

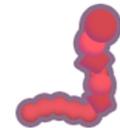
Nutrients

THE COMPOSITION OF FOOD

Most foodstuffs are composed of many different **nutrients**. These nutrients all have very defined roles and must all be provided in what we eat. Nutrients are **chemical molecules** principally made up of carbon, hydrogen, oxygen and nitrogen atoms. For example, water is comprised of hydrogen and oxygen, hence the chemical formula H_2O .

PROTEINS

Proteins are large molecules formed by a chain of **amino acids**. There are 20 amino acids. These 20 include 8 which are known as 'essential' amino acids as the body cannot produce them. They therefore have to be provided by what we eat.



LIPIDS

Lipids consist of **fatty acids**. Like amino acids, there are 'essential' fatty acids. The body is unable to synthesise them, despite the fact that they are essential for brain development. We can distinguish between 'saturated' and 'unsaturated' fatty acids.



Unsaturated fatty acids are liquid at room temperature. They are found in vegetable oils. Saturated fatty acids are solid at room temperature. They are found in solid animal and vegetable fats such as butter and coconut oil.

Keywords > Unsaturated fatty acids: vegetable oils

Keywords > Saturated fatty acids: solid animal or vegetable fats

CARBOHYDRATES

Like fats, carbohydrates are made up of carbon, hydrogen and oxygen. We distinguish between 'simple' and 'complex' carbohydrates.



Fructose and glucose are simple carbohydrates. Starch and fibre are complex carbohydrates – which means they are made up of several simple carbohydrates. The digestive system can split starch into simple carbohydrates, which can be absorbed. However, we are not able to digest fibre, so it regulates the intestines.

Keywords > Simple carbohydrates: fructose, glucose

Keywords > Complex carbohydrates: starch, dietary fibre

MACRONUTRIENTS

We call all these molecules macronutrients. However, to assimilate and use these macronutrients, the body needs what we call micronutrients.



Keywords > Macronutrients: proteins, fats, carbohydrates

Keywords > Micronutrients: vitamins, minerals

Vitamins and minerals are examples of micronutrients that are vital for the body to function correctly.

VITAMINS



Vitamins are made up of a variety of elements. They are vital to us but only needed in small amounts. They are present in most unprocessed food, yet not every vitamin is available in every kind of food.

For example, vitamin C is primarily available in fruit and vegetables while vitamin B12 is only available in food coming from animals. By eating food from all of the food groups we are more likely to cover all of our vitamin requirements.

Keywords > Vitamin C: fruit and vegetables

Keywords > Vitamin B12: animal-based food

MINERALS



Minerals are inorganic elements. Some are present in large quantities in the body. These are called **macroelements**. Others are only present as traces and so we call them **oligo-elements** or simply trace elements.

Calcium and potassium are examples of macroelements, whereas iron and fluoride are oligo-elements.

Keywords > Macroelements: calcium, potassium

Keywords > Oligo-elements: iron, fluoride

DIGESTIX

This online course is connected to a game called DIGESTIX. This game features proteins, carbohydrates and fats, i.e. the macronutrients. To be absorbed by the body, these must be converted into simpler elements like amino acids or fatty acids. Micronutrients such as vitamins and minerals are also featured in DIGESTIX but, unlike macronutrients, they can be absorbed directly by the body.

Nutrients

What are nutrients?

- Molecules
- Food
- Cells

What are the main macronutrients?

- Lipids, carbohydrates, proteins
- Lipids, carbohydrates, enzymes
- Lipids, endives, proteins

Sodium is a...

- macronutrient
- micronutrient
- trace element

What do proteins comprise?

- Anaemic acids
- Animated acids
- Amino acids

The human body can produce all the amino acids it needs.

- True
- False

Lipids help the brain develop.

- True
- False

Which of these foodstuffs contain the most vitamin C?

- Meat and fish
- Fruit and vegetables
- Cereals

Answers

What are nutrients?

Molecules

Well done! Nutrients are chemical molecules.

Food

Wrong! Food contains nutrients.

Cells

Wrong! Try again!

What are the main macronutrients?

Lipids, carbohydrates, proteins

Well done! These macromolecules have nutritional properties.

Lipids, carbohydrates, enzymes

Wrong! Enzymes are not nutrients.

Lipids, endives, proteins

Wrong! Endives contain macronutrients.

Sodium is a...

macronutrient

Wrong! Sodium is not a macronutrient.

micronutrient

Well done! That's right!

trace element

Wrong! Your body contains a large amount of sodium.

What do proteins comprise?

Anaemic acids

Wrong! Try again!

Animated acids

Wrong! That was a trick answer.

Amino acids

Well done! Proteins consist of a sequence of amino acids.

The human body can produce all the amino acids it needs.

True

Wrong! That's not the right answer.

False

Well done! Your body cannot produce 8 of the 20 amino acids it requires, so you need to get them from food.

Lipids help the brain develop.

True

Well done! Lipids play several roles, one of which is to provide the fatty acids that are essential for your brain to develop.

False

Wrong! That's not the right answer.

Which of these foodstuffs contain the most vitamin C?

Meat and fish

Wrong! Try again!

Fruit and vegetables

Well done! Fruit and vegetables contain more vitamin C than meat, fish and cereals.

Cereals

Wrong! That's not the right answer.
