DIGESTIVE SYSTEM

Digestion occurs when foods are broken down and absorbed into your blood to be transported to your cells. The food we eat gives us the energy to stay alive and the building blocks for growth and repair. We also need to eat food with fibre in it, such as fruits and vegetables. These foods help move everything through the digestive system.

What happens to the food we eat?

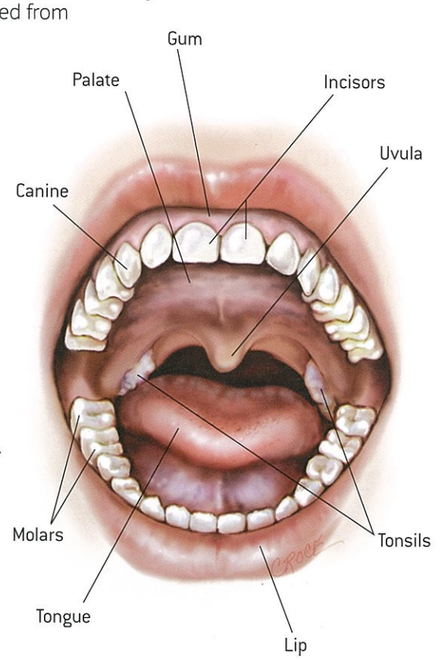
Food enters your mouth and passes through the digestive tract. The digestive tract forms a tube stretching from your mouth to your anus. Along the way, food is broken down and absorbed across the walls of the intestines and into the blood. The blood pushes **nutrients** from the food around the body to where they are needed. Food that cannot be digested by the body becomes waste and stays in the digestive tract until the end, where it is discharged from the body.

Mechanical digestion

Mechanical digestion is where the mouth works like a machine, biting and breaking food to divide it into smaller pieces.

Chemical digestion

Chemical digestion happens when chemicals called **enzymes** break down the food. Chemical digestion begins in the mouth.



Your mouth is home to three main types of teeth: the front ones are called incisors (for cutting); the pointy teeth next to the incisors are called canines (for piercing and holding food); and the rest of your teeth, which are flatter, are called molars (used for grinding food). Your tongue, a large muscular organ, pushes food around, helping your teeth crush it.

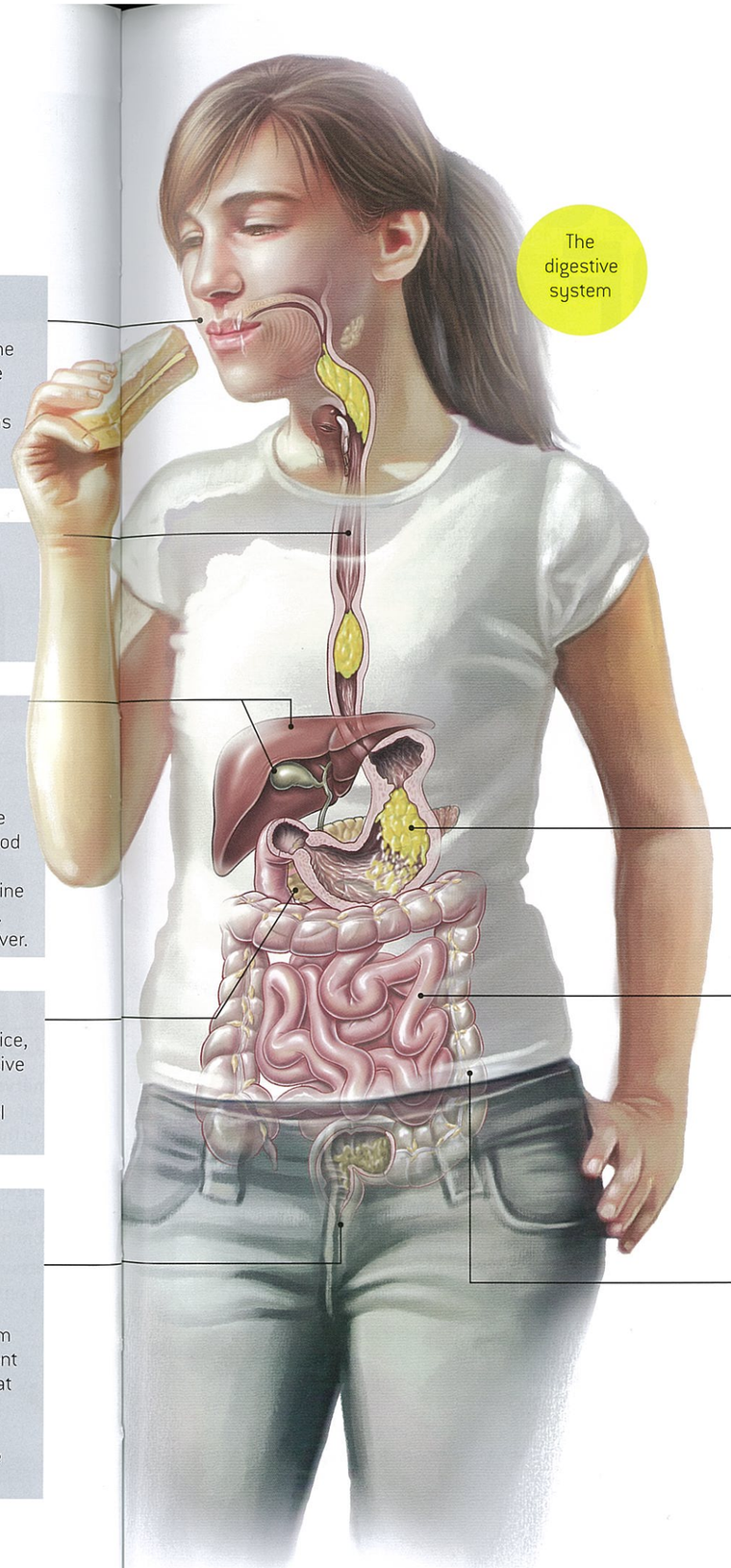
Teeth and mouth
The teeth are responsible for the physical breakdown of food and the tongue is important in pushing the food towards the teeth. Salivary glands make saliva, which contains enzymes to start chemical digestion.

