

Why is digestion important?

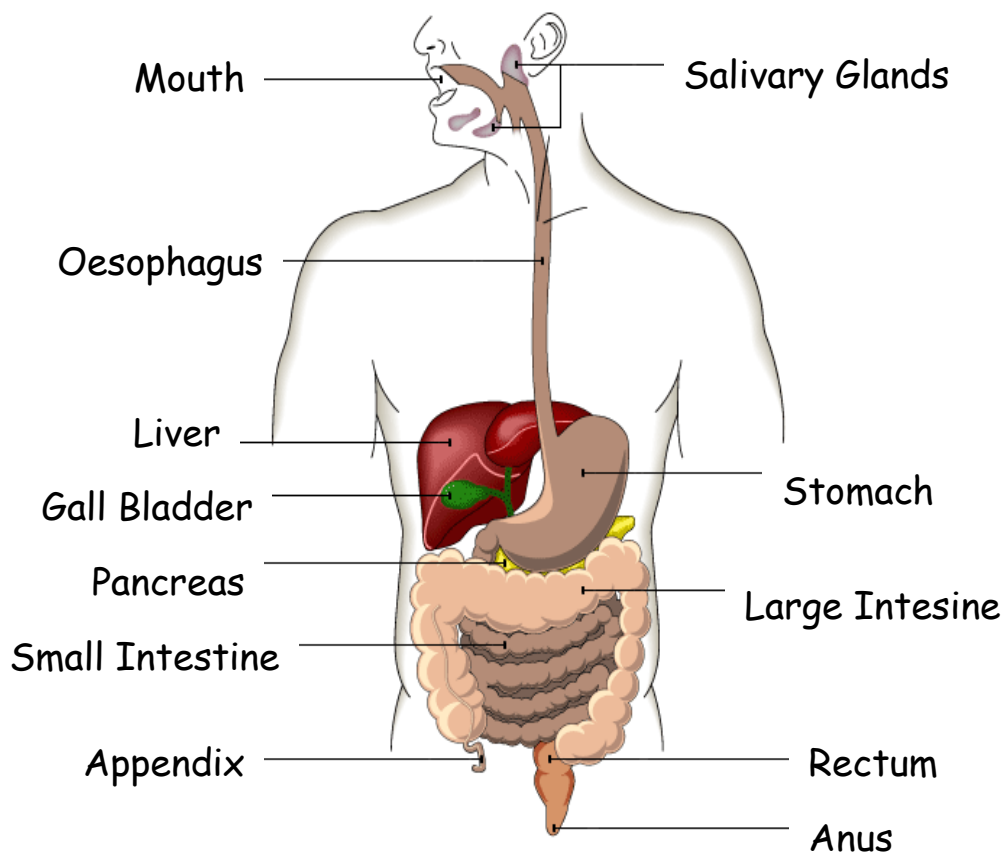
Our bodies get energy from food, but cells can only release energy from tiny food particles.

Food is made up of big bits of carbohydrates, fats and proteins. Carbohydrates, fats and proteins are far too BIG to get to our cells so we need a process to break them up into TINY particles which can pass into our blood and get transported to our cells.

The process of breaking BIG bits of food down into TINY particles is known as digestion.

- Proteins are broken down into amino acids.
- Carbohydrates are broken down into sugar.
- Fats are broken down into fatty acids.

Amino acids, sugar and fatty acids are small enough to be carried around our bodies by blood and pass into cells.



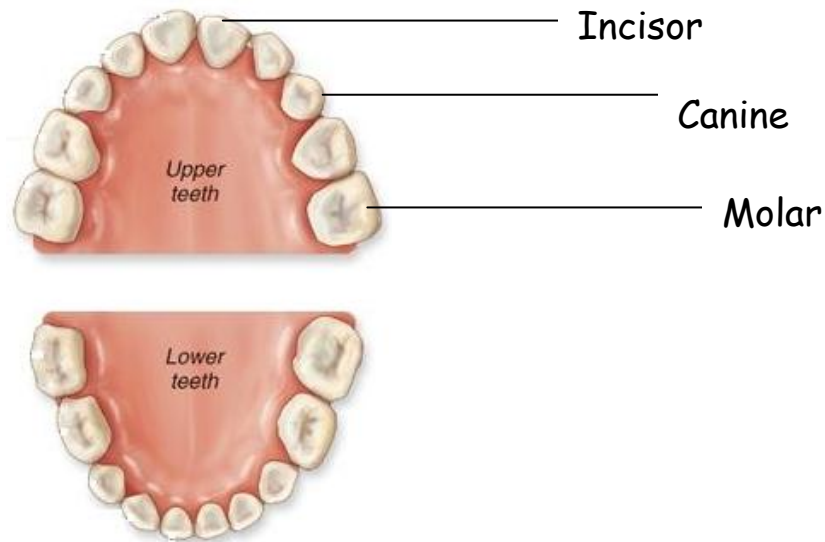
Digestion happens because food is mashed, and shaken up, with special digestive juices known as enzymes. Enzymes have a very important job in digestion they act like scissors and cut big bits of food into tiny pieces. Enzymes are found in the mouth, the stomach and the small intestine.

