

Hypothyroidism

What is thyroid hormone?

The thyroid gland is located in the neck, just below the larynx. It is a paired gland that is responsible for the production of thyroid hormones. The major thyroid hormone that is produced by the thyroid gland is **thyroxine (T4)**. A small amount of another thyroid hormone, **triiodothyronine (T3)**, is also made by the thyroid gland. Thyroid hormones have many different effects on the body, in essence governing the body's metabolic rate. Production of hormones by the thyroid gland is controlled by the pituitary gland located at the base of the brain, through a hormone called TSH (thyroid stimulating hormone).

What causes hypothyroidism?

The most common dysfunction of the thyroid gland in dogs is associated with decreased production of thyroid hormones. This condition is called **hypothyroidism**. Hypothyroidism in the dog usually occurs due to one of two main causes: *lymphocytic thyroiditis* (an inflammatory condition) or *idiopathic thyroid gland atrophy* (shrinkage of the gland due to an unknown cause). These two causes account for approximately 95% of the cases of hypothyroidism. With either cause, the thyroid gland eventually is unable to make sufficient thyroid hormone.

The remaining causes of thyroid hormone disorders are rare, and include failure of the pituitary gland to stimulate the thyroid gland to produce adequate hormone (secondary hypothyroidism), as well as congenital (birth) defects in thyroid hormone production, and cancer of the thyroid gland.

What are the symptoms of hypothyroidism?

The symptoms of hypothyroidism are caused by an overall slowing or decrease of the body's normal metabolism, and can include:

- 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 and flaking
- Thinning hair coat or hair loss
- Increased pigmentation of 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
- Thickening of facial skin ("tragic expression")
- Fatty deposits in corneas
- Keratoconjunctivitis sicca (KCS) AKA dry eye

How is hypothyroidism diagnosed?

In some cases a low T4 is identified on routine senior screening bloodwork. Checking the T4 level in blood is a good screening test, but is not diagnostic by itself. If a low T4 is detected on routine screening, or your veterinarian is suspicious your pet may have hypothyroidism, they will recommend an additional blood test called a TSH. Evaluating the level of T4 compared to the level of TSH is how most dogs are diagnosed with hypothyroidism. In a few cases additional tests, such as a free T4, are required for a final diagnosis.

How is hypothyroidism treated?

Hypothyroidism can be very effectively managed with a daily medication called levothyroxine (brand name Thyro-Tabs), however it can never be cured. Dogs with hypothyroidism will require medication for the rest of their life. Your veterinarian will recommend routine bloodwork to monitor your pet's T4 levels to ensure appropriate dosage of medication.

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