



natures:menu[®]
REAL FOOD PETS LOVE

Natural Feeding

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For over 30,000 years man has kept dogs as companions and hunting partners, and over that period the nutritional requirements, anatomy and digestive process of the dog have changed very little. Primarily they have evolved as omnivores, able to digest vegetable and meat ingredients, however their teeth and physiology are more suited to meat-based diets. They are also better at digesting raw rather than heavily processed protein and, like man, cannot digest raw starch very efficiently. Instead, the starch, whether from grains or vegetables, should be cooked beforehand. Through their evolution they have also developed some quite specific nutritional issues. For example, ingredients such as dried fruit (raisins), chocolate, onions and garlic can be quite toxic to dogs if eaten in sufficient quantities, and allergies to some proteins, such as those found in wheat (gluten) and dairy, are becoming increasingly common. However, these allergies and toxicities should not be confused with sensitivities, where dogs can develop digestive and skin-related reactions to a wide range of ingredients that are generally less severe but often difficult to eradicate.

Prepared pet foods are either nutritionally complete or complementary, the latter requiring some form of supplementation to provide the daily requirement of all nutrients. Formats can be dried, wet, semi-moist, fresh or frozen, but all are governed by a range of European and UK legislation that ensures that safety is guaranteed, and that information on packaging and associated literature is not misleading to the purchaser. The primary nutrients in any food are protein, oils or fats, fibre, ash (minerals), carbohydrates and moisture (water), the latter two not always being declared on the packaging. Their roles are summarised in table 1 below. In addition, up to 30 vitamins and minerals are added to complete, and some complementary foods, along with a variety of functional and cosmetic additives, that provide nutritional benefits and increase the attractiveness to purchasers and consumers. Some of these functions are listed in tables 2 & 3.

Table 1.

Protein	Oil	Fibre	Ash
Amino acids for muscle growth	Energy source	Source of healthy gut bac teria	Provides minerals for:
Source of enzymes	Carrier for vitamins	Provides slow energy release	- Bone growth
Improves palatability	Improves palatability	Moderates passage of food	- Body fluids
Assists the uptake of other nutrients	Source of essential fatty acids	Locks up harmful nutrients/bac teria	- Enzyme activation
Energy source	Provides skin integrity	Absorbs faecal moisture	- Energy production

Table 2.

Vitamin	Source	Main Function
Vitamin A	Fish oils, liver	Vision, skin maintenance
Vitamin D3	Fish oils, eggs, animal protein	Bone growth, calcium balance
Vitamin E	Vegetable oils	Reproduction, immune system
Vitamin K	Liver	Blood clotting
Thiamin (B1)	Dairy products, cereals	Carbohydrate metabolism
Riboflavin (B2)	Milk, animal protein	Energy utilisation
Pyridoxine (B6)	Meat, fish, eggs, cereals	Amino acid metabolism
Cobalamin (B12)	Liver, meat, dairy products	Bone marrow function
Niacin	Cereals, liver, meat	Energy utilisation
Pantothenate	Animal protein, cereals	Fat & carbohydrate metabolism
Biotin	Offal, egg yolks, legumes	Fat & amino acid metabolism
Folic acid	Offal, egg yolks, legumes	Bone marrow function
Choline	Plants and animal material	Nerve function

Table 3.

Mineral	Source	Main Function
Iron	Eggs, liver	Oxygen transport, part of many enzymes
Copper	Meat, fish	Part of many enzymes, pigmentation
Manganese	Nuts, cereals	Fat metabolism, part of many enzymes
Zinc	Meat, cereals	Part of many digestive enzymes, keratin formation
Cobalt	Meat, fish	Blood function
Iodine	Fish, dairy produce	Thyroid hormones
Selenium	Cereals, fish	Immune function (with vitamin E)

As with all things, there are good and bad pet foods available on the market, but some of the features attributed to the better quality foods are:

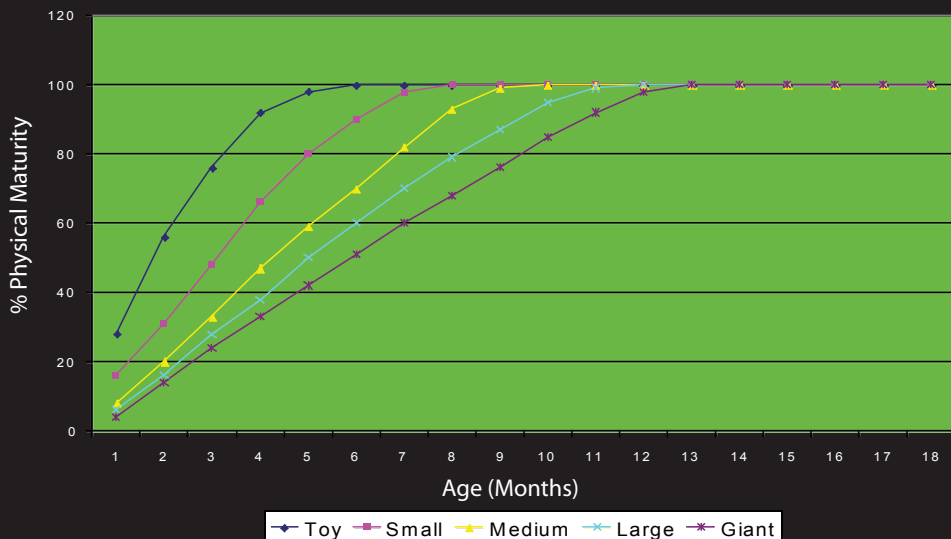
- Freedom from artificial colours, flavour and preservatives
- Inclusion of natural, unrefined ingredients from non-GM sources
- High meat content and omission of inexpensive bulk ingredients

