
THE DIGESTIVE SYSTEM
Lic. Isabel Janet h Del Rosario López Mejía

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:

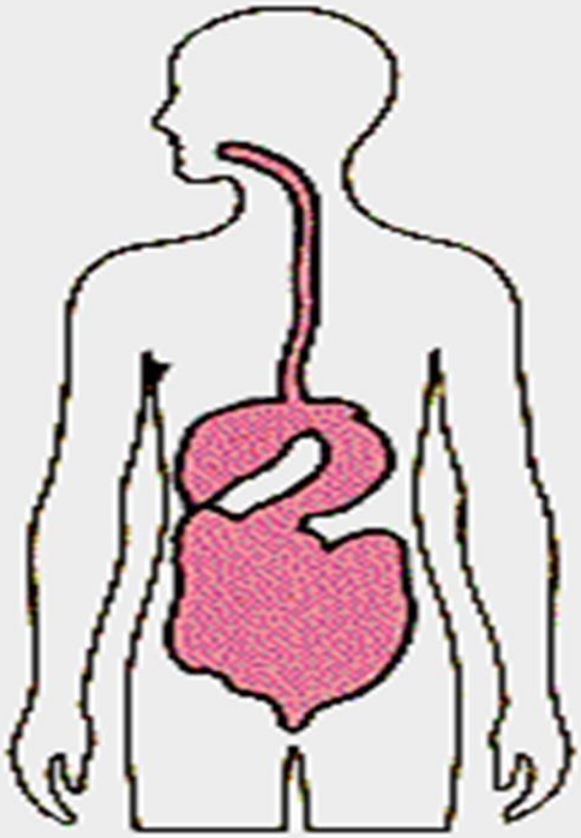
1- Digestive tract:

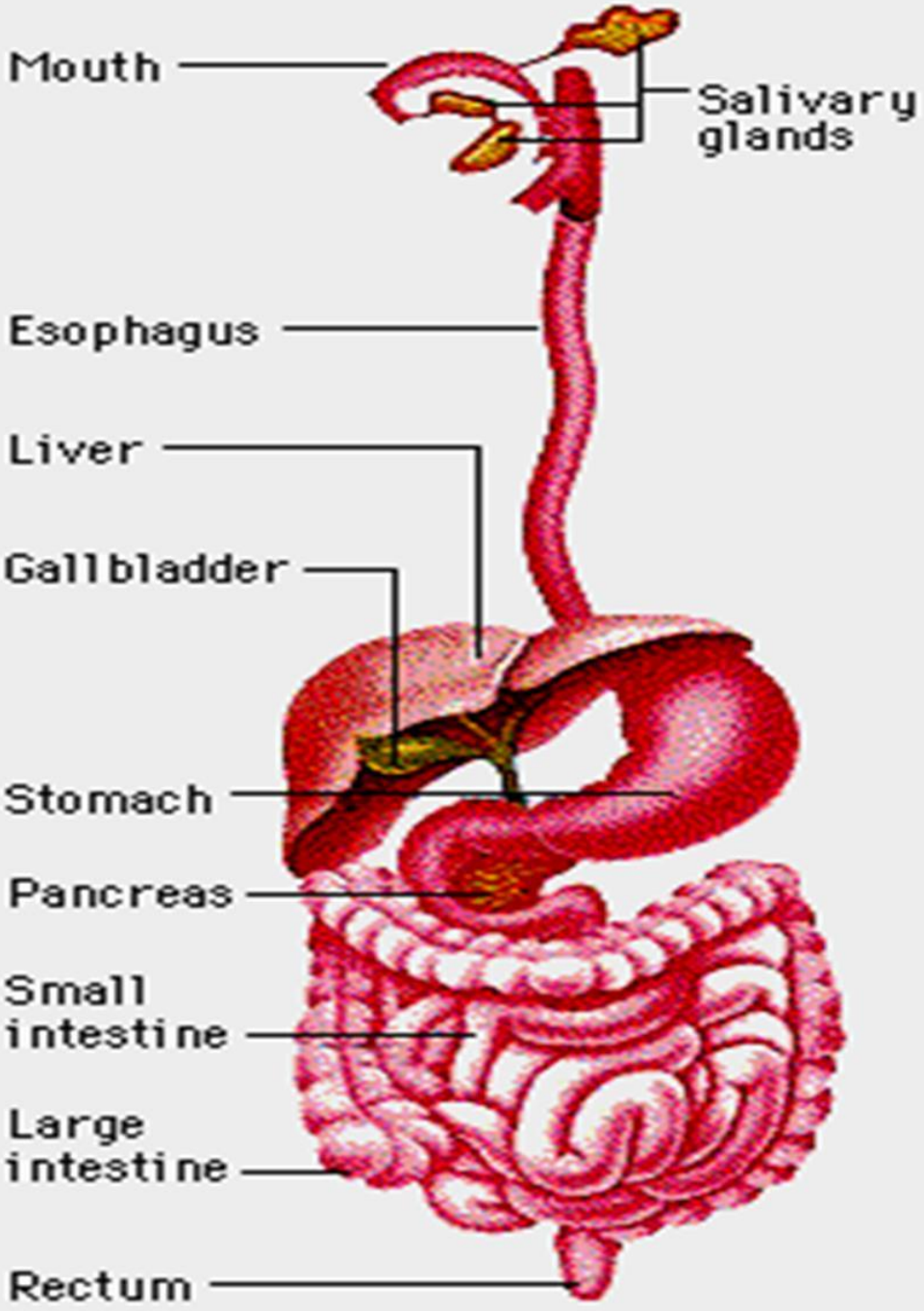
- Mouth – pharynx – esophagus – stomach – small intestine – large intestine - rectum – anus .

