

# Hyperthyroidism in Cats

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## BASIC INFORMATION

### Description

Hyperthyroidism is an excess of circulating thyroid hormones. It results in a high metabolic state, which causes changes in many different body organs.

### Causes

In most cats, the cause of this disorder is unknown. It may be related to environmental, nutritional, or other factors.

There are two thyroid glands, one on either side of the larynx (voice box). In about 70% of affected cats, both glands become overactive and enlarged. In about 10%, one or both thyroid glands may form a benign tumor (adenoma). In 1-2%, a malignant tumor (carcinoma) develops.

### Clinical Signs

Most cats are middle-aged (average age at onset, 12-13 years). Signs are often gradual in onset, become more severe over time, and include:

- Weight loss, muscle wasting, decreased ability to jump onto objects
- Increased appetite
- Vomiting
- Increased thirst and urination
- Nervousness, hyperactivity, increased vocalization

Less commonly, diarrhea, weakness, lethargy, intolerance to heat or stress, panting, loss of appetite, and sudden blindness from hypertension-induced retinal detachments may occur.

Physical examination may reveal a palpably enlarged thyroid gland or glands, thin body condition, heart murmur or irregular heartbeat or both, high heart rate, excessive shedding and matting, or poor quality hair coat. Muscle weakness, abnormal gait, retinal hemorrhages or detached retinas, apathy, and dehydration may also be noted.

### Diagnostic Tests

Hyperthyroidism is diagnosed by measurement of a thyroid hormone (T4) in the blood.

- Circulating T4 is increased in 95% of affected cats.
- T4 may be falsely low or normal in cats with other illnesses, so the diagnosis can be difficult to make. Repeat measurement of T4, measurement of other thyroid hormones, or other tests on the thyroid glands may be needed to reach a diagnosis.

Routine laboratory tests may reveal alterations in white blood cell count, elevated liver tests, and low potassium concentration. Laboratory tests may also show the presence of kidney disease, which is common in older cats. Chest x-rays, an electrocardiogram

(ECG), and an echocardiogram (heart ultrasound) may be needed to evaluate heart function. Blood pressure measurement may be done to check for hypertension (elevated blood pressure).

## TREATMENT AND FOLLOW-UP

### Treatment Options

Several options exist, including medical therapy, surgery, radiation therapy with radioactive iodine, and injection of the thyroid gland with ethanol.

- The most common medication used is methimazole, which comes in pill form or can be compounded into a paste to apply to the ear. It is given once or twice daily and can be given in the presence of kidney disease. Periodic monitoring is needed to adjust the dosage and to detect side effects. Side effects are most common in the first several months of treatment and include loss of appetite, vomiting, facial sores, low white blood cell or platelet counts, and liver problems.
- Surgery involves removal of one or both thyroid glands. Thyroid glands that have migrated to other areas of the neck or are in the chest can be difficult to find. Because the parathyroid glands lie on the surface of the thyroid glands, they may also be removed, which can cause some problems in the days following surgery. Poor kidney function may also show up after surgery with a return to normal fluid circulation.
- Radioactive iodine (I-131) can be used if kidney function is normal. The iodine is given once by injection, and the cat is hospitalized until it has been cleared in the urine. It is generally easy on the cat but is less available and more expensive than other treatments.
- Destruction of the thyroid gland by injection of ethanol is done under ultrasound guidance by a radiologist experienced in the technique. Potential side effects include damage to the nerves near the thyroid gland.

### Follow-up Care

Routine laboratory and T4 assays are done after many of the treatments and are repeated periodically for cats on medical therapy. Post-treatment problems, such as low calcium after surgery or hypothyroidism (very low T4) and secondary heart changes, may also require medication.

### Prognosis

Most clinical signs improve with treatment, but some heart and eye changes can be permanent. Cats with kidney disease and hyperthyroidism tend to be more difficult to manage.