




FELIMAZOLE[®]
A problem precisely answered

Hyperthyroidism.

**From diagnosis to treatment,
precise control, every step of the way.**

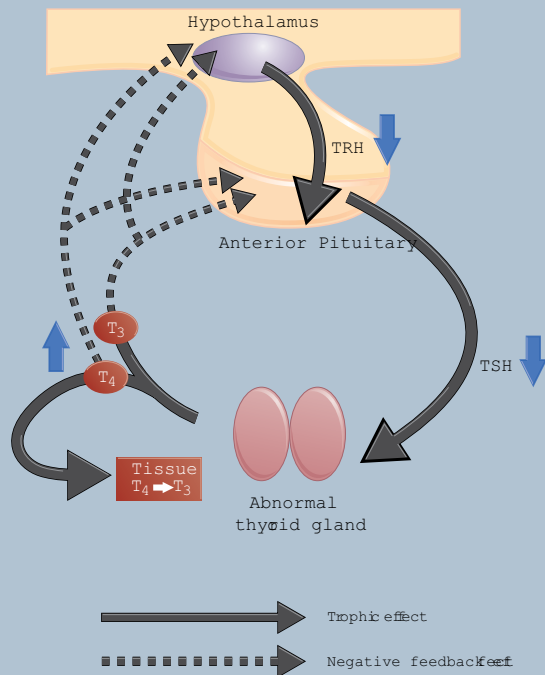


Feline hyperthyroidism

First documented in cats over 30 years ago, hyperthyroidism is a multi-system disorder caused by an increase in circulating concentrations of the thyroid hormones T3 and T4.

Offering **flexibility and precision**, Felimazole enables you to **take control** of the condition. Through **small, measured steps** you can make a giant leap towards **restoring the natural poise** of your hyperthyroid patients.

- The most common feline endocrine disorder worldwideⁱ
- Estimated that over 10% of all senior cats will develop the disorderⁱ
- Over 95% of affected cats have benign adenomatous hyperplasia of the thyroid gland, affecting either both lobes (70% cases) or 1 lobe (30% cases)



Common clinical signs

- Weight loss
- Polyphagia
- Tachycardia
- Cardiac murmur
- Polyuria / polydipsia
- Hyperactivity / restlessness
- Vomiting
- Diarrhoea
- Palpable goitre



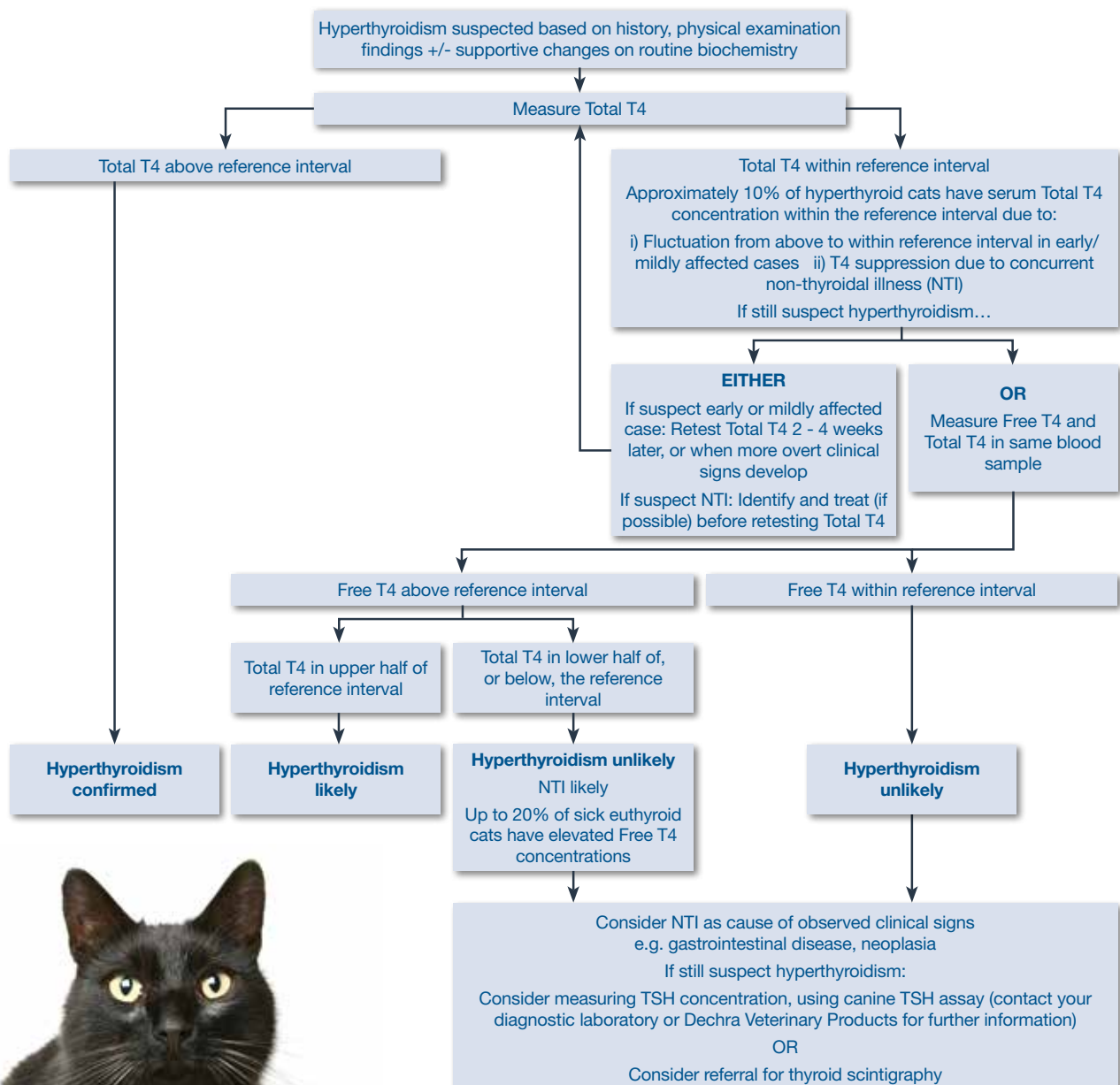
Image courtesy of
Sarah Caney BVSc PhD DSAM (Feline) MRCVS
www.catprofessional.com