Oesophagus
The oesophagus is a tubular muscle that forces food down to your stomach in a process called peristalsis.

Liver and gall bladder
The liver makes a mixture of chemicals called bile, which is used to digest fat and neutralise (deactivate) stomach acid. The bile is stored in the gall bladder until food reaches the small intestine. Bile is then released into the small intestine through a tube called the bile duct. Food does not travel through the liver.

Pancreas
The pancreas makes pancreatic juice, which contains a mixture of digestive enzymes and also neutralises stomach acid. Food does not travel through the pancreas.

Rectum and anus
The rectum is the final part of the journey for what is now solid, undigested food, or faeces (poo). The rectum stores faeces until it starts to become full. As the rectum starts to stretch, messages are sent to the brain to make you realise that you need to go to the toilet. Rectal muscles push the faeces out of the ring of muscle at the end of the rectum called the anus.



LOOK IT UP

chemical digestion the breakdown of food by enzymes and acids

digestion when foods are broken down and absorbed into the blood to be transported to the cells

enzyme a substance produced by living organisms that helps make chemical reactions happen

nutrient a substance that provides nourishment essential for the maintenance of life and for growth

CHECK IT OUT

1. Starting from the mouth, list the organs of the digestive tract, in order.
2. Food doesn't pass through the pancreas or liver, but these organs still play a role in the digestion of food. What do these organs do?
3. What is the difference between mechanical and chemical digestion?
4. What important role does the small intestine play?
5. What is faeces and how is it expelled from the body?

Stomach
The stomach stores food for about 3 hours while it uses gastric juice to help digest the food. The food in your stomach looks nothing like what you ate for dinner. It is very runny, warm and smelly and has a totally different taste. This mixture is called chyme.

Small intestine
The small intestine is called small because it is quite narrow. If you laid a small intestine out in a straight line, it would be approximately 5 metres long. The intestines are very important because they absorb the nutrients that feed all the cells of the body. The ability to absorb nutrients is increased by wrinkles, called villi, along the inner wall of the intestine that increase the surface area for absorption. Surface area is important in many systems of the body. Bacteria in the small intestine also help with digestion. Sometimes bacteria can produce foul-smelling gases, which escape from the rectum. Chyme takes about 5 or 6 hours to pass through the small intestine.

Large intestine
The large intestine is also called the colon and is wider but shorter than the small intestine. The large intestine is approximately 1.5 metres long. By the time the chyme reaches the large intestine, most nutrients have been absorbed into the bloodstream. However, some vitamins are absorbed from the large intestine. Water is also absorbed into the bloodstream from the large intestine. Chyme stays in the large intestine for up to 14 hours, or sometimes longer.