Over the past decade a number of clinical conditions in both cats and dogs have been linked to features and trends of modern prepared pet foods. One is secondary diabetes, which is caused by the body's desensitisation to, or lack of production of insulin. Symptoms include temperament changes from lethargy to aggression, excessive thirst, and a tendency towards obesity. A possible cause is the high level, and sometimes low quality, carbohydrate content of the food, and in

harmful bacteria is essential, a requirement which is legally enforced for commercial pet food producers

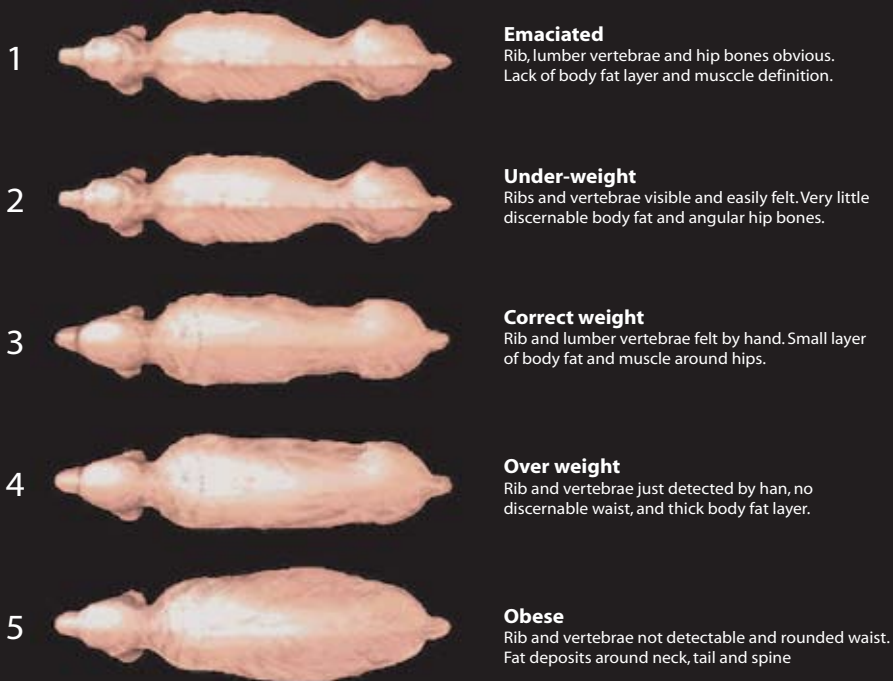
Feeding the Puppy

From weaning it can take a number of weeks for the young puppy to establish a stable and healthy gut environment. During this period it is vital that it receives highly digestible and variable food that provides all of the required nutrients on a daily basis. Meals should be small and frequent to allow for the small volume of the stomach, and clean fresh water should be available at all time, regardless of whether dry or wet food is fed, as dehydration is easily achieved in small animals. The weight of the growing puppy should be monitored regularly and the daily food quantities adjusted according to the feeding instructions. It is also important to remember that different breeds of dog reach physical maturity at different times (Figure 2), and a gradual transition from the puppy to the adult feeding regime should be followed as the puppy reaches maturity. Again body weight and conformation (body score) should be monitored. If feeding a nutritionally complete diet no supplementation should be necessary however, care should be taken not to unbalance the diet with excessive treats and snacks, Also, when feeding a complementary diet supplementation is vital, particularly with vitamins and minerals, to ensure consistent and healthy growth and development.



particular dry food. However, the incidence can also be prevalent in obese animals, a condition which is increasingly common in domestic animals today. Low to moderate levels of good quality, digestible carbohydrates can help in prevention, and it is important to adhere to the feeding guidelines and avoid the temptation to feed too many high calorie treats and snacks. An additional and effective tool in the control of weight is body condition scoring. This involves the regular assessment of the body fat by scoring the conformation of the body, as details below in figure 1. Adjusting the diet and quantities fed in line with changes in this score is the most effective way to maintain optimal body weight and condition.

