats within the first month of treatment (weight gain, normalization of food and water intake, etc.)

How much does this treatment cost?

A single treatment with **(I131)** includes hospitalization, nursing care, radioactive waste decay / disposal and specialized nutritional care. The **cost is \$985**. This does not include the initial workup (consultation, lab work, x-rays, or ultrasound). Additional charges may be incurred for medical management unrelated to your cat's hyperthyroidism, or pre / post treatment boarding your cat may require.

When is the treatment done? Where are you located?

Prior to treatment, your veterinarian should refer you to Santa Cruz Veterinary Hospital. We treat cats with hyperthyroidism in groups, usually on the first and third Monday of every month. Please call us for the schedule. The treatment and hospitalization are done at the Santa Cruz Veterinary Hospital in the oncology center.

If you have any questions about radioactive iodine (I131) therapy please call the referral coordinator at Santa Cruz Veterinary Hospital to schedule a consult with Dr. Rinkardt.