

## Canine Hypothyroidism

What is Canine Hypothyroidism ?

Hypothyroidism is a disorder of the thyroid gland. The thyroid gland is one of the seven major glands that make up the endocrine system. Endocrine glands produce hormones that are transported by the blood system to all parts of the body. These hormones regulate many of the body's processes, such as reproduction, growth, metabolism, etc. The thyroid gland consists of two lobes and is situated in the neck on either side of the windpipe. It is responsible for the production of the thyroid hormones, Thyroxin (known as T4) and Triiodothyronine (T3). Thyroid hormones regulate the body's metabolic rate, and as this involves the digestive, circulatory and nervous systems, it becomes obvious that a disorder of the thyroid gland can produce many different clinical signs.

Hypothyroidism arises when the thyroid gland is under-active: too little thyroid hormone is produced and circulated in the blood stream . This is caused by inflammation of the gland - autoimmune thyroiditis (which is probably an inherited condition), or the wasting away of the gland itself for reasons at present unknown. In the past, it was thought that thyroid problems could be due to an iodine-deficient diet (iodine is an essential component of the thyroid hormones). In developed countries, this is unlikely to occur as diets today (for humans as well as dogs) are generally made up of foodstuffs from a variety of sources - not just one area that may have iodine-deficient soil. Enlargement of the gland, commonly known as goitre, can be caused by severe iodine deficiency but if this is seen in dogs, a tumour is invariably the cause.

Hypothyroidism can produce a large variety of symptoms but the classic signs are:

- Lethargy
- Weight gain
- Hair loss

Dogs of all ages can be affected but it is most common in middle-age (i.e. four years and older). Often, the first an owner will notice is that the dog seems lazy, not as keen to exercise and puts on weight even though the food quantity has been reduced. This weight gain can sometimes be seen on the head, making the skull look broader and the eyebrows heavier. Many owners just think that their pet is "getting old before its time" because often no other signs are noticeable.

Hypothyroid dogs often feel the cold easily and like to spend long periods of time sleeping in a warm spot. Skin and coat conditions are quite common - the most obvious being the loss of coat particularly on the lower part of the tail, giving an impression of a "rat-tail". Generally, the coat looks in poor condition - thin, dry and dead with little or no new coat coming through. Sometimes the skin thickens with an increase in the dark pigmentation giving an 'elephant skin' appearance. This can cause the dog to scratch and bite itself and one wonders if the notorious "Setter Itch" could sometimes be caused by an undiagnosed thyroid problem. Severe cases can show muscle weakness including the heart muscles, causing a slowing down of the heart rate. Infertility, varying degrees of paralysis and digestive disorders are also possible.

Diagnosis of hypothyroidism can be difficult and your vet will take into account the clinical signs and then arrange for tests to measure the amount of the thyroid hormones present in the blood stream. These thyroid hormone levels can vary considerably, even in healthy dogs - younger dogs tend to have higher levels and certain breeds such as greyhounds generally have lower thyroid concentrations.

The ESA undertook a short study in March/April 1998 where 30-40 blood samples from “normal healthy” English Setters were submitted to a selected veterinary diagnostic laboratory. This was to allow a normal base reference range for our breed to be established. The results of this, along with the name and address of the testing laboratory will be made available to all ESA members so that, should a thyroid problem be suspected, the blood samples can be sent to the same laboratory and the results directly compared against this normal reference range. This should help your veterinary surgeon with his diagnosis.

Hypothyroidism is easily treated with a daily dose of synthetic thyroid hormone called thyroxine (levothyroxine). Once stabilised your vet will usually check the thyroid levels once a year to assess the effectiveness of the dosage and make any necessary adjustments. Most symptoms should begin to clear up quite soon after treatment has begun. With regularly check-ups to ensure correct dosage, your dog should be mostly symptom-free and go on to enjoy a normal life span.

#### Research on Auto-Immune Disease

The ESA Health Sub-Committee has been examining the incidence of hypothyroidism in English Setters in the UK. ESA members sent in blood samples from their affected dogs and these were forwarded to researchers at the Universities of Liverpool and Manchester, to be included in their research project on autoimmune disease. It will be a few years before the result of this work is known, but they have promised to let the ESA have a report of their findings.

During this time, many ESA members contacted the Health Sub-Committee, either by letter or phone, to discuss their pets’ problems with hypothyroidism. It was remarkable that in almost all cases the animal suffered from a long-term skin complaint as well as showing other classical clinical signs of thyroid deficiency.

Most owners reported that, as soon as the animal was diagnosed and stabilised on thyroxine medication, the standard thyroid symptoms started to reverse and the skin condition either cleared up completely or at least improved tremendously. Long term skin conditions can be notoriously difficult to treat and it may well be worth the small cost of a blood test to check for low level hypothyroidism, even if other clinical signs are not readily visible.

It was also interesting to note that several owners had more than one animal with this condition. However as diet, vaccine or general environmental factors appeared to have no influence on the incidence of this problem, it was felt that after having one affected animal, an owner was more aware of the symptoms and so more likely to arrange for blood tests to confirm their suspicions. As reported in previous Newsletters, this problem tends to occur in middle-aged animals and many of the symptoms of hypothyroidism can be missed as owners sometimes think that the lethargy, weight gain, etc. are just due to their pet getting older.