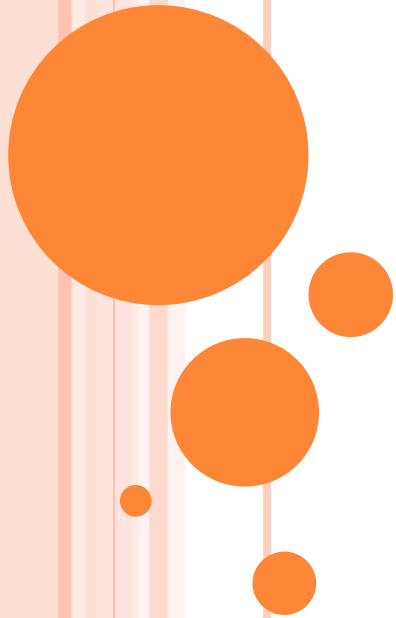


HUMAN DIGESTIVE SYSTEM STRUCTURE AND FUNCTION



OVERVIEW

Major organs

- Mouth
- Esophagus
- Stomach
- small intestine
- large intestine

Accessory organs:

- Liver
- gall bladder
- Pancreas.



HUMAN DIGESTIVE SYSTEM

The process of reducing food into smaller molecules that can be absorbed into the body

Digestive system consists of **2 major parts**

○ **Major organs**

- Mouth
- Esophagus
- Stomach
- small intestine
- large intestine.

Accessory organs:

- Liver
- Gall bladder
- Pancreas.

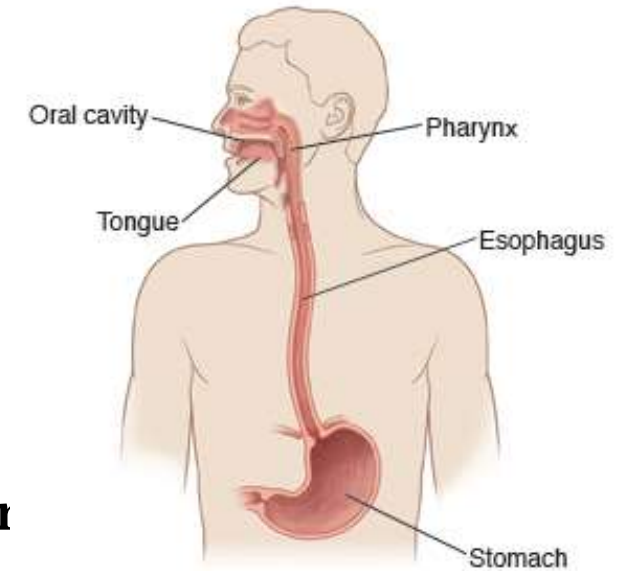


MAJOR ORGANS

THE MOUTH

pH: 7

- The first part of the digestive system
- the entry point of food.
- **Structures in the mouth that aids digestion**



Teeth – cut, tear, crush and grind food.

Salivary glands – produce and secrete saliva into the oral cavity.

saliva

moistens the food

contains enzymes (**ptyalin** or **salivary amylase**)

begins digestion of starch into smaller polysaccharides.

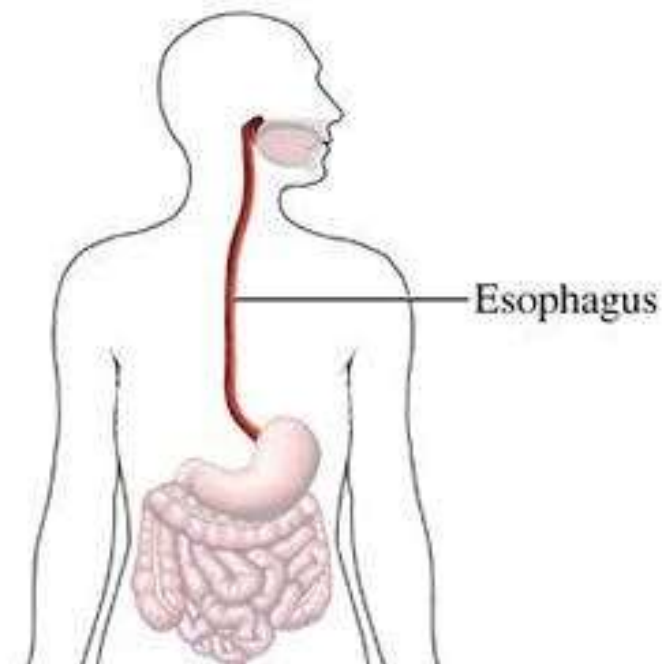
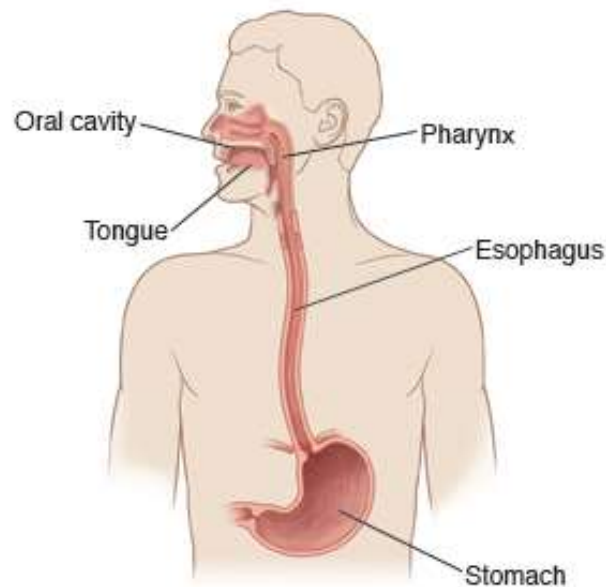
Function:

