FELINE XANTHINE

Hereditary xanthinuria is a rare autosomal recessive disorder of purine metabolism caused by mutations in xanthine dehydrogenase (Type I) or molybdenum cofactor sulfarase (Type II) genes, and causes xanthine uroliths. Xanthine uroliths can also develop as an adverse effect of xanthine dehydrogenase inhibitors (allopurinol administration); however, this medication is rarely prescribed to cats. Urolith recurrence is rapid (<3 months). Many cats with hereditary xanthinuria develop nephroliths and chronic kidney disease earlier (3-6 years old) than the general population.

MINIMIZING RECURRENCE

** Diagnostic Considerations

- Perform tests for Type 1 (xanthine dehydrogenase deficiency) and Type 2 (molybdenum cofactor sulfarase deficiency) genetic variants. ([UMN Canine Genetics Lab](https://www.caninegenetics.org))
- Eliminate Xanthine dehydrogenase inhibitors (e.g. allopurinol) as a cause.

** Medical Considerations

- Potassium citrate if urine pH is consistently <6.5 (starting dose: 75mg/kg q12-24h)
- Avoid or reduce xanthine dehydrogenase inhibitors (e.g. allopurinol, februxostat).

** Nutritional Considerations

- Lower purine/protein foods formulated with low purine ingredients (e.g. egg, dairy, or vegetable protein) that result in a neutral or alkaline urine pH (e.g. Hill’s k/d early support, k/d, others).
- If needed, feed canned therapeutic food or add water to food to lower urine specific gravity below 1.030.

** Monitoring Considerations

- Urinalysis every 3 to 6 months to adjust pH to ≥ 6.5, and urine specific gravity < 1.030.
- Medical imaging every 3 to 6 months to detect recurrent stones when small to potentially permit their removal without surgery.

** Review manufacturer’s therapeutic food literature to determine indications/contraindications. For pets with multiple health concerns, consult a veterinary nutritionist to select an optimal food.