

Feline Hyperthyroidism

Hyperthyroidism is a disease of the thyroid gland or its superior control centres and leads to an overproduction of thyroid hormones.

In the vast majority of cases, dogs almost exclusively get hypothyroidism, i.e. an underactive thyroid, while cats almost exclusively get hyperthyroidism, an overactive thyroid.

The thyroid synthesizes the thyroid hormones thyroxine (T4) and triiodothyronine (T3), which contain iodine. These hormones are responsible for a variety of physiological effects, but most importantly they increase the metabolic rate, oxygen consumption, heart rate, erythropoiesis (the formation of mature erythrocytes from stem cells of the bone marrow) and the catecholamine response (catecholamines play an important role in the body's physiological response to stress). They also have catabolic effects on muscle and fat tissue.

Like hypothyroidism in dogs, feline hyperthyroidism is a very common endocrinological disease.

Hyperthyroidism most frequently occurs in cats due to adenomatous hyperplasia of the thyroid glands, but may also be caused by functional thyroid carcinoma.

Typically, cats that get diagnosed with the disease for the first time are older than 10 years of age. Hyperthyroidism is identified either as a random finding during routine blood tests or after previous suspicion due to corresponding symptoms.

Key historical signs include:

- Weight loss despite maintained or even increased food intake
- Vomiting and sometimes diarrhoea
- Hyperactivity
- Nervousness, irritability or aggressiveness
- Polyuria and Polydipsia (increased water intake and urination)

The Veterinarian may also find during the clinical exam:

- Tachypnea (increased respiratory rate)
- Thyroid nodule or a generally enlarged thyroid gland
- Abnormal heart findings such as tachycardia (increased heart rate) and a heart murmur or gallop rhythm

The diagnosis of Hyperthyroidism is usually done by historical and clinical signs in combination with common abnormalities in bloodwork, such as:

- Elevated liver enzymes
- Erythrocytosis (relatively too many red blood cells)
- Hypertension

The preferred screening test value for hyperthyroidism is the serum total T4 level, which is elevated in hyperthyroid cats.

In some cases it might also be necessary to carry out additional test such as determining free T4 levels, or performing TRH (Thyrotropin-Releasing-Hormone) response testing or a T3 suppression test.

There are three major treatment options for cats with hyperthyroidism:

1) Medical: Administration of thyrostatics, i.e. of active ingredients such as methimazole and carbimazole, which reversibly inhibit the formation of hormones in the thyroid gland.

2) Surgery: Thyroidectomy

Unilateral adenomas can more or less be easily removed surgically, which can be a good temporary solution. With bilateral disease bilateral thyroidectomy is required. In the case of bilateral adenomatous hyperplasia, surgery is more problematic and can cause side effects, such as hypothyroidism, an underactive thyroid gland.

3) Radioiodine therapy:

Radioactive iodine is administered as a single dose, which as a component of the thyroid hormones consequently accumulates within the thyroid gland. The radioactive radiation of these iodine molecules subsequently damages the surrounding glandular cells, which leads to a reduction in (over)production of hormones.

A possible side effect of a thyroidectomy is hypothyroidism, an underactive thyroid gland.