

# Diagnosing and Treating Hyperthyroidism in Cats



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We all know and recognise the typical signs of hyperthyroidism in cats, but sometimes diagnosis can be more challenging than a straight forward elevated Total T4. This is when knowledgeable interpretation or additional testing must be performed.

Classically the appropriate clinical signs of weight loss, polyphagia, lack of grooming, polyuria, vomiting and hyperactivity will accompany a thyroid nodule together with an elevated Total T4 value with or without the other characteristic abnormalities on biochemistry and haematology profiles.

Elevated total T4 values confirm and low values exclude hyperthyroidism. However there are a group of cats (approximately 10%) which have mild or occult hyperthyroidism where the diagnosis is more challenging.

Occult hyperthyroidism generally presents with mild clinical signs, a thyroid nodule and a Total T4 in the high normal range. The Total T4 can fall within the high normal range as a result of random fluctuations in serum values, or depression due to non thyroidal illness (as seen in dogs). The non thyroidal illness NTI can include renal failure, neoplasia and severe infections, amongst others. If your serum T4 is not elevated but you strongly suspect clinically hyperthyroidism then further testing is required. This may simply be a further total T4 request in a few weeks, or the measurement of Free T4 by equilibrium dialysis. Free T4 is less likely to be affected by NTI and is frequently elevated in hyperthyroid cats whose total T4 value is within the upper normal range. However in a small proportion of cats with only NTI Free T4 is elevated (with the Total T4 in the low normal range). This would give a false diagnosis of hyperthyroidism if used as the first line test without proper assessment of clinical signs and concurrent illness. It is always recommended to run a Total T4 value then Free T4 by equilibrium dialysis as the additional test. The Free T4 equilibrium dialysis is also a more expensive test and only performed at referral laboratories.

If you are still uncertain of the diagnosis then waiting and retesting in 4 -6 weeks is an acceptable protocol.

## *Treatment*

There are three options for treatment – thyroidectomy, oral antithyroid medications and radioactive iodine. The decision on which form treatment will take is a clinical one with all relevant factors taken into consideration. Thyroidectomy and radioactive iodine are considered cures, with medication a control of hyperthyroidism only. Daily medication must

be given with regular assessments of the effectiveness of the current dose and alterations where required. Medication may precede surgery particularly to reverse the effects of hyperthyroidism on specific organs prior to anaesthesia and to assess the impact of lowering T4 levels on GFR and unmasking of renal disease.

In some cats the decreased T4 levels can unmask renal disease, and it becomes a balancing act between maintaining adequate renal perfusion and counteracting the effects of hyperthyroidism. This is where it is vitally important to always measure renal parameters when monitoring T4 levels. Initially this should be done every 2-4 weeks for the first 3 months until the effects on renal parameters are fully evaluated. If azotaemia is already apparent on the diagnostic profile this monitoring should be performed more frequently using a lower initial dose of medication to avoid serious deterioration in renal function. Thereafter monitoring every 3 months is recommended. It is also well known that, like all drugs, antithyroid medications can have side effects – in particular blood dyscrasias (haemolytic anaemia, leucopenia, and thrombocytopenia) as well as toxic effects on the liver elevating ALT, ALP and bilirubin levels. Any adverse effects of the drug therapy are likely to appear within the first 3 months. This is where the use of a 'Thyroid Monitoring Profile' regularly will reveal abnormalities early before any reactions become too severe and allow quick removal of the drug. This monitoring profile should include urea, creatinine, phosphate, ALT, ALP and CBC. An alternative treatment protocol will need to be followed as any return to therapy will result in a repeat of the adverse reactions even when a different antithyroid drug is used.