

Hypothyroidism in Dogs

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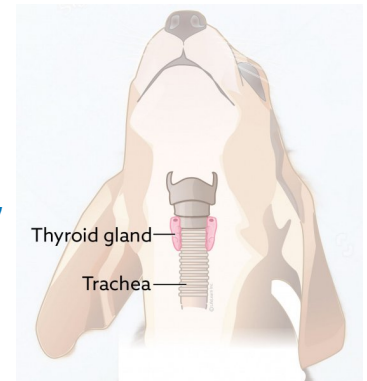


What is the thyroid gland and what does it do?

The thyroid gland is one of the most important glands in the body. It is located in the neck near the **trachea** or windpipe and has two lobes, one on each side of the trachea. The thyroid gland is controlled by the pituitary gland, which is located at the base of the brain.

"If the thyroid is overactive (hyperthyroidism), the body's metabolism is elevated. If it is underactive (hypothyroidism), the metabolism slows down."

The thyroid gland regulates the body's metabolic rate. If the thyroid is overactive (**hyperthyroidism**), the body's metabolism is elevated. If it is underactive (**hypothyroidism**), the metabolism slows down.



What causes hypothyroidism?

In dogs, hypothyroidism is usually caused by one of two diseases: **lymphocytic thyroiditis** or **idiopathic thyroid gland atrophy**. The former disease is the most common cause of hypothyroidism and is thought to be an immune-mediated disease. This means that the immune system decides that the thyroid is abnormal or foreign and attacks it. It is unclear why this occurs; however, it is a heritable trait meaning that genetics plays a role in this condition. In idiopathic thyroid gland atrophy, normal thyroid tissue is replaced by fat tissue. This condition is also poorly understood.

These two causes of hypothyroidism account for more than 95% of the cases in dogs. The other five percent are due to rare diseases, including cancer of the thyroid gland.

What are the signs of hypothyroidism?

When the metabolic rate slows down, virtually every organ in the body is affected. Most dogs with hypothyroidism have one or more of the following signs:

- weight gain without an increase in appetite
- lethargy and lack of desire to exercise
- cold intolerance (gets cold easily)
- dry, dull hair with excessive shedding
- very thin to nearly bald hair coat
- increased dark pigmentation in the skin
- increased susceptibility and occurrence of skin and ear infections
- failure to re-grow hair after clipping or shaving
- high blood cholesterol
- slow heart rate

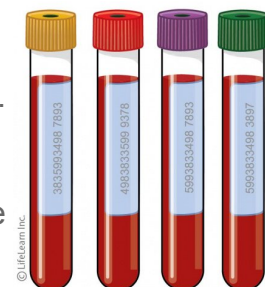
Some dogs also have other abnormalities such as:

- thickening of the facial skin so they have a 'tragic facial expression'

- abnormal function of nerves causing non-painful lameness, dragging of feet, lack of coordination, and a head tilt
- loss of libido and infertility in intact males
- lack of heat periods, infertility, and abortion (miscarriage) in females
- fat deposits in the corneas of the eyes
- keratoconjunctivitis sicca (KCS) or dry eye due to lack of proper tear production

How is it diagnosed?

The most common screening test is a **total thyroxin (TT4) level**. This is a measurement of the main thyroid hormone in a blood sample. A low level of total thyroxin, along with the presence of clinical signs is suggestive of hypothyroidism. Definitive diagnosis is then made by performing a **free T4 by equilibrium dialysis (free T4 by ED)** or a thyroid panel that assesses the levels of multiple forms of thyroxin. If this test is low, then your dog has hypothyroidism. Some pets will have a low TT4 and normal free T4 by ED. These dogs do not have hypothyroidism. Additional tests may be necessary based on your pet's condition. See handout "Thyroid Hormone Testing in Dogs" for more information.



Different blood collection tubes are used for different tests.

Can it be treated?

Hypothyroidism is treatable but not curable. It is treated with oral administration of thyroid replacement hormone. This drug must be given for the rest of the dog's life. The most commonly recommended treatment is oral synthetic thyroid hormone replacement called levothyroxine (brand names Thyro-Tabs® Canine, Synthroid®).

How is the proper dose determined?

All dogs are started on a standard dose of thyroid replacement hormone, based on the dog's weight. After one month of treatment, a blood sample is taken to verify that the thyroid hormone levels are normal. The blood sample is usually taken just before or 4-6 hours after medication administration as hormone levels can fluctuate.

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Since the dog's tolerance of the thyroid replacement hormone may change over time, the dose may need to be periodically adjusted. It is usually necessary to retest thyroid hormone levels every six months. Close communication with your veterinarian is necessary in order to ensure that your dog is neither over- nor under-dosed. It is also important to monitor your dog's condition. If signs of hypothyroidism recur or if you feel your dog has signs of **hyperthyroidism** discussed below, let your veterinarian know right away.

What happens if the medication is overdosed?

Signs of **hyperthyroidism** can result. These include hyperactivity, lack of sleep, weight loss, and an increase in water consumption.

Since the thyroid gland is such an important gland, it is extremely important that hypothyroidism be properly controlled. If you have any questions about this disease, or if you are concerned about your pet's response to treatment, please contact your veterinarian.