

**Renal & Urinary Disorders**

MAINTAINING HYDRATION IN CATS WITH CKD



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Dehydration is a common complication of chronic kidney disease (CKD) and can lead to inappetence, lethargy, weakness, constipation and increased susceptibility to uremic crisis.¹ It may also precipitate pathophysiologic responses that have a negative effect on the kidneys.

Dangers of dehydration

Several physiologic mechanisms are triggered when the body senses dehydration, and chronic subclinical dehydration may result in compensatory effects that ultimately have a negative effect on the kidneys.

These pathophysiologic effects include:

- **Release of vasopressin**, which works to increase water reabsorption via increased expression of aquaporin channels in the collecting duct.² This can result in intraglomerular hypertension and potentially the development of proteinuria and systemic hypertension.²
- **Activation of the renin-angiotensin-aldosterone system (RAAS)**, which is another critical component in the pathophysiology and progression of renal disease.³ Normally protective, the RAAS—which regulates blood pressure, fluid and electrolyte balance, and systemic vascular resistance—becomes maladaptive in patients with CKD.
- **Poor perfusion**, which may exacerbate hypoxia at the tissue level in kidneys that are already susceptible due to fibrosis and damaged vasculature.

Therapeutically addressing dehydration may benefit the kidneys by reducing vasopressin secretion, decreasing the activation of RAAS and optimizing perfusion.

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Rehydration strategies for cats with CKD

The following strategies can help owners of CKD patients keep their cats appropriately hydrated.

- 1. Educate clients about hydration.** Explain how to monitor cats for dehydration, including looking for concurrent illnesses, vomiting and diarrhea. Advise clients to eliminate household stresses that might inhibit their cats from drinking and to provide an adequate water supply. Ensure they understand that quick medical action may be required if they notice these signs, especially for older cats with CKD.
- 2. Address water balance.** Recommend clients feed canned food instead of dry or add water to food, and provide fresh, accessible water to their cats. Supplementation with free water (orally or with a feeding tube) is preferred to avoid the excess sodium load that comes with subcutaneously administered electrolyte solutions.
- 3. Assess for and treat constipation.** The cause of constipation associated with CKD is likely a dysfunction of water balance, so hydration should be dealt with before employing other medical therapies. Potassium deficiency should also be identified and addressed. Following this, oral osmotic stool softeners can help manage constipation. Adding fiber sources such as psyllium may also be useful.

Maintaining hydration is a key therapeutic target in kidney disease. By carefully assessing renal disease patients for hydration status, veterinarians can tailor therapy appropriately.

References

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