

If your dog has been diagnosed with hypothyroidism, your pet is no longer able to produce enough thyroid hormone.

The good news is that **with proper treatment your pet will be able to live a normal, healthy life.**

The questions and answers in this brochure will help you better understand your pet's condition. If you have other questions or concerns, please talk to your veterinarian.

## Thyro-Tabs® (levothyroxine sodium tablets, USP)

Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

**DESCRIPTION:** Synthetic crystalline levothyroxine sodium, USP.

**INDICATIONS:** For use in dogs for correction of conditions associated with low circulating thyroid hormone (hypothyroidism). Low serum circulating L-thyroxine (TT4) concentrations, coupled with clinical signs, are suggestive of hypothyroidism. The following general ranges for TT4 concentrations in canine serum can be used as a guideline: normal (euthyroid)—18 to 32 ng/mL (1.8 to 3.2 µg/dL); possible hypothyroid—10 to 18 ng/mL (1.0 to 1.8 µg/dL); hypothyroid—less than 10 ng/mL (<1.0 µg/dL). A resting serum TT4 concentration of 18 ng/mL or above signifies that hypothyroidism is unlikely. A dog with a TT4 below 18 ng/mL that is exhibiting signs of hypothyroidism should have its free T4 (fT4) and thyroid-stimulating hormone (TSH) concentrations evaluated to confirm the diagnosis. In some cases, results may be equivocal and a replacement trial may be considered. Truly hypothyroid dogs would have a dramatic improvement in clinical signs while on therapy, and signs would reoccur when therapy is stopped. Correct diagnosis of hypothyroidism is important, since a diagnosis normally commits an animal to life-long replacement therapy. The principle objective of levothyroxine sodium administration is to achieve and maintain normal metabolism in the patient by providing an exogenous supply of synthetic L-thyroxine in amounts sufficient to maintain levels of the hormone within the animal's normal physiologic range. Animal adaptation may necessitate regular monitoring of serum TT4 concentrations during the first several months of treatment to establish proper maintenance doses.

**MODE OF ACTION:** Levothyroxine sodium provided by Thyro-Tabs® tablets cannot be distinguished from L-thyroxine endogenously secreted by the thyroid gland. The primary regulator of thyroid function is TSH, which is synthesized and secreted by the pars distalis of the adenohypophysis (anterior pituitary). The mediator from the hypothalamus, which exerts a continuous influence over the pituitary release of TSH, is the thyrotropin-releasing hormone (TRH). Thyroid hormones influence virtually every body organ, either by their effect on growth and development or by the hormone's metabolic effects.

**HYPOTHYROIDISM IN THE DOG:** Hypothyroidism usually occurs in middle-aged and older dogs although the condition will sometimes be seen in younger dogs of the larger breeds. Neutered animals of either sex are also frequently affected, regardless of age. The condition is primary failure of the thyroid gland because of lymphocytic thyroiditis or other loss of follicular epithelium and resulting atrophy of the gland. Secondary hypothyroidism is relatively rare and usually due to a destructive pituitary tumor. Clinical signs: Not all dogs with hypothyroidism will have classic signs and laboratory findings. The following list of clinical signs and laboratory findings may vary depending upon the degree and length of time of the thyroid dysfunction: Nerve and muscle function: lethargy, lack of endurance, increased sleeping, reduced alertness and interest, impaired cerebral function and dulled mental attitude, hypotonus, stiff and slow movements, dragging of forelimbs, head tilt, disturbed balance. Metabolism: decreased oxygen consumption and lower metabolic rate, sensitivity and intolerance to cold, low body temperature, cool skin, preference for warmth, increased body weight, constipation, poor exercise

tolerance, slow heart rate, weak pulse, weak apex heart beat and low voltage on ECG. Reproduction: live birth of weak young, decreased birth weights. Skin and hair: myxedema of face; blepharoptosis; atrophy of epidermis; thickening of the dermis; surface and follicular hyperkeratosis; hyperpigmentation; coarse and sparse coat; dry, dull and brittle hair; slow regrowth and retarded turnover of hair; bilateral alopecia. Laboratory findings: low serum TT4 and fT4 concentrations, high serum TSH concentrations, hypercholesterolemia, hypertriglyceridemia, elevated serum creatine kinase, anemia (normochromic, normocytic).

**CONTRAINDICATIONS:** Levothyroxine sodium therapy is contraindicated in thyrotoxicosis, acute myocardial infarction, and uncorrected adrenal insufficiency. Other conditions in which the use of L-thyroxine replacement therapy may be contraindicated or should be instituted with caution include primary hypertension, euthyroidism, and pregnancy.

