

The Influence of Nutrition in Canine Hip Dysplasia

Canine hip dysplasia (CHD) is considered to be a multifactorial disease, with genetics, nutrition and environment all playing a role in whether a given dog develops the disorder. Veterinary research designed to determine the impact of diet on the development of hip dysplasia has been performed since the early 1960's.

The effect of feed consumption on growth rate and the role of specific nutrients such as carbohydrates, protein, calcium and vitamin C have been evaluated. Early research studying the general effects of diet on skeletal growth were performed using breeds such as the Beagle and Great Dane, which are not considered to be at high risk for hip dysplasia. Subsequent studies in known dysplastic breeds such as the German Shepherd, Golden Retriever and Labrador Retriever have been reported. All of the questions regarding the role of nutrition in CHD have not been answered, but some conclusions have been determined.

The most important factor to monitor in a young dog with the potential to develop CHD is the rate of growth. Rapid growth will not lead to a larger adult dog but will probably increase the risk of orthopedic problems, including hip dysplasia. The frequency and severity of CHD has been shown to be influenced by weight gain in growing dogs sired by parents with CHD or by parents with a high incidence of CHD in their offspring. Dogs with weight gain above the standard curve for the breed had a higher frequency of CHD as well as more severe CHD than dogs with weight gain below the standard curve. Excessive energy intake (high calorie diet) is the most likely factor influencing rapid rate of growth, so it is important to monitor the energy intake of dogs during the maximum growth phase of 3 to 8 months of age.

Studies in which only one nutritional component is evaluated, such as with protein or carbohydrate, are difficult to perform without having an effect on the overall quality of the diet. As a result, very few specific nutrients have been identified as having a direct influence on CHD. As long as the diet of a growing dog is palatable and contains adequate protein and essential fatty acids, it does not appear to matter what proportion of the dietary energy comes from carbohydrate, protein or fat. The two other nutritional factors that have been evaluated with respect to CHD are calcium and vitamin C. The level of calcium in the diet has a significant impact on the development of the skeleton. Calcium excess and imbalances in the calcium to phosphorus ratio have both been implicated in skeletal disease. Vitamin C is not an essential nutrient in the canine diet. There is no conclusive evidence that vitamin C supplementation has a beneficial effect on the skeleton or reduces the incidence of CHD.

Recommendations for feeding young dogs that are susceptible to hip dysplasia, such as many of the large and giant breeds, would be to monitor growth rate closely and avoid oversupplementation with calories, vitamins or minerals. If a dog exhibits rapid growth during the maximal growth phase, then the diet should be switched from a puppy diet or growth formula to an adult dog food diet. The change to a maintenance diet will provide adequate nutrition with a lower energy content.