Digestion

Your body takes in different types of large molecules such as carbohydrates, proteins and lipids. Digestion breaks these down into smaller molecules that can be absorbed. There are two types of digestion.



Mechanical Digestion

This is a physical process. Chewing food in the mouth and the churning of the stomach are types of mechanical digestion.

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Chemical Digestion

This is a chemical process using enzymes. Enzymes are biological catalysts. Catalysts speed up reactions without being used up themselves. Enzymes are specific and only work on one reaction.

Mouth

Food is chewed and mixed with saliva. Saliva contains a carbohydrase called amylase that breaks down starch.

2 Oesophagus

Food is swallowed and passed down the oesophagus. The muscles contract in waves to push the food down. This series of wave-like contractions is called peristalsis.

Stomach

Produces gastric acid, which is a mixture of hydrochloric acid (HCI) and salts. Protease works here to digest proteins. The acidic environment (pH 1.5) provides optimum conditions for enzymes and also kills harmful microorganisms. The partially digested food and digestive juices that leave the stomach is called chyme.

Pancreas

Digestive juices produced and secreted by the pancreas contain the enzymes amylase, protease and lipase. These enzymes work in the small intestine to break down nutrients.

6 Rectum

Part of the large intestine andstores faeces until it can be released from the body out through the anus.

Anus

Liver

Bile is produced in the liver and stored in the gallbladder. Bile breaks lipids into small droplets making it easier for enzymes to work. Bile also makes the small intestine alkaline. Food does not pass through the liver or gallbladder.

Gallbladder

Duodenum

First part of the small intestine where the bile from the gallbladder and digestive juices from the pancreas are mixed with the chyme.

Small Intestine

Carbohydrase, protease and lipase work in the small intestine to break down large nutrient molecules. Bile neutralises the stomach acid and makes the conditions alkaline. The inside wall of the small intestine is covered in tiny, finger-like projections called villi that increase the surface area of the small intestine.

5 Large Intestine

Water is absorbed by osmosis leaving behind faeces (poo). The large intestine is also where most of the vitally important friendly gut bacteria are found.

Absorbing Substances

Digestive Enzymes

in the Small Intestine

If there is a higher concentration of nutrients in the gut than in the bloodstream, the nutrients will diffuse from the gut into the bloodstream. However, sometimes there is a lower concentration of nutrients in the gut than in the bloodstream. When this happens, the nutrients must be absorbed by active transport.





Bloodstream Gut

Bloodstream



The Passage of Food — The Alimentary Canal 7 Mouth \rightarrow Oesophagus \rightarrow Stomach \rightarrow Small Intestine \rightarrow Large Intestine \rightarrow Rectum \rightarrow Anus

