

Understanding the Factors in Feline Hydration

Is This Cat Drinking Enough?



Andrew Sparkes, BVetMed, PhD, DECVIM-CA, MANZCVS, MRCVS
Simply Feline Veterinary Consultancy and Co-Editor, Journal of Feline Medicine and Surgery

Q Why is feline hydration important?

A In routine clinical situations, veterinarians need to become much more aware of the potential harm that can result from chronic dehydration in cats. When given appropriate access to food and water, a healthy cat can control his or her hydration state, whether fed a wet diet or a high-quality commercial dry diet. However, hydration issues often arise as cats age, especially if there is an underlying disease process that affects water loss and/or food and water intake. This can affect the development and progression of disease and quality of life.



Given access to food and fresh water, most healthy cats stay hydrated; however, aging and disease can affect the cat's ability to maintain homeostasis of body fluids.

Q Why are older cats prone to dehydration?

A The homeostatic mechanisms that help control hydration status simply don't work as well in older individuals. We know this is true in humans and we believe it is true in cats, too. Factors include:

- **Changes may occur in thirst function.** In older humans, the thirst drive is often blunted, leading to decreased fluid intake.¹
- **Lean body mass (LBM) decreases.**² The total water content of LBM is higher than that of fat tissue. Loss of LBM, as is often seen with aging, thus reduces water reserves in cats, resulting in a lower total percentage of body water.
- **The ability to concentrate urine may decrease.**¹ In humans, this is recognized to reduce the ability to conserve water in the body.
- **Age-related diseases arise.**³ In cats, these include common conditions such as chronic kidney disease (CKD), hyperthyroidism and diabetes, which trigger an obligatory diuresis. The cat needs to continually replace what is lost in the urine but may be unable to do so. In the case of CKD, recurrent dehydration may even contribute to the development and progression of the disease. We need further studies to prove this link, but it's possible that recurring dehydration directly damages the kidneys.

Feline lower urinary tract disease (FLUTD), generally more common in middle-aged cats, falls into a slightly different category. Cats with FLUTD may not be dehydrated, but they can benefit from additional fluid intake to help them produce a more dilute urine.

Q What strategies can help improve a cat's hydration status?

A Cats probably cannot rehydrate quickly because of the way they lap water. Both dogs and cats curl their tongues backwards, but while dogs form a sort of scoop, cats only touch

the surface of the water and "bite" from the water column that is formed. This is less efficient and results in lower water intake. Cats also have a fixed frequency of lapping that cannot be increased to raise their rate of water intake.

Nevertheless, two strategies can help increase fluid intake in cats. One is to **feed a wet diet**, which typically contains 70% water or more. The second is to **give the cat a nutrient-supplemented water** like Purina® Pro Plan® Veterinary Supplements Hydra Care® Feline Hydration Supplement. Hydra Care is palatable, which encourages consumption, while osmolytes in the supplement help drive water into cells. With supplementation, cats have been shown to consume an average of 50% more liquid each day when compared to cats consuming only water in addition to dry feeding.* Hydra Care was also shown to decrease urine specific gravity and osmolality.^{4,5}

Q What advice can veterinarians offer to clients to monitor hydration?

A I'm excited about the future possibility of using technology to provide noninvasive hydration monitoring, whether it's microchipping to monitor intake from a water bowl or a smart litter tray that tells the owner when their cat urinates or defecates as well as the volume and consistency of their feces. This information may help guide a number of recommendations from the veterinarian.

Cat owners should be educated about the need to **provide fresh, clean water and monitor consumption and urine output**. Encouraging young cats to **eat different foods, flavors and textures** can help set the stage for a later point in life if they need to switch to a wet food or a therapeutic diet. Finally, **owners should recognize that cats are individuals** and observe them to understand their drinking preferences.



¹ Jequier E, Constant F. Water as an essential nutrient: the physiological basis of hydration. *European Journal of Clinical Nutrition* (2010) 64, 115-123 doi:10.1038/ejcn.2009.111

² Perez-Camargo G. Feline Decline in Key Physiological Reserves: Implications for Mortality. *Purina Companion Animal Nutrition Summit: Focus on Gerontology*. March 26-27, 2010.

³ Ray M, Carney HC, Boynton B, Quimby J, Robertson S, St Denis K, Tuzio H, Wright B. 2021 AAEP Feline Senior Care Guidelines. *Journal of Feline Medicine and Surgery* 23, 613-638.

