

An anatomical illustration of the human digestive system. The image shows a blue-tinted human torso with the internal organs of the digestive system highlighted in red and pink. The organs visible include the mouth, pharynx, esophagus, stomach, liver, gallbladder, pancreas, small intestine, and large intestine. The text "THE DIGESTIVE SYSTEM" is overlaid in the center in a bold, yellow, sans-serif font.

THE DIGESTIVE SYSTEM

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➤ **Digestive system :**

- Is the body system that is involved in taking and in processing of food for use by your body cells.
- It takes in food, breaks it down into molecules small enough for the body to absorb.
- It gets rid of undigested molecules and waste.

➤ **Parts of the digestive system:**

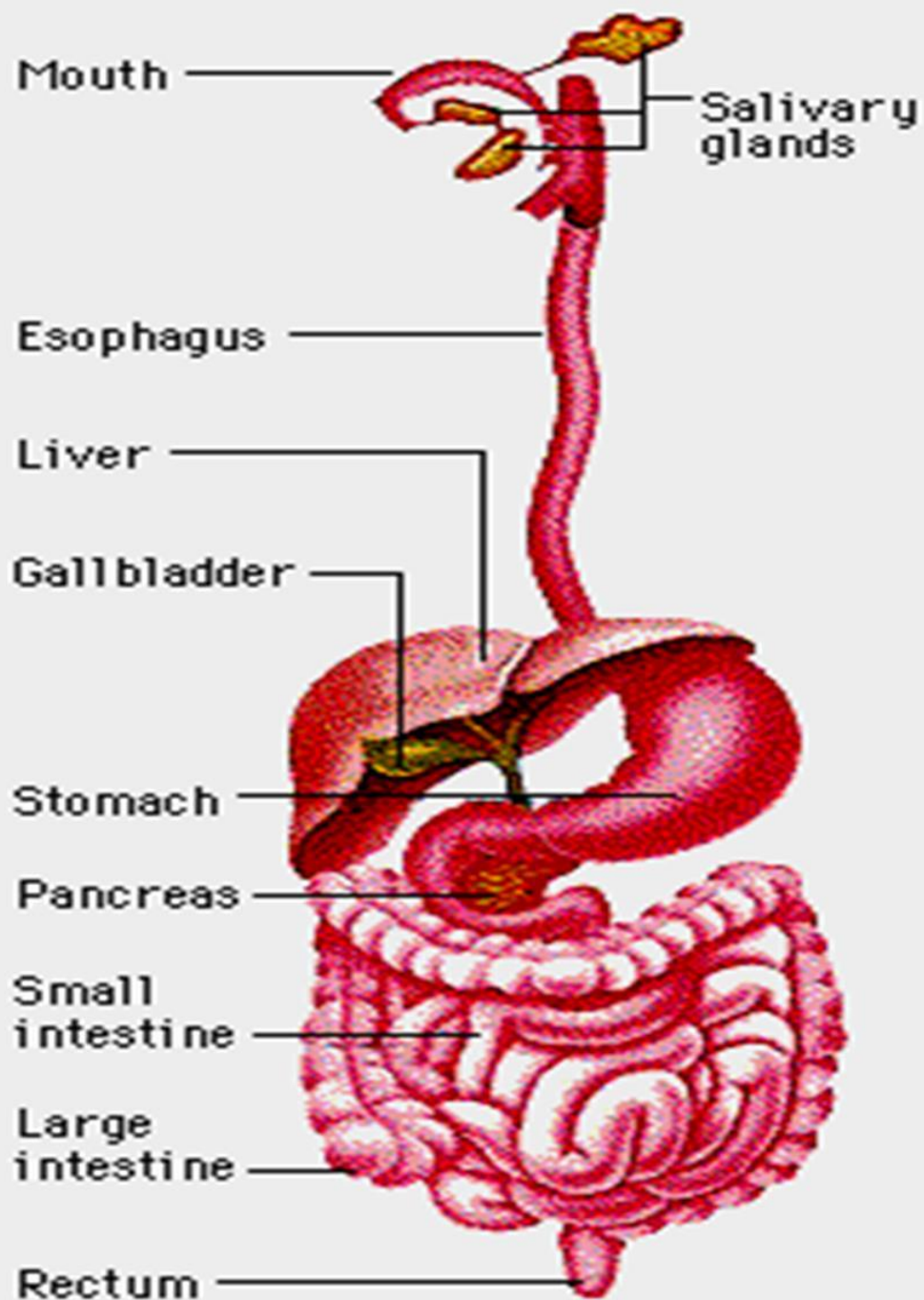
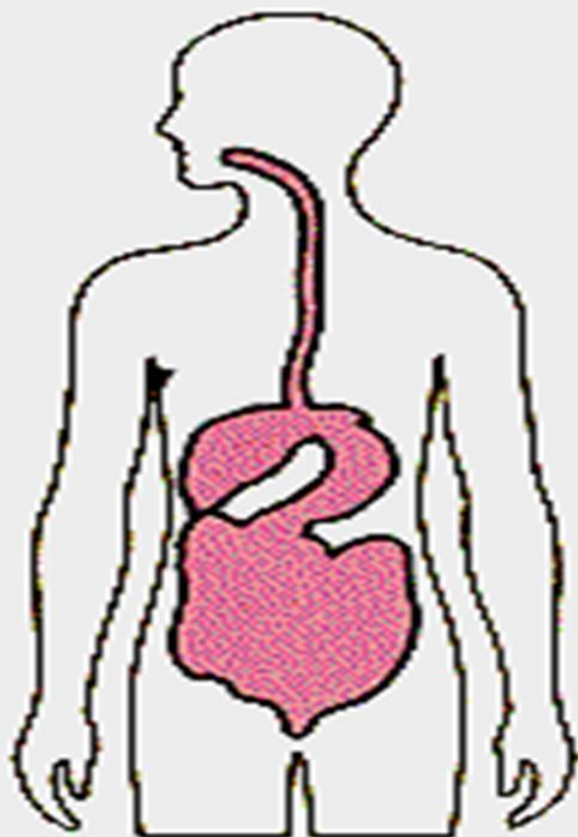
1- Digestive tract:

