



# A BASIC GUIDE TO NUTRITION

## FACT SHEET 6

### INTRODUCTION

Dogs and cats, like all living creatures, need food to grow and remain healthy. Food can be classed as solids or liquids that can be swallowed and which can supply energy or materials to support metabolism, growth, tissue repair and reproduction. Food can be further broken down into basic components called nutrients. The main categories of these are as follows:

- **CARBOHYDRATES**

These provide the body with a good energy source and consist of starches and sugars. There are four main groups of carbohydrates:

- Monosaccharides, which are single molecules, such as glucose and fructose
- Disaccharides, composed of two molecules, include lactose and sucrose
- Oligosaccharides, composed of between 3 and 10 molecules. These are found in some plant materials
- Polysaccharides, consisting of many thousands of molecules. Examples include cellulose, starch, glycogen and pectin

Both cats and dogs can use carbohydrates, although they are not essential to either, providing that the diet contains enough protein. Some carbohydrates, such as starch, need to be cooked before they can be digested, whilst others, such as cellulose, are not digested at all well. Excess carbohydrates in the diet can be converted into and stored as fat.

- **FATS or OILS**

These are compounds that include essential fatty acids. Fats supply energy in a concentrated form, releasing about double the amount of energy per gram than either carbohydrates or protein. Fats are also involved in the transport and storage of fat-soluble vitamins and in the manufacture of essential fatty acids. They aid the palatability of pet foods and help to provide an acceptable texture. Both dogs and cats can normally digest fats well. In certain conditions, such as pancreatitis, excess fats should be avoided.

- **PROTEINS**

Proteins are built from amino acids and are complex in structure. These compounds are involved in the growth and repair of body tissues. Although there are only about 20 different amino acids, they can be put together in a vast variety of sequences to form the large molecules which go to make up proteins. Proteins include albumen and collagen.

Both dogs and cats need protein in their diet to provide amino acids, particularly those that they are unable to manufacture in sufficient amounts themselves. Cats

are not able to manufacture the amino acid taurine, so this must be provided by the diet. The only real source of taurine is from meat, which is why it is not possible to feed cats properly on a totally vegetarian diet. All amino acids can be metabolised by the body to provide energy.

- **VITAMINS**

These are vital to good health and help regulate body processes. They fall into two distinct categories: fat soluble vitamins (A, D, E and K) which are stored in the body and water-soluble vitamins (the B vitamin group and vitamin C) of which a regular supply is needed. Unlike us, cats and dogs are able to manufacture vitamin C themselves, although in certain circumstances extra vitamin C is beneficial to health.

- **MINERALS and TRACE ELEMENTS**

This category includes elements such as calcium, phosphorus, iron and copper. These are vital to growth and development and for the maintenance of good health.

- **WATER**

The only other constituent of food is water, which is essential to life. Around 65% of the body is made up of water. The moisture content of prepared canned pet foods mirrors the natural moisture content of the raw materials and most contain about 70-80% water. Dry pet foods contain an average of 8-10% moisture.

Most foods contain a mixture of the nutrients listed above. A balanced intake is vital, but will vary with the different stages of the life cycle. Extra demands will be placed upon the body during growth, pregnancy, lactation and illness. It is also important to avoid excess of any one nutrient, which can lead to health problems.

## **ENERGY**

Energy intake from foods is governed by appetite, with excess energy intake leading to obesity. The principal sources of energy are carbohydrates, fats and protein. The proportion of each of these within a particular prepared pet food will determine its overall energy content. This will also vary with the moisture content of the food.

Energy is usually expressed in kilocalories (kcal). The body derives energy from burning food, through a complex series of chemical reactions regulated by enzymes. To function efficiently, these need the presence of specific vitamins or minerals. The energy an animal can derive and utilise from its food is called the metabolisable energy, or ME, and is usually expressed in kcal per 100g of food.

