

Multimodal Therapy

for Cats with Idiopathic Cystitis



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KEY POINTS

- Avoid recommending any moist food unless you are certain it does not contain excessive minerals (e.g., magnesium, phosphorus) and you have ruled out struvite disease.
- Therapeutic urinary foods (available from veterinary hospitals) contain controlled amounts of minerals and are less expensive than many moist foods available in pet food and grocery stores.
- Three areas of stress reduction for cats with FIC include: 1) creating a cat-considerate environment, 2) resolving rotten relationships, and 3) administering anxiolytic agents.
- To ensure the ultimate litter box for cats with FIC, remember the ABCDs for the Best Box:
(**A** = Accessible, **B** = Big, **C** = Clean with clay clumping litter, **D** = Different).

For comprehensive care of cats with feline idiopathic cystitis (FIC), behavioral management should be considered along with nutritional therapy and other strategies for decreasing occurrence of inappropriate urination outside the litter box (i.e., periuria). Behavioral issues alone may cause persistent periuria despite resolution of the underlying cause of lower urinary tract disease. This article provides an overview of techniques for stress reduction in cats with FIC, including maintaining the ultimate litter box, and simple guidelines for selecting foods for cats with lower urinary tract disease.

SELECTING FOODS FOR CATS WITH IDIOPATHIC CYSTITIS

Nutritional management, along with environmental enrichment, is an important component of multimodal therapy for cats with feline lower urinary tract disease (FLUTD), including FIC. Recommending a food for cats with lower urinary tract disease may seem simple; however, it can become complicated when considering all factors that impact treatment of individual patients. Pet owners need your help to select the most appropriate foods for their cats with lower urinary tract disease and they want your specific recommendations. This can be facilitated by: 1) determining the underlying cause of lower urinary tract signs, 2) comparing nutrient differences between foods, 3) evaluating the evidence supporting effectiveness of treatments, and 4) considering feeding preferences of the cat and the owner.

Determine the Underlying Cause

There are single foods for managing the multiple causes of FLUTD (FIC, struvite disease, calcium oxalate uroliths); however, it is important to make a definitive diagnosis when possible because of differences in management, follow-up care, and prognosis. Feline idiopathic cystitis is the most common cause of FLUTD followed by struvite disease (uroliths or urethral plugs); it is diagnosed by ruling out other causes of lower urinary tract signs. For most cats, a diagnosis can be made after evaluating results of a urinalysis (including urine sediment examination) and diagnostic imaging (plain abdominal radiographs including the entire urethra and/or abdominal ultrasound).

Compare Nutrient Differences

When evaluating nutrient differences between foods, you should consider the underlying cause of FLUTD, any concurrent diseases (e.g., kidney disease, obesity, arthritis), and the health status of other cats in the house that will be eating the same food. More detailed information is available regarding ideal nutrient levels for cats with common causes of FLUTD along with recommendations for managing cats that have concurrent illnesses.^{1,2}

The most common nutritional recommendation for cats with FIC is to feed moist food. However, recommending any moist food is not ideal unless you are certain the food does not contain excessive nutrients (e.g., magnesium, phosphorus (**Table 1**) and you are confident that other disorders such as struvite disease have been excluded. One advantage of therapeutic urinary foods (sold through veterinary hospitals) is that they are formulated to avoid excessive nutrients that serve as building blocks for urolith and plug formation (**Table 2**). In addition, some therapeutic urinary foods contain increased amounts of omega-3 fatty acids, antioxidants (vitamin E and β carotene), and potassium citrate, which may be helpful in cats with lower urinary tract disease. There is a perception that therapeutic urinary foods are more expensive than typical moist foods from pet or grocery stores; however, this is incorrect.

If owners are not able to consistently purchase a veterinary therapeutic food, recommend alternatives that are available in other retail outlets (e.g., pet stores). Call the pet food company to get recommendations for products that have nutrient profiles similar to their therapeutic urinary food.

