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The canine thyroid glands (consisting of two lobes) lie on each side of the trachea, or windpipe. The function of the thyroid gland is to take up ingested iodine and to convert it into the thyroid hormones thyroxine (T4) and triiodothyronine (T3).

Thyroid hormones affect the metabolic functions of almost every tissue in the body, including skin and hair, the cardiovascular system, nervous system, muscle and reproductive tract.

In excessive quantities (**HYPER**thyroidism) such symptoms as weight loss despite good appetite, rapid heart rate, panting, muscle weakness, diarrhoea, and many others may be seen. Naturally occurring hyperthyroidism is extremely rare in dogs, but is an increasingly common disease in cats.

In cases of **HYPO**thyroidism (low thyroid hormone levels) a wide variety of clinical signs may be evident. These may include mental dullness, lethargy, unwillingness to exercise, muscle cramps, slow heart rate, unexplained weight gain (ie. without an increase in appetite), hair loss, dry hair coat, recurrent skin infections, excessive shedding, hyperpigmentation of skin, intolerance of cold (affected animals seek heat), anoestrus and infertility in intact females etc. Many of these clinical signs are non-specific and may be seen in a range of other disorders. Hypothyroidism is very rare in cats, but is not uncommon in the dog.

There are many different measurements that labs can do on thyroid hormone levels, but the most common tests performed are **total serum T4** and **free T4** measurements. Due to variations in methodology, it is important to compare test results with the "normal range" for the particular laboratory conducting the tests.

For example, for the Veterinary Pathology Diagnostic Service (VPDS) at the University of Sydney, the normal range for dogs is given below:

Total serum T4 15 - 45 nmol/L

Free serum T4 6 - 40 nmol/L

A number of illnesses or administered drugs can cause a dog's total T4 levels to drop below normal (free T4 measurements are affected less). These include such diseases as chronic renal failure, liver disease, diabetes mellitus (sugar diabetes) or drugs such as corticosteroids (cortisone), anticonvulsants and some anaesthetic agents. So care needs to be taken when testing thyroid function in sick dogs.

So what is the deal with Greyhounds?

Many vets are unaware that Greyhounds (and possibly some other sighthound breeds) have a **naturally low thyroid hormone level**. The "normal range" for Greyhounds, from literature reviews, is more like:

Total serum T4 2.1 - 25.7 nmol/L

Free serum T4 0 - 23.5 nmol/L

So as you can see, if an individual Greyhound is tested with a total T4 of 6 nmol/L (for example), many vets would instantly label the Grey as being hypothyroid, despite the fact that it is quite within normal range for the breed, and the dog may not be showing any of the clinical signs typically associated with hypothyroidism.

If you read many Greyhound websites, or participate in chat

groups, particularly US-based sites, it would appear that almost every second Greyhound is diagnosed as being hypothyroid, and is being subjected to a lifetime of daily thyroid hormone replacement therapy (thyroxine). Not only is this unnecessary in the majority of cases, but it can actually be dangerous.

So why do so many Greyhounds get tested for thyroid function in the first place?

The main reason vets will suggest thyroid hormone testing, is because the dog's owner is concerned about hair loss, particularly around the back of the thighs and under the chest/abdomen. Such a condition is quite common in racing Greyhounds and is known as "Greyhound bald thigh syndrome" or BTS. Strangely, this condition is not seen in any other dog breed. Numerous research projects have been conducted into BTS, and equally numerous theories for its cause have been proposed. These include rough or irritant bedding, drug administration (cortisone, testosterone etc), hyperadrenocorticism, hypothyroidism, pattern baldness, stress, etc. But in reality the jury is still out on the cause of BTS in Greyhounds. We do know that a proportion of Greyhounds, after retirement from racing, will grow back some or all of the hair. And some Greyhounds remain "bald" for the rest of their life. But one thing is certain – BTS is rarely caused by hypothyroidism.

Some people will claim that a diagnosis of hypothyroidism can be made in retrospect, because "the dog's hair started to grow back" after thyroxine administration. Unfortunately, this is not necessarily the case, as thyroxine is a general stimulant of metabolic rate, and this includes the rate of hair growth. So thyroxine supplementation will often improve hair coat, regardless of whether the dog is hypothyroid or not.

What would be my advice if your vet wanted to test/treat for hypothyroidism?

Correctly diagnosing hypothyroidism in Greyhounds is not always straightforward. If your Greyhound has **several** of the clinical signs of hypothyroidism listed above (not just hair loss), and has a very low serum T4, even for the Greyhound breed, then it is possible your Greyhound may be truly hypothyroid, and require supplementation.

If he or she only has hair loss, and no other clinical signs, then I could not justify therapy, even if the T4 was low. There are more definitive laboratory tests for thyroid function, including the thyrotropin (TSH) stimulation test, which could be carried out in cases where the diagnosis is unclear. If your Greyhound does need to go onto daily thyroxine supplementation, periodic blood tests should be performed to make sure the dosage is correct. ■

Denise is a veterinarian and founder of Greyhounds As Pets Inc in New South Wales. We thank her for sharing her thoughts on this topic.