

Deploy Nutritional Strategies to Manage Patients With Feline LUTD



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Q What does the research tell us about the problem of lower urinary tract disease (LUTD) in cats?

A LUTD is certainly a nagging problem in cats. One study found that the proportional morbidity rates of cats developing LUTD irrespective of cause was 8 in 100 cats.¹ Here's what we know:

It's a weighty matter. One study showed that cats with feline idiopathic cystitis (FIC) were significantly more likely to be overweight compared to both healthy cats in the same household and a control population of clinically healthy cats.²

Neutering is associated with the development of LUTD. Another study showed that castrated males had increased risk for each cause of LUTD except urinary tract infection (UTI) and incontinence, while spayed females had increased risk for urocystolithiasis, UTI and neoplasia.¹

Since so many pets in the U.S. are spayed or neutered, and the number of overweight or obese pets increases every year, LUTD in cats may be on the rise. However, we're also more aware of how to diagnose these conditions and manage these patients. So whether prevalence is increasing or we are now more proactive in diagnosing LUTD is an open question.

Q How can diet play a role in reducing clinical signs of LUTD?

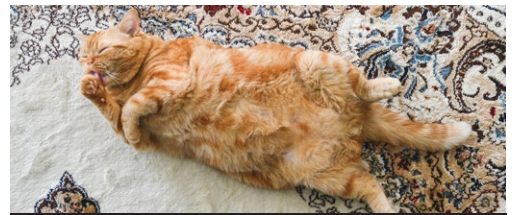
A Cats have a lower physiological thirst drive than dogs, so identifying other strategies to boost fluid intake is key. Increasing dietary moisture can increase urine volume and promote a more-dilute urine. This dilution decreases the opportunity for crystals to form.

The 2016 ACVIM consensus statement on the treatment and prevention of uroliths in dogs and cats suggests that urine dilution is probably one of the best ways to help reduce the risk of urolith formation.³ We can help owners accomplish this in a variety of ways, such as by recommending use of water fountains, adding water to dry food—which often doesn't go over very well with cats—and feeding a canned diet, introduced gradually to help avoid gastrointestinal upset. For cats with FIC, feeding a canned diet and/or increasing liquid intake is the optimal way to achieve a lower urine specific gravity. A hydration supplement can also help.

For example, Purina® Pro Plan® Veterinary Supplements Hydra Care® is a nutrient-enriched water that promotes hydration in cats. It contains nutritional osmolytes, which are intended to aid in the absorption of water at a cellular level. Sometimes as veterinarians we don't think about

incorporating a hydration supplement into our patient plan—we think about subcutaneous fluids or canned food. But if the cat accepts it, a supplement can be a good way to help decrease a patient's urine specific gravity.

Additionally, it may be a good idea to encourage owners to expose their cats to a variety of texture preferences when they are young, as opposed to when they are older and have to try eating a canned diet to increase moisture intake. That's not to say that rotating diets throughout a cat's lifetime is necessary, only that exposing them to different types of food textures at a young age is a good way to get them comfortable and hopefully promote acceptance.



Overweight, neutered males are one group at increased risk for lower urinary tract disease.

Q What's the difference between a dissolution diet and a diet formulated to prevent development of struvite and calcium oxalate crystals—and is it important?

A Dissolution diets, such as Purina® Pro Plan® Veterinary Diets UR Urinary® St/Ox Feline Formulas, are formulated to dissolve **uroliths**—primarily struvite uroliths. Calcium oxalate stones cannot be dissolved, regardless of diet. Some non-dissolution therapeutic diets have undergone relative supersaturation (RSS) testing to ensure they promote a urinary environment that is unfavorable to the development of **struvite and calcium oxalate** crystals. However, these diets do not help dissolve struvite uroliths. Purina UR St/Ox formulas both help dissolve struvite uroliths and reduce the risk of struvite and calcium oxalate urolith recurrence.

Sterile struvite uroliths in cats may dissolve as early as one to two weeks after transitioning to a therapeutic dissolution diet. Provided the cat doesn't appear to be too uncomfortable, veterinarians can initiate pain management, start the patient on a urinary diet, monitor progress, and then determine next steps based on radiographs and abdominal ultrasound.

¹ 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.