Diagnosis of feline hyperthyroidism

Routine haematology and biochemistry are useful to help confirm a diagnosis of hyperthyroidism, as well as to rule out the presence of any concurrent disorders.

Most cases of hyperthyroidism can be confirmed by the measurement of serum total T4 (tt4). Measurement of TT4 is also useful for establishing a baseline value prior to treatment. Early cases or those with concurrent disease may have a TT4 concentration within the reference range – often at the high end of that range.

Total T3 (TT3) is not routinely used as a diagnostic test as over 30% of hyperthyroid cats have a serum level of TT3 within the reference range. Free T4 (FT4) measurement by equilibrium dialysis is the most sensitive test for hyperthyroidism. However, it should not be used in place of TT4 test, since up to 12% of normal cats have an elevated serum FT4 concentration.



Treatment of feline hyperthyroidism

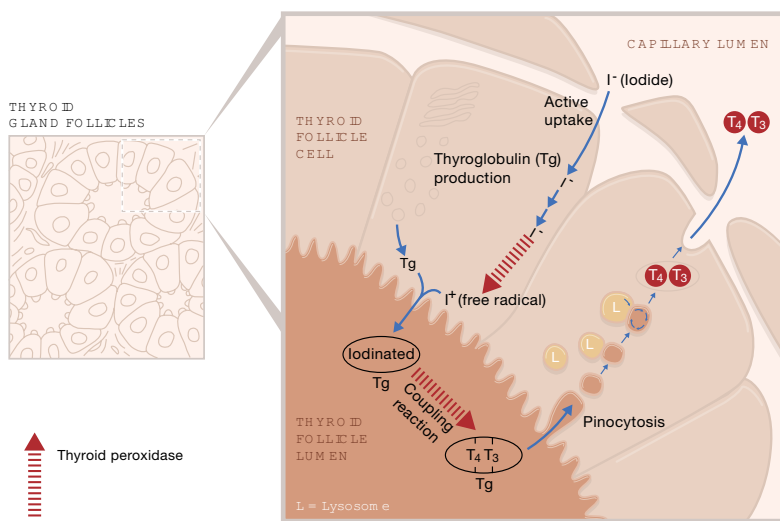
There are three established treatment options for feline hyperthyroidism:

- **Medical management** to reversibly inhibit synthesis of thyroid hormones
- **Surgical thyroidectomy** to remove the abnormally functioning thyroid tissue
- **Radioactive iodine therapy** to destroy the abnormally functioning thyroid tissue

