



Online Veterinary Nurse & Technician Conference 2022

October 4 – 6, 2022

Feeding Puppies

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Feeding the right diet to a puppy is vital to give it the best start in life and to set them up for the future! The first 12 months are critical. It is our best chance at getting the right foundation for healthy bones and joints and it's critical for the development of a healthy immune system and brain and central nervous system development.

Nutritional Adequacy Statement

The first thing to look for is the nutritional adequacy statement on the puppy food label¹. Foods should be labelled to indicate if they provide a "complete" or "complete and balanced" diet with all required nutrients at the appropriate levels. Those labelled as intended for "intermittent", or "complementary" feeding should only be fed as a small portion of the diet (10% or less).

This nutritional adequacy statement also states what life stage the food is intended for - growth, pregnancy/lactation (reproduction), adult, or all life stages. Pets need a food that's appropriate for their specific stage in life so they will receive adequate, but not excessive, amounts of nutrients. Nutritional excesses are just as harmful as nutritional deficiencies.

Life Stage Nutrition

This is where the importance of life stage nutrition comes into play. So what is life-stage nutrition? A dog's nutritional needs change throughout its life. We feed a growing pet quite differently from an older, less active one. A food's nutritional profile must be designed to meet a dog's optimal nutritional needs at a specific age and activity level, as well as for other physiological conditions including pregnancy and lactation.

Some foods are formulated for "growth and maintenance". This means the food is formulated to meet the nutritional needs of growing puppies but also adult dogs including senior dogs. Other foods are formulated for "all life stages" which means the food is formulated to meet the nutritional needs of growing puppies, adult dogs including senior dogs as well as pregnant or lactating females. Neither of these options is ideal as growing puppies and reproducing dogs need vastly different amounts of key nutrients for growth and reproduction such as energy, protein and calcium, than adult or older dogs need.

Key Nutritional Factors for Puppies

So what are the key nutritional factors for puppies? These include energy density, digestibility, protein, calcium, DHA and antioxidants. For large breed puppies, L-carnitine, glucosamine, and chondroitin are also important. Let's explore these nutrients in more detail.

An ideal puppy food is **easy-to-digest** meaning that more of the food eaten is being utilised by the body which means the puppy can consume less food to meet its nutritional needs for growth and play etc. This in turn means less being passed out as waste and therefore less stool volume and less to pick up in the backyard!

Protein is needed in higher levels in young animals for growth and muscle building and as a critical part of the development of a healthy immune system. The quality of a protein is determined by its biological value and its digestibility. Biological value is the measure of a protein's "usability" by the body. It depends on the amino acid profile i.e. the balance of amino acids. The more essential amino acids present in a protein (i.e. those that must be provided from the diet), the higher its biological value and the better the quality of the protein source. Combining different protein sources from animal and plants often enhances the overall biological quality of the protein in the diet, especially when the amino acid profiles are complementary.

Calcium is perhaps the most misunderstood component of a puppy's diet. Excess calcium in puppy foods is more common than deficiencies. It's very important to note that if puppies are fed a good quality, complete and balanced puppy food there is no need for additional supplementation, and in fact this practice can be very detrimental. Remember calcium can come from powders or tablets but also from treats such as cheese, yoghurt or milk and from bones.

Feeding large breed puppies (pups with an adult weight > 25kg²), highly energy dense foods with excess calcium increases the risk of skeletal growth problems such as hip dysplasia. It's important to realise that a large breed puppy will reach whatever size it was genetically programmed to be, regardless of the speed of its growth. In fact it is better to slow a large breed pup's growth rate down as they will still reach their ultimate adult size while minimising skeletal risks along the way. This is why large breed puppy foods should have more controlled energy levels, relatively lower levels of calcium and phosphorous and a slightly lower calcium to phosphorous ratio than foods designed for small and medium breed puppies.

DHA (docosahexaenoic acid), is an omega 3 fatty acid from fish oils, which is critical for the development of vision and the central nervous system during pregnancy and in the first year of a puppy's life when brain and eye development are most rapid. Dogs have better night vision than us and this requires a greater number of photoreceptors (primarily rods) in the retina. DHA optimises the development of these rods leading to enhanced visual acuity. Heightened brain and vision development means puppies learn faster² and socialise earlier and more successfully. This is why it's so important to feed a puppy food that contains high levels of DHA.

Antioxidants such as Vitamin E, Vitamin C, beta carotene and selenium are crucial for the development of a healthy immune system in puppies. Puppy vaccinations stimulate the immune system to build antibodies against various diseases such as canine distemper or parvovirus. Without a healthy immune system, they will not be as well protected against these serious diseases. In fact research has shown that puppies fed high antioxidant diets for 6 weeks had a significantly better and longer lasting response to vaccinations compared with puppies fed control and grocery foods³.

Growing animals are using a lot of fat for energy. **L-carnitine** helps them use this fat more efficiently and thus reduces the deposition of body fat and increases lean body mass. This is particularly important for large breeds. L-carnitine also increases bone mass and bone density leading to stronger bones⁴.

Ingredients such as chicken meal provide a natural source of **glucosamine and chondroitin**. This is important for growing puppies, particularly for larger breeds, as these nutrients provide the building blocks for healthy joints and cartilage.

Nutrients Vs. Ingredients

It's important to note that a puppy needs nutrients and not ingredients. Ingredients are simply the vehicles that provide the key nutrients we have just discussed. The presence or absence of an ingredient in a puppy food doesn't determine the food's quality. Ingredients are selected for the nutrients they supply, and for their quality and taste. For instance, corn supplies highly digestible carbohydrates for energy, essential fatty acids for healthy skin and coat, fibre for digestive health and antioxidants for the immune system. Fish oil is a rich source of omega-3 fatty acids particularly DHA, while chicken meat, soybean meal and egg all supply protein.

I hope this information is useful to you in your discussions with your puppy clients! If you'd like to learn more about puppy nutrition and all sorts of other education topics, you can find this in our Hill's Veterinary Academy at myhillsvet.com.au for Australia or hillsvet.co.nz for New Zealand.

Here are some links to additional courses that you may find useful.

- [Small Animal Nutrition](#)
- [Pet Wellness and Lifestage Nutrition](#)
- [Making Puppy Nutrition Conversations Easier](#)

Information in this material must be interpreted in line with and used on your own professional judgement and clinical experience.



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Reference List

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5. Gross KL, Zicker SC. L-carnitine increases muscle mass, bone mass and bone density in growing large breed puppies. *J Anim Sci* 2000; 83 (Suppl.1):176.