² Cameron ME, Casey, RA, Bradshaw, JWS, et al. A study of environmental and behavioural factors that may be associated with feline idiopathic cystitis. *J Small Anim Pract.* 2004 Mar;45(3):144–7.

³ Lulich JP, Berent AC, Adams LG, et al. ACVIM Small Animal Consensus Recommendations on the Treatment and Prevention of Uroliths in Dogs and Cats. *J Vet Intern Med* 2016;30:1564–1574.



Keeping Cats Calm

How Environmental Enrichment Can Reduce Stress in Cats with FIC



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Two cats live in the same household. One is healthy, but the other has been diagnosed with feline idiopathic cystitis (FIC). Because FIC is believed to be brought on by stress in cats that are prone to lower urinary tract disease,¹ one key to managing patients with FIC is to identify stress triggers, then work with the owner to develop a multimodal environmental modification (MEMO) plan that addresses them.

The essence of environmental enrichment is to **give cats choices**. By analyzing the following aspects of the home environment, owners can identify multiple ways to modify the FIC cat's environment to help reduce their stress triggers.



Water sources

Cats with FIC often produce less urine and urinate less frequently than normal cats,² so encouraging them to drink is essential. Rather than giving cats a single bowl of water, encourage owners to provide several drinking options in different locations, e.g., a

water bowl and a water fountain or a bowl of water and a bowl of a hydration supplement such as Purina® Pro Plan® Veterinary Supplements Hydra Care®.



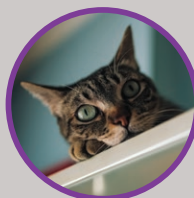
Sleeping spots

Indoor cats spend a lot of time snoozing and need more than one cozy place to stretch out. Many cats enjoy moving spots throughout the day and a warm spot in the sun is often their preferred location.



Cuddling and companionship

Cats are often viewed as independent pets that can be capricious when it comes to owner interaction. However, most cats are actually quite social and crave time with their human companions. Spending time each day playing with owners and being petted or brushed by them is important to a cat's emotional well-being.



Lofty lookouts

Cats are both predator and prey. They thus feel safer and more in control of their environment. Cat trees are good options, and a perch near a window with a view can provide an important visual connection to the outside world.



Hidden hangouts

Whether they need to escape from other pets or simply seek a little solitude, cats feel calmer when they have hiding places to conceal themselves while still keeping an eye on their surroundings.



Prey play

Cats' natural behaviors include stalking, chasing and playing with "prey." Hiding food in different locations, providing a selection of toys and engaging in interactive activities can help them express these natural behaviors.



Litter locations

An accepted rule of thumb is to provide one more litter box than there are cats in the household. So even a one-cat family needs two places for the cat to "go." Placement is also important. While the laundry room is a popular household location for litter boxes, owners should avoid putting boxes next to the washing machine where sudden sounds may startle the cat. Keeping the litter box clean and obstruction-free is also essential. A Nestlé Purina study on litter box appeal in multi-cat households discovered that odorless water clumps and gelatin feces in fresh litter were actually a greater deterrent to proper litter box use than litter with odors from previous use that has been scooped clean of clumps.³

While stress alone is not the cause of FIC, it is clear that cats that suffer from FIC are particularly susceptible to stress triggers. This suggests that these cats have a reduced sense of control over their environment, which leads to chronic stress. A MEMO plan that expands the cat's choices and assuages stress triggers can be key to managing this troubling condition.

¹ Defaaw PAM, Van de Maele I, Duchateau L, et al. Risk factors and clinical presentation of cats with feline idiopathic cystitis. *Journal of Feline Medicine and Surgery*. 13 (2011) 967-975.

² Grauer GF. Current Thoughts on Pathophysiology and Treatment of Feline Idiopathic Cystitis. *Today's Vet Prac*. Nov/Dec (2013) 38-41.

³ Ellis JJ, McGowan RTS, Martin F. Does previous use affect litter box appeal in multi-cat households? *Behavioral Processes*. 141 (2017) 284-290.

Managing Cats with LUTD in a Shelter Setting



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Lower urinary tract disease (LUTD), including bladder stones and feline idiopathic cystitis (FIC), is a common health issue we see in cats at our shelter.