- Mouth – pharynx – esophagus – stomach – small intestine – large intestine – rectum – anus .

2- Digestive glands:

- Salivary glands
- Liver
- Pancreas
- gallbladder

DIGESTION



PHARYNX

esophagus

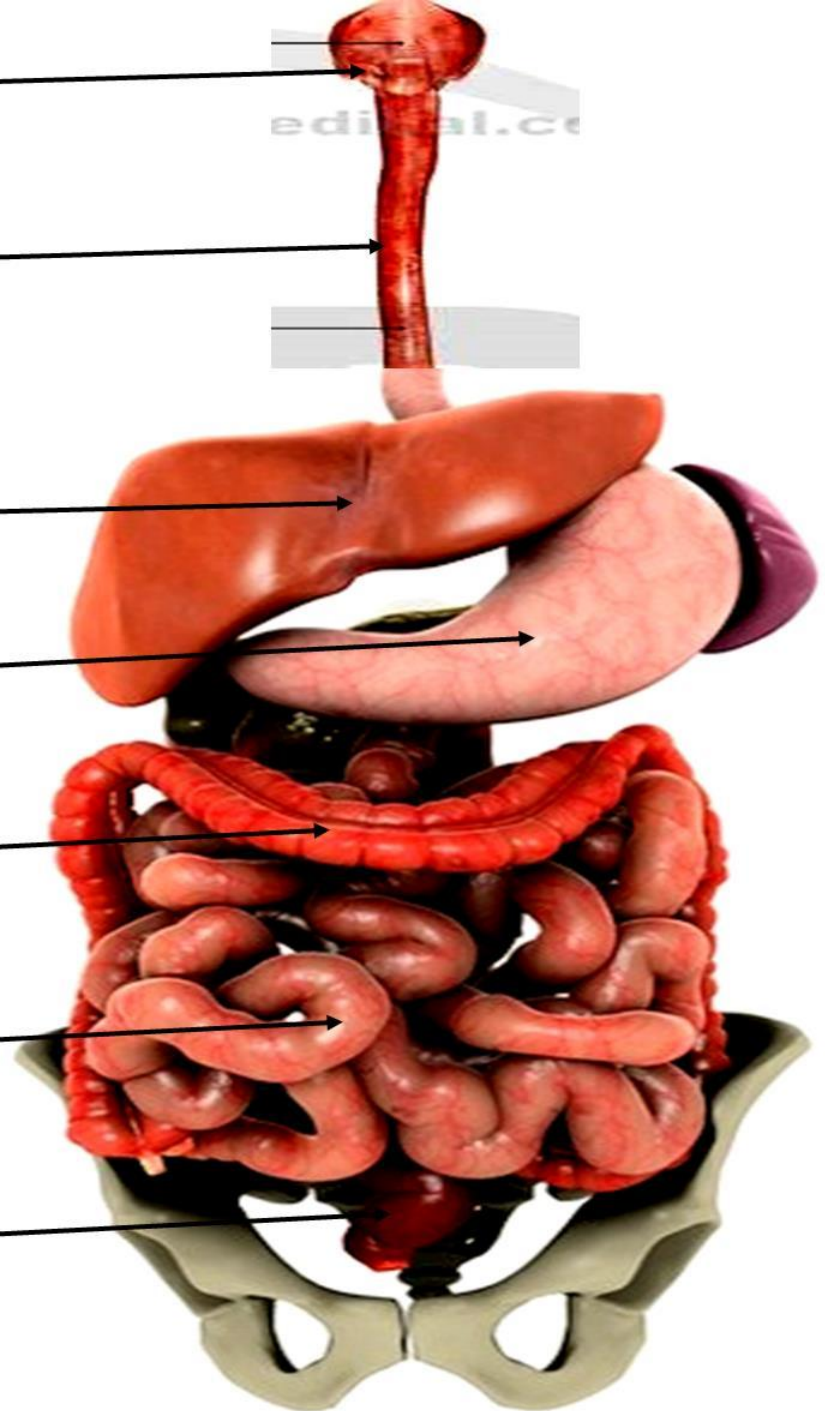
liver

stomach

large intestine

Small intestine

rectum





Mouth

Mouth

- Both types of digestion takes place in the mouth:

1- Mechanical digestion:

- Tongue:

- Mixes food particles with saliva and soften it for easier swallowing.

