4.2.1

Transforming food

TRANSFORMATION INTO NUTRIENTS

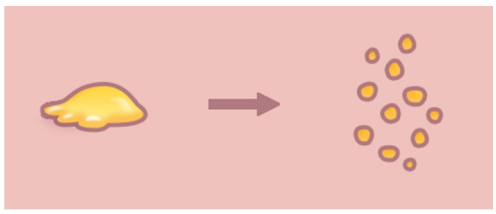
Imagine an experiment with a tube perforated with several small holes. If we pour water into the tube, it easily comes out of the holes. The same thing can be done with sand.
Once again, the grains of sand pass through the holes easily. If we use pebbles instead, they will go from one end of the tube to the other, without passing through any of the lateral holes. These pebbles must be made smaller if they are to pass through the holes.

The digestive tract does the same with food, without us even realizing it. It transforms the food we eat into simple nutrients, so that these nutrients can pass through the intestinal wall. The body can absorb some nutrients directly. This means that they can pass through the wall of the digestive tract, just like water and sand passed through the perforated tube. Here we are obviously not talking about sand, but about vitamins, minerals and some simple carbohydrates.

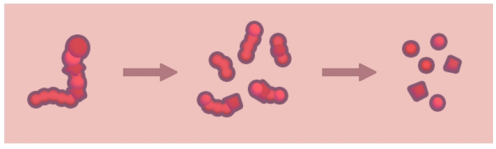

Vitamins


Minerals

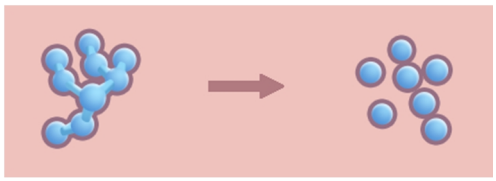

Simple carbohydrates



Other nutrients are more complex and must be transformed, just like our pebbles. For example, lipids must be transformed into fatty acids.



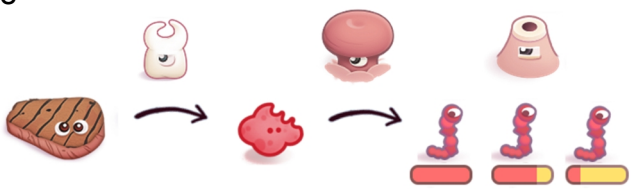
Proteins must be transformed into small peptides and amino acids.



Complex carbohydrates, such as starch, must be transformed into simple carbohydrates such as glucose.

THE TRANSFORMATION OF FOOD IN DIGESTIX

DIGESTIX illustrates this transformation of food, even though the game has been slightly simplified. Players position the digestive pieces so that food is first transformed into fragments and then into nutrients.



You need to manually collect simple nutrients, such as vitamins and minerals. This is especially true for water, which you need to collect to avoid dehydration.

The complex nutrients are absorbed automatically once their level bar is empty. So for example, if the level bar of a lipid moving along the digestive tract is empty, it means that it has been completely transformed into fatty acids. As a result, the level of lipids will automatically increase.

4.2.1

Transforming food

The intestines absorb vitamins, minerals and some simple carbohydrates directly.

- O True
- O False

For proteins to be absorbed by the intestines, they need to be broken down into...

- O fatty acids
- O simple carbohydrates
- O peptides and amino acids

During digestion, lipids are broken down into...

- O amino acids
- O fatty acids
- O citric acid

During digestion, complex sugars are broken down into...

- O digested sugars
- O amino acids
- O simple sugars

During digestion, the starch in bread and pasta is converted into...

- O xylose
- O fructose
- O glucose

Digestion breaks down food into....elements.

- O smaller
- O longer
- O larger

Fibre is a simple carbohydrate.

- O True
- O False

Fibre is digested and absorbed by the small intestine.

- O False
- O True

Which of the following functions does not take place in the small intestine?

- O Absorption
- O Digestion
- O Fermentation

The absorption of nutrients refers to when digested nutrients pass through the colon wall.

- O False
- O True

Answers

The intestines absorb vitamins, minerals and some simple carbohydrates directly.

- ● **True**
  Well done! They are absorbed directly by your intestines.
- ○ **False**
  Wrong! That's not the right answer.

For proteins to be absorbed by the intestines, they need to be broken down into...

- ○ **fatty acids**
  Wrong! Lipids are broken down into fatty acids.
- ○ **simple carbohydrates**
  Wrong! Complex carbohydrates are broken down into simple carbohydrates.
- ● **peptides and amino acids**
  Well done! Proteins are broken down into peptides and amino acids.

During digestion, lipids are broken down into...

- ○ **amino acids**
  Wrong! Proteins are broken down into amino acids.
- ● **fatty acids**
  Well done! Most lipids are broken down into fatty acids.
- ○ **citric acid**
  Wrong! That's not the right answer.

During digestion, complex sugars are broken down into...

- ○ **digested sugars**
  Wrong! Nice try, but it's not the right answer.
- ○ **amino acids**
  Wrong! Proteins are broken down into amino acids.
- ● **simple sugars**
  Well done! That's right!

During digestion, the starch in bread and pasta is converted into...

- ○ **xylose**
  Wrong! That's not the right answer.
- ○ **fructose**
  Wrong! Try again!
- ● **glucose**
  Well done! That's right!

Digestion breaks down food into....elements.

- ● **smaller**
  Well done! Digestion serves to break down food into smaller elements that can be absorbed.
- ○ **longer**
  Wrong! Try again!
- ○ **larger**
  Wrong! That's not the right answer.

Fibre is a simple carbohydrate.

- ○ **True**
  Wrong! That's not the right answer.
- ● **False**
  Well done! Fibre is a complex carbohydrate made up of long sequences of simple carbohydrates.

Fibre is digested and absorbed by the small intestine.

- ● **False**
  Well done! Your intestines do not digest or absorb fibre.
- ○ **True**
  Wrong! Try again!

Which of the following functions does not take place in the small intestine?

- ○ **Absorption**
  Wrong! Nutrients are absorbed in your small intestine.
- ○ **Digestion**
  Wrong! Proteins, lipids and some complex sugars are digested in your small intestine.
- ● **Fermentation**
  Well done! Fermentation takes place in your large intestine.

The absorption of nutrients refers to when digested nutrients pass through the colon wall.

- ● **False**
  Well done! It is actually when nutrients pass through the wall of your small intestine into your bloodstream.
- ○ **True**
  Wrong! Careful, that's the wrong intestine.