Figure 1 – Body condition scoring



With the increasing knowledge and education of the purchaser, and the recent contamination scares in the industry, a number of owners have chosen to prepare their own diets for their pets, which often involves the incorporation of fresh meats and vegetables, either fed raw or cooked. This method provides an element of control for the owner, however it is not without its challenges. Balancing the daily diet to provide sufficient, but not excessive nutrients is a challenge that we humans find difficult in our own diets, so meeting the specific needs of dogs of varying lifestage and breed can be very demanding. Also, ensuring that the ingredients are fresh and free from

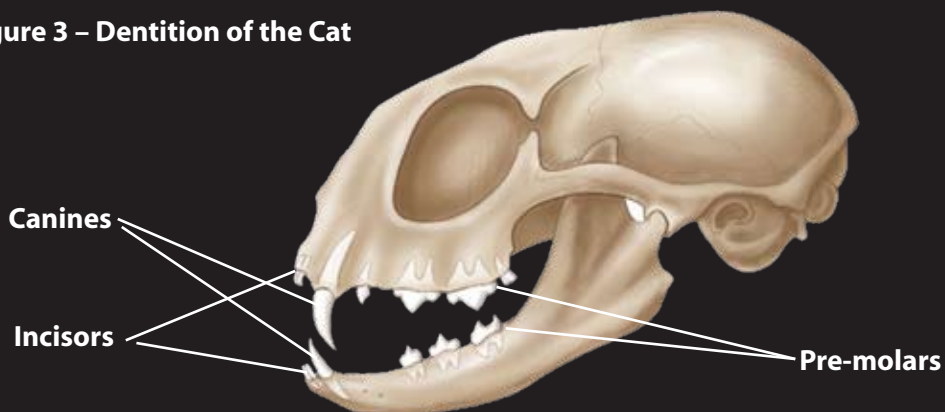
Feeding the Senior Dog

The age at which a dog reaches its senior years will depend on many factors, such as breed, weight, health and genetic predisposition. Generally, their activity will decrease and energy requirements fall, and so food allowance should be reduced to maintain correct body condition. If the dog's appetite cannot be met whilst feeding an adult diet in this way, a specific senior or low calorie (light) diet should be introduced, and a transition made to this food over a period of a week. Since it contains less energy this food can be offered in higher quantities to satisfy the appetite whilst maintaining body condition. As the dog ages conditions such as joint stiffness, kidney stress, tooth decay and digestive irregularities often become more prevalent. Some specific senior foods contain natural extracts and nutraceuticals to help combat these ailments, and it can be advisable to move to a fish or poultry-based diet, which can be easily digested. Sufficient vitamin, mineral and protein (amino acid) levels are still essential and should not be compromised, particularly when supplementing a complementary diet, however high protein levels should be avoided since this can cause unnecessary stress on the liver and kidneys which are generally operating less efficiently in older age.

Feeding the Adult Cat

Cats have evolved along quite different evolutionary lines to dogs, as can clearly be seen from their dentition and feeding behaviour (Figure 3). With prominent incisors and canine teeth for gripping and tearing flesh the cat is a perfect predator, and prefers to consume fresh, warm, moist food in large, infrequent meals. Meat, rather than fish, is the staple of the wild cat, with very small amounts of vegetable material occasionally consumed from the digestive tract of their prey. Consequently, meat and fat should be the primary ingredients of any domestic cat's diet, with smaller inclusions of digestible, vegetable-based ingredients to help maintain a stable bacterial population in the intestines, and to moderate the passage of food through the digestive system.

Figure 3 – Dentition of the Cat



Many of the enzymes and metabolic pathways present in omnivorous animals such as man and dogs, are either inactive or present at very low levels in cats. This means that cats have to obtain certain nutrients, such as taurine and arachidonic acid, directly from their diet rather than via precursors. Also, whilst cats can digest most carbohydrates, the enzymes responsible for their metabolism are active at very low levels, and they are not particularly efficient at excreting the by-products. Whilst dogs have a taste preference for sweet, baked, yeasty flavours, cats prefer salty, slightly acidic but fresh flavours, and have a particular dislike of oxidised (rancid) fats and “off” odours. Cats also do not detect sweet flavours particularly well, and prefer the taste of fat to starch and sugars. Originally a desert animal, the cat has evolved with a poor thirst reflex, since it originally would have obtained all of its water requirements from the fresh prey that it consumed. This means that a cat will not naturally seek out water when it becomes dehydrated, like a dog would, and this can lead to a number of secondary conditions such as urinary stones and joint stiffness. It is therefore essential that clean, fresh water is always available close to the food, regardless of whether dry or wet food is given. In summary, the five key points to feeding your cat are:

1. always ensure that the food is fresh and free from “off” odours
2. allow the food to reach room temperature before feeding
3. discard any left-over food that is over 24 hours old
4. offer a diet high in meat protein and fat, and low in vegetable protein and carbohydrate
5. Always ensure that there is a plentiful supply of clean, fresh water by the side of the food