⁴ Zanghi BM, Gerheart L, Gardner CL. Effects of a nutrient-enriched water on water intake and indices of hydration in healthy domestic cats fed a dry kibble diet. *Am J Vet Res* (2018) 79:733-744.

⁵ Zanghi BM, Wils-Plotz E, DeGeer S, Gardner CL. Effects of a nutrient-enriched water with and without poultry flavoring on water intake, urine specific gravity, and urine output in healthy domestic cats fed a dry kibble diet. *Am J Vet Res* (2018) 79:1150-1159.

*Cats must consume at least 2 oz per 5 lbs of body weight daily for benefit.

Promote Feline Well-Being by Helping Clients Think *Inside* the (Litter) Box



Miles Bensky, PhD
Pet Behaviorist
Nestlé Purina PetCare

No one considers their cat's litter box the centerpiece of their home. However, the litter box can provide a treasure trove of information about a cat's physical and emotional health. Watching how cats use their litter boxes is key to helping owners optimize the well-being of their cats and identify issues early when they arise. You can help clients stay attuned to feline health and well-being by advising them on proper litter box management and maintenance.

Know the cat's baseline behaviors.

What is normal litter box behavior for one cat may not be for another, so it's important for clients to regularly observe their cat's habits over time to determine a baseline. Some cats "go" more often than others. Some like digging while others don't. Knowing what is typical for their cats makes it easier for owners to catch changes that might signal a medical problem or help them identify triggers for changes in litter box compliance. Owners should also know to consult a veterinarian when they notice significant changes in litter box behavioral patterns.

Look for subtle behavior changes.

We often think of "litter box behavior" as a cat either using the litter box or engaging in out-of-the-box elimination. The latter is a key reason cats are surrendered to shelters. But elimination behavior isn't this black-and-white. More nuanced litter box behaviors could signal an issue even if a cat is using the box. These could include:

- Having difficulty getting into the box, which could signal mobility issues or a wrong-sized box.
- Spending an excessive amount of time perched along the edges of the box, which may mean the box is too small or that the cat doesn't like the litter texture.
- Engaging in prolonged scraping or banging. Our research indicates that cats are more likely to persist in performing specific behaviors within their typical elimination sequence (e.g., pawing at surfaces other than litter) when the litter environment is less than ideal.¹
- Taking a long time to urinate. This could indicate the cat is holding its urine, which could have negative health effects.



Talking with clients about litter box habits can cue them to observe their cat's behavior more closely and consult with their veterinarian about any changes.

Clean the litter box regularly.

Frequent cleaning helps owners detect excessive or decreased urination, change in stool quality, or even blood. A clean litter box also increases comfort for the cat. Our research has shown that cats are turned off by obstructions in their box, so scooping regularly and giving them a clean area is important.² Clients should also have enough litter boxes—the number of cats in the home plus one, with boxes on each level of multilevel homes.

Choose a good location.

Because many owners don't want litter boxes taking up a big chunk of their living space, they may use boxes that are too small that are placed in rooms that are less accessible (e.g., closets, basements) and/or noisy (laundry rooms) where cats may be easily startled. A covered litter box can help prevent litter tracking, but some cats may not want to be in such a constrained space. Encourage owners to do their best to place the litter box in as quiet a place as possible while keeping accessibility from a cat's perspective in mind.

Monitor litter behavior remotely.

For owners who are into cool technology, Purina's Petivity™ Smart Litter Box Monitor syncs with an owner's smartphone to track markers like a cat's weight and litter box activity and alerts the owner to behavior changes that might be cause for concern.

Veterinarians should routinely ask clients about their cats' litter box behaviors. Even if clients don't know now, the question can help guide them to be more alert to potential health issues, and proactive about finding solutions.

¹ McGowan RTS, Ellis JJ, Bensky MK, et al. The ins and outs of the litter box: A detailed ethogram of cat elimination behavior in two contrasting environments. *Applied Animal Behaviour Science*;194(2017)67–78.

² Ellis JJ, McGowan RTS, Martin F. Does previous use affect litter box appeal in multi-cat households? *Behavioural Processes*;141(2017)284–290.



You've led this patient to water. Will they drink?

What factors affect water intake in pets? How should practitioners assess their patients' hydration status? What practical strategies can reverse dehydration? Veterinarians who want to dig deeper into hydration management should check out the Purina Institute's comprehensive monograph on this topic. Visit purinainstitute.com/hydration or scan the QR code to find answers to these questions and more.