- Mechanical digestion.
- increasing surface area for faster chemical digestion.



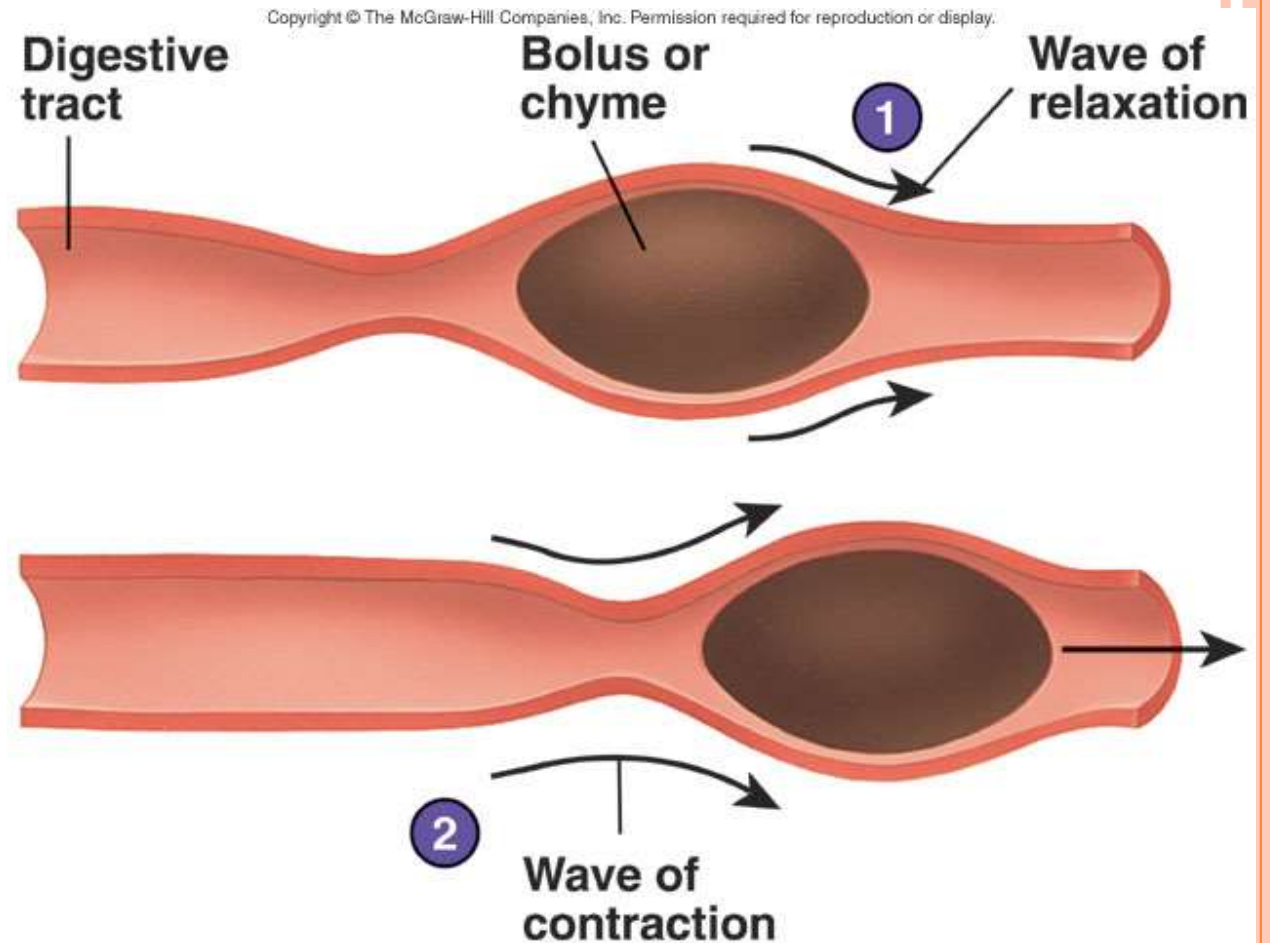
The Esophagus

- a tube connecting the mouth to the stomach
- running through the Thoracic cavity.
- **Location:**
- lies behind windpipe (Trachea).
- The trachea has as an **epiglottis**
- preventing food from entering the windpipe,
- moving the food to the esophagus while swallowing.