As a general guide 1 gram of carbohydrate provides 3.5 kcal, 1 gram of fat provides 8.5 kcal and 1 gram of protein supplies 3.5 kcal energy.

## **HOW MUCH TO FEED**

A feeding guide is included on pet food packaging, though it must be remembered that it is only a guide. Each individual cat or dog has its own daily food requirements, so the guide should be used as a starting point and the amount fed adjusted to maintain a good weight and body condition.

## **PET FOOD LABELLING**

All pet food packaging carries important nutritional information concerning the product.

Check first to see whether the food is complementary or complete. If you are feeding a complementary food, you will need to supply additional food to make the diet nutritionally complete. By contrast, complete foods can be fed on their own and will provide all that your cat or dog needs.

All Denes canned and dry foods are complete, although the majority of dog owners prefer to add some of our Wholegrain Mixer or Baked Biscuits to provide extra roughage. We sometimes recommend that the Mixer is fed about 3 hours after the main meal, as this assists digestion and leads to fewer digestive problems.

Each label will also contain a typical analysis. The following are always declared:

- % of protein
- % of oil or fat
- % of fibre
- % of ash (essentially vitamins and minerals)
- % of moisture
- vitamin & mineral content

The analysis given is "as fed" and is a straightforward analysis of the food as it comes out of the can or bag.

Since canned foods have a much higher moisture content than dry foods, it is not possible to make a direct nutritional comparison between them. A comparison is possible, however, on what is known as a "dry matter" analysis. This involves removing all the moisture first and then determining the percentage of protein, oil, fibre and ash.

Most canned foods contain roughly the same amount of moisture, but where there is a wide variation between two canned products it is best to do a dry matter analysis to achieve an accurate comparison.

To convert protein, oil or fibre from an as fed basis to a dry matter basis you can perform a simple calculation as follows:

$$\frac{\% \text{ of protein or oil or fibre} \times 100}{100 - \% \text{ moisture}}$$

You may find some other manufacturers use different methods of expressing the amounts of protein, fat, fibre and ash in their products. This can make comparisons even more complex.

Check next for a list of ingredients. These are normally listed in descending order by weight. Some ingredients are listed by category names, which are laid down in specific regulations. This includes the term "meat and animal derivatives". This encompasses the meats used (such as chicken, turkey, rabbit, etc.) and derivatives, covering ingredients such as liver, kidney and tripe. You may also see the category of cereals, which includes wheat, maize, and so on. The herbs added to Denes foods are classed as "derivatives of vegetable origin" and include for example garlic, dandelion and parsley.

## **BATCH NUMBERS**

All food packaging carries a batch number giving the best before date and the manufacturer's code number. Manufacturers use these codes to help identify their products accurately.

## **DENES DOG AND CAT FOODS**

Since we do not use any artificial additives, Denes recipes may be beneficial in the management of a wide variety of problems, including skin conditions, allergy-based diseases and digestive disturbances.

More specific nutritional advice relating to a number of illnesses is included in other Denes fact sheets. These cover a wide range of conditions including liver, heart and kidney conditions as well as allergies and colitis.

Details of our canned recipes, dry foods and complementary foods can be found in our Product Guides (one for dogs and one for cats). We also provide the dry matter analysis of all our foods. This information is available free from the address below.

Other useful Denes fact sheets to read are:

- Dry pet foods
- Additives and Pet Foods
- Allergies
- Liver disease
- Pancreatic disease
- Colitis & Diarrhoea
- Heart disease
- Kidney problems
- Nutritional analysis (dog or cat)
- Complementary Foods
- Dietary antioxidants

If you have any queries concerning your pet's health or feeding problems, you can contact us for free pet care advice by:

- Visiting our website [www.denes.com](http://www.denes.com)
- Emailing us at [info@denes.com](mailto:info@denes.com)
- Calling us on **01273 325364** Mon-Fri, 9am – 12Noon
- Writing to us at:  
Denes Natural Pet Care Ltd  
2 Osmond Road  
Hove, East Sussex BN3 1TE