	Medical management	Radioactive iodine therapy	Surgical thyroidectomy
Availability	Readily available	Limited number of specialised centres	Skilled surgeon required
Effective if ectopic hyperplastic thyroid tissue	Yes	Yes	No – ectopic tissue may not be surgically accessible
Time to achieve euthyroidism ⁱⁱ	3 to 15 days ⁱⁱ	1 to 20 weeks ⁱⁱ Prior medical stabilisation recommended	Immediate, post-surgery Prior medical stabilisation recommended
Reversible	Yes	No	No
Need for general anaesthesia	Not required	Not required	Yes
Need for hospitalisation	Not required	Minimum 7 days (dependant on centre)	1 to 10 days ⁱⁱ (dependent on post-operative complications)
Treatment failure or recurrence of hyperthyroidism	Unlikely with regular monitoring and good owner compliance	Rare	Possible, even following bilateral thyroidectomy ⁱⁱⁱ
Iatrogenic hypothyroidism	Possible ^{iv} . Can be easily managed by reducing dose of medication	Possible ^{iv} . May require supplementation with thyroid hormones if prolonged	Possible ^{iv} . May require supplementation with thyroid hormones if prolonged
Initial Cost ⁱⁱ	Low	High	Intermediate

Medical treatment is recommended for initial stabilisation, whichever long-term therapeutic option is chosen^v.

- The first veterinary-licensed medical treatment for feline hyperthyroidism in Europe
- Contains the anti-thyroid drug thiamazole
- Dose is independent of body weight and of the total T4 concentration at diagnosis
- Indicated for long-term treatment and stabilisation prior to surgical thyroidectomy
- Reversibly inhibits the enzyme thyroid peroxidase to control excessive production of T3 and T4



- Small, sugar-coated tablets – designed for easy administration
- Three tablet strengths – 1.25 mg (red), 2.5 mg (orange) and 5 mg (yellow) – colour-coded for easy differentiation
- Available in pots of 100

Research^{vi} has shown that owners have no more difficulties administering tablets than they do liquid medication, and that some owners are administering liquids by putting it on food which can raise a question around compliance.

91%

of cat owners claim to have high levels of confidence that their cat is receiving the correct dose when giving a tablet to treat hyperthyroidism^{vi}.

80%

of cat owners giving a tablet to treat hyperthyroidism find it either extremely easy to medicate their cat or have an occasional struggle but overall they take it without fuss^{vi}.





























Starting dose

- 5 mg per day, administered as 2.5 mg twice daily
- If, for reasons of compliance, once daily dosing with a 5 mg tablet is preferable, then this is acceptable*
- Dose is independent of the initial total T4 concentration and bodyweight

Maintenance dose

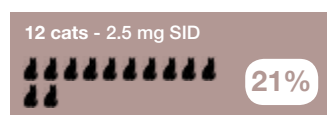
- After three weeks, biochemistry, haematology and total T4 should be reassessed
- Dose adjustments should be made in increments of 2.5 mg per day
- Aim to use the lowest possible dose rate to achieve and maintain euthyroidism
- Nine possible maintenance dose combinations available
- 1.25 mg tablets are intended for use in cats that require particularly small doses of thiamazole, and to assist with dosage adjustments

DAILY DOSE	MORNING	EVENING	
1.25 mg			 1.25 mg
2.5 mg			 2.5 mg
2.5 mg			 5 mg
3.75 mg	 + 		
3.75 mg	 + 		
5.0 mg			
5.0 mg*			
7.5 mg			
10 mg			
12.5 mg	 + 		
15 mg	 + 	 + 	



Actual size

- In a clinical trial^{vii}, 58 hyperthyroid cats were started on Felimazole at a dose of 2.5 mg twice daily
- At the end of the trial, varying maintenance doses had been selected



With low starting doses and small dose adjustments, Felimazole gives you the flexibility you need.

*The 2.5 mg tablet given twice daily may be more efficacious in the short term

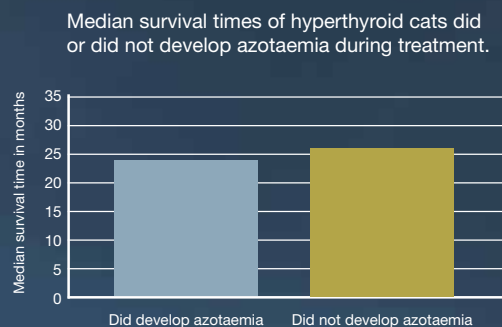
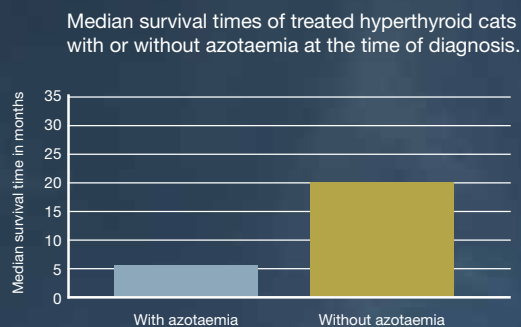
The importance of flexible dosing

Treatment of hyperthyroid cats with concurrent chronic kidney disease (CKD).

