**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.

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**Catalyst Total T4 Results**

<table>
<thead>
<tr>
<th>Level</th>
<th>Low (µg/dL)</th>
<th>Normal (µg/dL)</th>
<th>High (µg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>&lt;1.0</td>
<td>1.0–2.0</td>
<td>&gt;4.0</td>
</tr>
<tr>
<td>Low Normal</td>
<td>1.0–2.0</td>
<td>1.0–4.0</td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>1.0–4.0</td>
<td>1.0–2.0</td>
<td></td>
</tr>
<tr>
<td>Therapeutic</td>
<td>2.1–5.4</td>
<td>2.1–5.4</td>
<td></td>
</tr>
</tbody>
</table>

**CBC = Complete blood count**

**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.

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**Algorithm**

**Canine Hypothyroidism Suspected**

- Initial Database
  - Total T4
  - CBC
  - Chemistry with Electrolytes
  - Complete Urinalysis

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

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

- Low fT4 ± high TSH ± positive TgAA
  - Hypothyroidism likely
  - Clinical trial

- Normal fT4 and TSH negative TgAA
  - Hypothyroidism unlikely

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

**Normal T4**
- 2.0–4.0 µg/dL (26.0–51.0 nmol/L)
- Repeat testing in 4–6 weeks if hypothyroidism still suspected
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.

Catalyst Total T4 Results

<table>
<thead>
<tr>
<th>Condition</th>
<th>fT4 Range</th>
<th>nT4 Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subnormal</td>
<td>&lt;0.8 µg/dL</td>
<td>(&lt;10.0 nmol/L)</td>
</tr>
<tr>
<td>Normal</td>
<td>0.8–4.7 µg/dL</td>
<td>(10.0–60.0 nmol/L)</td>
</tr>
<tr>
<td>Gray zone in old or symptomatic cats</td>
<td>2.3–4.7 µg/dL</td>
<td>(30.0–60.0 nmol/L)</td>
</tr>
<tr>
<td>Consistent with hyperthyroidism</td>
<td>&gt;4.7 µg/dL</td>
<td>(&gt;60.0 nmol/L)</td>
</tr>
</tbody>
</table>

Hyperthyroidism Suspected

**Algorithm**

- **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)
- **High T4**
  - >4.7 µg/dL
  - (>60.0 nmol/L)
- **Normal T4**
  - 0.8–4.7 µg/dL
  - (10.0–30.0 nmol/L)

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

- **Euthyroid sick or iatrogenic**

- **Hyperthyroidism unlikely**
- **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.