

**Renal & Urinary Disorders**

# CANINE CALCIUM OXALATE UROLITHIASIS



Calcium oxalate uroliths are one of the two most common uroliths in dogs and are prone to recurrence after surgical removal.

Although the risk factors for calcium oxalate urolithiasis are not completely understood, nutrition can be used as part of a multimodal strategy to lower the risk of recurrence. Since findings of calcium oxalate crystalluria can occur incidentally, especially when urinalysis is delayed after collection of urine, these findings should be considered in the context of whether clinical and radiographic signs are present.

**Key Messages**

- Therapeutic urinary diets can help reduce the risk of recurrence of calcium oxalate urolithiasis by:
  - ensuring an optimal balance of dietary minerals and other nutrients, including inhibitors of calcium oxalate formation, e.g., magnesium and citrate
- Adding water to the diet may help increase total water intake and urine volume, promoting a more dilute urine. A more dilute urine contains a lower concentration of urolith precursors. A higher urine volume may also increase frequency of urination, helping eliminate precursors before they can form uroliths.
  - Promotion of a more dilute urine is recommended for the management of any uroliths.
- The purpose of the therapeutic diet and dilute urine is to produce urine in the metastable or undersaturated ranges for calcium oxalate as calculated by RSS (relative super-saturation) technology, a measure of the likelihood of urolith formation. This reduces the risk for new calcium oxalate uroliths to form.
- Although results of research are not definitive, feeding dogs to maintain ideal body condition may help reduce the risk of calcium oxalate uroliths.

*(continued on next page)*

### Additional Resources

Queau, Y. (2019). Nutritional management of urolithiasis. *Veterinary Clinics of North America: Small Animal Practice*, 49, 175–186. doi: 10.1016/j.cvsm.2018.10.004

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Lekcharoensuk, C., Lulich, J. P., Osborne, C. A., Pusoonthornthum, R., Allen, T. A., Koehler, L. A., Urlich, L. K., Carpenter, K. A., & Swanson, L. L. (2000). Patient and environmental factors associated with calcium oxalate urolithiasis in dogs. *Journal of the American Veterinary Medical Association*, 217(4), 515–519. doi: 10.2460/javma.2000.217.515

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