



Something to Chew On!



Your Information Source on Pet Nutrition

Feeding Large Breed Puppies

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In recent years, considerable controversy has arisen concerning the most appropriate diet for large breed puppies (mature weight greater than 60 lbs.), particularly as these diets pertain to their ability to cause or prevent orthopaedic problems. In 1974 Hedhammer et al published data based on research on Great Dane puppies that concluded that there was a higher incidence of hip dysplasia in puppies fed a high protein, high energy, high mineral diet. Despite a number of flaws with this work, including an inability to subsequently reproduce its findings or to isolate the relative influence of a number of parameters examined, its impact on the controversy remains. Veterinarians are confronted daily by clients who have been told by breeders that puppies should only be fed adult food. For some, the whole concept of growth as a distinct life stage has come into question.

The most rapid growth phase for a puppy occurs during the first 6 months of age. During this phase they have a greater protein requirement for the formation of new tissue, yet this protein requirement must still be balanced with their energy intake. Their energy requirements are up to 3 times that of an adult's maintenance energy requirement (MER); from weaning to 3 months it is 2-3 x MER; 3-6 months 1.5-2 x MER. As a puppy matures beyond 6 months, the energy requirements gradually decrease to adult needs at maturity. This age of maturity varies, being as young as 8 months in small breeds or as late as 24 months in giant breeds. Puppies also have a greater need for essential nutrients on a body weight basis. Of all the food nutrients, energy (caloric) intake and calcium appear to play the greatest roles in the potential for exacerbating existing skeletal disorders.

It is widely accepted that too rapid a growth rate can lead to a number of skeletal disorders in a number of species. Excessive energy intake in the canine can result in a more rapid growth rate resulting in an overweight puppy, as well as the potential for exacerbating certain orthopaedic anomalies (e.g. hip dysplasia, osteochondritis and hypertrophic osteodystrophy). Excessive growth rates lead to an increase in both muscle mass and total body weight. These in turn lead to excessive stress forces on long bones which, in a puppy, are less dense and have a greater susceptibility to being remodelled. As bones of large breeds are relatively weaker than those of small breeds, they are inherently more susceptible to these stress loads.

In response to these concerns, the conclusion has been reached by some that the best preventive solution is to feed only maintenance food to large breed puppies. Feeding a balanced, yet lower energy dense food, will not negatively affect a puppy's adult size, rather the rate at which it achieves this size. However, puppies have less digestive capability and hence require a highly digestible food. Simply feeding more of a less digestible adult food will often "overload" the limited digestive capacity of a puppy leading to nutrient deficiencies. Because they are less energy dense, some adult foods contain more calcium than is required on an energy basis. Excess calcium can produce defi-

ciencies in other nutrients (e.g. zinc) as well as potentiating other disorders such as osteochondritis and wobblers syndrome.

A more appropriate solution to feeding a large breed puppy an adult food is to feed appropriate amounts of a growth diet to maintain a normal growth curve for that breed. Free choice feeding, as is often recommended on pet food labels, is imprecise and should be avoided until a puppy reaches its mature skeletal size. It should be remembered that feeding guidelines provided by the manufacturer are averages only. Owners should be counselled to tailor a puppy's intake to the individual needs and activity level, always striving for a lean body weight (ribs easily felt). Puppies should be weighed regularly and their energy requirements calculated accordingly. Based on the energy density of the particular food, appropriate amounts can be fed in proportional feedings.

Additional considerations for owners are the frequency and intensity of exercise, as well as the need for vitamin supplements. Guidance from their veterinarian and common sense should prevail in encouraging owners to avoid exercising their puppy excessively. However, daily exercise is important for the proper development of bone structure, as well as for assisting in the maintenance of lean body weight. Vitamin or mineral supplements should be avoided with large breed puppies. Ultimately, the ideal way to avoid bone disorders is through appropriate breeding practices. Veterinarians remain a primary source for new owners to seek advice on the proper selection of breeders and their puppies.



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