- Saliva:

- Softens, lubricate and sticks food particles.

- Teeth :

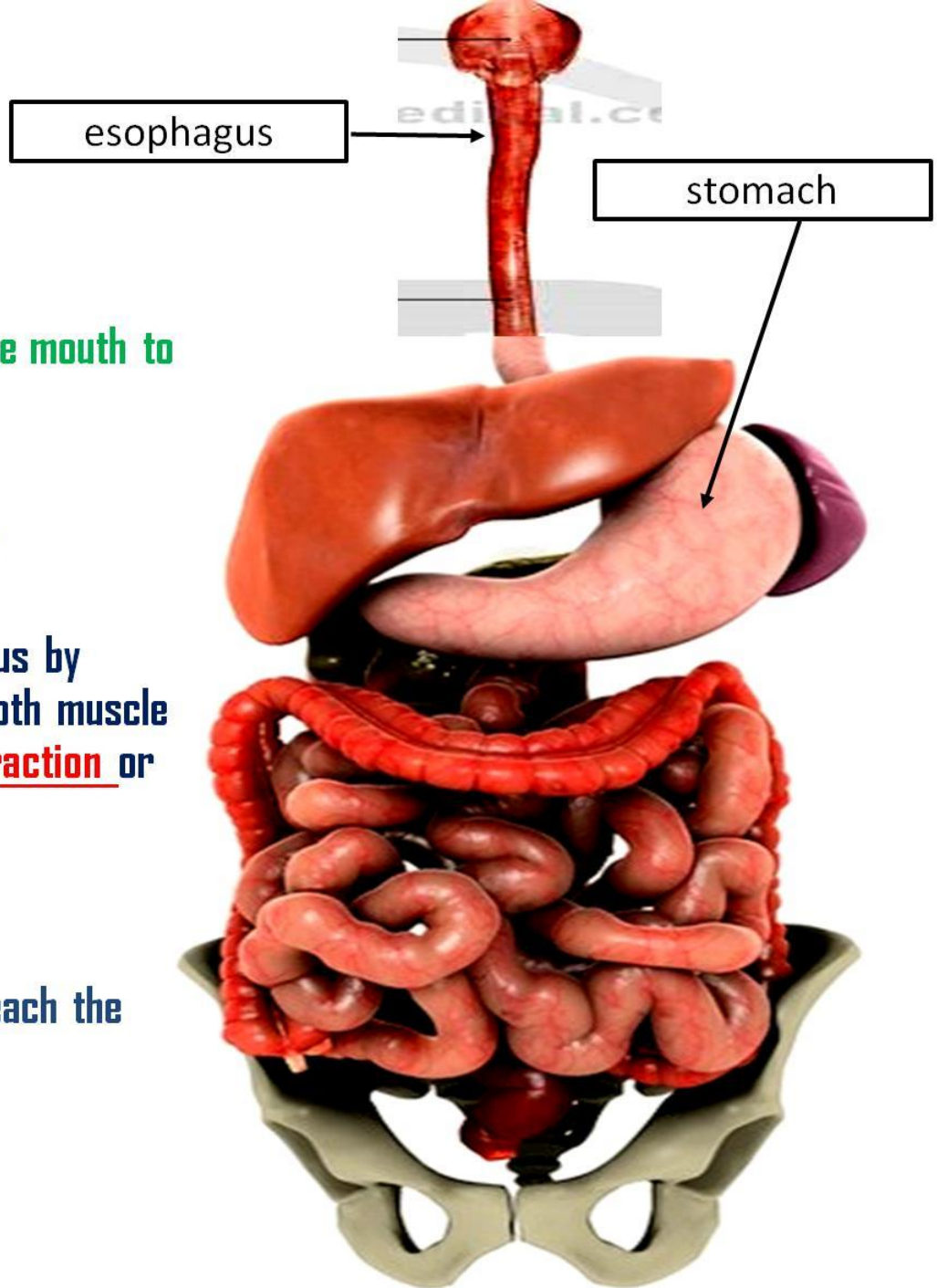
- Four types in upper and lower jaw to tear crush, grind and chew.