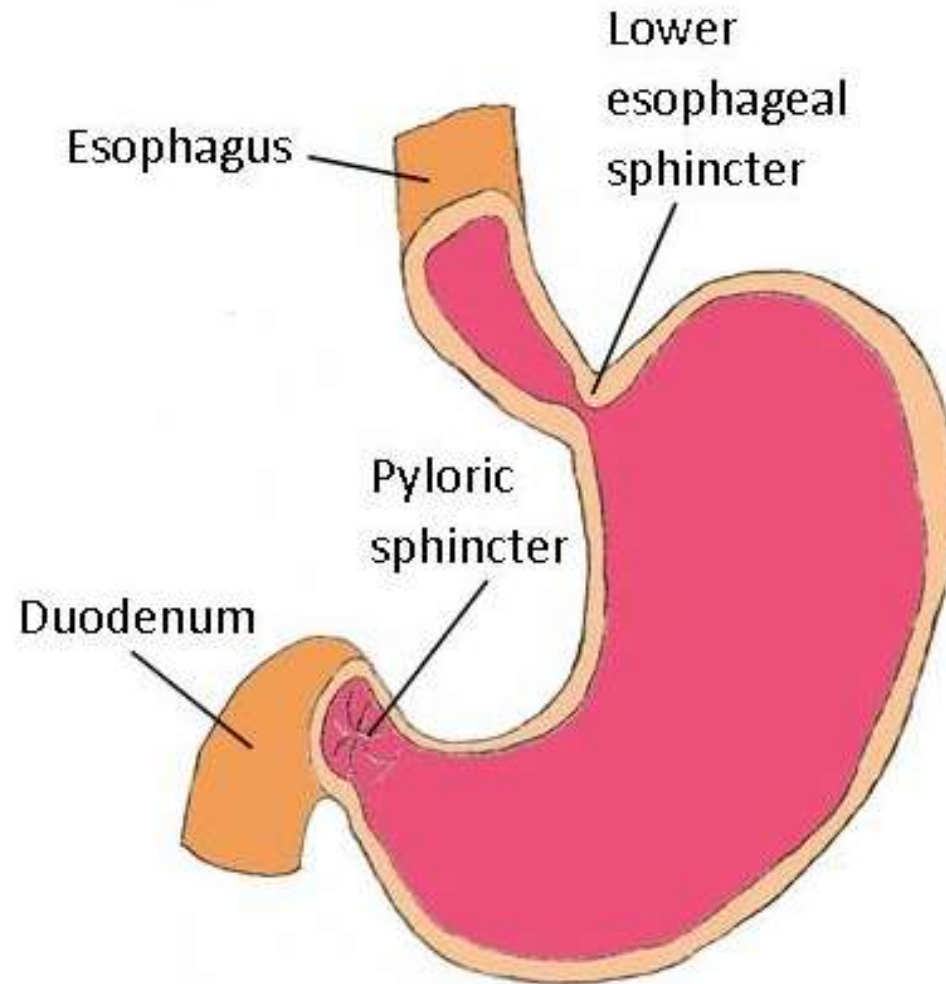
- *Food travels down the esophagus, through a series of involuntary rhythmic contractions (wave-like) called **peristalsis**.*

- **Function:**
 - The lining of the esophagus secretes mucus
 - lubricating
 - to support the movement of food.



ESOPHAGEAL SPHINCTER:

- bolus reaches the stomach
- must pass through a muscular ringed valve called the esophageal sphincter (Cardiac Sphincter).
- **Function:**
- prevent stomach acids from back flowing into the esophagus.



STOMACH

- J-shaped muscular sac
- Has inner folds (**rugae**)
- Increasing surface area of the stomach.

