

# Managing Canine Hypothyroidism

Diagnosis of canine hypothyroidism is based on history, physical examination, and supporting lab findings, which include normocytic, normochromic, nonregenerative anemia and fasting hypertriglyceridemia and hypercholesterolemia. Normal total thyroxine ( $T_4$ ) concentrations generally rule out hypothyroidism; however, an abnormally low total  $T_4$  does not, given that many drugs and diseases can cause low concentrations. Equilibrium dialysis free  $T_4$  is the preferred assay for free  $T_4$ . Total triiodothyronine ( $T_3$ ) concentrations are often inaccurate. High thyroid-stimulating hormone (TSH) concentrations with a low total  $T_4$  level are very specific for the diagnosis. Measurement of or reliance on TSH concentrations is problematic because about 30% of hypothyroid dogs have normal values. TSH and thyrotropin-releasing hormone stimulation tests are of limited usefulness (expense and lack of hormones). Ultrasonography has been found to help distinguish normal from abnormal glands, but technicians must be experienced. In some cases the only way to make a definitive diagnosis is via a response to therapy. This should be done only after all other reasonable methods have been exhausted. Antithyroglobulin or antithyroid hormone antibodies occur in many hypothyroid dogs but the latter also are seen in normal dogs. The treatment of choice is sodium  $T_4$  at a dose of 20  $\mu\text{g}/\text{kg}$  Q 12 H or 0.5  $\text{mg}/\text{m}^2$ . Response may take 4 to 6 weeks, although the patient's activity level may increase as soon as 1 week. Therapeutic monitoring should begin approximately 1 month after therapy is initiated; a postpill test 4 to 6 hours after administration is recommended.

**COMMENTARY:** It is important to remember that by itself hypothyroidism is not a pruritic skin disease. Dogs with recurrent skin diseases possibly attributable to hypothyroidism have a clear pattern. Bacterial and yeast pyodermas resolve with treatment but recur shortly after discontinuation of therapy. The big clue is a pattern in which the patient is nonpruritic between episodes of pyoderma and becomes pruritic only after the development of secondary skin infections. Canine hypothyroidism is very common in golden retrievers and Labrador retrievers, two breeds that also suffer from atopic dermatitis. Diagnosing hypothyroidism in atopic dogs can be challenging, especially if steroids have been used. In some of these dogs, serum chemistry panels and more "common" signs of hypothyroidism may be present (weight gain in the absence of excessive steroids, loss of undercoat, and lack of skin inflammation.) It is also important to remember that sulfa antibiotics can also cause abnormally low thyroid hormone concentrations.—*Karen A. Moriello, DVM, Diplomate ACVD*