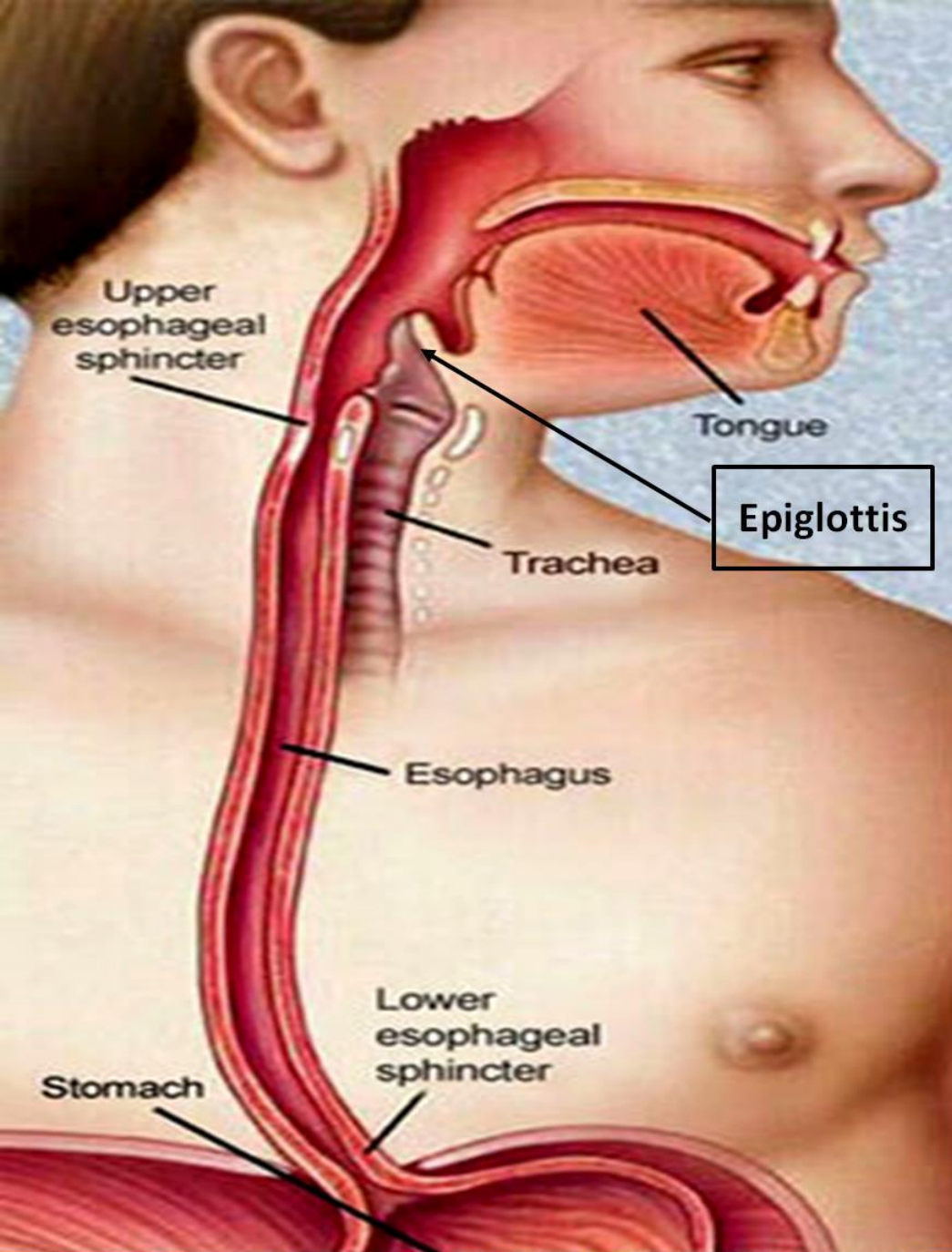
2-Chemical digestion:

- By the action of salivary "amylase enzyme" that breaks down **starch in food into maltose sugar.**

➤ Esophagus :

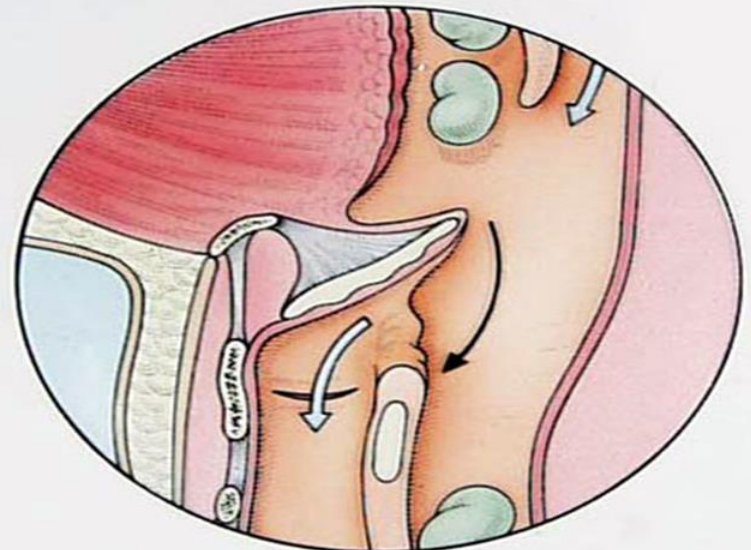
- No digestion takes place in it
- Long tube (25 cm) that connects the mouth to stomach
- The wall is lined by smooth muscles.
- The food move through the esophagus by successive rhythmic waves of smooth muscle contractions called peristaltic contraction or peristalsis
- It takes the food 5-10 seconds to reach the stomach