- **Function:**

- Stomach performs mechanical digestion

- **HOW**

By churning the bolus and mixing it with the gastric juices

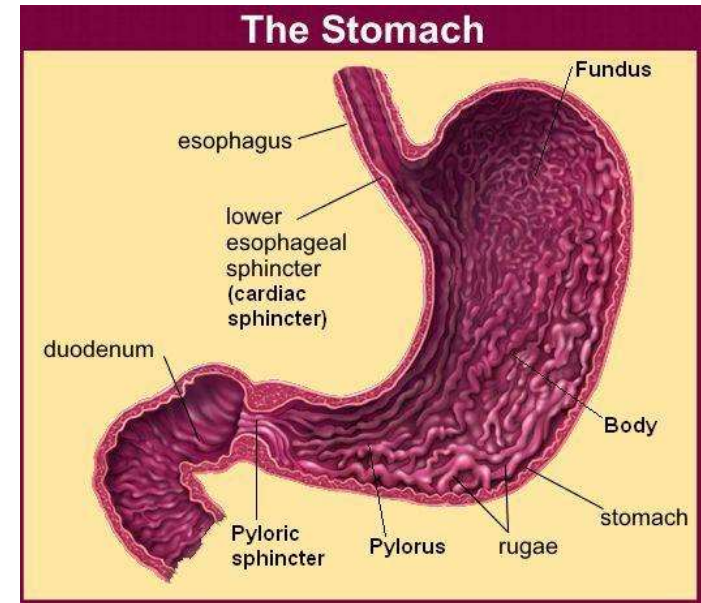
- secreted by the lining of the stomach.

- **GASTRIC JUICES**

HCl, salts, enzymes, water and mucus)

- HCL helps break down of food and kills bacteria that came along with the food.

- **The bolus is now called Chyme.**

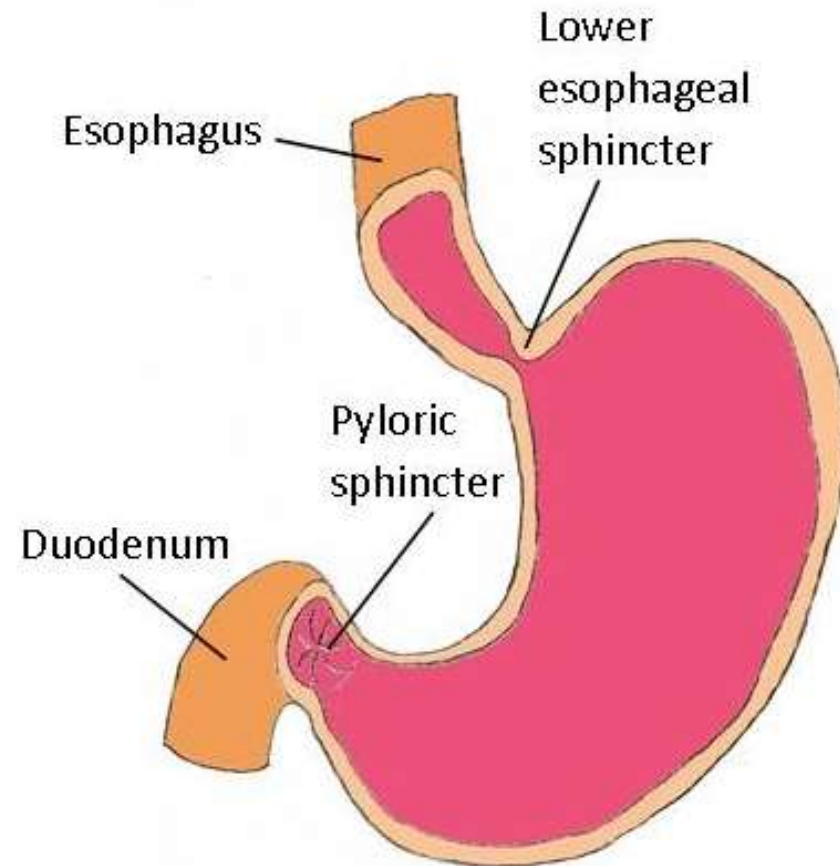


ENZYMES IN STOMACH:

- Acidic environment
- **HCl secretion**
 - ✓ kill any microbes that are found in the bolus,
 - ✓ creating a pH of 2.
 - ✓ Mucus prevents the stomach from digesting itself.
- **Pepsin secretion**
 - responsible for initiating the breakdown of proteins (in)food.
 - hydrolyzes proteins to yield polypeptides.
 - pH is 2, the enzyme from the salivary glands stops breaking down carbohydrates.



- **Pyloric sphincter:**
- chyme moves from the stomach to the small intestine.
- It passes through a muscular ringed sphincter called the pyloric sphincter.



STOMACH DOES NOT DIGEST ITSELF

WHY ?

- **Protective Mechanism:**

- three protective mechanisms.

1. First the stomach only secretes small amounts of gastric juices until food is present.
2. Second the secretion of mucus coats the lining of the stomach protecting it from the gastric juices.
3. The third mechanism is the digestive enzyme pepsin is secreted in an inactive protein called pepsinogen. Pepsinogen is converted to pepsin in the increased presence of hydrochloric acid (pH 1).