Hyperthyroidism and CKD are both common diseases in senior and geriatric cats. 10% of cats will be azotaemic at the time of diagnosis of hyperthyroidism^{viii}, whereas 17 - 49% will develop azotaemia after starting treatment for hyperthyroidism^{viii}.

Recent studies from the Feline Research Group at the Royal Veterinary College, London, have shown that hyperthyroid cats with pre-existing azotaemia have significantly shorter median survival times than those that are non-azotaemic^{viii}.

In contrast, hyperthyroid cats that develop azotaemia following treatment live as long as cats that do not develop azotaemia^{iv}.



In both situations, the ability to **fine tune control** and maintain a total T4 concentration appropriate for each individual case is important for optimal management.

Detailed recommendations on how to approach these complex cases can be found in the **Felimazole Treatment and Monitoring Flowchart**, available to download from www.dechra.com/endocrinology.



Using finely tuned control

Iatrogenic hypothyroidism

Iatrogenic hypothyroidism is a possible outcome of all treatment options for feline hyperthyroidism^{iv}.

In a recent study^{iv} of 75 hyperthyroid cats treated with anti-thyroid medication alone or in combination with surgical thyroidectomy, 28 (37%) were found to be hypothyroid (low total T4, high TSH).

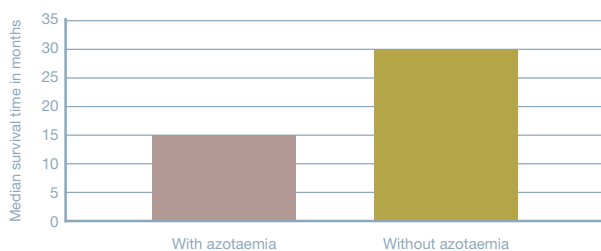
What were the implications of this?

Azotaemia was significantly more likely in hypothyroid cats:

- 16/28 (57%) hypothyroid cats were azotaemic
- 14/47 (30%) euthyroid cats were azotaemic

And cats that were both hypothyroid and azotaemic had significantly shorter median survival times:

Median survival times of cats with iatrogenic hypothyroidism that did or did not develop azotaemia.



- 456 days for hypothyroid azotaemic cats
- 905 days for hypothyroid non-azotaemic cats

Fortunately, the latest research from the Royal Veterinary College suggests that restoration of euthyroidism (by adjusting the dose of anti-thyroid medication) in cats with iatrogenic hypothyroidism improves renal function^{ix}.

This research highlights the importance of avoiding iatrogenic hypothyroidism.

Regular monitoring is essential to ensure that if hypothyroidism does occur, it is detected early. In these cases, the dose of Felimazole should be reduced by the smallest possible increment to restore euthyroidism and return the total T4 concentration to the lower half of the reference interval.

Detailed recommendations can be found in the Felimazole Treatment and Monitoring Flowchart, available to download from www.dechra.com/endocrinology.



Nutritional support as an adjunct to medical treatment of the hyperthyroid cat

Nutritional assessment is an important aspect of optimal patient care, since optimal nutrition can enhance quality of life and life expectancy. This is reflected in WSAVA's global initiative to include nutritional assessment as the 5th vital sign in the standard physical examination of each pet[®].

For cats diagnosed and medically treated for hyperthyroidism it is important to include nutritional assessment in each physical examination during routine monitoring of the cat. Based on the outcome of the nutritional assessment – including assessment of the cat's age, body condition score, muscle condition score and presence of concurrent clinical conditions as chronic kidney disease, reduced cardiac function, hypertension, diabetes and gastrointestinal disease – a recommendation for optimal nutritional support should be made for each individual cat.

Dechra has expertise in both endocrinology and nutrition and is unique in not only providing the anti-thyroid drug Felimazole, but also providing the SPECIFIC™ diet range for optimal support of hyperthyroid cats.

The SPECIFIC range provides diets for the nutritional support as an adjunct to medical treatment of hyperthyroid cats. Different dietary options are available depending on the cats condition, including diets for cats suffering from kidney disease, concurrent diabetes mellitus, concurrent digestive issues and to support underweight cats.