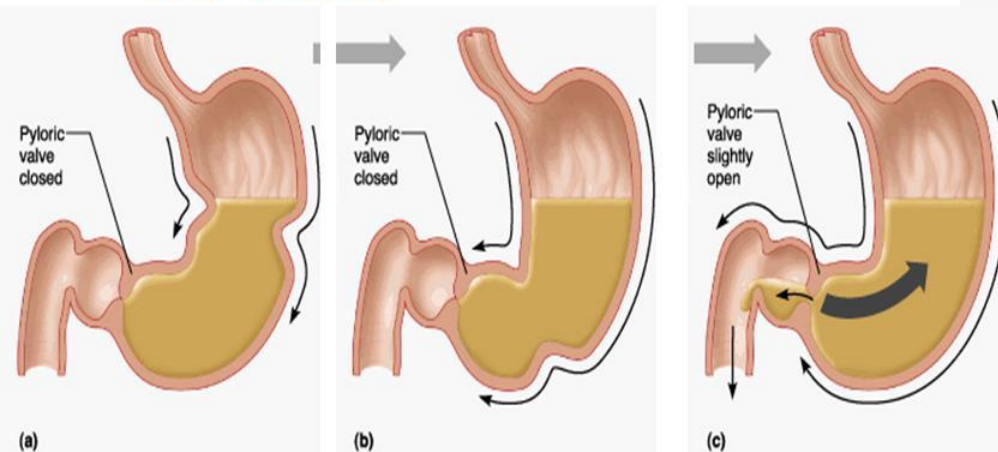
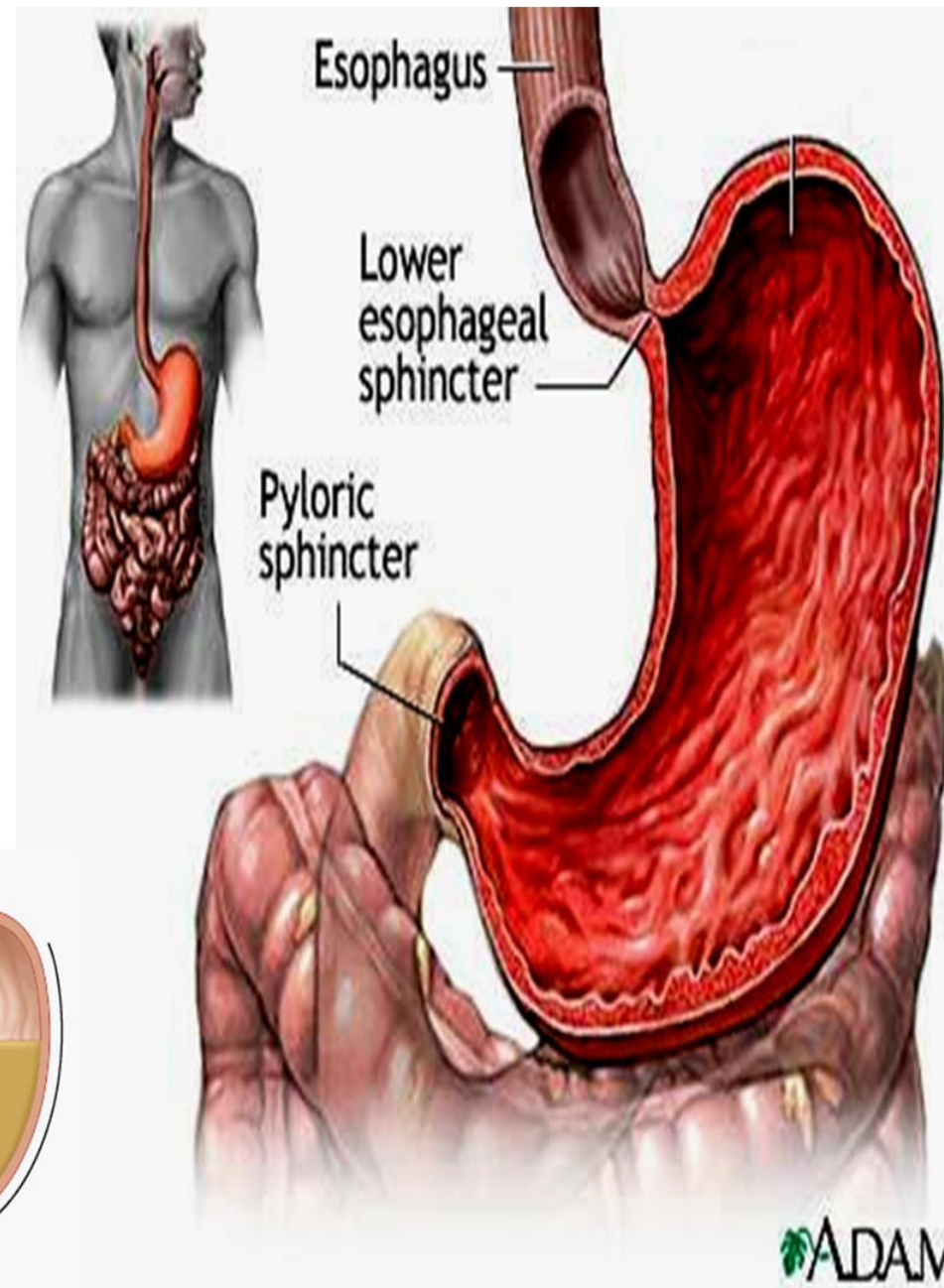
● Epiglottis:

- A flap like tissue
- Prevents the food from entering into the trachea



➤ Stomach :

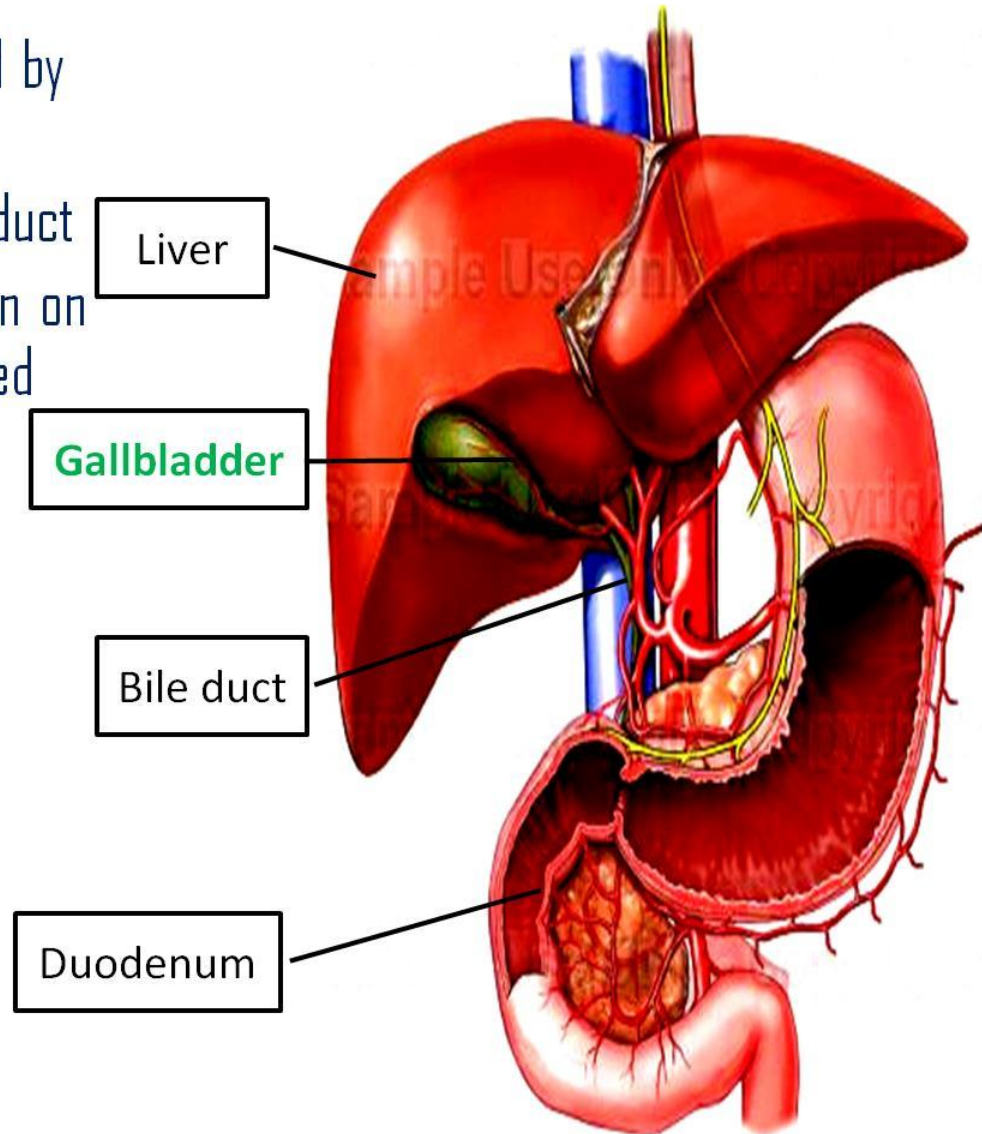
- Food enters the stomach through a muscular valve called a sphincter → prevents the acid-soaked food from going back.
- Temporarily stores food.
- Breaks down food mechanically and chemically.
- Mechanically by peristaltic muscular contractions.