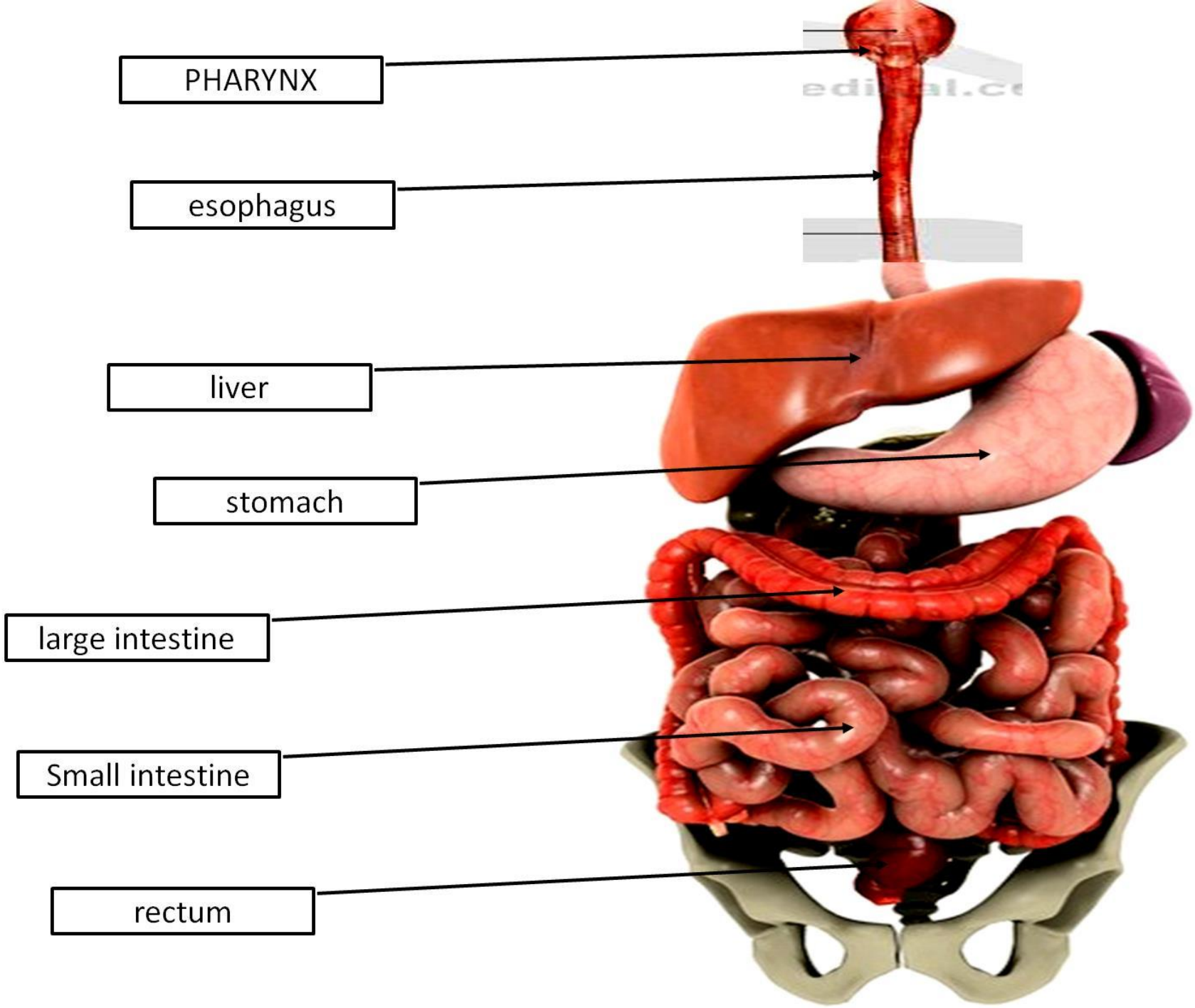
2- Digestive glands:

- Salivary glands
- Liver
- Pancreas
- gallbladder

DIGESTION




Mouth
Salivary glands
Esophagus
Liver
Gallbladder
Stomach
Pancreas
Small intestine
Large intestine
Rectum