The Mouth

The mouth is where digestion begins. Two features of the mouth have an important job in digestion:

1. Teeth
2. Saliva

1. **Teeth** crush and grind food to break it down into smaller pieces which can be swallowed.



Each type of tooth has a different job:

- Incisors are chisel shaped and are used to tear food apart
 - Canines are pointy and are used to hold on to food. In carnivores, like lions, they are much longer and are used to hold on to prey.
 - Molars have bumpy surfaces to grind food into small pieces
2. **Saliva** helps to lubricate food. This makes little balls of food easier to swallow and move to the stomach.

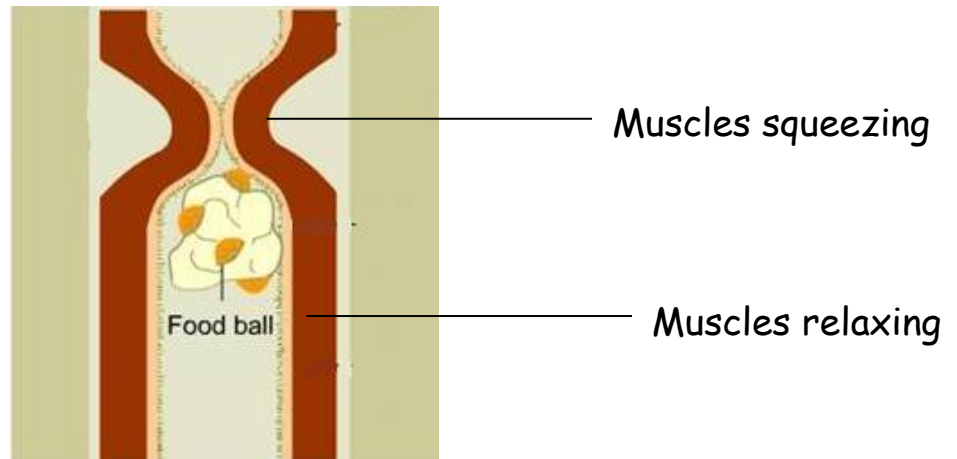
Saliva also contains a type of digestive juice, also known as an enzyme. Enzymes act like scissors, they cut big bits of food into tiny pieces. The enzyme found in the mouth breaks down carbohydrates.

Saliva is made in salivary glands. Salivary glands are the bumpy bits you can feel in your cheek if you rub it with your tongue.

The Oesophagus

The digestive system is one long tube made of muscle, which goes from the back of your mouth all the way to your anus.

The oesophagus (you say it "oh-sof-a-gus") is the part of the tube which connects the back of the mouth to the stomach.



When you swallow food doesn't just fall into your stomach it is moved along the oesophagus by muscles. Muscles behind the ball of food squeeze and the ones in front relax to make space for the food to move forward.

The action of muscles squeezing to push food is called **peristalsis**. Because of peristalsis we can eat upside down!

- Have you ever swallowed a sweetie whole by mistake?
- Did you feel it move slowly down your oesophagus?
- This was the muscles pushing it along your oesophagus!

The Stomach

The stomach is a like a bag made of muscle. It works like a washing machine a mixes food up with digestive juices and acid.