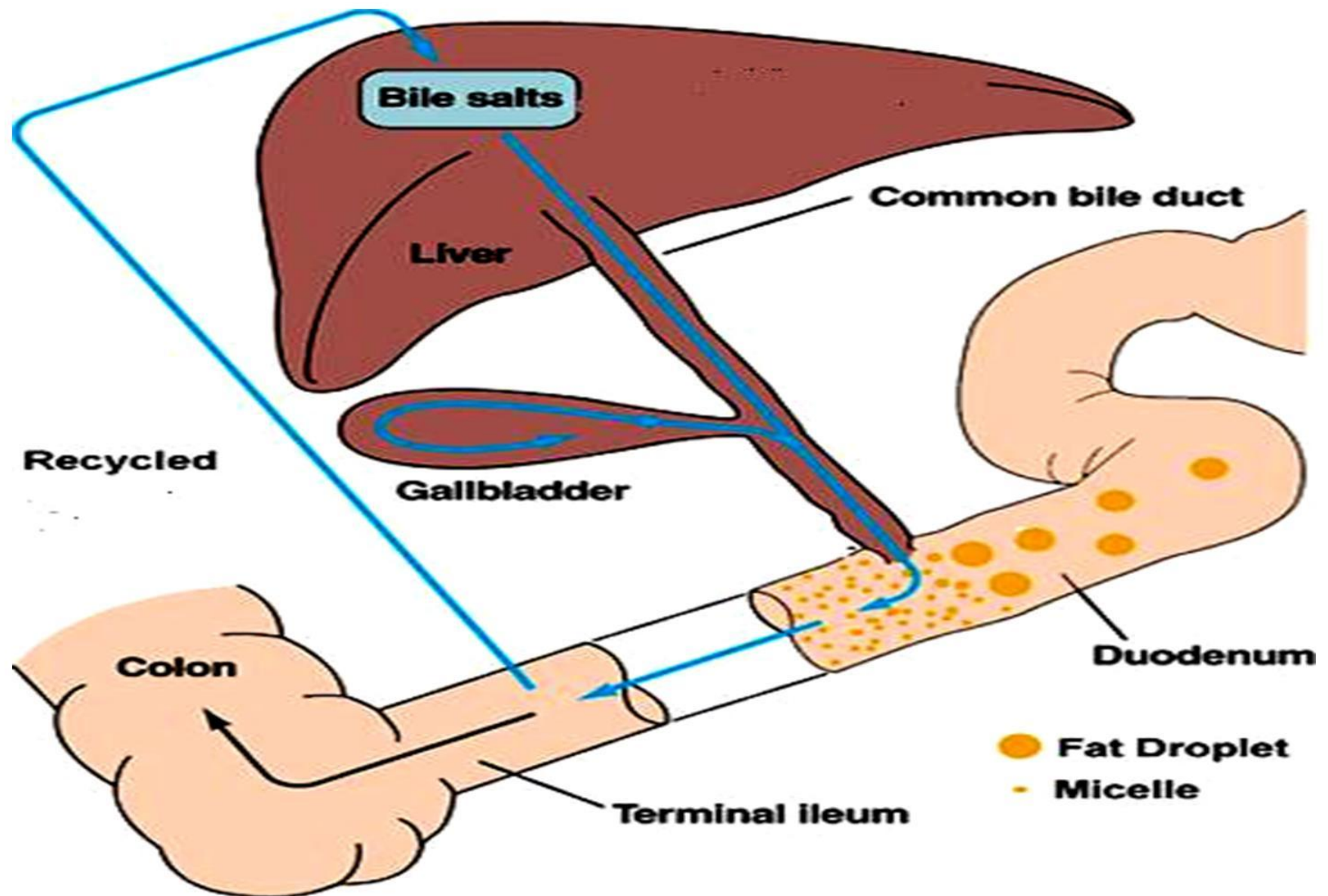
➤ Digestion of fats:

➤ Bile:

- Is a **greenish yellowish** fluid secreted by the liver and stored in **Gallbladder**
- Carried into duodenum through bile duct
- Bile has no enzymes → so its action on fats cause mechanical digestion called **"emulsification"**.



- Emulsification of fats by **Bile** in the duodenum:



➤ Digestion of fats

1- Mechanical digestion:

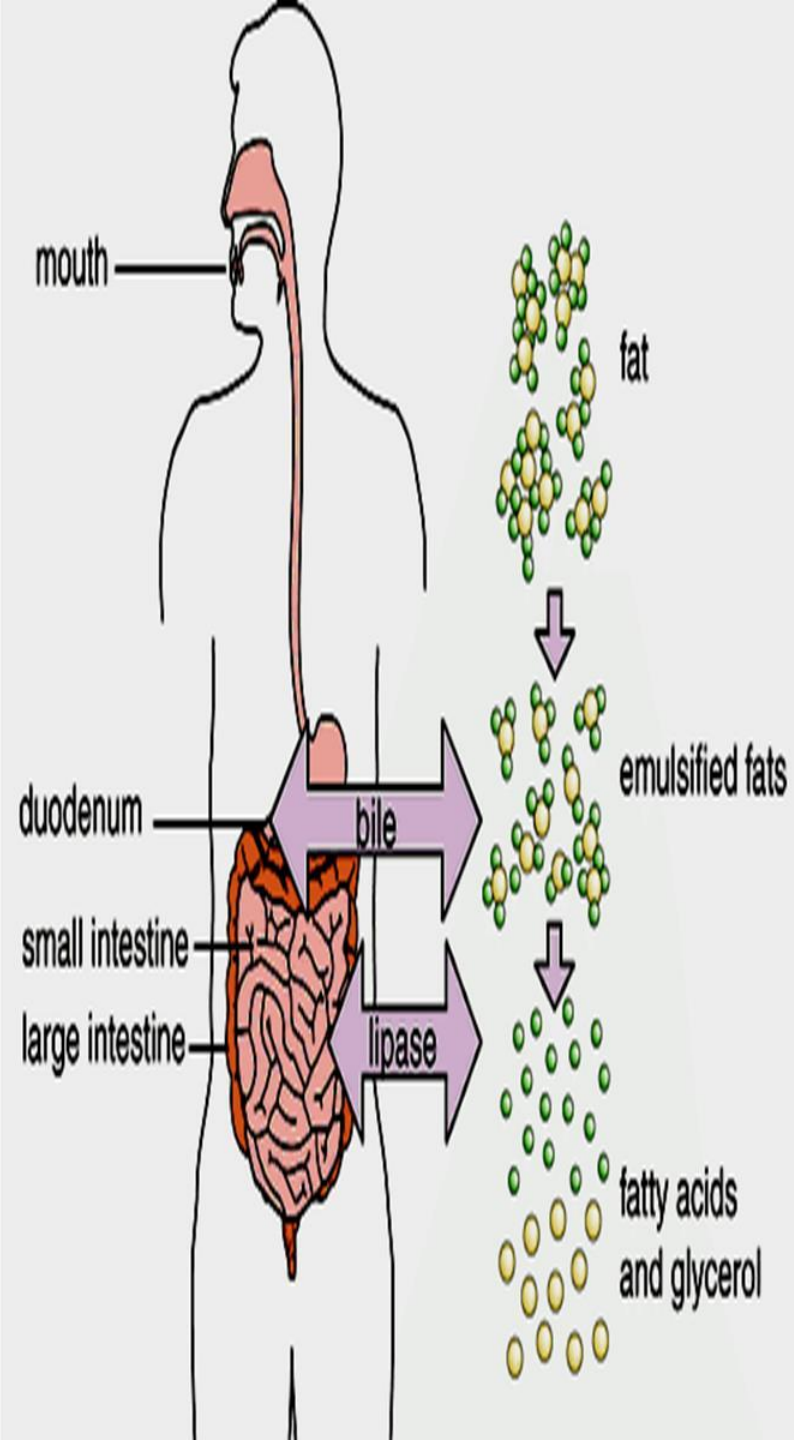
➤ By bile Emulsification:

- -Bile will break down large, complex insoluble lipid molecules into small fat droplets

2- Chemical digestion:

➤ By lipase enzymes:

- Lipase break down fats into fatty acids and glycerol
- It acts at a faster rate because the surface area of lipids is increased by emulsification.



Digestion

➤ Pancreatic juice:

- Secreted in pancreas
- Carried into duodenum through pancreatic duct.

➤ Pancreatic juice contains:

1- Mucus:

- (water) to keep the chyme moist.

2-Digestive enzymes:

➤ Pancreatic amylase:

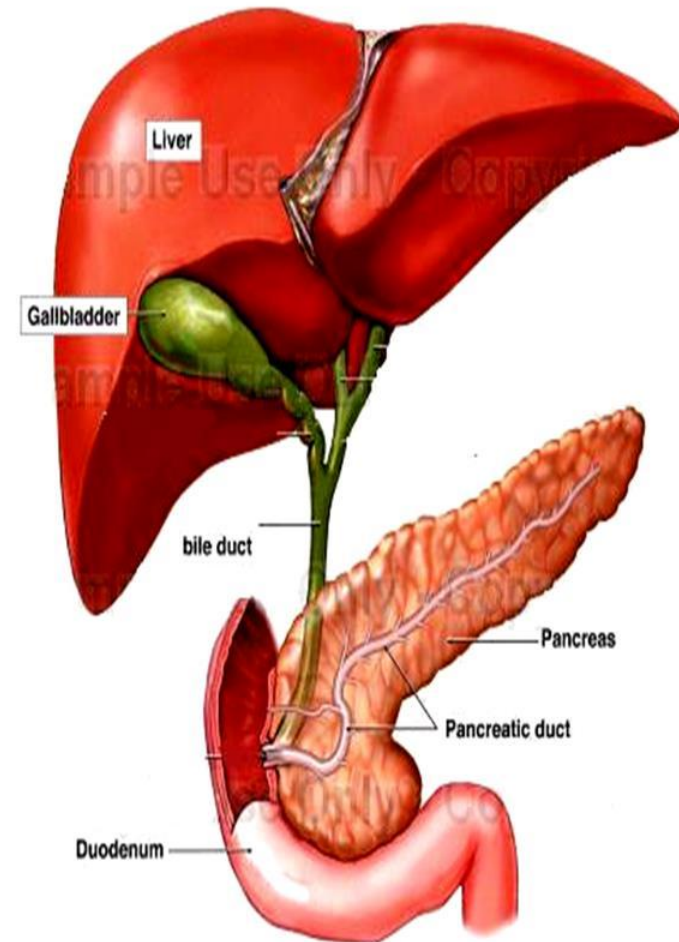
- Digests the undigested parts of starch into maltose sugar.

➤ Lipase :

- Digests small droplets of lipids into fatty acids and glycerol.

➤ Trypsin:

- Digests proteins and polypeptides into simpler amino acids.



The small intestine

-In the small intestine, all the undigested and partially digested food will be digested chemically by the action of pancreatic enzymes and intestinal enzymes.

Intestinal enzymes are:

1- Maltase

➤ Digests maltose into glucose.

2- Amylase

➤ Digests starch into simple sugars.

3- Lipase

➤ Digests fats + oils completely into fatty acids and glycerol.

4- Trypsin

➤ Digests proteins completely into amino acids.



Digestion



The End