**Canine screening**

- Dogs with low total T4 (T4) and evidence of nonthyroidal illness (NTI) should have the NTI addressed.
- Dogs with T4 results in the low normal range may be hypothyroid.

In dogs with low or low normal T4 results and with consistent clinical signs, consider one or more of the following to aid in confirming hypothyroidism:

- Free T4 (fT4)
- Endogenous thyroid-stimulating hormone (TSH)
- Possible thyroglobulin autoantibodies (TgAA)

**Hypothyroidism therapeutic monitoring**

For dogs on thyroid supplement, acceptable 4–6-hour post-pill T4 values will generally fall in the upper end of the reference interval or slightly above.

**Algorithm**

1. **Canine hypothyroidism suspected**
2. **Initial database**
   - Total T4
   - CBC
   - Chemistry with electrolytes
   - Complete urinalysis

3. **Low T4 with NTI**
   - <1.0 µg/dL (<13.0 nmol/L)
   - Address NTI

4. **Low T4**
   - <1.0 µg/dL (<13.0 nmol/L)
   - fT4 + TSH ± TgAA

5. **Low normal T4**
   - 1.0–2.0 µg/dL (13.0–26.0 nmol/L)
   - Hypothyroidism unlikely

6. **Normal T4**
   - 2.0–4.0 µg/dL (26.0–51.0 nmol/L)
   - Hypothyroidism unlikely

**Common clinical signs in dogs**
- Obesity
- Skin disease
- Lethargy
- Mental dullness
- Exercise/cold intolerance

**Note:** 1 µg/dL is equal to 12.87 nmol/L. A result that falls within the low normal range of the assay should be considered ambiguous.
Dynamic range
0.5–20.0 µg/dL
(6.4–257.4 nmol/L)

Catalyst Total T₄ results
Subnormal <0.8 µg/dL (<10.0 nmol/L)
Normal 0.8–4.7 µg/dL (10.0–60.0 nmol/L)
Gray zone in old or symptomatic cats 2.3–4.7 µg/dL (30.0–60.0 nmol/L)
Consistent with hyperthyroidism >4.7 µg/dL (>60.0 nmol/L)

Feline screening
Cats with consistent clinical signs and total T₄ (T₄) values in the borderline high range (gray zone) may have early hyperthyroidism with a concurrent nonthyroidal illness (NTI). In these cases, consider the following to aid in confirming the diagnosis:
- Free T₄ (fT₄)
- T₃ suppression test
- Radionuclide thyroid imaging

Hyperthyroidism therapeutic monitoring
Following treatment with methimazole (or similar), T₄ values will generally fall within the lower to midportion of the reference interval.

Algorithm

Feline hyperthyroidism suspected

Common clinical signs in cats
- Weight loss
- Hyperactivity
- Polyphagia
- Palpable goiter
- Unkempt coat

Initial database
- Total T₄
- CBC
- Chemistry with electrolytes
- Complete urinalysis

Low T₄
<0.8 µg/dL (<10.0 nmol/L)
Euthyroid sick or iatrogenic

Normal T₄
0.8–4.7 µg/dL (10.0–30.0 nmol/L)

High T₄
>4.7 µg/dL (>60.0 nmol/L)

Normal T₄ (Gray Zone)
2.3–4.7 µg/dL (30.0–60.0 nmol/L)

Low or normal fT₄
Hyperthyroidism unlikely*

High fT₄
Hyperthyroidism likely

*If strong suspicion of hyperthyroidism still exists, consider retesting in 4–6 weeks or a technetium scan.

CBC = Complete blood count
Note: 1 µg/dL is equal to 12.87 nmol/L. A result that falls within the gray zone of the assay should be considered ambiguous.