

PURINA®
PRO PLAN®
VETERINARY
DIETS

FELINE UR ST/OX URINARY

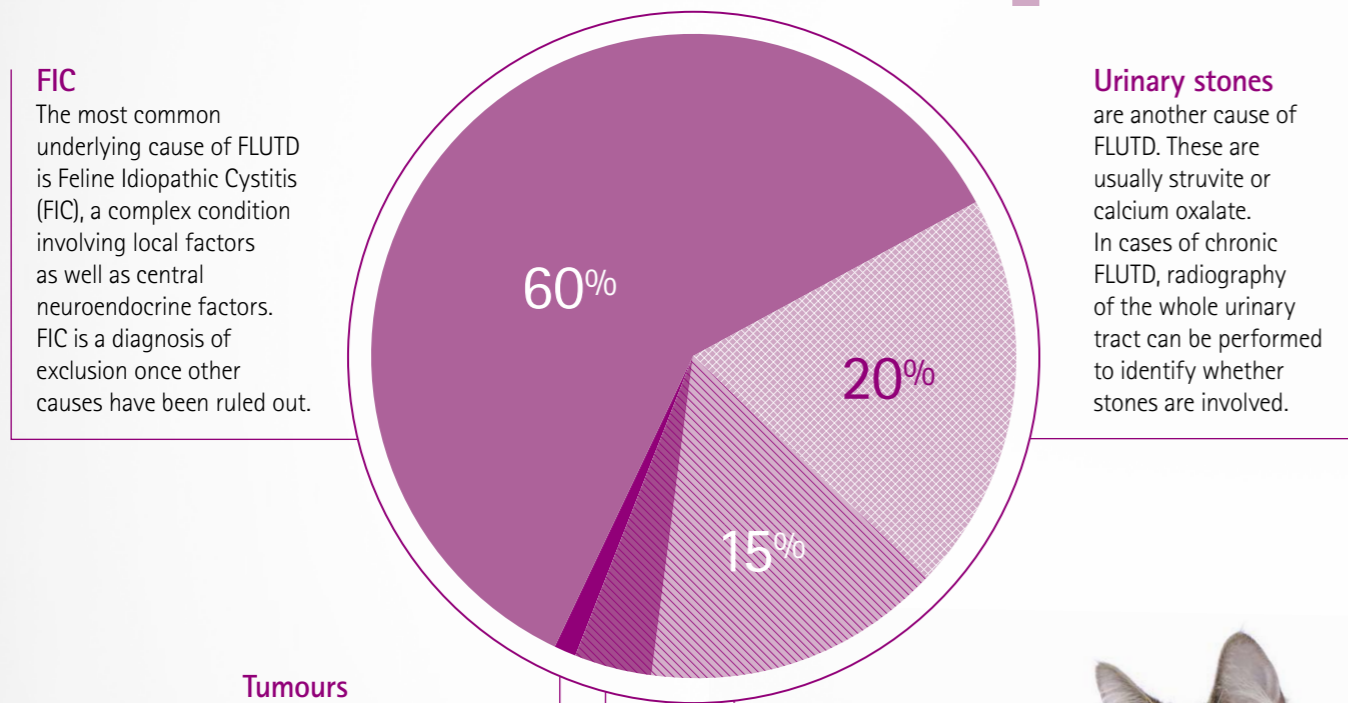
A holistic approach to treating FLUTD



Understanding and managing Feline Urinary Tract Disease (FLUTD)

Feline Lower Urinary Tract Disease (FLUTD) is a painful and sometimes life-threatening condition, often characterised by symptoms such as stranguria, haematuria and pollakiuria. Because FLUTD is a condition with a number of underlying causes, the most effective long-term treatment is often holistic; involving changes to environment, hydration and nutrition.

The frequency of different types of FLUTD¹



FIC
The most common underlying cause of FLUTD is Feline Idiopathic Cystitis (FIC), a complex condition involving local factors as well as central neuroendocrine factors. FIC is a diagnosis of exclusion once other causes have been ruled out.

