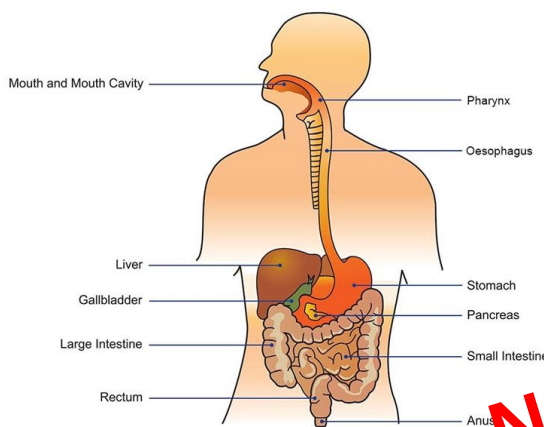


The Digestive System

Types of digestion

- Intracellular: it happens inside the cell.
- Extracorporeal: digestive enzymes are thrown in the environment. (ex: fungi)
- Extracellular: it happens outside the cell but inside the body. Indicates the existence of digestive cavities.

The human digestive system



- **Mouth and mouth cavity:** where mechanical digestion occurs and starch digestion begins through the enzyme *salivary amylase* (ptyalin). Here, the $\text{PH}=7$, which is a neutral PH.

- **Pharynx:** a tube common to the respiratory and digestive systems. It conducts food into the esophagus.

- **Esophagus:** where the

peristaltic movements which are involuntary contractions of the esophageal walls, begin, leading the food to the stomach.

- **Stomach:** where the secretion of gastric juice occurs, formed by HCL or hydrochloric acid ($\text{PH} = 2$). The acid protects the body from pathogens in food and activates the enzyme pepsin, which digests proteins.
- **Small intestine:** finishes the digestion process, aided by the liver, pancreas, and gallbladder. It is divided into duodenum and jejunum ileum.

→ **Duodenum:** a mixture of secretions aids digestion

1. Pancreatic juice (produced by the pancreas), is formed by sodium bicarbonate (makes PH basic), *pancreatic amylase* (digestion of starch), *pancreatic lipase* (digestion of lipids), *trypsin and chymotrypsin* (digestion of proteins), and *nuclease* (digestion nucleic acids).
2. Enteric juice (produced by the duodenum) is formed by *enteric lipase* (digestion of lipids), *disaccharidase* (digestion of sugars), and *dipeptidase* (digestion of proteins).
3. Bile (produced in the liver and stored in the gallbladder) is formed by salts and bile acids that emulsify lipids, facilitating their digestion. Therefore, it is considered mechanical digestion, since there is no participation of enzymes.

→ **Jejunum-ileum:** it has folds and microvilli. Selective absorption of nutrients.

Water-soluble substances are absorbed by the blood and fat-soluble substances are absorbed by the lymphatic circulation.

- **Large intestine:** reabsorption of water and minerals, the formation of fecal matter.