



## Hyperuricosuria and Nutrition

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This heritable condition was introduced to the WCA membership through the Breeder's Briefcase, Hyperuricosuria (HUU) in Weimaraners, October 2011. This condition is also seen in dogs with liver disease, such as a portosystemic or liver shunt. Treatment for liver disease will reduce the risk of hyperuricosuria.

It is important to note that not all hyperuricosuria will result in urate urinary stones.

Affected dogs have an error in their metabolism that accumulates as well as decreases ability to excrete specific waste products. Because of this error in metabolism and excretion, the waste product, uric acid is accumulated in the urine. To reduce the production of these urinary crystals and/or stones is a multi faceted program that must undertaken for the life of the dog.

### DIETARY

Water is a primary method of hyperuricosuria management. Having your dog drink lots of water every day will help to dilute the compounds in the urine that can combine to form "urate" stones in the bladder and kidneys. These stones can block urination, cause urinary tract infections, and cause formation of kidney stones.

The dietary compounds we are trying to avoid are called "purines." To avoid detail, we'll just say that these compounds are part of deoxyribonucleic acid, the DNA that makes up our genes.

Meats and meat products contain high levels of purines, particularly the internal organs such as liver, kidney, and brain. Certain seafood such as anchovies, sardines, mackerel, herring and scallops are also high in purines. Game meats are also high in purines, as is beer (it's in the yeast).

Moderate levels of purines are found in all meats, other fish and seafood. Some vegetables are also sources of moderate levels of purines. The list includes asparagus, cauliflower, spinach, mushrooms, green peas, lentils, dried peas, beans, oatmeal, wheat bran and germ. Dairy products can also be considered a moderate source of purines.

There are two commercial products that are specifically designed for dogs with hyperuricosuria. The first is from Hill's Pet Nutrition and the product is called u/d and is available in canned and dry versions. Royal Canin also has a low purine diet called Royal Canin Veterinary Diet URINARY UC Low Purine Dry Dog Food. Both of these foods are protein restricted as well as purine restricted. Royal Canin Vegetarian formula is also appropriate for use.

If you wish to top dress your dog's meals, you may use vegetables such as green beans, and carrots. Cheese, eggs, and refined cereals can be fed. Some breads and fruits can be part of the diet. Never feed grapes or raisins. Most dogs love melon, apple, banana, and berries.

Should you have a puppy with hyperuricosuria, the prescription foods

should be used, but they should be supplemented with dairy products like 1 cup of cottage cheese daily, or two eggs daily can be used to increase the protein content without significantly increasing risk of stone formation. It is important to include part of a multi-vitamin mineral tablet (e.g. Centrum) to the food to assure adequate nutrition. A growing Weimaraner puppy might need 1/8 - 1/4 tablet daily until about 18-20 weeks. Increase to 1/2 tablet daily until the puppy is 50 pounds. Dogs over 50 pounds should receive one vitamin tablet daily.

### **URINE ALKALINIZATION**

Your veterinarian will help you with compounds such potassium citrate or sodium bicarbonate.

The dosage is targeted to have the urine pH between 7.0 and 7.5. Your veterinarian will help you with the monitoring the pH, which lowers the ability of these compounds to precipitate before excretion.

### **MEDICATION**

The drug of choice is allopurinol. This enzyme inhibitor will help reduce the formation of these compounds, but it must be used along with a low purine diet. If allopurinol is used with a regular maintenance diet, it is possible that the dog will form another type of urinary stone called "xanthine" stones. So, dietary management is required (see above).