Urinary stones
are another cause of FLUTD. These are usually struvite or calcium oxalate. In cases of chronic FLUTD, radiography of the whole urinary tract can be performed to identify whether stones are involved.

Tumours
Cats can get bladder cancers, although these are very rare.

Bacterial infections
are uncommon in cats, especially young and otherwise healthy cats. Older cats that may have underlying health conditions are at higher risk of getting a bacterial infection.

Urethral plugs represent a risk in male cats. They are formed of proteins and crystals that bind together and lodge in the urethra. These can cause blockages which require emergency treatment.



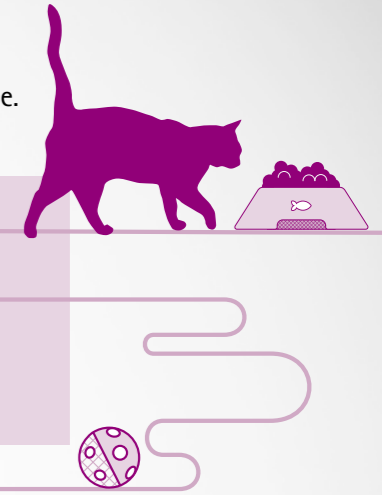
FLUTD risk factors and treatment

Cats at higher risk of FLUTD include neutered cats, indoor cats, overweight cats and cats with lower water intake¹.

Once a diagnosis of the underlying cause has been reached, a treatment plan can be put in place. This often involves the home environment and the cat's wellbeing, not just the urinary tract².

Long-term management of FLUTD is most effective when a multimodal 'holistic' approach to treatment is taken. This includes:

- Increasing water intake – important for all causes of FLUTD
- Environmental management and enrichment – important for FIC
- Nutrition – important for all causes of FLUTD



Increasing water intake

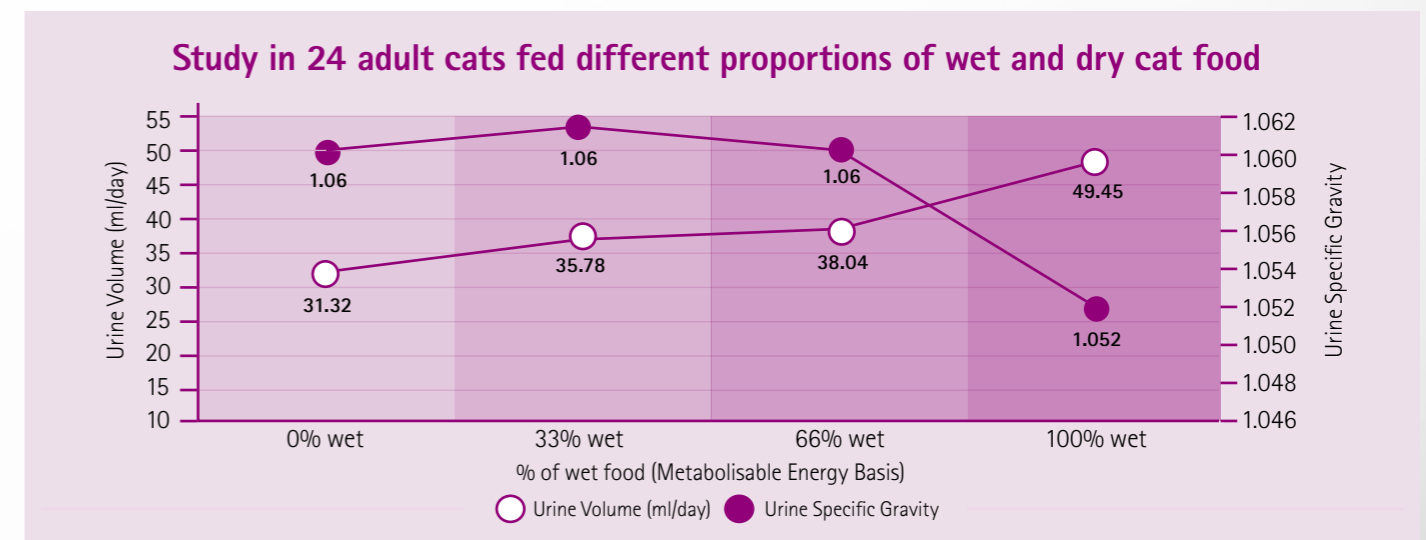
Good hydration significantly reduces the risk of FLUTD. The more diluted the urine, the lower the risk of crystals and proteins forming stones and plugs. Although cats are often reluctant drinkers, there are several simple ways for owners to encourage increased water intake:

- Some cats prefer running water, so water fountains or a dripping tap can help
- Water bowls should be wide enough for whiskers, and most cats prefer drinking from glass or ceramic rather than plastic
- Multiple bowls placed around the house and outside can also encourage more drinking
- Wet diets reduce urine concentration, which is measured as Urine Specific Gravity (USG)³. The ACVIM⁴ recommend aiming for a USG <1,030 in cats suffering from FLUTD



Wet diets provide extra moisture which leads to better hydration and less concentrated urine³

The graph below demonstrates how increasing the percentage of wet food in the diet increases urine volume and decreases USG, both of which reduce the risk of FLUTD⁴.



1. Chew D., Buffington T., (2007) Non-obstructive Idiopathic/Interstitial Cystitis in Cats: Thinking Outside the (Litter) Box, *World Small Animal Veterinary Association World Congress Proceedings*

2. Buffington T et al (2006) Clinical evaluation of multimodal environmental modification (MEMO) in the management of cats with idiopathic cystitis, *J of Fel Med and Surg*, 8, 261-268
 3. Greco, D., Xu, H., Zanghi, B., et al. (2014) The effect of feeding inversely proportional amounts of dry versus canned food on water consumption, hydration and urinary parameters. *WSAVA Proceedings*, 39.
 4. Lulich J.P., Berent A.C., Adams, L.G., et al. 2016. ACVIM Small Animal Consensus Recommendations on the Treatment and Prevention of Uroliths in Dogs and Cats. *J Vet Intern Med.* 30(5):1564-1574

Environmental management and enrichment

FIC is often stress related, triggered by environmental factors, such as a sudden change in routine or surroundings, or a home situation that is creating stress for the cat. Common triggers include disputes with other cats in the home over territory, food or other resources.

Stress can be a difficult subject to discuss with owners as many don't understand that cats often dislike sharing their space with other cats^{5,6}.



Where possible, owners can reduce environmental stress by:

- Providing n+1 resources. So, for two cats, provide three litter trays, three food bowls, three beds, etc.
- Giving plenty of environmental enrichment (such as toys and human interaction)
- Ensuring there are enough high spaces and hiding places for all cats in the home
- Keeping food away from litter boxes
- Minimising changes and disturbance (e.g. considering the cat if building work is taking place)



How the right nutrition supports FLUTD treatment

Both the composition and type of food can help in the management of FLUTD. Because dry food can be left down for long periods of time, cats can happily eat little and often – helping to reduce environmental stress which can contribute to FIC, whilst wet diets increase overall water intake.

For cats with urolithiasis, the right nutrition can promote a specific targeted pH (between 6 and 6.3) to help dissolve struvite stones and crystals and can also prevent the formation of calcium oxalate.



Purina® Pro Plan® Veterinary Diets UR St/Ox Urinary product information



Key benefits

- Low RSS / APR**
With ST/Ox urinary security - to reduce the risk of urinary Struvite and Oxalate crystals and stone formation
- Struvite dissolution / ST dissolution**
Promote dissolution of urinary struvite stones
- Moderate kcal**
Moderate level of calories to help maintain ideal body weight (obesity being a risk factor for FLUTD)

Indications

- Dissolution of struvite uroliths
- Reduction of struvite urolith recurrence
- Reduction of oxalate urolith recurrence
- Idiopathic cystitis

