

Growth & Feeding Puppies
Karen Hedberg BVSc
2007

Growth

Size and End Weight :

- Dogs come in all sizes and shapes and have enormous variation in their final body weights.
- Dogs generally can be fed a very wide range of diets and do extremely well.
- Provided there are adequate amounts of fats, proteins, carbohydrates and a good range of minerals and vitamins available in the diet and that adequate amounts are fed to maintain good body weight and normal growth rates in puppies, most dogs will cope quite well.

Critical Demand Periods :

There are several periods of a dog's life where there are higher demands for good nutrition, ie. during :-

- rapid growth,
- Pregnancy and lactation
- heavy work or stress situations
- extreme conditions (temperature)

Rapid Growth :

- Failure to provide sufficient nutrition during critical periods can result in major problems - particularly during rapid growth periods in young puppies.
- Equally, over nutrition can create its own set of problems in the rapidly growing dog.

Feeding

Levels of Nutrition :

- A growing puppy requires more food than an adult dog as it is eating for growth as well as maintenance of body weight.
- A pregnant bitch requires more food her own maintenance and for the growing puppies, particularly in the last 3 weeks of pregnancy (can need to be fed up to twice normal intake).
- A lactating bitch needs up to three times the normal diet to produce sufficient milk to feed the growing puppies and to be able to maintain her own body weight.
- Dogs in heavy work can, depending on the circumstances (eg. excessive cold) require 2-3 times the energy intake of their normal adult maintenance diet.

Puppy Growth Rates

What you feed your puppy and what it needs at the various stages of growth, will depend on its weight, rate of growth and the desired end body weight for that breed and sex.

- Puppies grow extremely rapidly, usually doubling their birth weight in the first week. A puppy of a medium sized breed is born at around 0.5kg at birth, and will grow to 20-35 kg by 8-9 months.
- A child grows at nowhere near the same rate - the equivalent growth may take 2-5 years. This rapid growth is even more exaggerated in the giant breeds where a 1kg puppy at birth can grow to weight 60-70 kg by 9-10 months.
- Due to this tremendous expansion in both size and weight, the diet must be capable of delivering a balanced supply of energy, proteins, fats and carbohydrates as well as sufficient minerals, vitamins and correct amino acid profile such that the puppy grows steadily and is not pushed too fast.
- The amount of food fed reduces as the rate of growth decreases.

Always remember that a young dog is eating not only for daily maintenance, but for growth as well, ie. it may require up to twice that of a normal adult when it is very young.

Proportionally, a puppy eats far more per unit of body weight than does an adult. This gradually reduces to a maintenance level by 8-10 months of age.

- In an average sized breed, puppies grow very rapidly between 0-8 weeks of age, then fairly steadily up to 20-24 weeks, they then slow down to a slower rate between 6-8 months until they reach around 3/4 adult weight.
- After 8-9 months of age, the vast majority of height has been achieved and they gradually fully mature at around 15-18 months of age. Smaller toy breeds are often fully mature by 6-7 months of age. Giant breeds can take 12-15 months to achieve full height and 18-36 months to mature.
- It is also important to remember that the smaller the breed, the higher the metabolic rate.

What this means in real terms is that the smaller breeds need to be fed more frequently, particularly when very young, when pregnant or during lactation.

Very small toy breeds often need to be fed at least 4-5 times a day when they are very young.

Feeding at Different Growth Stages

The aim is to grow puppies at a steady rate of weight gain and stay within the normal weight ranges of that sex and breed at that age group.

- Weight - It is most important to keep an eye on your dog's weight. A simple test is to run your fingers over the ribs and there should be a thin layer of fat between the ribs and the skin.
- A growing dog, especially between three and six months of age, should not get too thin or too fat as it is growing very fast and either excess is not helpful to the firmness and soundness of the eventual adult dog.

- Adult dogs can carry a bit more weight, but this should never be excessive.

Time needed to reach 50% Adult Weight :

- Small breeds can reach 50% of adult weight by 12 weeks. They are prone to obesity and shortened life spans if overweight.
- Medium to large breeds reach 50% adult weight by 16 weeks (4 months).
- Large and giant breeds reach 50% adult weight by 5-6 months.
- Very rapid growth (3-8 weeks of age) :

Puppies need at least 12-16% fat levels in the diet, together with a 25-28% protein level in order to keep up with such rapid growth rates.

Feeding 8-20 weeks :

- Rapid growth – 8-20 weeks (to around $\frac{1}{2}$ adult weight) and *depending* on the rate of growth and weight gain desired for that breed and sex, the level of activity, etc.
- The aim for medium to large breeds is to slightly lower the energy density of the diet to 10-14% fat and 22-25% protein. Giant breeds may need to stay on higher protein and fat levels for longer.
- Medium sized to large breed individuals, particularly if they are growing too fast, need reduced overall energy levels in the diet in order to slow growth and/or weight gains to more normal levels. If concerned, swap to an adult maintenance diet.

Rapid growth 8-20 weeks :

- This growth stage is most commonly the one where dietary overfeeding occurs.
- It is also the time when most of the growth associated bone conditions start to develop eg. osteochondritis (OCD).

Slower Growth to Puberty :

- From $\frac{1}{2}$ to around $\frac{3}{4}$ adult weight :

In the average medium to large size breeds the growth starts to slow down considerably after 5-6 months of age.