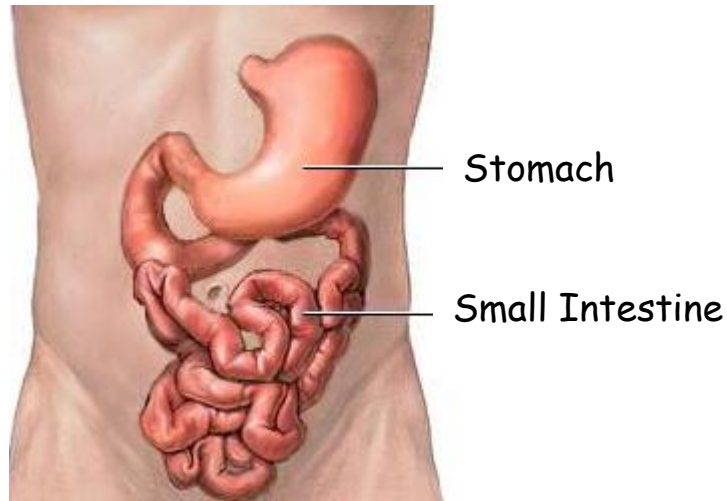


Digestive juices are also known as enzymes. The enzymes found in the stomach help to digest protein.

The Small Intestine

When food leaves the stomach it enters the start of the small intestine.

The small intestine is about 6m long! Almost three times longer than the large intestine. Like the rest of the digestive system the small intestine is made of muscles.



The gall bladder and pancreas both squirt digestive juices into the small intestine. Digestive juices are also known as enzymes. Enzymes in the small intestine help to digest fats.

The gall bladder also squirts an alkali into the small intestine to neutralise the acid and stop it burning the small intestine.

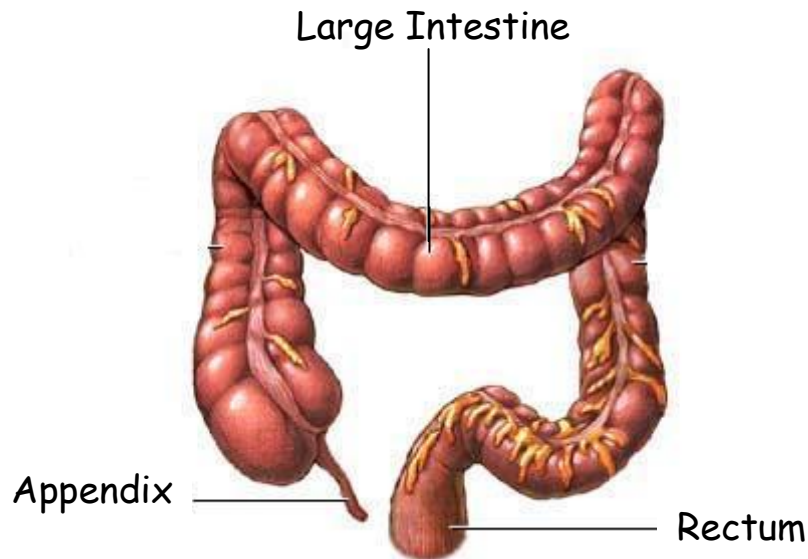
By the time food gets into the main part of the small intestine it all the BIG bits of food that were eaten have been broken down into TINY particles. The main job of the small intestine is to absorb all the TINY food particles into the blood and leave the waste behind. Wastes can include pieces of fruit and vegetables which the body cannot digest e.g. the skin.

To help absorb as much nutrients as possible the inside of the small intestine is covered in lots of tiny little fingers called villi. If you unfolded the small intestine it would cover a tennis pitch!

The Large Intestine

The large intestine comes after the small intestine. The large intestine is about 1.5m long. Although it is a lot shorter than the small intestine it is fatter in diameter. Another name for the large intestine is the colon.

The large intestine is made of three sections; the bit that goes up (ascending colon), the bit that goes sideways (transverse colon) and the bit that goes down (descending colon).



Any waste from the small intestine enters the large intestine. The job of the large intestine is to absorb water from the waste, leaving only solid waste behind. Solid waste is known as faeces (you say it "fee-sees").

The large intestine's job is very important. If the large intestine does not do its job properly and leaves too much water in the waste you will have diarrhoea (you say it "die-a-ree-a") !!

Just like in the rest of the digestive system waste is pushed along by squeezing muscles.

The Rectum

The rectum is found at the end of the large intestine. The job of the rectum is to store faeces until you can get to the toilet!

Once at the toilet faeces is passed out through a ring of muscle known as the anus.