PHARYNX
esophagus
liver
stomach
large intestine
Small intestine
rectum


Mouth

Mouth

- Both types of digestion takes place in the mouth:

1- Mechanical digestion:

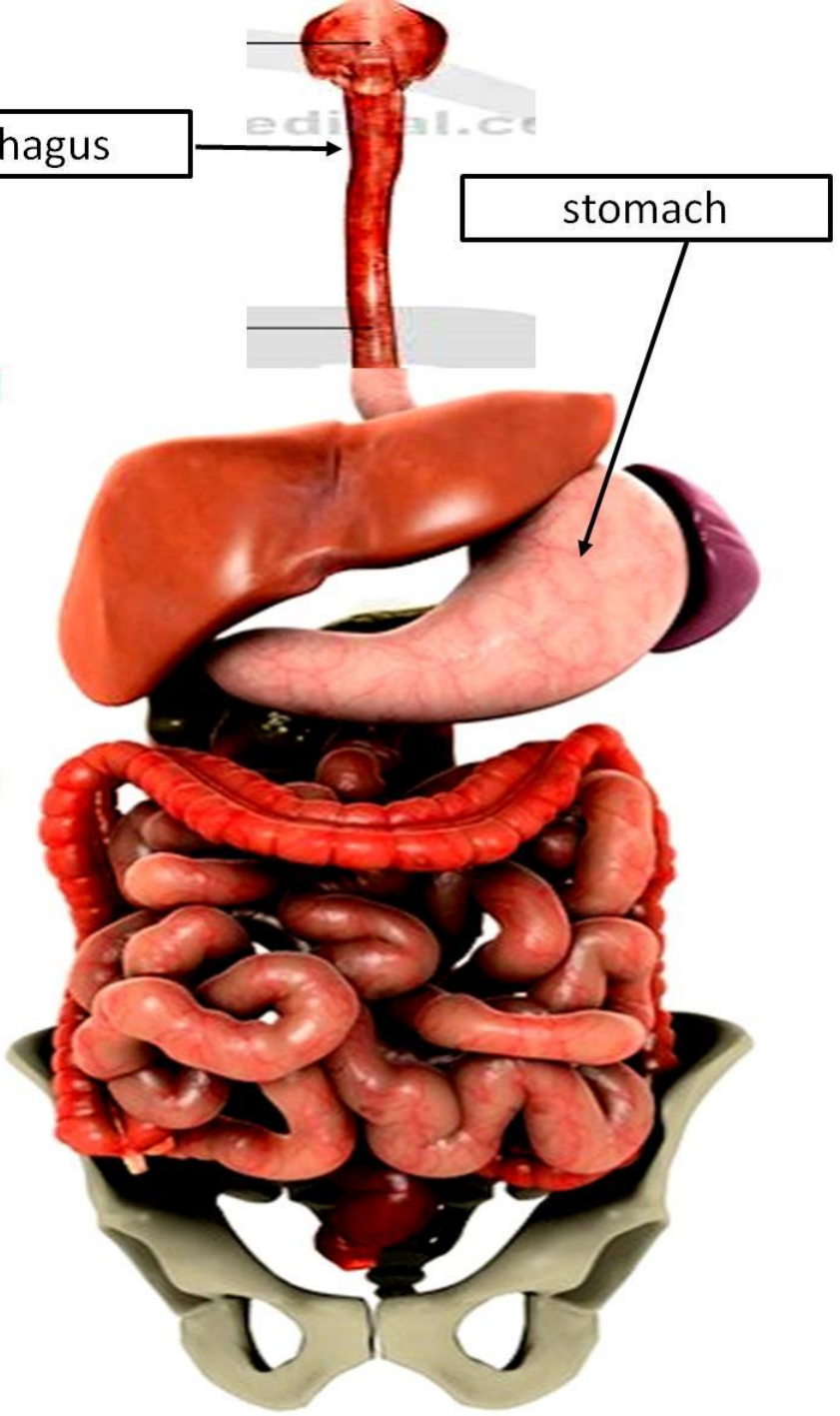
- **Tongue:**
  - Mixes food particles with saliva and soften it for easier swallowing.
- **Saliva:**
  - Softens, lubricate and sticks food particles.
- **Teeth :**
  - Four types in upper and lower jaw to tear crush, grind and chew.

