

Organs in the digestive system

There are two main groups of organs which comprise the human digestive system, the alimentary canal and the accessory organs.

The **alimentary canal** consists of organs through which food actually passes.

The **accessory organs** aid in digestion but do not actually transfer food.

Alimentary canal organs

Oesophagus	A hollow tube connecting the oral cavity to the stomach when're the food is mixed with saliva and then is moved in a bolus via the action of peristalsis. It is separated from the trachea by the epiglottis.
Stomach	A temporart storage tank where food is mixed by churning and protein digestion begins. It is lined by gastric pits that release digestive juices, which create an acidic environment (pH~2).
Small intestine	A long, highly folded tube where nutrients are absorbed. It consists of the duodenum, jejunum and ileum.
Large intestine	The final section of the alimentary canal, where water and ions are absorbed. It consists of of the ascending, transverse, descending and sigmoidal colon, as well as the rectum.

Accessory organs

Salivary glands	Release saliva to moisten food, and contains enzymes to initiate starch breakdown. Salivary glands include the parotid gland, submandibular gland and sublingual gland.
Pancreas	Produces a broad spectrum of enzymes that are released into the small intestine via the duodenum. It also secretes certain hormones (insulin and glucagon), which regulate blood sugar concentrations.
Liver	Takes raw materials absorbed by the small intestine and uses them to make key chemicals. Its role includes detoxification, storage, metabolism, bile production and haemoglobin breakdown.

Organs in the digestive system (cont)

Gall bladder	The gall bladder stores the bile produced by the liver (bile salts are used to emulsify fats). It is released into the small intestine via the common bile duct.
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Mechanical digestion

The contraction of circular and longitudinal muscle of the small intestine mixes food with enzymes and moves it along the gut.

**Mechanical digestion involves breaking down food into physically smaller via the acts of chewing, churning and segmentation.

Chewing

Chewing/mastication involves the grinding of teeth in order to break food down into smaller chunks, while the tongue pushes these small chunks towards the back of the throat, where it travels down the oesophagus as a bolus.

Churning

Churning occurs in the stomach, where muscles in the stomach lining physically squeeze and mis the food with digestive juices. Food is digested in the stomach for many hours, and the creamy paste that is formed is known as **chyme**.

Peristalsis

Peristalsis is the principal mechanism of moment in the oesophagus, and involves continuous segments of longitudinal smooth muscle rhythmically contracting and relaxing. Food is moved unidirectionally allong the alimentary canary from the mouth to the anus.

Segmentation

Segmentation involves the contraction and relaxation of non-adjacent segments of circular smooth muscle in the intestines. Segmentation contractions move chyme in both directions, allowing for a greater mixing of food with digestive juices.

Features of the digestive system diagram

Production of an annotated diagram of the digestive system.

Stomach should look like a 'J'-shaped bag and be connected to the oesophagus and small intestine

Liver should look like a right-angled triangle and be superimposed to the left of the stomach (right side of the human)

Bile duct (connected to gall bladder) and pancreatic duct should both feed into a U-shaped bend of the small intestine

Small intestine should be thinner in width than the large intestine

Digestive system diagram



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Not published yet.
Last updated 27th March, 2023.
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