

**MEDICAL INDICATIONS:**

- Dissolution of struvite uroliths
- Reducing the risk of both struvite and calcium oxalate uroliths recurrence
- Struvite-associated FLUTD
- Idiopathic cystitis



VETERINARY  
EXCLUSIVE

 **PURINA**<sup>®</sup>  
**PRO PLAN**  
**VETERINARY DIETS**<sup>®</sup>

**UR**

**URINARY**<sup>®</sup> **St/Ox**<sup>®</sup>

Available in dry, loaf and Savory Selects.

# FELINE URINARY HEALTH

## INDICATION RELEVANCE

Feline Lower Urinary Tract Signs (LUTS) incidents are reported in approximately 3% of cats seen in private practice<sup>1</sup> and 8% of cats seen at US veterinary teaching hospitals.<sup>2</sup> It is one of the top 6 reasons for clients to visit a veterinarian.<sup>3</sup>

Common causes of Feline LUTS are idiopathic cystitis, urolithiasis and urethral plugs.<sup>4</sup> There are also risk factors such as decreased water intake, obesity, inactivity, genetics and stress.



## DIETARY MODIFICATION

Dietary modifications can help to nutritionally manage cats with this condition by modifying urine pH and promoting increased urine volume.



High protein content helps maintain ideal body condition and lean body mass.

<sup>1</sup>Lund EM, Armstrong PJ, Kirk CA, et al. "Health status and population characteristics of dogs and cats examined at private veterinary practices in the United States." *J Am Vet Med Assoc.* 1999; 214(9): 1336-1341;  
<sup>2</sup>Lekcharoensuk C, Osborne CA, Lulich JP. "Epidemiologic study of risk factors for lower urinary tract diseases in cats." *J Am Vet Med Assoc* 2001; 218(9): 1429-1435;  
<sup>3</sup>Kynetec Veterinary Medicine Landscape 2020; <sup>4</sup>Kruger JM, Osborne CA, Goyal SM, et al. "Clinical evaluation of cats with lower urinary tract disease." *J Am Vet Med Assoc* 1991; 199(2): 211-216.

