

PURINA® PRO PLAN® VETERINARY DIETS
FELINE UR ST/Ox URINARY

A holistic approach to help
support cats with FLUTD



VETERINARY
CLINICAL
NUTRITION

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the veterinary division of
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VETERINARY DIETS



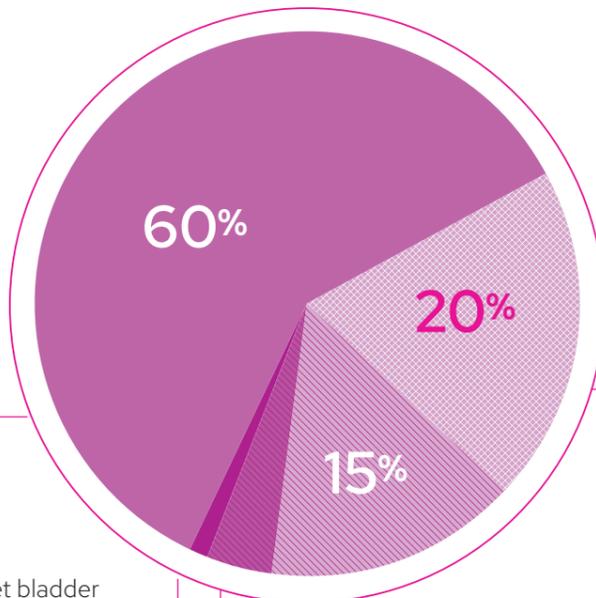
Understanding and managing Feline Urinary Tract Disease (FLUTD)

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
- Nutritional support – 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. 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
- Purina® Pro Plan® Hydra Care is a nutrient enriched water that can help promote water intake in cats.



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*

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).

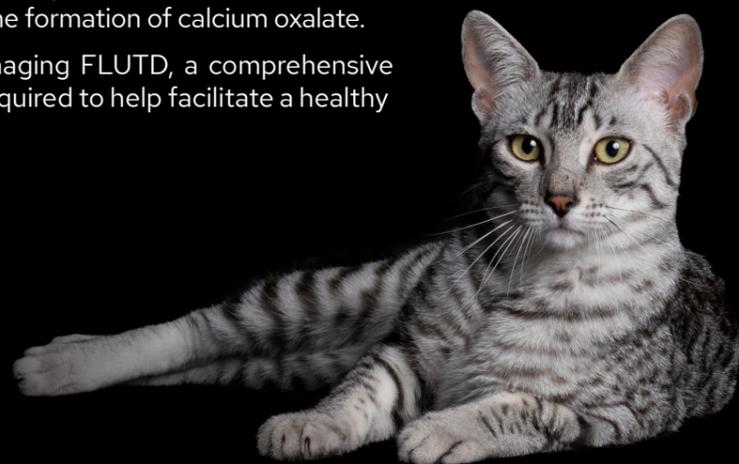
Environmental management and enrichment

Striking the right balance in composition and type of food can facilitate successful management of FLUTD.

Since it can be left out for long periods—allowing cats to graze at will—measured portions of dry food can help reduce environmental stress that contributes to FIC. Meanwhile, with a high moisture content, a wet diet increases overall water intake that helps maintain a healthy urinary tract.

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

Given its marked influence in managing FLUTD, a comprehensive consideration of cats' nutrition is required to help facilitate a healthy and hydrated life.



PURINA® PRO PLAN® Veterinary Diets UR ST/Ox Urinary

Recommended nutritional support of:

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

Not recommended in cases of:

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

Key benefits



With ST/Ox urinary security

to reduce the risk of urinary Struvite and Oxalate crystals and stone formation



Promotes dissolution

to help promote dissolution of urinary struvite stones



Moderate calorie

to help maintain ideal body weight

Key nutrient values ¹			
	Dry**	Can	Pouch**
Moisture	6.5%	80.8%	76.4%
Protein	35%	10%	9.5%
Fat	12%	5%	4.5%
Carbohydrate	37%	2.1%	2.1%
Crude fibre	1.5%	0.4%	0.6%
Calcium	0.9%	0.14%	0.26%
Phosphorous	0.9%	0.14%	0.22%
Sodium	1.2%	0.1%	0.34%
Potassium	0.7%	0.26%	0.23%
Magnesium	0.08%	0.02%	0.03%
Chloride	2.4%	0.22%	0.35%
Sulphur	0.3%	0.21%	0.2%
Taurine	1730 mg/kg	1788 mg/kg	1729 mg/kg
Vitamin E	605 mg/kg	143 mg/kg	164 mg/kg
Metabolisable energy (ME) ¹	3797 kcal/g	906 kcal/g	843kcal/g
RSS struvite	<1	<1	<1
RSS oxalate	<10	<10	<10
Urinary pH	6-6.3	6-6.3	6-6.3

*Typical analysis in the final product as fed. **Average of the two varieties
¹ Calculated following NRC2006 equations.



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

Nutritional solutions with proven efficacy

PURINA® PRO PLAN® Veterinary Diets UR St/Ox Urinary is proven to deliver results for cats with FLUTD

PURINA PRO® PLAN® Veterinary Diets UR ST/ Ox Urinary is effective at dissolving struvite stones (Torres-Henderson, 2017)⁷

- 12 cats with symptoms of FLUTD and cystoliths were fed Purina Pro Plan Veterinary Diets UR S

Results:

- Total dissolution of cystoliths in five cats after two weeks (presumed to be struvite stones).
- All other cats underwent cystotomy—five had calcium oxalate stones and two had mixed stones (not 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).



Inclusion of wet food in the diet increases hydration, urine volume and concentration (Greco et al, 2014)³

- 24 cats were fed either 100% dry, 66% dry/33% wet, 33% dry/66% wet or 100% wet food for a four-week test period.
- Then had two weeks wash-out, before fed another combination.
- On last day of each four-week test period, urine volume, specific gravity and total body water were measured.

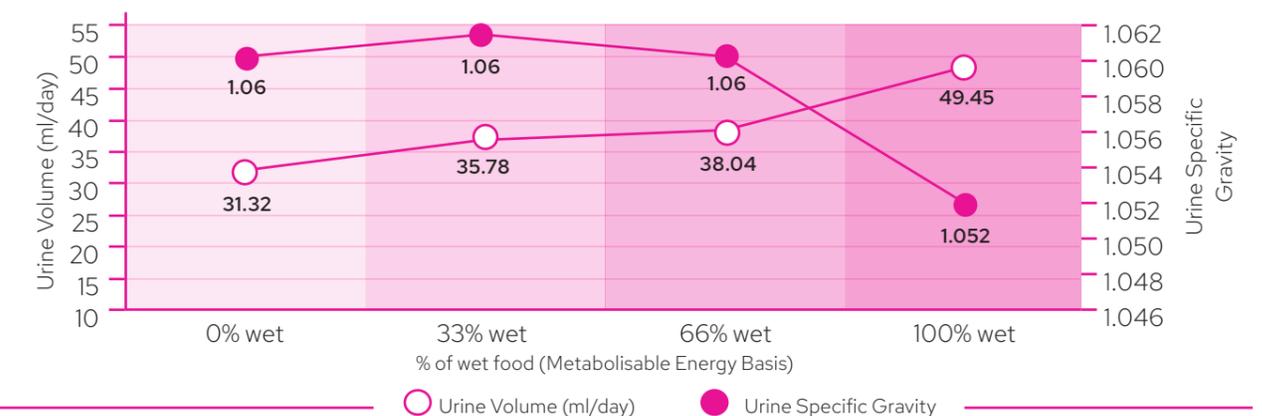
Results:

- 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.

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

Feeding wet food increases urine volume and decreases USG, both of which reduce the risk of FLUTD⁴.

Study in 24 adult cats fed different proportions of wet and dry cat food



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 Cystoliths. *Top Companion Anim Med.* **32(2)**:49-54

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



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ISFM recognises PURINA's nutritional contribution to feline well-being



Please contact your Purina® representative or visit www.vet-center.eu for more information.