**WARNINGS:** The administration to dogs to be used for breeding purposes or in pregnant bitches has not been evaluated. There is evidence that administration to pregnant bitches may affect the normal development of the thyroid gland in unborn pups.

**PRECAUTIONS:** The clinical effects of therapy are slow in being manifested. Overdosage may produce the signs of thyrotoxicosis including, but not limited to, polydipsia, polyuria, polyphagia, reduced heat tolerance, and hyperactivity or personality change. Thyro-Tabs® 0.7 mg tablets contain FD&C yellow #5 (tartrazine) which has been associated with allergic-type reactions (including bronchial asthma) in susceptible humans. It is unknown whether such a reaction could occur in dogs.

**ADVERSE REACTIONS:** There are no specific adverse reactions associated with levothyroxine administration at the recommended dosages. Overdosage will result in the signs of thyrotoxicosis.

**DOSAGES:** The initial recommended daily dose is 0.1 to 0.2 mg/10 pounds (4.5 kg) body weight in single or divided doses. Dosage is then adjusted by monitoring TT4 blood levels of the dog every four weeks until an adequate maintenance dose is established. The usual daily maintenance dose is 0.1 mg/10 pounds (4.5 kg). A maximum of 0.8 to 1.0 mg total daily dose will be sufficient in most dogs over 80 pounds in body weight.

**ADMINISTRATION:** Thyro-Tabs® may be administered orally or placed in the food.

**HOW SUPPLIED:** Thyro-Tabs® is available as scored, color-coded tablets in nine concentrations: 0.1 mg—yellow, 0.2 mg—pink, 0.3 mg—green, 0.4 mg—maroon, 0.5 mg—white, 0.6 mg—purple, 0.7 mg—orange, 0.8 mg—blue, 1.0 mg—tan; in packaging of 120-count bottles.

**STORAGE:** Store at controlled room temperature, 15°-30°C (59°-86°F), and protect from light.

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# What is canine hypothyroidism?

Questions and answers to help you understand your dog's treatment



## What is hypothyroidism and is it life threatening?

Hypothyroidism is defined as lower than normal thyroid hormone blood levels. It is not life threatening if properly treated.

## What is thyroxine?

Thyroxine is a natural hormone produced by the thyroid, a small endocrine gland located near the larynx or Adam's apple. It is normally regulated through a complex bio-feedback loop involving hormones produced by the brain's hypothalamus and pituitary gland. Circulating thyroxine (T4) is converted to triiodothyronine (T3) in body tissues and organs. Both T4 and T3 are biologically active, but T3 is significantly more potent. These thyroid hormones influence many biological functions including metabolism, body temperature, blood cell production, and more. As such both dogs and humans with hypothyroidism can simply run out of energy.



## How is hypothyroidism diagnosed?

Clinical signs are typically the first indication. You may notice your dog is less energetic, listless, and uninterested in favorite activities. Hypothyroidism can also result in significant weight gain, with no change in diet. The hypothyroid dog is normally intolerant of cold, preferring warm areas. Skin changes are typical, resulting in thickened, dry and scaly patches. The coat will often become dry and patchy or thinning especially around the tail and under the abdomen.

Additionally, pups born to hypothyroid females may demonstrate decreased vitality and lower birth weights. Upon physical examination your veterinarian may observe a slow heart rate. He or she will probably recommend blood tests to evaluate your dog's thyroid hormone levels and other parameters to confirm diagnosis and rule out other problems.

## What causes hypothyroidism?

The majority of canine hypothyroidism cases appear to be associated with an immune condition. Some breeds of dogs are more prone to the disease including Golden retrievers, Doberman pinschers, Greyhounds, Irish setters and others.

Hypothyroidism is more commonly diagnosed as dogs get older.

## How is hypothyroidism treated?

Treatment is simple and effective. Your veterinarian will probably dispense an initial four- to eight-week supply of Thyro-Tabs® (levothyroxine sodium tablets, USP) for twice daily dosing. Tablets can be placed on the back of the tongue or in a small amount of food. No other treatment is generally needed, but your veterinarian may also suggest a dietary supplement to facilitate the treatment response, such as Geri-Form, Lipo-Form or Derma-Form. Your veterinarian is then likely to ask you to bring your dog back to test how effective the dosage is for your dog. Because each animal responds differently to treatment, this procedure may be necessary two or three more times before the optimal dose has been established. After that, an annual checkup may be all that is required.

## How long must treatment continue?

Thyroxine replacement treatment is a simple, but lifelong therapy. Because your dog cannot produce an adequate amount of thyroid hormone, supplementation in tablet form allows for continued normal and healthy function.

**To learn more, contact LLOYD today.**

Dogs and humans with hypothyroidism can simply run out of energy.

1-800-831-0004  
[www.lloydinc.com](http://www.lloydinc.com)

