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## Puppy Nutrition: Feeding Large and Giant Breeds

Not all puppy foods are alike. Not all pups are alike. Feeding the proper diet to the right puppy is very important, especially for large or giant breed pups.

There is no universal dog food.

## How quickly should large and giant breed puppies grow?

Pups grow up, but they must grow at the proper rate. The body's framework comprises muscle and bone that must grow in sync. Rapid growth rates can stress developing bones and joints, resulting in skeletal malformations.

Bones that grow too quickly are less dense, making the skeleton and joints weak. Exponential growth accompanied by increased body mass strains bones and joints. So, puppies should not get too fat!

Impacted by the growth rate, developmental orthopedic disease (DOD) is more prevalent in large-breed dogs. Bone
 and joint disorders such as hip dysplasia and OCD (osteochondritis dissecans) affect many large breed pups.

Some skeletal problems are associated with genetics and are out of your control. Diet also affects skeletal development, and you CAN control what your pup eats!

## What are the specific nutritional needs of large and giant breed puppies?

Just like children, puppies do best with a balanced diet of nutrients, protein, carbohydrates, and fat. However, dogs vary in size more than people and need 'size-specific' diets. Great Dane pups grow much faster than Chihuahuas, so they should eat different foods.

Regardless of size, pups need high-energy foods because they expend a lot of energy. They are constantly on the move and burn more calories. Caloric requirements increase drastically during the first 12 months of life, but they must be regulated. Too many calories lead to obesity later in life, which also causes orthopedic problems.

How fast a pup grows should be carefully regulated. Large breed pups grow A LOT! But they should not grow up too fast. About half of the calories that pups consume are used in tissue growth and skeletal development. These calories must come from a balanced diet that promotes healthy bone and muscle growth. Feeding a diet that is too calorically dense (high in fat) can make a pup grow faster than his bones can accommodate, resulting in skeletal abnormalities.

The protein content is also crucial. Proteins are the body's fundamental building blocks and contribute to healthy muscle development. Growing pups need more protein than adult dogs. On the flip side, too much protein can be detrimental to healthy growth and result in an imbalance of calcium and phosphorus, which can negatively affect bone and joint development.
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Calcium is needed for strong bones but is harmful in excess. Pups, unlike adult dogs, cannot adequately regulate how much dietary calcium they absorb from the intestinal tract. Sometimes they absorb and retain too much calcium, which can cause skeletal malformations. Excess calcium also causes deficiencies in other needed nutrients, like phosphorus. Calcium and phosphorus work together, and a proper calcium-to-phosphorus ratio is essential for healthy bones and joints. The calcium: phosphorus ratios in your pup's diet should be between 1.1:1 and 1.4:1. Large breed pups eating balanced diets containing recommended amounts of calcium should not be given calcium supplements. Your veterinarian can suggest diets that meet this standard.

Other vitamins and minerals impact skeletal development. Vitamin D, vitamin A, copper, zinc, and manganese are essential to healthy bones. Deficiency or excess of these nutrients may also contribute to abnormal orthopedic development.

Giant breed puppy foods should be lower in fat, have a good calcium content, an appropriate Ca: P ratio, and provide highquality protein. The calcium content should be around $1.5 \%$ (or 3 grams $/ 1,000 \mathrm{kcal}$ ). Large and giant breed pups should consume diets that contain at least $22 \%$ high-quality protein and $8 \%$ fat (dry matter basis). Remember that protein quality varies with the source, so high-quality foods may cost more.

If you give your pup treats, consider the calories they add to the diet. Choose low-carbohydrate treats without added calcium. Fruits and vegetables are healthy treat alternatives that add minimal calories to the diet. Avoid toxic fruits and vegetables such as grapes, raisins, and onions.

## How do I choose the right diet?

With the vast variety of foods on store shelves, choosing the best one can be daunting. Ask your veterinarian for advice before shopping. Look for a diet formulated for large breed pups and has the globally recognized AAFCO seal of approval. Verify that your pup's food has been tested in feeding trials to ensure there are no deficiencies or excesses. Formulating the proper diet is based on science, so invest in companies that invest in research conducted by board-certified veterinary nutritionists. Purchase food from a reliable manufacturer with good quality control standards. You want the food to contain exactly what it says on the label.
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## How should I feed my puppy?

Puppies do not practice portion control, so free-feeding or ad-lib feeding is not advised. With the help of your veterinarian, calculate the total amount of food your dog should consume per day and divide it into two or three portions (breakfast, lunch, and dinner OR morning and evening meals).

## Is there a way to monitor my puppy's growth rate?

How do you know if your pup is growing too fast? A standardized numerical guide will help assess a dog's body condition score (BCS). The BCS scoring system provides an accurate overview of a pup's rate of development and body fat content.

As in people, leaner is better. On a score of 1 to 9 ( 1 is too thin, 9 is obese), the ideal BCS for canines is 4 or 5 . An easy-toread chart with diagrams and instructions makes assessing BCS easy. Your veterinary health care team can perform assessments at your regular visits and show you how to perform weekly assessments at home between appointments.

## Do genetics matter?

The adult size of your dog may be determined by genetics; however, the time it takes for your dog to become 'full grown' can be impacted by proper nutrition. Growing at the proper rate means less risk of bone and joint disease. So, exert some control over your dog's diet to help control his growth.
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