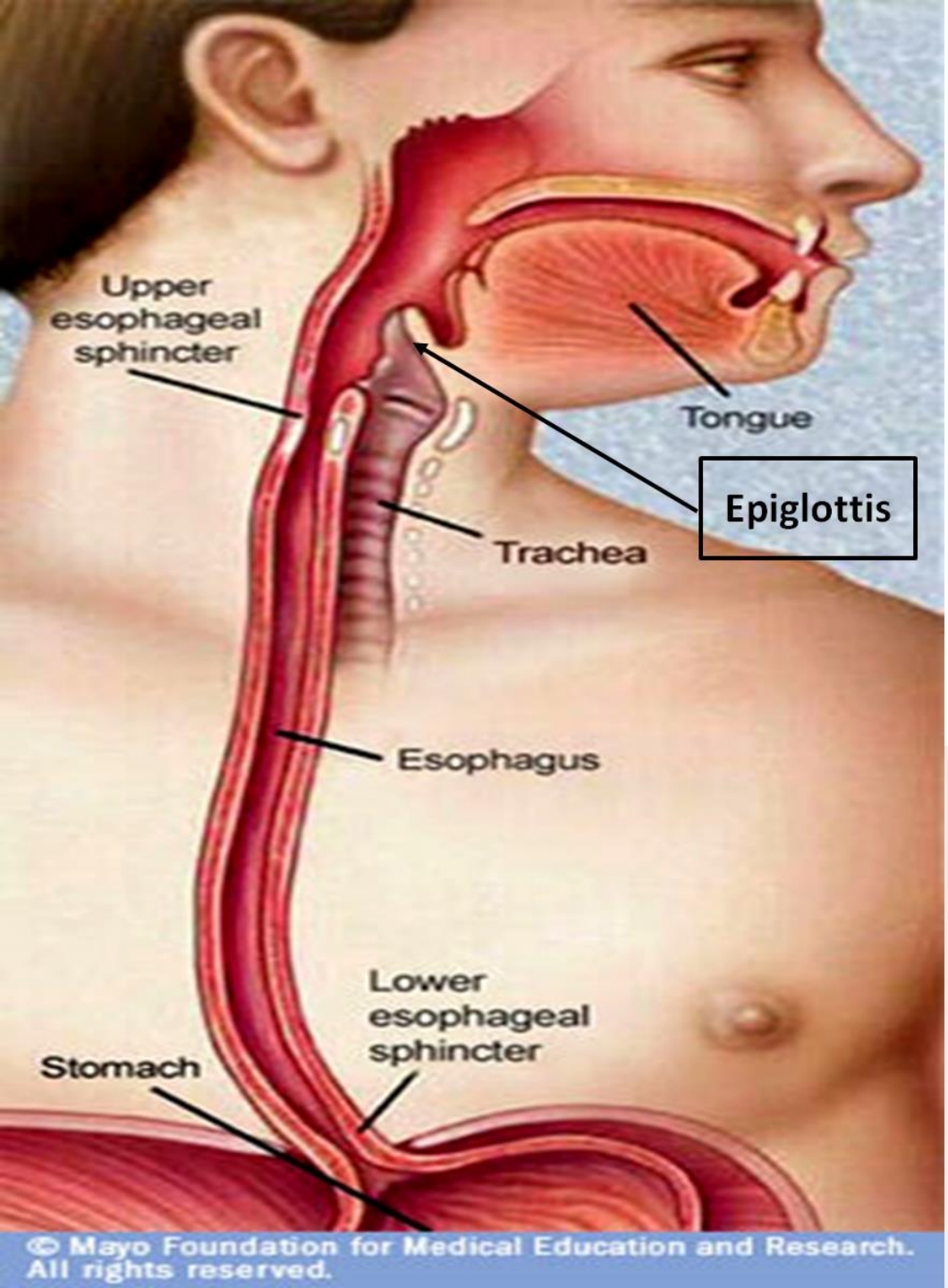
2-Chemical digestion:

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

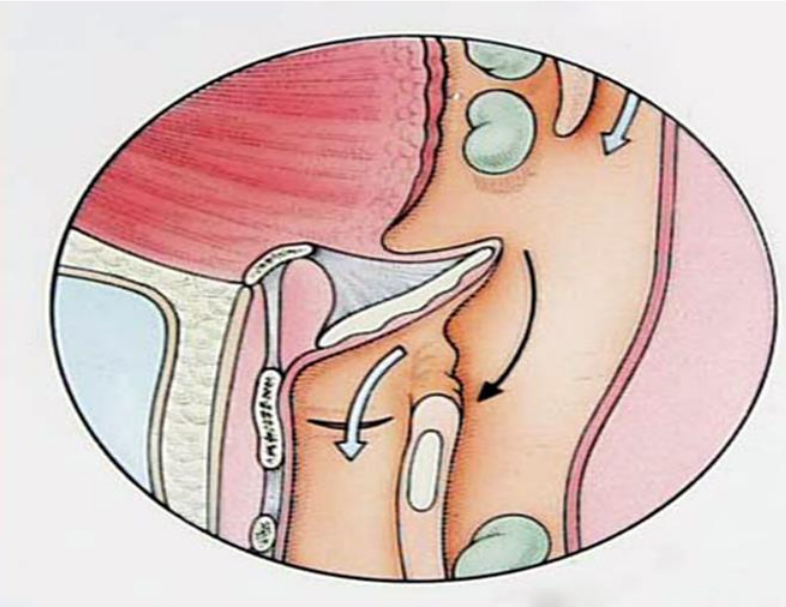
Esophagus :