Table 1. Nutrients (mg/100 kcal) in Selected Over-the-Counter Feline Moist Foods

Food	Mg	Phos	Ca	Na
Hill's® Science Diet® Adult Optimal Care™ Savory Chicken Entrée	12	160	178	71
Hill's® Science Diet® Adult Optimal Care™ Gourmet Turkey Entrée	15	173	192	67
Hill's® Science Diet® Adult Optimal Care™ Savory Salmon Entrée	15	173	211	86
Hill's® Science Diet® Adult Optimal Care™ Turkey & Giblets Entrée	15	158	211	70
Hill's® Science Diet® Adult Optimal Care™ Liver & Chicken Entrée	16	159	196	65
Hill's® Science Diet® Adult Optimal Care™ Gourmet Beef Entrée	16	164	227	73
Hill's® Science Diet® Adult Optimal Care™ Savory Seafood Entrée	19	188	248	129
Purina® Pro Plan® Selects® Natural Turkey and Wild Rice Entrée	27	464	628	109
Purina® Pro Plan® Urinary Tract Health Formula Chicken Entrée	11	137	147	95
Purina® Pro Plan® Selects® Natural Beef and Brown Rice Entrée	28	478	625	120
Purina® Friskies® Prime Filets Turkey Dinner in Gravy	23	327	406	294
Purina® Fancy Feast® Flaked Fish and Shrimp Feast	34	396	486	136
Purina® Fancy Feast® Savory Salmon Feast	19	439	467	224
Purina® Fancy Feast® Grilled Chicken Feast in Gravy	11	284	339	372
Purina® Fancy Feast® Turkey and Giblets Feast	17	357	374	139
Purina® Fancy Feast® Elegant Medleys® Yellowfin Tuna Primavera	26	256	333	487

Mg = magnesium, Phos = phosphorus, Ca = calcium, Na = sodium

Table 2. Nutrients (mg/100 kcal) in Selected Therapeutic Feline Urinary Foods

Food	Form	Mg	Phos	Ca	Na
Hill's® Prescription Diet® c/d® Multicare Feline Bladder Health with Chicken	dry	15	171	189	80
Hill's® Prescription Diet® c/d® Multicare Feline Bladder Health with Chicken	can	12	163	172	77
Iams® Urinary S - Low pH/S™ / Feline	dry	23	229	276	110
Iams® Urinary S - Low pH/S™ / Feline	can	16	151	227	56
Iams® Urinary O / Moderate pH/O™ / Feline	dry	24	220	301	112
Iams® Urinary O / Moderate pH/O™ / Feline	can	19	157	229	76
Purina® UR Urinary St/Ox® Feline Formula	dry	20	290	290	320
Purina® UR Urinary St/Ox® Feline Formula	can	10	210	210	130
Royal Canin Veterinary Diet® Feline Urinary SO 33®	dry	20	210	230	350
Royal Canin Veterinary Diet® Feline Urinary SO® in gel	can	10	200	200	230

Mg = magnesium, Phos = phosphorus, Ca = calcium, Na = sodium

Evaluate Evidence for Effectiveness

For nutritional management of cats with FIC, the best evidence supports feeding moist food (not dry food with increased salt or other methods to increase water intake).³ It has been assumed that the beneficial effects of moist food are related to increased water intake; however, there are other differences between moist and dry food that could be responsible for decreased clinical signs in cats with FIC. Regardless, the recommendation to feed moist food to cats with FIC is currently based on weak evidence.