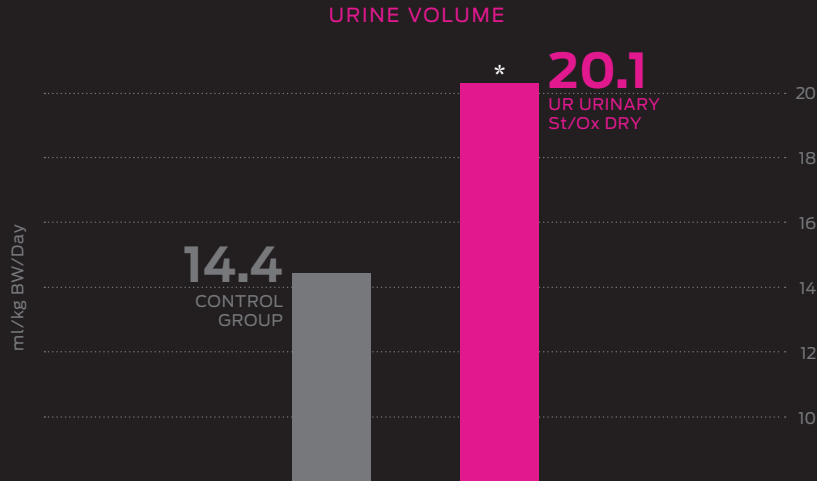
## HEALTH BENEFITS

BENEFIT	INGREDIENTS	MECHANISM
<b>URINARY MANAGEMENT</b>		
<ul style="list-style-type: none"> <li>Promotes a urinary environment unfavorable to the development of both struvite uroliths (undersaturated) and calcium oxalate uroliths (metastable)</li> <li>Helps dissolve struvite uroliths</li> <li>Helps reduce the risk of both struvite and calcium oxalate urolith recurrence</li> <li>Average urine pH range of 6.0-6.4</li> </ul>	<ul style="list-style-type: none"> <li>Formulated for maintenance of adult cats</li> </ul>	<ul style="list-style-type: none"> <li>Acidifies urine to produce an average pH in the beneficial range of 6.0-6.4</li> <li>Controlled mineral levels</li> <li>Urinary testing                             <ul style="list-style-type: none"> <li>Urine undersaturated for struvite</li> <li>Urine metastable for calcium oxalate</li> </ul> </li> </ul>
<p><b>URINE DILUTION</b></p> <ul style="list-style-type: none"> <li>Promotes increased urine volume to dilute the urine (dry)</li> <li>Moisture content &gt;75% contributes to total water intake (wet)</li> </ul>	<ul style="list-style-type: none"> <li>Sodium and protein content (dry)</li> <li>H<sub>2</sub>O in the formula (wet)</li> </ul>	<ul style="list-style-type: none"> <li>Safe dietary Na level (1.36% on a dry matter basis (DMB)) plus high protein content (44.87% DMB), is an effective means of increasing urine volume to help flush out stone-forming materials (dry)</li> <li>Wet products provide added moisture</li> </ul>
<b>GENERAL HEALTH</b>		
<ul style="list-style-type: none"> <li>High protein content to help maintain ideal body condition and lean body mass</li> </ul>	<ul style="list-style-type: none"> <li>High-quality protein and fat sources</li> </ul>	<ul style="list-style-type: none"> <li>Protein levels at 44.87% dry and 47.49% loaf DMB</li> <li>Protein levels at 61.86% Savory Selects® Salmon Recipe and 62.41% Savory Selects® Turkey &amp; Giblets Recipe</li> <li>Fat levels at 9.86% dry and 30.26% loaf DMB</li> <li>Fat levels at 15.16% Savory Selects® Salmon Recipe and 14.13% Savory Selects® Turkey &amp; Giblets Recipe</li> </ul>
<ul style="list-style-type: none"> <li>High in antioxidant vitamins A and E to support a healthy immune system</li> </ul>	<ul style="list-style-type: none"> <li>Vitamins A &amp; E</li> </ul>	<ul style="list-style-type: none"> <li>A high level of antioxidant vitamins A and E to help support a healthy immune system</li> </ul>

# RESEARCH & RESULTS

## URINE VOLUME STUDY (DRY)

Urine volume increased significantly in cats fed dry UR St/Ox vs. control (\*p<0.001).



Xu H, et al. "Effect of Dietary Sodium on Urine Characteristics in Healthy Adult Cats." *J Vet Intern Med* 2006; 20: 738-739.

## STRUVITE DISSOLUTION STUDY (DRY)

### Study Objective:

To determine the efficacy of feeding Purina Pro Plan Veterinary Diets UR Urinary St/Ox (dry) for the dissolution of struvite cystoliths in cats.

### Stone Composition:

Cats with presumed Struvite, n=5  
Cats with 100% CaOx, n=5  
Cats with Mixed Uroliths, n=2

### Conclusions:

UR Urinary St/Ox appears to dissolve struvite cystoliths as early as 1 week of feeding the diet.

Results suggest that feeding the diet can successfully dissolve cystoliths that are likely struvite, and may lessen risk of recurrence of struvite and calcium oxalate cystoliths.

### TOTAL OF 12 CATS - ALL FED UR URINARY St/Ox (Dry)

5 CATS WITH PRESUMED STRUVITE STONES



7 CATS UNDERWENT CYSTOTOMIES FOR NON-STRUVITE STONE REMOVAL



WEEK 1

DISSOLVED ON UR St/Ox (DRY)



WEEK 2

DISSOLVED ON UR ST/OX (DRY)



STONE REMOVAL SURGERY



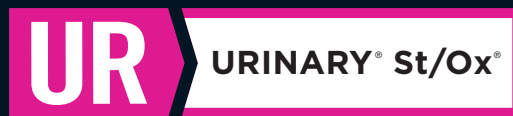
WEEK 3

WEEK 4+

STONE REMOVAL SURGERY



Torres-Henderson C, Bunkers J, Contreras ET, et al. "Use of Purina Pro Plan Veterinary Diet UR Urinary St/Ox to Dissolve Struvite Cystoliths." *Top Companion Anim Med.* 2017 Jun; 32(2): 49-54.



Learn more at  
[www.ProPlanVeterinaryDiets.ca](http://www.ProPlanVeterinaryDiets.ca)

For more information, visit [www.ProPlanVeterinaryDiets.ca](http://www.ProPlanVeterinaryDiets.ca)  
or call us at 1-866-884-VETS (8387).

Have a case consult? We are here to help. Contact our Canadian Veterinary  
Resource Centre at [canadavetconsult@purina.nestle.com](mailto:canadavetconsult@purina.nestle.com)

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