- 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



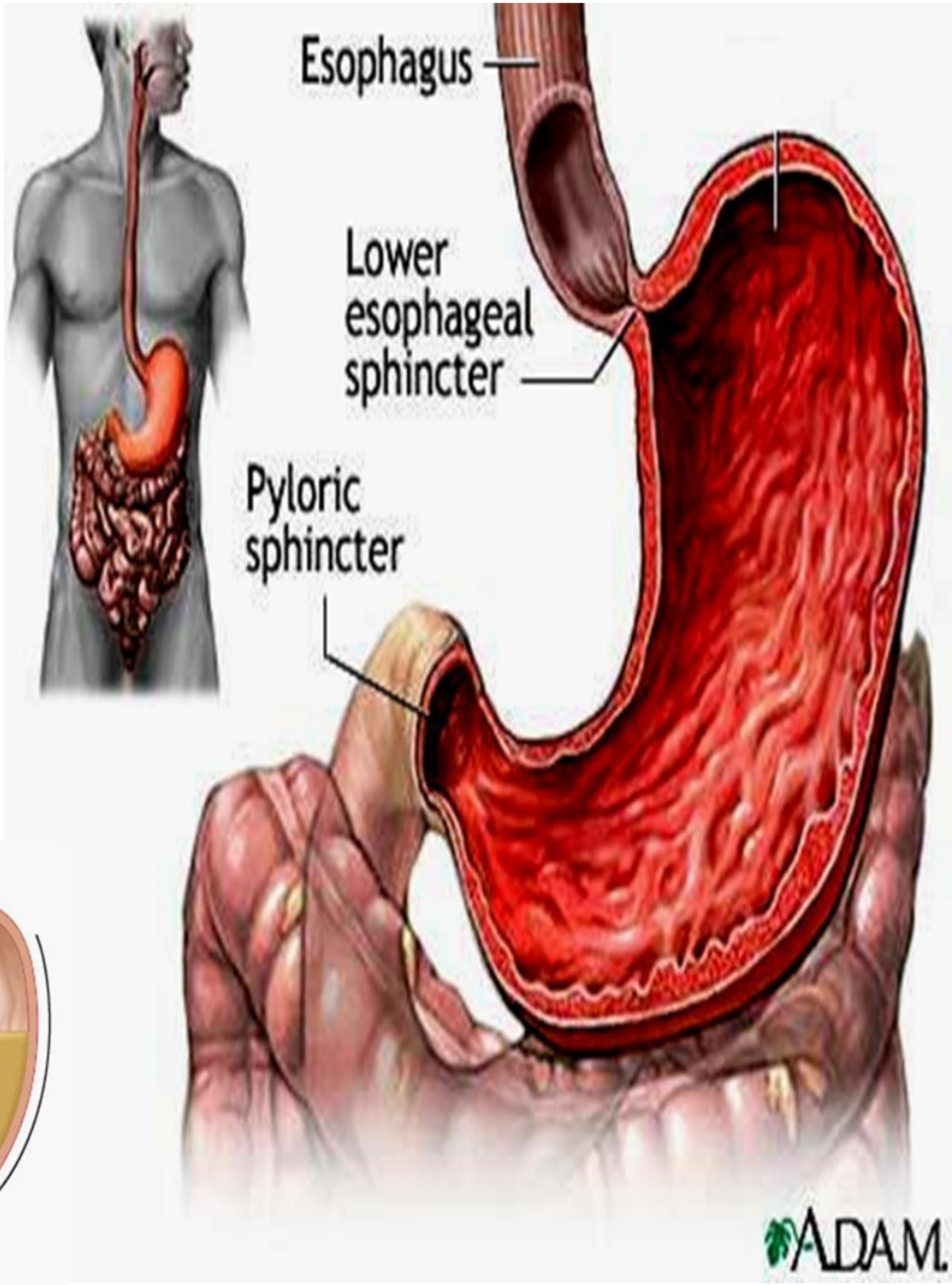


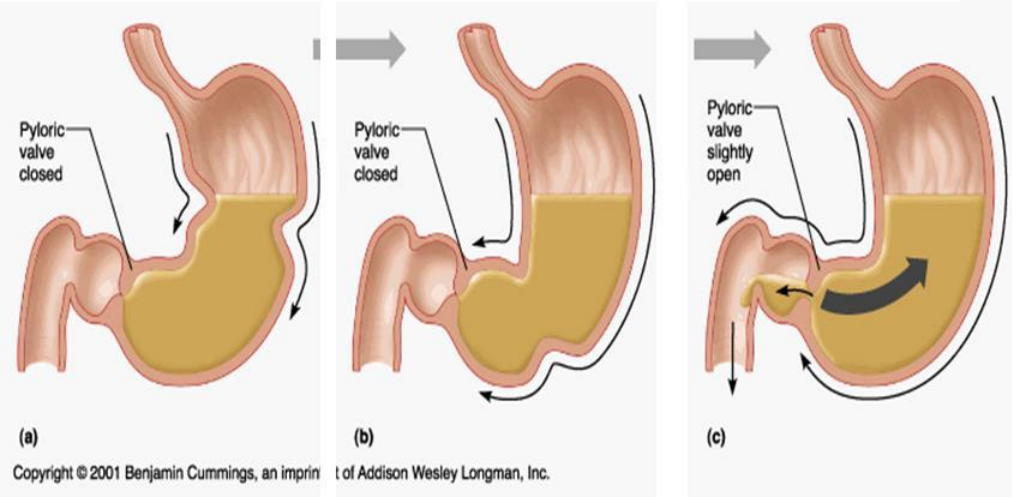
- **Epiglottis:**
  - A flap like tissue
  - Prevents the food from entering into the trachea



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.