The chart 'SPECIFIC' diets for nutritional support of hyperthyroid cats' recommends the most appropriate SPECIFIC diet for each case, depending on body condition and concurrent complications, available to download from www.dechra.com/endocrinology



Dechra provides you with an extensive range of resources to support you with individual cases:

A screenshot of the Dechra Academy website. The main heading is 'Hyperthyroidism in cats'. Below it, there is a list of bullet points: 'Effective in this course on hyperthyroidism in cats', 'Where you will explore the following:', '• How to recognise hyperthyroidism', '• How to manage hyperthyroidism', '• Why Felimazole is an effective treatment'. There is a 'Start' button and a Dechra logo in the bottom right corner.

The Dechra Academy
www.dechra.com/endocrineacademy

A screenshot of the 'Owner sites with interactive logbook' website. The main heading is 'Feline Hyperthyroidism'. Below it, there is a list of bullet points: 'Feline Hyperthyroidism', 'Feline Hyperthyroidism', 'Feline Hyperthyroidism'. There is a 'Start' button and a Dechra logo in the bottom right corner.

Owner sites with interactive logbook
www.feline-hyperthyroidism.co.uk

A screenshot of the 'Case Study 1: Rufus Asymptomatic Hyperthyroidism' document. The main heading is 'Rufus Asymptomatic Hyperthyroidism'. Below it, there is a list of bullet points: 'Rufus', 'Asymptomatic Hyperthyroidism', 'Hyperthyroidism'. There is a 'Start' button and a Dechra logo in the bottom right corner.

A screenshot of the 'Hyperthyroidism: From diagnosis to treatment, precise control, every step of the way' document. The main heading is 'Hyperthyroidism'. Below it, there is a list of bullet points: 'Hyperthyroidism', 'From diagnosis to treatment, precise control, every step of the way'. There is a 'Start' button and a Dechra logo in the bottom right corner.

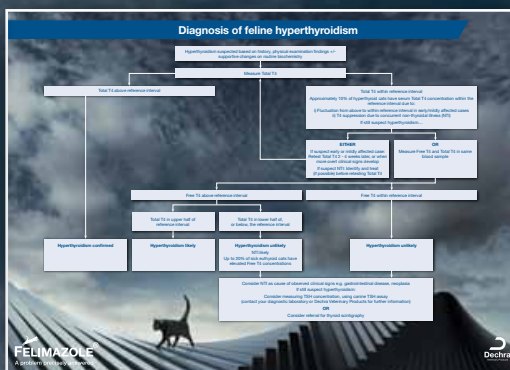
A flowchart titled 'Diagnosis of feline hyperthyroidism'. The flowchart starts with 'Diagnosis of feline hyperthyroidism' and branches into 'Clinical signs' and 'Investigation'. 'Clinical signs' leads to 'Weight loss', 'Increased thirst and urination', 'Increased appetite', 'Vomiting', 'Diarrhoea', 'Apathy', 'Polyuria', 'Polydipsia', 'Weight loss', 'Increased thirst and urination', 'Increased appetite', 'Vomiting', 'Diarrhoea', 'Apathy', 'Polyuria', 'Polydipsia'. 'Investigation' leads to 'Blood tests', 'Urine tests', 'Imaging', 'Biopsy'. 'Blood tests' leads to 'T4', 'T3', 'T4:U', 'T3:U', 'T4:U/T3:U ratio', 'T4:U/T3:U ratio'. 'Urine tests' leads to 'Urea and creatinine', 'Urea and creatinine', 'Urea and creatinine'. 'Imaging' leads to 'Ultrasound', 'Ultrasound', 'Ultrasound'. 'Biopsy' leads to 'Biopsy', 'Biopsy', 'Biopsy'. The flowchart ends with 'Diagnosis of feline hyperthyroidism'.

Practice support materials
www.dechra.com/endocrinology

Dedicated technical support.



Owner sites with interactive logbook
www.feline-hyperthyroidism.co.uk



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Dedicated technical support.



Experts in endocrinology

Dechra's dedicated training portal, The Dechra Academy, gives you free access to a number of educational topics, allowing you to learn at any time or place that suits you.

Our Academy has case studies, videos, interactive eLearning and digital books which all count towards your CPD.



Dechra Academy:
A dedicated training portal



Vetoryl: Hyperadrenocorticism
(Cushing's syndrome)



NEW Felimazole:
Feline Hyperthyroidism



Zycortal: Introduction
to Hypoadrenocorticism

Visit **www.dechra.com/endocrineacademy** to find out more.

References

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FELIMAZOLE: Felimazole contains thiamazole

Dechra Veterinary Products A/S, Mekuvej 9, 7171 Uldum, Denmark.

Dechra Veterinary Products Limited is a trading business of Dechra Pharmaceuticals PLC.

dechra.com/endocrinology

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