Consider Feeding Preferences

It won't matter what food you recommend if the cat won't eat it or the owner won't feed it. Most owners prefer to feed dry food to their cats and changing to moist food often is a challenge. The risk of increased stress (for the owner and/or the cat) associated with feeding moist food must be considered, therefore. The single most important thing you can do to increase acceptance of a new food, whether moist or dry, is recommend gradual transition. Most cats need a transition of three to four weeks and some need longer. It is critical to discuss the need for this transition with pet owners, otherwise, they are likely to buy a new food, go home, and switch from the old food to the new food at the next meal. In this scenario, most cats will refuse to eat the new food, which results in an unhappy owner and a patient that will likely not receive the benefits of your nutritional recommendation. Additional tips for increasing success of changing cats to new foods are available elsewhere.^{1,4,5}

REDUCING STRESS

Stress has been implicated in the pathogenesis of FIC. Compared with controls, cats affected with FIC show several aberrant stress-related factors including high concentrations of circulating catecholamines, malfunctioning alpha-2 adrenoreceptors, smaller adrenal glands, and suboptimal responses to a challenge with synthetic ACTH.^{6,7} These findings have prompted interest in stress reduction as a part of the treatment plan for cats suffering from FIC. One study measured a variety of parameters in FIC-affected cats when exposed to stressful vs. enriched environments. Catecholamine concentrations and urinary bladder permeability decreased during the enrichment phase, suggesting environmental enrichment may have a beneficial effect for cats with FIC.⁸ Three areas of stress reduction should be considered for cats with FIC: 1) creating a cat-considerate environment, 2) resolving rotten relationships, and 3) administering anxiolytic agents.

Creating a Cat-Considerate Environment

A cat-considerate environment provides an abundance of feline resources spread throughout the home that offers outlets for species typical behaviors. Resources include, but are not limited to, watering sites, feeding sites, scratching sites, elimination sites, resting/perching sites (**Figure 1**), and toys/play activities (**Figure 2**, **Figure 3**). A standard rule is to provide as many resources as cats plus an additional one.



Figure 1 - Cats prefer to rest on upholstered, elevated surfaces. Providing a variety of options is important in multi-cat households where population density may contribute to stress.



Figure 2 - Owners can purchase toys for their cats or make them from items readily available around the home. An inexpensive and entertaining food puzzle toy can be made by taping empty cardboard toilet paper rolls together in a pyramid and filling the rolls with pieces of food.



Figure 3 - A variety of toys and play activities allows cats to express their natural behaviors and helps decrease stress.

For example, if there are four cats, there should be five litter boxes in different locations.

Resolving Rotten Relationships

Periuria can be very frustrating to owners and can break the pet-family bond. Surveys indicate that about a third of the pet-owning population still believe that shoving a pet's face in previously deposited excrement while reprimanding the pet is a valid form of house-training despite conclusive evidence that shows pets trained with punishment-based techniques, especially if these are inconsistent or poorly timed, are ineffective and result in the pet exhibiting higher levels of anxiety, fear and stress.^{9,10} Punishment delivered to the cat upon discovery of a soiled location is not only ineffective, but it may worsen the problem. Owners should be advised to avoid punishing their cat if periuria is observed or discovered. In general, predictable routines and interactions may help reduce stress in the cat.

Intercat aggression or tension can be stressful. Some simple interventions that can improve feline relations include: creating a cat-considerate environment with an abundance of resources spread throughout the environment (see previous section); placing a cat-safe belled collar on aggressor cat(s) and partial or full segregation of the cats. For severe cases, a comprehensive behavioral modification program that includes desensitization and counterconditioning should be considered.

Administering Anxiolytic Agents

Synthetic feline facial pheromone therapy (Feliway®) in the environment has been shown to reduce stress in cats and may be helpful for general stress reduction.¹¹ In a randomized controlled study of 12 cats with FIC, there was a trend for cats exposed to Feliway® to have less severe episodes and fewer recurrences of cystitis.¹² These differences were not statistically significant; however, these preliminary findings indicate the need for additional study.