- This is the time to start reducing the amount fed, particularly if your puppy is already slightly heavy. Usually once a day feeding is ample in all breeds, apart from the very small and the very large, which may still require feeding twice a day.
- Equally any very skinny or hyperactive puppy of any breed may require more than an average puppy that is easily maintaining its bodyweight.
- Always go by the individual : too fat, reduce the amount fed, too light, increase the food given.
- Feeding excessive amounts of high energy dense foods to a puppy that is just playing around in a backyard is a bit like feeding cordial to ADD children – they can become very hyperactive and destructive.

Feeding for Maintenance

- Diet levels - generally around 22-24% protein, 10-12% fat

This level of protein and energy is generally quite sufficient for dogs sitting around in the back yard.

It should be remembered that individuals should be fed relative to their metabolic efficiency and level of activity. A hyperactive dog will require a higher fat and protein level in its diet than a slothful older dog.

- Adult dogs under no particular stress or work situation can be fed an enormous variety of diets with little or no ill affects.
- Many dogs develop obesity by sheer overfeeding. Others may develop skin or bowel conditions due to either dietary allergies or dietary deficiencies.
- Remember in winter the energy levels required to maintain body heat are higher (depending on the severity of conditions).
- Conversely, in hot weather the energy requirements are much lower, particularly if the dogs are not being actively worked, ie. feed less in hot weather, feed more energy dense foods in very cold weather.

Feeding Recommendations

With the more palatable diets, and particularly those with high energy densities, feeding should be carried out with due regard to the desired end body weight of the dog, hence its energy intake. (Kronfeld 1984).

Homemade Diets

- Recently, there has been an increasing tendency to feed homemade diets in the mistaken idea that prepared or commercial dog food is in some way deleterious to the health of dogs.
- While I do not have a great problem with these diets (and the so called BARF diets) being fed to healthy *adult dogs* that are under no real stress, I do have grave concerns about the effects of these diets on rapidly growing dogs, particularly with the heavier and giant breeds.
- Additionally, bitches being fed these diets are often so lacking in minerals and fats that they may refuse to feed their puppies after 2-3 weeks as they themselves are so heavily depleted in minerals, particularly calcium.
- The people feeding these diets (particularly novice owners and breeders) often have little or no knowledge of the dietary requirements of dogs or their breed in particular, especially during the rapid growth phase (1-8 months).
- The diets are often very poorly balanced, particularly for mineral content – the major problems being lack of calcium, zinc, iron and well as trace elements such as Selenium.
- Often excessive amounts of meat are fed (giving high phosphorus levels) relative to any cereal or carbohydrate content.

- There is often a low fat content in the misguided belief that if fat is bad for humans, it is bad for dogs!

Dogs are not humans and have significantly different requirements, particularly in relation to mineral supplementation during their rapid growth period.

Dietary Myths

A commonly heard argument in support of these diets is that wild dogs (wolves, jackals etc) in the wild live on an all-meat diet, therefore this is the correct thing to feed - wrong!

Several important facts are overlooked in this area :

1. Wild dogs eat mainly herbivores and will eat all sections of the carcass, including the skin, bones and the intestines along with semi-digested grains and grass.

Domesticated dogs have been adapting and scavenging for food around human populations for well over 100,000 years and have adapted around "leftovers" – cooked and raw meat, vegetables and cooked grains.

2. Modern medium to large breeds of dog are, on average between 15-25% heavier than they were 100 years ago.

The selection has been for increased bone and substance such that the German Shepherd during this period has gone from 20-22 kg (bitch) up to 28-32 kg, and dogs 26-28 kg up to 34-40 kg. The height standard has not changed, but the weight gain has been predominantly one of increased bone and substance.

The weight of an adult wolf is lucky to exceed 25-28 kg, yet many large and giant breeds exceed this weight by 4-5 months of age.

Toy breeds are the exceptions in this area and many have been further "miniaturised" in the last 100 years, a fact that brings its own set of problems.

3. High meat diets, as well as being unbalanced for mineral content (low calcium etc as mentioned above), are much more likely in the long run to adversely affect the kidneys.

4. Most of the grains and meat used in the diets today are from heavily used agricultural land, where trace elements are missing or severely depleted.

The chance of trace element deficiencies developing will increase over time.

Elements such as zinc, calcium, iodine and selenium are commonly very low and a lack of these elements can affect growth rates as well as the functioning of various glands, in particular the thyroid gland.

5. Preparation of homemade diets is usually very time consuming, let alone balancing the important components of the diet such that adequate levels of various minerals, vitamins, fats, proteins and carbohydrates are available for growth etc.

Problems extend further if selling puppies to people who can not cope with the delicate balancing act required of a homemade diet and/or when such dogs have to be kennelled with other people.

Summary on Homemade Diets

For the vast majority of people, the use of a well balanced readily available commercial dry food is quick, and provided they are not grossly overfed, very safe.

The general life span of domestic pets is now significantly longer than 50 years ago by around a conservative 4 years for average sized breeds, and up to 6-8 years in many smaller breeds. This is largely attributable to better diets, vaccinations and health care: commercial diets make a highly significant contribution.

Generally, I would avoid homemade diets for rapidly growing puppies, dogs in heavy work or bitches in production situations (pregnancy, lactation).

Very experienced people may be able to cope in these situations, but novices rarely do and the vast majority will fail to recognise the early signs of developing problems.