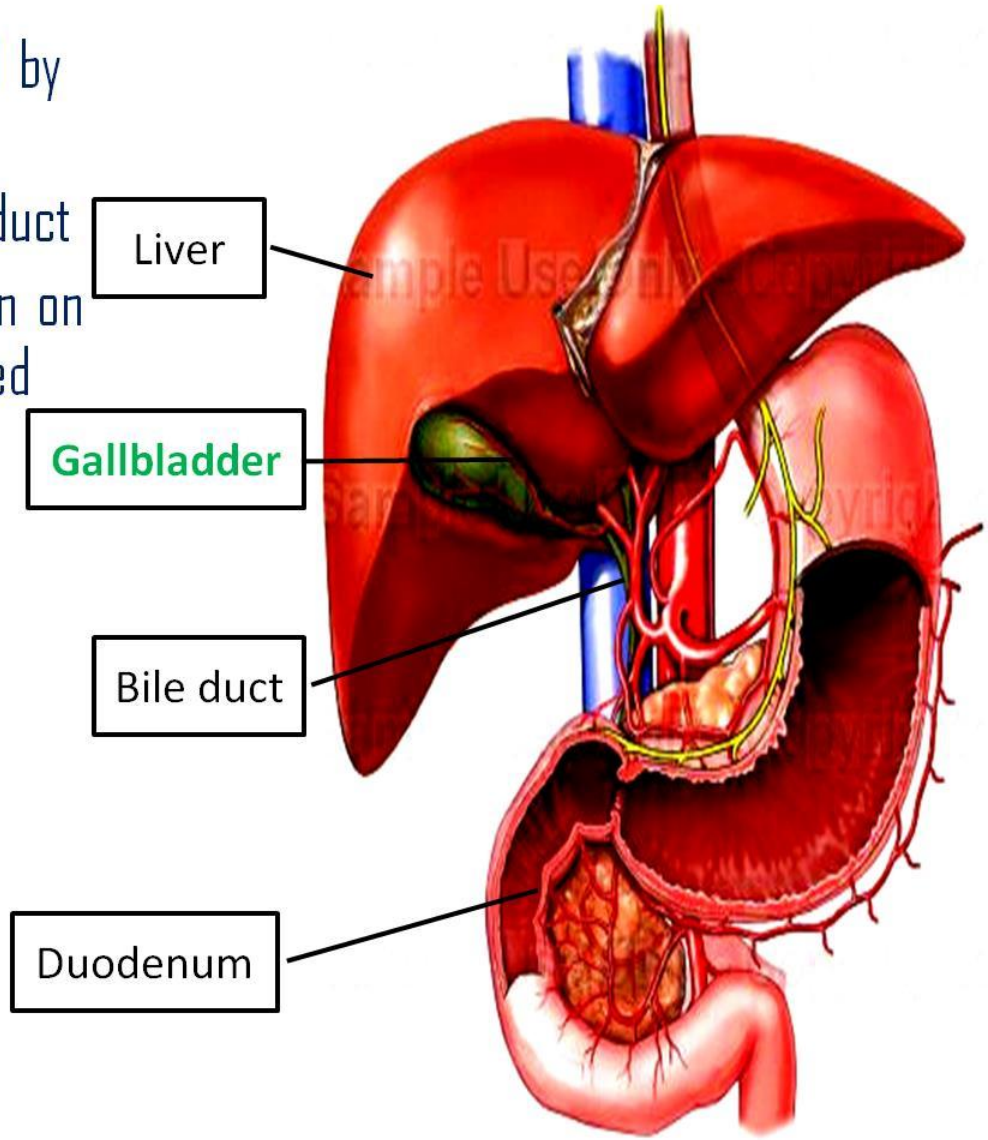




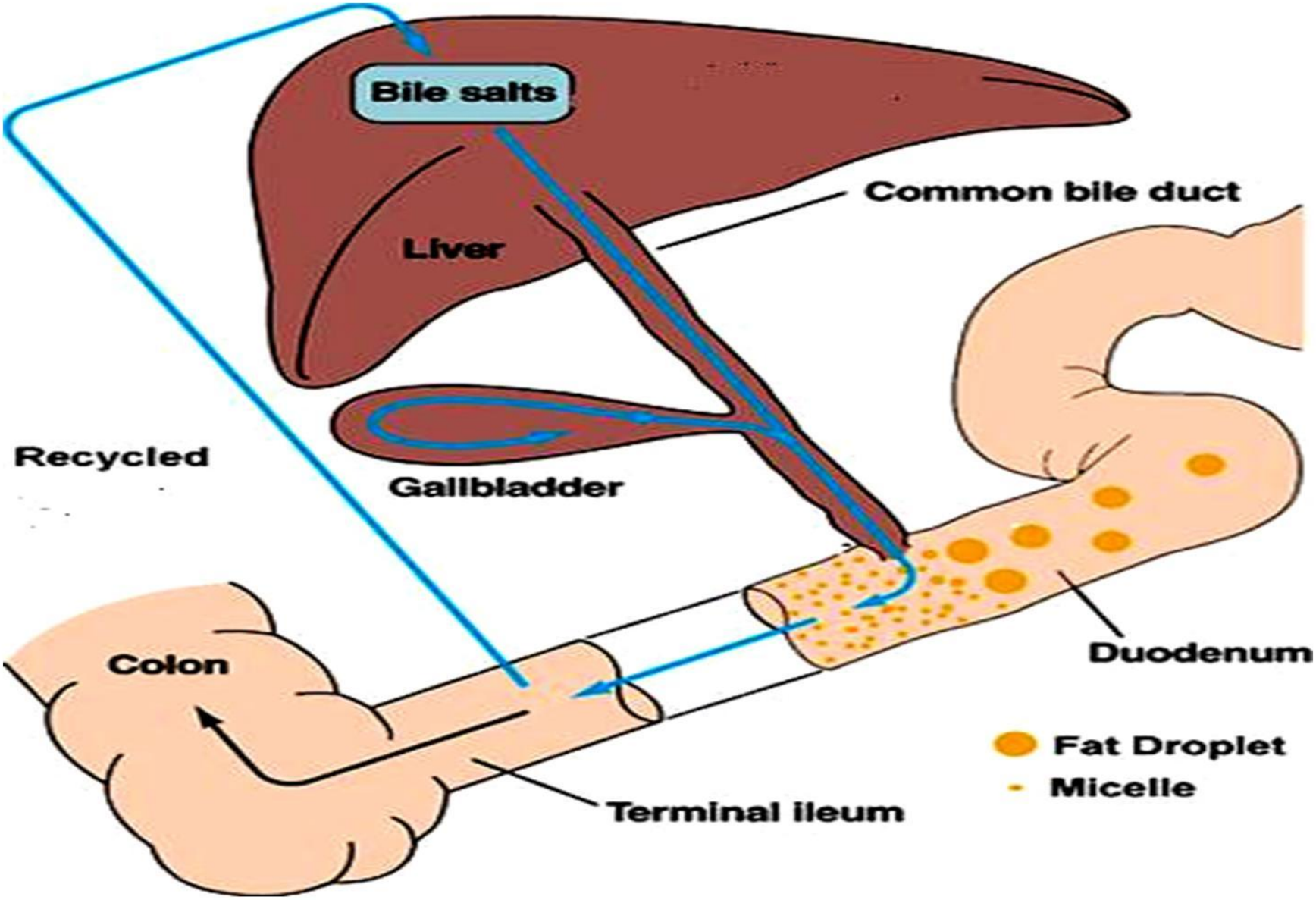
Digestion of fats:

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:



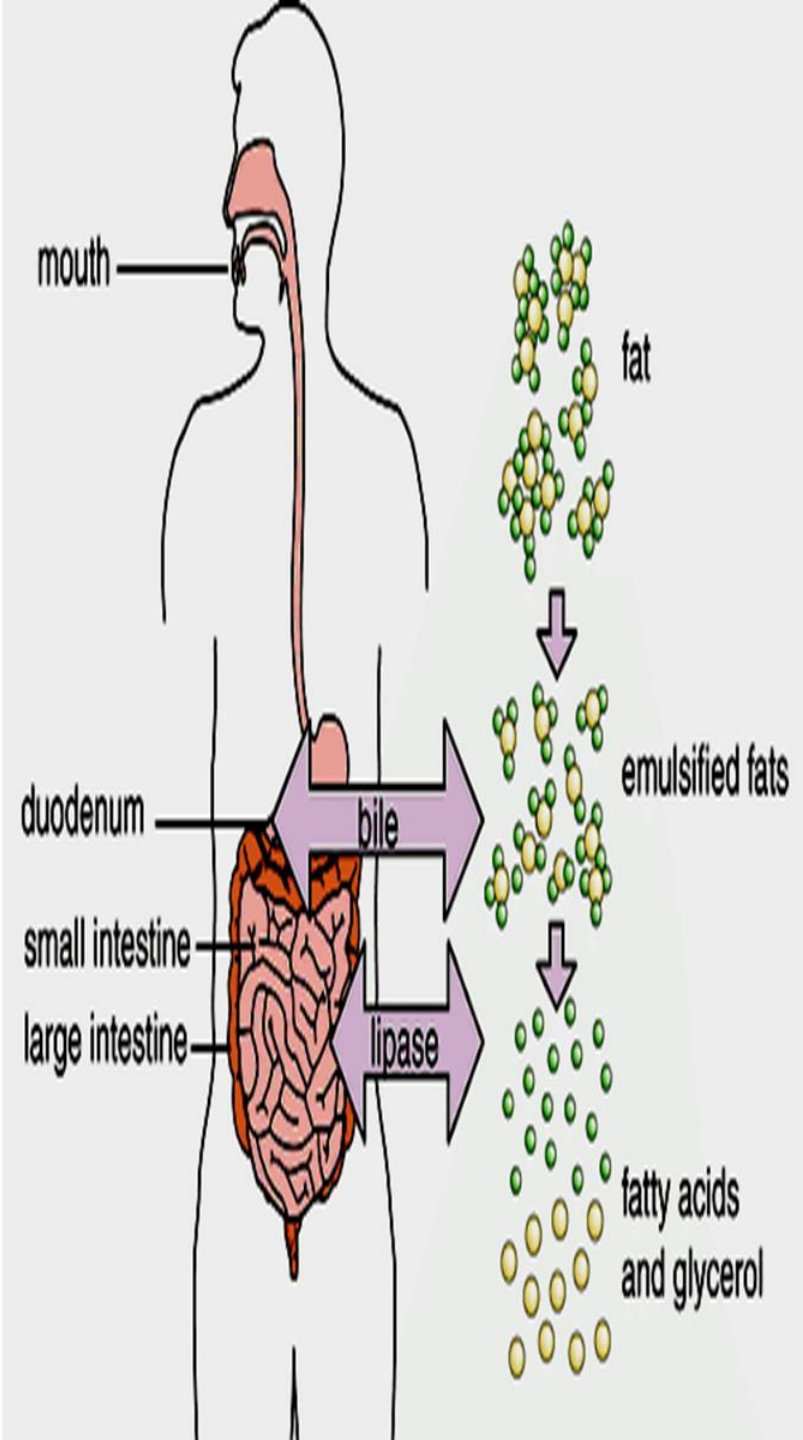
Digestion of fats

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

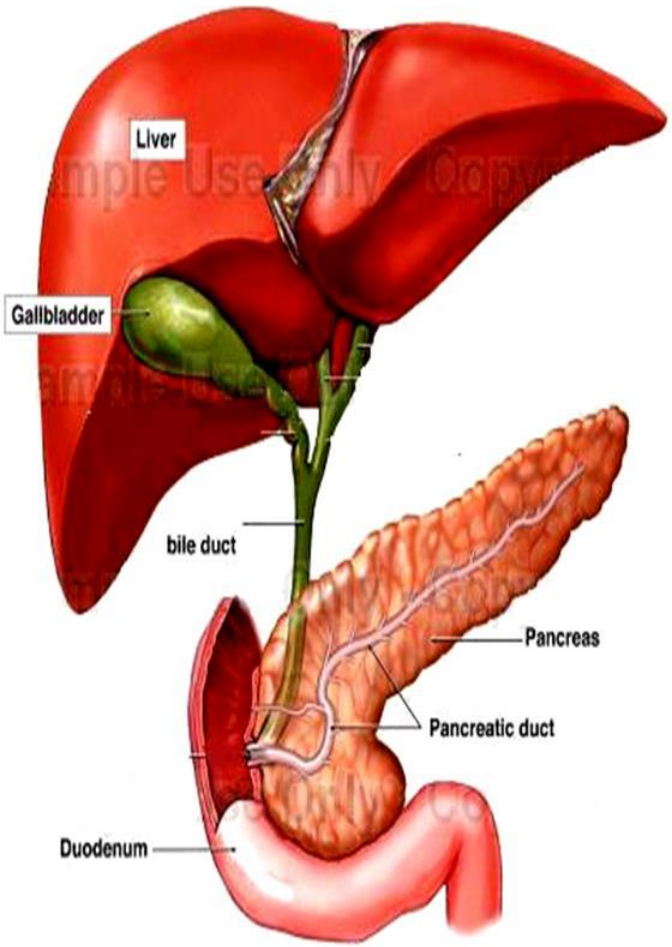
- **Pancreatic juice:**
  - Secreted in pancreas
  - Carried into duodenum through pancreatic duct.
- **Pancreatic juice contains:**

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