Contraindications

- Not suitable for growth and reproduction
- Chronic renal failure
- Other conditions associated with diuresis
- Fluid retention such as ascites and oedema

Key nutrient values	Dry	Wet	Pouch
Moisture	6.5%	80%	80.5%
Protein	35%	10%	9.5%
Fat	12%	5.3%	4.5%
Carbohydrate	37%	2.5%	2.4%
Crude fibre	1.5%	0.5%	2.4%
Calcium	0.8%	0.14%	0.5%
Phosphorous	0.8%	0.14%	0.20%
Sodium	1.2%	0.17%	0.40%
Potassium	0.7%	0.3%	0.15%
Magnesium	0.08%	0.02%	0.02%
Chloride	2.4%	0.28%	0.38%
Sulphur	0.3%	0.21%	0.23%
Taurine	1500 mg/kg	1480 mg/kg	1500 mg/kg
Vitamin E	550 mg/kg	143 mg/kg	161 mg/kg
Metabolisable energy (ME)*	3.8 kcal/g	0.94 kcal/g	0.85kcal/g
Parameters			
RSS struvite	<1	<1	<1
RSS oxalate	<10	<10	<10
APR struvite	<1	<1	<1
APR oxalate	<5	<5	<5
Urinary pH	6-6.3	6-6.3	6-6.3

Adult feeding guidelines

Body weight (kg)	Dry (g/day)	Pouch/day	Can/day	Dry and pouch		Dry and can	
				Dry (g/day)	Pouch/day	Dry (g/day)	Pouch/day
2	30	1.5	2/3	25	0.5	10	0.5
3	45	2.5	1	35	1	25	0.5
4	65	3.5	1+1/3	50	1	15	1
5	80	5	1+2/3	50	2	35	1

Per each additional 1kg of body weight feed an additional 15g of dry food



5. Herron ME, Buffington T, (2010) CAT. Environmental enrichment for indoor cats. *Compend Contin Educ Vet.* 32, E1-E5.
6. Herron ME, Buffington T, (2012) Environmental Enrichment for Indoor Cats: Implementing Enrichment, *Compend Contin Educ Vet.* 34(1), E3.

*Calculated using the CEN equation NRC 2006

Nutritional solutions with proven efficacy

Purina® Pro Plan® Veterinary Diets UR St/Ox Urinary are proven to deliver results for cats with FLUTD

Clinical Study (Torres-Henderson, 2017)⁷

Use of Purina® Pro Plan® Veterinary Diets UR St/Ox Urinary to Dissolve Struvite Crystallites

Method:

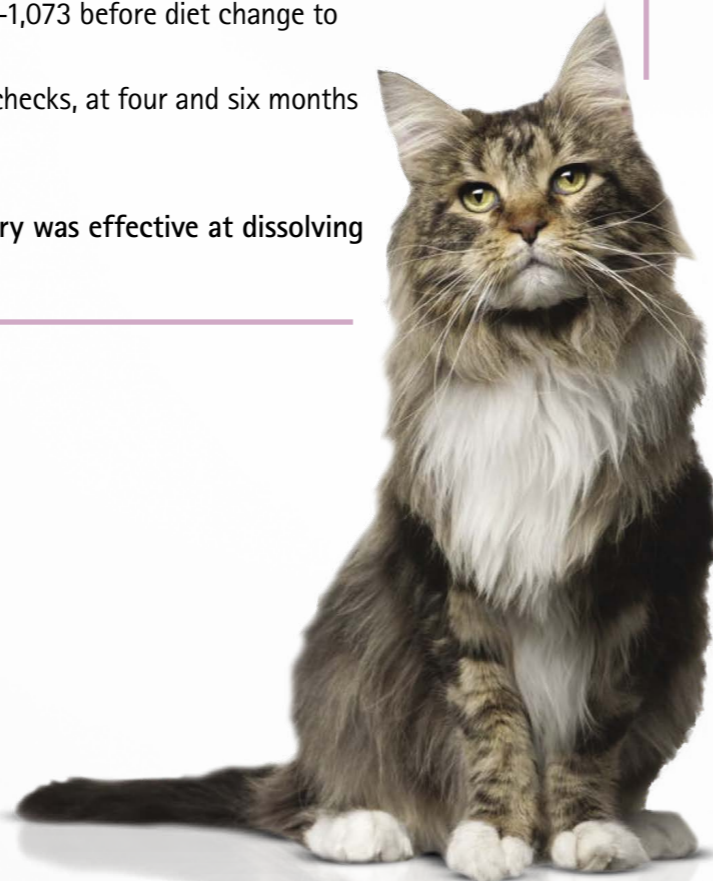
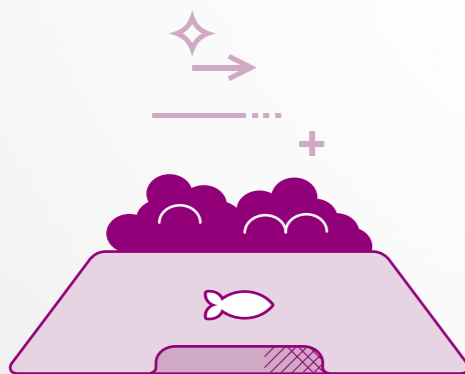
- 12 cats with symptoms of FLUTD and cystoliths that had been confirmed using radiographs were fed Purina® Pro Plan® Veterinary Diets UR St/Ox Urinary *ad libitum*
- Radiographs were taken weekly for 6 weeks
- After 6 weeks, any cats with stones still identifiable by radiography had a cystotomy to remove the stones

Results:

- There was total dissolution of cystoliths in 5 cats after 2 weeks. These were presumed to be struvite stones
- All other cats underwent cystotomy- 5 of these cats had calcium oxalate stones and 2 had mixed stones - these would not be expected to dissolve
- Urine was more dilute with USG ranging from 1,040-1,073 before diet change to 1,039-1,050 after diet change
- Crystalluria was not present at the following two rechecks, at four and six months

Conclusion:

- Purina® Pro Plan® Veterinary Diets UR St/Ox Urinary was effective at dissolving struvite stones



Clinical Study (Greco et al, 2014)³

The effect of feeding inversely proportional amounts of dry vs canned food on water consumption, hydration and urinary parameters

Method:

- 24 cats, male and female, were fed either 100% dry, 66% dry / 33% wet, 33% dry / 66% wet or 100% wet food for a four week test period
- They then had two weeks wash-out, before being fed another combination
- Urine volume, specific gravity and total body water (measured by quantitative magnetic resonance) were measured on the last day of each 4 week test period

Results:

- Water consumption significantly increased as the percentage of wet food increased. Urine volume increased by 36% with a 100% wet diet, compared with dry alone

Conclusion:

- Inclusion of wet food in the diet increased hydration, urine volume and concentration



Case Studies

Flory, 12 years old

Clinical signs: Dysuria, haematuria, pollakiuria

Diagnosis: FIC

Treatment: Diet change to Purina® Pro Plan® Veterinary Diets UR St/Ox Urinary and provision of a high number of water sources at home

Follow up: Diet was accepted well and no further recurrence at 4 months



Horus 9 years old

Clinical signs: High levels of anxiety and inappropriate urination

Diagnosis: FIC

Treatment: Diet change to Purina® Pro Plan® Veterinary Diets UR St/Ox Urinary wet and dry

Follow up: Diet was accepted well and no further recurrence at 4 months



3. Greco, D., Xu, H., Zanghi, B., et al. (2014) The effect of feeding inversely proportional amounts of dry versus canned food on water consumption, hydration and urinary parameters. *WSAVA Proceedings*, 39.

7. Torres-Henderson, C. et al. (2017) Use of Purina® Pro Plan® Veterinary Diet UR St/Ox Urinary to Dissolve Struvite Crystallites. *Top Companion Anim Med.* 32(2):49-54

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International Society of Feline Medicine
ISFM recognises PURINA's nutritional
contribution to feline well-being

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