Silica Urolithiasis Management
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Silica-containing uroliths analyzed at the laboratory accounted for approximately 7% of canine stones. Stones comprised of 100% silica occur even less often. Silica-containing calculi in cats are very rare. A significantly higher proportion of silica-containing uroliths were submitted for male dogs than for female dogs (88.8% vs 11.2%, respectively) and most dogs are middle aged to older when the uroliths were removed. Compared to mixed-breed dogs, breeds with a significantly higher risk of developing silica-containing uroliths include the Miniature Schnauzer, Lhasa Apso, Samoyed, Bichon Frise, and Pekingese; however, in these breeds silica is usually present in distinct layers with other minerals such as calcium oxalate or struvite. In contrast, German Shepherds and Old English Sheepdogs have been reported to be at risk for developing stones comprised of 100% silica.

The cause of silica urolithiasis in dogs is unknown, but thought to be due to increased dietary intake of silica. Plant sources such as rice or soybean hulls and corn gluten feed contain higher amounts of silica compared to animal proteins. However, recent plant breeding practices for drought resistance has increased the silica content of many crops. Therefore, empiric recommendations for reducing the recurrence of silica uroliths in dogs are to feed a diet low in vegetable content and to avoid diets that contain soybean hulls or corn gluten feed.*

Dilute urine and frequent urination is critical for managing patients with any type of urolithiasis. Reevaluate the animal in four to six weeks (or after the owner feels they have increased the moisture content appropriately) followed by regular monitoring of specific gravity and presence of crystals. If specific gravity is not ideal (<1.020 for dogs, <1.025 for cats), add more water to the diet.

Client information sheets regarding urolithiasis are available here: http://www.vetmed.ucdavis.edu/vmth/small_animal/nutrition/client_info_sheets/uroliths.cfm
If you are a veterinarian and wish to discuss specific dietary recommendations for your case, please contact the G. V. Ling Urinary Stone Analysis Laboratory (530-752-3228 or stonelab@ucdavis.edu), OR the UC Davis Nutrition Support Service (530-752-7892 or nssvetmed@ucdavis.edu)

* As a public institution, UC Davis does not endorse any particular brand or type of pet food. The higher moisture content of canned formulations is helpful in stone prevention. Any dietary management plan should take into consideration concurrent diseases and other individual client and patient factors. Dietary management plans for any patient that is overweight, or that has a low energy requirement, or that has any other concurrent disease should be individualized to optimize efficacy and avoid problems. The reader is encouraged to discuss dietary strategy with a veterinary nutritionist; a customized approach is often indicated.