

## Hydration, circulation and cleaning

### WATER

Every nutrient plays a specific role in the body and each is vital for health. This is also true of water. Water does not provide energy but is the main component of the human body and is found in all cells. We refer to **intracellular water** to mean the water contained in cells and **extracellular water** to refer to the water that surrounds cells. On average, water represents 60% of body weight, but this proportion depends on age, weight and size. The thinner a person is, the higher the percentage of water. However, this proportion diminishes with age since body tissue dehydrates with age.

### HYDRATION

Some people compare the body to a sponge which needs to be constantly soaked to ensure it does not dehydrate. The body constantly loses water through **perspiration**, **excretion** and even **breathing**. Although we can store energy, we cannot store water. This means that any loss of water has to be replaced by new supplies every day. Which is why we cannot survive very long without water. You cannot go without water for more than 2 to 5 days, as a loss of 20% of the water in the body can be fatal.

### OTHER FUNCTIONS OF WATER

The role of water does not stop there. It takes part in numerous chemical reactions. It therefore plays an important role in body **function**. It also helps to keep body temperature constant via perspiration.

### Keywords > Circulation

Water carries blood cells and nutrients. It carries the substances our cells need, such as vitamins and minerals, inside our cells.

Finally it helps **clean** the body by helping the kidneys eliminate waste through urine.

In summary, water can be considered as a separate substance. This substance is the main component of the human body and allows it to function. This 'multi-purpose' substance regulates, transports and cleans. This substance is so ordinary we sometimes forget just how important it is.

## Hydration, circulation and cleaning

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On average, what percentage of body weight is water?

- 40%
- 60%
- 80%

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Our cells contain water.

- True
- False

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The proportion of water in the body is not determined by...

- age
- weight
- mood

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Drinking water helps us avoid...

- distillation
- dehydration
- depression

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Breathing eliminates water.

- True
- False

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What percentage of water loss could be fatal?

- 20%
- 30%
- 40%

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Regarding the role water plays in your body, which of the following statements is false?

- Water is involved in chemical reactions.
- Water provides energy.
- Water transports nutrients.

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Which of the following enables the body to maintain its temperature?

- Eating
- Sweating
- Condensation

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Food provides the body with usable water.

- True
- False

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Water helps cleanse the body.

- True
- False

## Answers

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On average, what percentage of body weight is water?

- 40%  
*Wrong! It's more than that.*
- 60%  
*Well done! That's right!*
- 80%  
*Wrong! It's less than that.*

---

Our cells contain water.

- True  
*Well done! Cells contain intracellular water.*
- False  
*Wrong! Try again!*

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The proportion of water in the body is not determined by...

- age  
*Wrong! The older a person is, the more their skin dehydrates.*
- weight  
*Wrong! The thinner a person is, the higher the proportion of water.*
- mood  
*Well done! The proportion of water in your body does not depend on your mood.*

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Drinking water helps us avoid...

- distillation  
*Wrong! Nice try, but that's not right.*
- dehydration  
*Well done! Your body does not store water, so you have to keep up your water intake to compensate for water loss.*
- depression  
*Wrong! Try again!*

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Breathing eliminates water.

- True  
*Well done! That's right. You can actually see this if you breathe on a cold window.*
- False  
*Wrong! That's not the right answer.*

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What percentage of water loss could be fatal?

- 20%  
*Well done! The figure is this low because your body does not have any reserves of water.*
- 30%  
*Wrong! It's less than that.*
- 40%  
*Wrong! It's much less.*

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Regarding the role water plays in your body, which of the following statements is false?

- Water is involved in chemical reactions.  
*Wrong! Water is essential for your body to function as it plays a part in chemical reactions.*
- Water provides energy.  
*Well done! Water does not provide your body with energy, but is essential for your body to function.*
- Water transports nutrients.  
*Wrong! Water does transport nutrients into your cells.*

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Which of the following enables the body to maintain its temperature?

- Eating  
*Wrong! That's not the right answer.*
- Sweating  
*Well done! Perspiration cools your body down.*
- Condensation  
*Wrong! Try again!*

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Food provides the body with usable water.

- True  
*Well done! Food contains water and provides your body with 1 to 2 litres a day.*
- False  
*Wrong! Try again!*

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Water helps cleanse the body.

- True  
*Well done! Water helps your kidneys do their work and the elimination of waste through urine.*
- False  
*Wrong! That's not the right answer.*

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## What role do nutrients perform?

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*[14-16 years old]*

Answer the following questions.

1. What are the two main roles of proteins?

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2. What is the calorific value of lipids?

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3. Can the body store nutrients that provide energy?

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

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

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6. What role does vitamin C play?

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7. Name three minerals.

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

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9. What role does dietary fibre play?

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10. How is water eliminated from the body?

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