

The Mistake That Can Wreak Havoc on Your Dog's Skeleton

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By Dr. Becker

Osteochondrosis is one of several developmental orthopedic diseases that occur in young, fast-growing dogs, especially large and giant breeds like the Doberman Pinscher, the Labrador Retriever, Great Danes and Newfoundlands.

The most common form of osteochondrosis in dogs is called osteochondritis dissecans (OCD), which is a defect in bone development at the extremity of a bone. The problem is thought to be a disruption in the manufacture of bone tissue that results in injury to growth cartilage. These injuries can cause [angular limb deformities](#) in long bones, as well as damage to the cartilage in the shoulder, stifle (knee joint), hock (the joint in the rear leg below the knee), and the elbow.

Inflammatory joint disease often follows osteochondrosis, ultimately leading to degenerative joint disease.

Developmental orthopedic diseases occur during the early stages of bone growth, before the growth plates close. This crucial period (the first year of life) is when a puppy's skeletal system is most vulnerable to physical, nutritional and metabolic damage due to increased metabolic activity. The reason large and giant breeds are at higher risk is because genetics cause their bodies to grow very rapidly. Another predisposing factor is whether a puppy's parents developed osteochondrosis.

Nutrition Can Be a Significant Risk Factor for Bone Disease

Studies of nutritional risk factors involved in osteochondrosis have identified free-feeding and overfeeding – especially of high-energy foods designed for rapid growth – as contributors. Energy-dense diets can promote increased levels of growth hormone, insulin-like growth factor, insulin and thyroid hormones. Other dietary influences include excessive calcium intake, excessive mineral intake, and an imbalance of vitamin D metabolites.

For optimal bone development in puppies, diets must include appropriate and balanced amounts of nutrients. Excessive calcium and energy (calories), plus rapid growth predispose dogs to developing osteochondrosis. When a growing dog -- especially a large or giant breed -- is overfed and overweight, the bones are stressed by both static and dynamic forces that can cause damage to the skeleton.

In one study, Great Dane puppies that were free-fed a diet high in energy and minerals, or a diet high in calcium, developed osteochondrosis with clearly visible symptoms.

Studies have also shown that large breed puppies fed diets with high calcium content or high calcium and phosphorus content also acquired developmental orthopedic disease.

This is because puppies aren't able to control or limit absorption of dietary calcium and certain other minerals. Absorption occurs through the intestines, and the higher the calcium and mineral content of the diet, the greater the level of absorption and assimilation into developing bone structure. This can disturb the natural process of bone growth and result in lesions in the skeleton and joints.

Even when highly palatable, energy-dense diets are well-balanced, when free-fed to large and giant breed puppies, the risk of OCD and other orthopedic diseases is increased. This is one of many reasons I don't recommend free-feeding any pet. Most dogs and cats will overeat if free-fed, and as you can see, this is especially hazardous to the health of growing large and giant breed puppies.

To date, no studies have found protein intake to be a factor in the development of osteochondrosis.

Large Breed Puppy Diets Should Be Carefully Managed

Careful management of the diets of large and giant breed dogs won't eliminate every instance of developmental bone disease, but it's a crucial step in decreasing risk factors.

The problem in today's young, growing dogs is not one of dietary deficiency, but rather one of "overnutrition" caused by overfeeding and over-supplementation.

Young large breed dogs are at higher risk of developing skeletal problems than small breed dogs, even when both are fed diets with too little or too much calcium. Even when calcium intake is optimal, big dogs have more growth-related skeletal issues than smaller breeds.

To help prevent disease, we must make every effort to control the rate at which big dogs grow by feeding only the amount of calories needed to keep their bodies lean while they develop. The first step is to feed portion-controlled meals rather than free-feeding. We want to help dogs maintain optimal body condition, not maximal body condition.

Diets should not be extremely high in calories. Many super premium dog foods on the market are highly energy-dense. By contrast, large-breed puppy foods have reduced caloric density, calcium and phosphorus levels compared with other canine growth diets. Switching a big puppy to an adult diet to try to control growth rate is not recommended. Adult diets don't have the calories per serving that big puppies require, so they can end up eating more food and taking in excessive levels of other nutrients, which can be risky.

The Right Way to Feed a Large or Giant Breed Puppy

The ideal diet for a large breed puppy is designed to meet the nutrient requirements for growth in large breeds, contains the proper amount of calories to avoid rapid growth, and also the appropriate levels of calcium, phosphorus and vitamin D, and the correct calcium-to-phosphorus ratio. Large and giant breed puppies continue to grow until about 18 months of age, so they should be kept on a specially designed growth diet until they are fully grown.

The goal in feeding a large or giant breed puppy is to keep him lean, with controlled growth. A healthy, large or giant breed puppy will thrive on a portion-controlled, [balanced, species-appropriate diet](#). You can feed an ideally balanced homemade diet or an excellent quality commercially available food.

What about those large breed puppy foods? Traditional puppy foods often provide much higher calorie content than large breed puppies require, causing them to gain too much weight too quickly. This is why pet food manufacturers began producing formulas specifically for large breed puppies.

These are typically diets lower in calorie density (the number of calories per cup or gram of food) than a regular puppy diet. They're also usually lower in calcium on an energy basis.

These are two very important factors for reducing too-rapid growth in big puppies. Some adult foods may also be low calorically, but often they have high calcium content on an energy basis, which is not what you want for a growing large or giant breed pup.

If you're going to feed kibble to a large breed puppy, I recommend you look for special large breed puppy formulas or a formula (**preferably a balanced, raw food diet**) that is "Approved for all life stages." This means the food is appropriate for growing puppies or adult dogs.

I do not recommend feeding a traditional (high growth) puppy food to large breed puppies