

Function, maintenance and protection

VITAMINS



Vitamins and minerals do not provide energy but they play a basic role in how the body functions.

We do not synthesise vitamins, or at least not enough vitamins. So they must be included in our diet. Vitamins play a major role in protecting us and preventing illness. They also play a part in growth as they allow the body to use constituents of energy and minerals.

Vitamins are generally divided into two groups. **Water-soluble vitamins** dissolve in water and **liposoluble vitamins** dissolve in fat.

WATER-SOLUBLE AND LIPOSOLUBLE

Vitamin C and the B vitamins are soluble in water. Vitamin C strengthens your immune system and helps with the absorption of iron. B vitamins enable your body to use energy nutrients.

Keywords > Water-soluble vitamins: B, C

The other vitamins are fat-soluble. Vitamin A is vital for growth, sight and skin renewal. Vitamin D is produced by the action of the sun on our skin and allows the body to use calcium. Vitamin E is an important antioxidant. It protects body tissue and helps fight cell ageing. Finally, vitamin K allows blood to clot, i.e. to form blood clots to stop bleeding when a blood vessel is damaged.

Keywords > Fat-soluble vitamins: A, D, E, K

MINERALS



Minerals also play an important role in body function and maintenance. We often identify **calcium** as an important component of bones and teeth, but it has plenty of other functions as well. For example, it helps to regulate the pulse.

Iron is an oligo-element as it is only present in traces in blood. It is often associated with transporting oxygen but it also plays a protective role as it helps our immune system to defend itself against infection.

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Magnesium helps protect us against disease, bacteria and viruses. It also helps relax muscles and fight stress. More important still, it plays a role in protein synthesis and producing energy.

Potassium helps regulate the water in the body as well as blood pressure.

There are other minerals, but our aim is not to give you an exhaustive list with a detailed explanation of the role of each one. It is more important to remember that it is not enough to build up your body and give it energy; you also need to maintain and protect it for it to function correctly.

FIBRE



A final word about the role of fibre. The human body is unable to digest or absorb fibre. It is passed along the intestine without being broken down by digestive enzymes. So it plays a role in regulating intestinal transit.

Keywords > Dietary fibre

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Vitamins and minerals provide the body with energy.

- True
- False

The body synthesises sufficient amounts of vitamins.

- False
- True

Vitamins help prevent illness and boost growth.

- True
- False

Liposoluble describes something that is soluble in...

- fat
- water
- alcohol

Vitamin C is...

- liposoluble
- hydrolysed
- hydrosoluble

B-group vitamins enable the use of...

- energy nutrients
- building nutrients
- protection nutrients

Potassium helps regulate blood pressure and water in the body.

- False
- True

Iron is...

- a macroelement
- a macronutrient
- a trace element

Fibre regulates...

- morning transit
- intestinal transit
- intestinal transfer

Fibre is broken down by digestive enzymes.

- False
- True

Answers

Vitamins and minerals provide the body with energy.

- True**
Wrong! Try again!
- False**
Well done! They play a key role in keeping your body going and in protecting it.

The body synthesises sufficient amounts of vitamins.

- False**
Well done! Vitamins must be obtained from food, because your body does not synthesise them, or at least not in sufficient amounts.
- True**
Wrong! That's not the right answer.

Vitamins help prevent illness and boost growth.

- True**
Well done! They help your body use energy nutrients and minerals.
- False**
Wrong! Try again!

Liposoluble describes something that is soluble in...

- fat**
Well done! That's right!
- water**
Wrong! Try again!
- alcohol**
Wrong! That's not the right answer.

Vitamin C is...

- liposoluble**
Wrong! That's not the right answer.
- hydrolysed**
Wrong! Try again!
- hydrosoluble**
Well done! Yes, vitamin C is soluble in water.

B-group vitamins enable the use of...

- energy nutrients**
Well done! That's right!
- building nutrients**
Wrong! That is not the right answer.
- protection nutrients**
Wrong! Try again!

Potassium helps regulate blood pressure and water in the body.

- False**
Wrong! That's not the right answer.
- True**
Well done! That's right!

Iron is...

- a macroelement**
Wrong! It can only be found in trace amounts in your body.
- a macronutrient**
Wrong! Carbohydrates, lipids and proteins are macronutrients.
- a trace element**
Well done! Iron is considered a trace element because your body only has very small quantities of it.

Fibre regulates...

- morning transit**
Wrong! Though it was a nice try!
- intestinal transit**
Well done! This is what we call the journey food makes in your intestines.
- intestinal transfer**
Wrong! You are not far off though.

Fibre is broken down by digestive enzymes.

- False**
Well done! Fibre cannot be digested.
- True**
Wrong! That's not the right answer.

What role do nutrients perform?

[14-16 years old]

Answer the following questions.

1. What are the two main roles of proteins?

2. What is the calorific value of lipids?

3. Can the body store nutrients that provide energy?

4. Which energy nutrients do you use at the beginning of any physical exercise?

5. What is the difference between water-soluble and liposoluble vitamins?

6. What role does vitamin C play?

7. Name three minerals.

8. In which parts of the body can you find a large amount of calcium?

9. What role does dietary fibre play?

10. How is water eliminated from the body?