These issues don't necessarily begin in the shelter setting. Typically, we discover them by interviewing the people who surrender the cats to us and by reviewing the surrender profiles they complete. An indication of litter box misuse automatically triggers us to collect a urine sample.

We try to tease out certain information, e.g., if there are other cats in the home, number of litter boxes, type of litter used, etc., to help determine if this is a behavioral issue or a medical issue for the cat.

Using diet to manage FIC

"Mrs. Kitty" was a 10-year-old spayed cat who was surrendered to the shelter by an owner who was moving and couldn't take the cat with her. She was quickly adopted by a family with a dog and small children.

Several months later, Mrs. Kitty was returned to the shelter because she wasn't using her litter box. A urinalysis revealed hematuria but an x-ray showed no bladder stones, so Mrs. Kitty was diagnosed with FIC. Mrs. Kitty was managed with Purina UR St/Ox and a five-day course of Cerenia. She was also moved to the shelter's administrative offices, which were quieter and less stressful.

Two weeks later, a urinalysis revealed no hematuria and she was successfully adopted.



Mrs. Kitty, diagnosed with FIC.

Photo courtesy of the Humane Society of Boulder Valley.

LUTD diagnostic protocol

At the Humane Society of Boulder Valley, we have a standard protocol for diagnosing cats with clinical signs of LUTD.

STEP 1 Collect urine using non-absorbent pellets (NoSorb).

STEP 2 Perform a urinalysis. If hematuria is present, take x-rays.

STEP 3 If x-rays do not indicate bladder stones and other causes of LUTD have been ruled out, assume diagnosis is FIC. Transition cat to Purina® Pro Plan® Veterinary Diets UR Urinary® St/Ox® Feline Formulas to promote increased urine volume. Also begin a five-day trial of maropitant (Cerenia) for pain control since it prevents the binding of Substance P to receptors in the bladder.

STEP 4 If bladder stones are detected, transition cat to Purina UR St/Ox as a diagnostic and therapeutic tool to help dissolve suspected struvite uroliths. Also place the cat on Cerenia for five days.

STEP 5 If the cat just had hematuria, five to seven days later, perform a second urinalysis. If there is blood in the urine, continue feeding Purina UR St/Ox for two more weeks and then recheck the urine for blood.

STEP 6 If the cat was diagnosed with uroliths, repeat the x-ray two weeks later. If stones are still present, we would be more suspicious of calcium oxalate uroliths and would likely make the decision to proceed with surgery.

Dissolving stones through diet

I believe the struvite cystolith dissolution study¹ out of Colorado State University was a game changer. It showed that Purina UR St/Ox dry formula can successfully dissolve cystoliths that are likely struvite and may lessen the risk of recurrence of struvite and calcium oxalate cystoliths. Prior to that, we assumed that because it would take many weeks to dissolve struvite cystoliths in a number of cases, we would have to do surgery,

which can be traumatic and sometimes dangerous for cats. I was thrilled that the results of that study indicated that struvite stones can be dissolved by feeding Purina UR St/Ox for as little as one or two weeks, and we've used that management strategy on a dozen or so cats at our shelter.

Once cats with urinary issues have been adopted, we always stress to adopters the need to develop a relationship with a veterinarian if they don't already have one and to keep the cat on a therapeutic urinary diet. We also connect them with online tools, such as the Ohio State University's Indoor Pet Initiative website, that can help them and their new cats be successful.

¹ Torres-Henderson C, Bunkers J, Contreras E, et al. Use of Purina Pro Plan Veterinary Diet UR Urinary St/Ox to Dissolve Struvite Cystoliths. *Topics in Companion Animal Med* 32(2017):49-54.

Key Takeaways

- Cats have a lower physiological thirst drive than dogs, so it's important to have other strategies to boost fluid intake. Increasing dietary moisture can increase urine volume and promote a more-dilute urine. This dilution decreases the opportunity for crystals to form.
- Developing a multimodal environmental modification (MEMO) plan built around offering cats choices can be key to reducing the stress that contributes to feline idiopathic cystitis (FIC).
- A Colorado State University study found that surgery to remove struvite uroliths can potentially be avoided by feeding Purina® Pro Plan® Veterinary Diets UR Urinary® St/Ox® Feline Formulas.


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