Nutritional supplements such as L-theanine, a structural analogue of glutamate, are marketed as anxiolytic agents for cats. These therapies lack rigorous scientific evidence of efficacy and have not been specifically evaluated for the treatment of FIC. A pilot, open label clinical trial using L-theanine (Anxitane®) in cats with anxiety-related behaviors showed mitigation of the signs of anxiety, suggesting that this product may be beneficial in the treatment of feline anxiety.¹³

No drug therapy has been identified to successfully treat or control signs of FIC. Medication that reduces stress (e.g., serotonin enhancing medications) may have an application in the treatment of FIC, although evidence is currently

lacking to support this treatment. In fact, clinical trials with amitriptyline (a tricyclic antidepressant) have not shown consistent clinical efficacy.¹⁴⁻¹⁶

PROVIDING THE BEST BOX

Feline idiopathic cystitis or other causes of lower urinary tract disease (e.g., urolithiasis) may initiate periuria, but behavioral issues may maintain periuria despite resolution of the underlying cause. There are two main causes at the root of persistent periuria secondary to FIC: litter box rejection and inappropriate preferences.

If a cat develops a litter box aversion secondary to FIC or experiences an urgency that causes elimination elsewhere, the possibility exists for development of a secondary toileting location or substrate preference. In this situation, the litter box is not necessarily problematic, but the cat has discovered a better toileting option — maybe a substrate that is softer, more absorbent, more accessible, cleaned more readily, etc. To resolve this problem, the preferred inappropriate site should be made less attractive (for example, by placing double-sided tape on the surface) or unavailable while the litter box is improved to meet the preferences of the cat. Offering a litter box cafeteria can help to identify individual preferences. In general, it can be helpful to remember the **ABCDs** of the Best Box (**Figure 4**).



Figure 4 - This litter box represents the best box for most cats – it's Accessible, Big, Clean with clay clumping litter and Different.

A= Accessible

- Position box so that it has at least two exit points; avoid dead ends (**Figure 5**)
- As many boxes as there are cats, plus one additional box
- One box on every floor of a multi-level home
- Don't place near noisy items (furnace/appliances)
- Placing the litter box at the inappropriately soiled location may also help

B = Big

- Large box (owners may consider going off the pet aisle to purchase a storage container box) (**Figure 6**)

C= Clean & Clumping Clay

- Offer a clay-based clumping litter. In feline preference studies of the three top-selling clay-based clumping litters (Fresh Step Scoop®, Arm & Hammer Super Scoop® and Tidy Cats Instant Action®), Fresh Step Scoop® was statistically significantly used more often by cats than the other two brands^{17,18}
- Scoop box at least once daily and change box completely with washing monthly

D= Different

- Classical conditioning may play a role in persistent litter box rejection in cats with FIC. In this scenario, the litter box becomes associated with the pain or discomfort experienced by the cat when he or she urinated in the box while afflicted with an episode of FIC. The cat develops an aversion to the litter box despite resolution of FIC because the cat associates the box with the onset or cause of the pain. To address this problem, the box must be modified so that it is no longer associated with the painful experience.



Figure 5 - Placing litter boxes in dead-end situations, as above, is not advisable because there is only one exit point.



Figure 6 - This litter box is barely larger than a sheet of paper and too small for an adult cat.

SUMMARY

Multimodal therapy is indicated for cats with FIC to increase chances of controlling inappropriate urination and maintaining the pet-family bond. Moist foods are generally recommended for cats with FIC, although evidence supporting their effectiveness is weak. Therapeutic urinary foods should be considered for managing cats with lower urinary tract diseases because they contain controlled amounts of magnesium, calcium, and phosphorus and added nutrients (e.g., omega-3 fatty acids, antioxidants) that may be helpful for controlling inflammation. You should not recommend feeding any moist food unless you are confident it does not contain excessive nutrients, particularly if you are not certain of the cause of lower urinary tract signs.

Stress has been implicated in the pathogenesis of FIC and methods to decrease stress are recommended for cats with FIC. Three areas of stress reduction include creating a cat-considerate environment, resolving rotten relationships, and administering anxiolytic agents. Behavioral periuria, a common consequence of FIC and other causes of lower urinary tract disease, may continue despite resolution of the underlying cause. The two main causes for persistent periuria secondary to FIC include litter box rejection and inappropriate toileting preferences. Strategies to create the ideal litter box (i.e., Best Box) are helpful to get cats back to reliable litter box usage.

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