Feline Hydration Strategies Take a Multipronged Approach



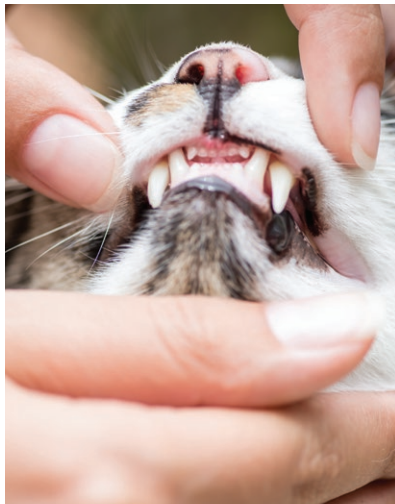
Jennifer Williams, DVM
Medical Director, Grace Animal Hospital
Lexington, South Carolina

If you see cats with feline lower urinary tract disease (FLUTD), you know that many of these cats, such as those with feline idiopathic cystitis (FIC), may benefit from an increase in hydration to promote a more dilute urine and a more favorable urinary environment. The good news is, there are a number of tools available to help these cats increase their liquid intake.

Here's my approach to screening these patients and working with their owners to ensure their cats are adequately hydrated.

Check hydration status during the physical examination.

I look for skin tenting and sunken eyes and examine the cat's mucous membranes to determine if the cat is severely dehydrated. During the examination, I also ask clients about changes in the size of the cat's litter clumps. If they are drinking more water, are they also increasing their outputs in the litter box or is urine output decreasing? Weight loss also increases my concern about hydration as does diabetes or another polyuric/polydipsic process because these cats may not be able to drink the amount of water they require.



A thorough physical examination, including of mucous membranes, can help veterinarians spot hydration issues and potential problems in feline patients.

Initiate the hydration conversation.

During the exam, I ask clients how their cats prefer to drink water. Is it out of a tall glass on the nightstand, from a dripping faucet, from the bottom of the bathtub—or just their water bowl? This information helps me transition to discussing the importance of hydration and the role it plays in disease progression and management.

Recommend strategies to increase drinking.

1. Expand the cat's drinking options.

Once I've determined the cat's preference, I explain how owners can provide multiple points of access to water. For example, if the cat likes to drink out of tall glasses, I tell the owner to place additional water glasses in low-traffic, quiet areas of the house. If the cat prefers dripping faucets, the owner can add a cat water fountain as an option.

2. Employ dietary management.

If the cat isn't already on a urinary diet, I recommend Purina® Pro Plan® Veterinary Diets UR Urinary® St/Ox® Feline Formulas. Purina UR dry formula promotes increased urine volume to dilute the urine, and all formulas are specially formulated to promote a urinary environment unfavorable to the development of both struvite uroliths and calcium oxalate uroliths. With different flavors and textures of canned formulas (which contain more than 75% moisture to contribute to total water intake) plus the dry option, I've found that most cats readily accept Purina UR.

3. Include a hydration supplement. For cats that may benefit from additional water intake, such as those with FIC or chronic kidney disease, I recommend Purina® Pro Plan® Veterinary Supplements Hydra Care® along with a therapeutic diet to provide another hydration source. With Hydra Care, cats consume on average 50% more liquid each day.* Hydra Care has also been shown to decrease urine specific gravity and osmolality* and helps

support healthy hydration. Clients appreciate having another tool to try and, if that tool works for their cat, it feels even better.

Build hydration habits early in life.

Of course, it's optimal for a cat to be adequately hydrated throughout life to promote urinary health, and there are ways to help achieve this. For example, I recommend that kittens and younger cats be offered wet food at least once a week as part of their regular diet so that they can derive the benefits of extra moisture and get used to eating it. Then, when they may need critical care later in life, it's easier for them to accept a canned option.

Work with clients early on to help them establish good hydration behaviors in their cats and make the hydration conversation part of every feline well-pet exam.

*Compared to cats consuming only water in addition to dry feeding. Cats must consume at least 2 oz per 5 lbs of body weight daily for benefit.

Key Takeaways

- Hydration issues often arise as cats age, especially if there is an underlying disease process.
- Knowing how their cats behave in and around the litter box can provide owners with valuable information about the physical and emotional health of their pet.
- Clients appreciate having tools including dietary management and supplements that can help their cats with FLUTD drink more water and achieve a more dilute urine.

PURINA
PRO PLAN
VETERINARY DIETS