

# Feline Hyperthyroidism

*A PowerPage Presented By*



Hyperthyroidism most commonly occurs in cats due to adenomatous hyperplasia of the thyroid glands but can also be due to a functional thyroid carcinoma. On a board exam, you should expect to be asked to recognize the signs of hyperthyroidism in cats, choose appropriate diagnostic tests, and know about the treatment options and complications associated with those treatments. This PowerPage highlights those key aspects of this disease.

## Key Points

- Key historical signs include weight loss, polyphagia, vomiting, hyperactivity
- Key physical exam findings are: thyroid nodule (or “slip”), tachycardia, and heart murmur or gallop
- Diagnosis can usually be confirmed with serum T4 levels (thyroid panel usually unnecessary)
- Treatment options are oral methimazole (Tapazole), surgical thyroidectomy, or radioactive I-131

## Relevant Pathophysiology

The thyroid gland synthesizes the thyroid hormones thyroxine (T4) and triiodothyronine (T3) which incorporate iodine. The hormones are responsible for a wide range of physiologic effects but most importantly, they increase metabolic rate, oxygen consumption, heart rate, erythropoiesis and catecholamine response. They have catabolic effects on muscle and adipose tissue.

## Clinical Signs

- **Weight loss with polyphagia**
- Thyroid nodule (or “slip”)
- Hyperactivity
- Vomiting
- Tachycardia, and heart murmur or gallop
  - Thyrotoxic cardiomyopathy

## Diagnosis

- Common abnormalities on routine bloodwork and diagnostics include:
  - Elevated ALT, ALP, AST
  - Erythrocytosis
  - Hypertension
- Serum total T4 level is the preferred screening test for hyperthyroidism (>4.0 ug/dl)
- Some cats may fall in the “gray zone” slightly above normal and should be retested or consider additional tests:
  - Free T4
  - TRH response testing
  - T3 suppression test

## Treatment

- The 3 major treatment options are medical, surgical, and radiation
  - With any treatment, it is important to monitor renal function because renal insufficiency is a common comorbid condition and the presence or severity can be masked by hyperthyroidism
- Medical
  - Oral Methimazole- treatment of choice for initial therapy
    - Can be stopped or reduced if renal values increase
    - Possible side effects
      - **Facial excoriations**
      - Thrombocytopenia, anemia, agranulocytosis
      - Hepatopathy
- Surgery- thyroidectomy
  - Usually bilateral disease requiring bilateral thyroidectomy
  - Possible side effects and surgical complications
    - Iatrogenic hypoparathyroidism (hypocalcemia)
    - Hypothyroidism
    - Horner's syndrome
    - Laryngeal paralysis (voice change)
- Radioactive Iodine
  - I-131
  - Single dose, requires hospitalization, usually for several days to weeks, depending on state radiation laws
  - Possible side effects
    - Iatrogenic hypothyroidism requiring T4 supplement (<5%)
    - Undertreatment requiring retreatment (5%)

## References and Links

Ettinger, Feldman - Veterinary Internal Medicine 3rd ed pp 1400-1419

VIN Conference Proceedings:

<http://www.vin.com/Members/Proceedings/Proceedings.plx?CID=wvc2007&PID=pr15683&O=VIN>

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