

k/Sri Rahula college katugastota



Grade 11
Science
For
Bilingual students

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Biological processes in human body ,unit 06

In this lesson you will learn about;

- 1.Digestive system.
- 2.Respiratory system.
- 3.Excretory system.
- 4.Blood circulatory system.

Human Digestive system

**You have to study the
Anatomy and the functions of it.
What is the main purpose of digestive system?**

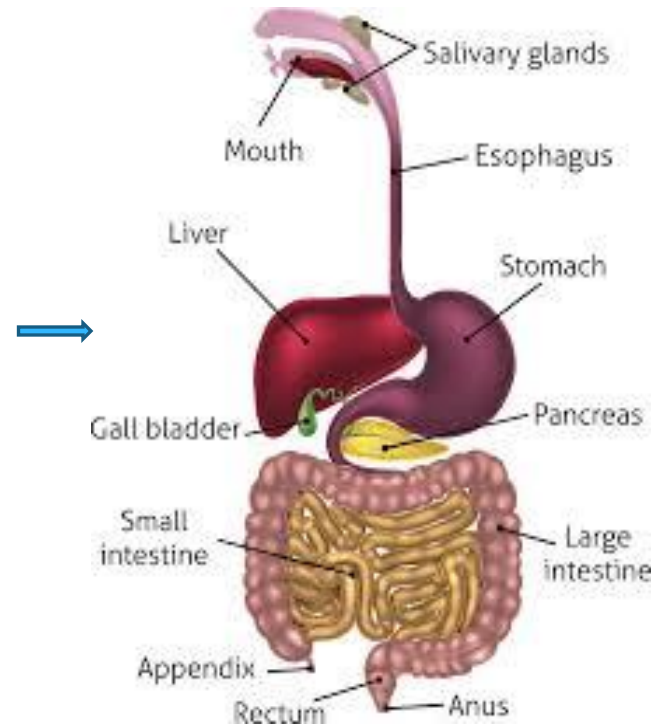
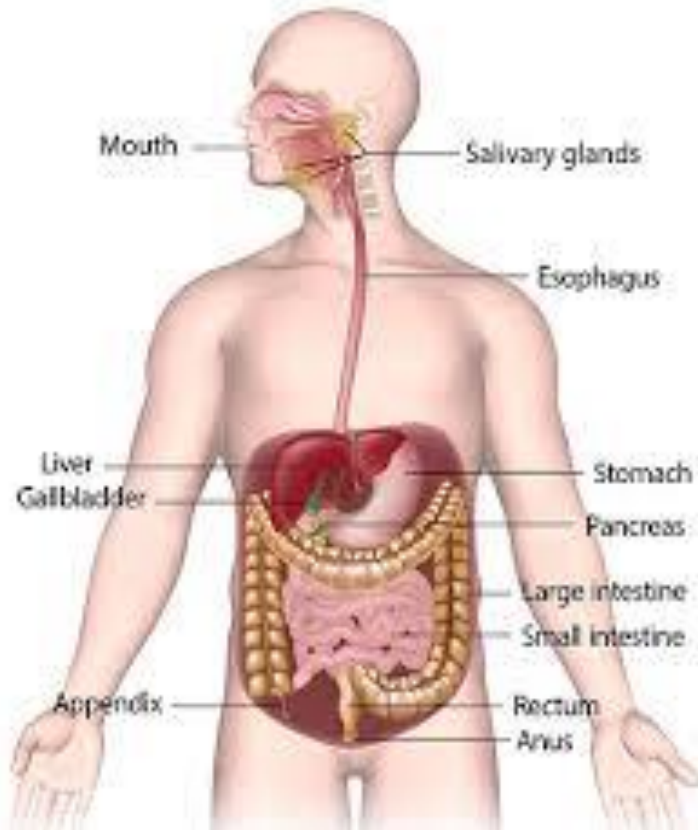
The process by which food is made simple and soluble is called digestion.it is carried out by the digestive system .

There are 4 stages;

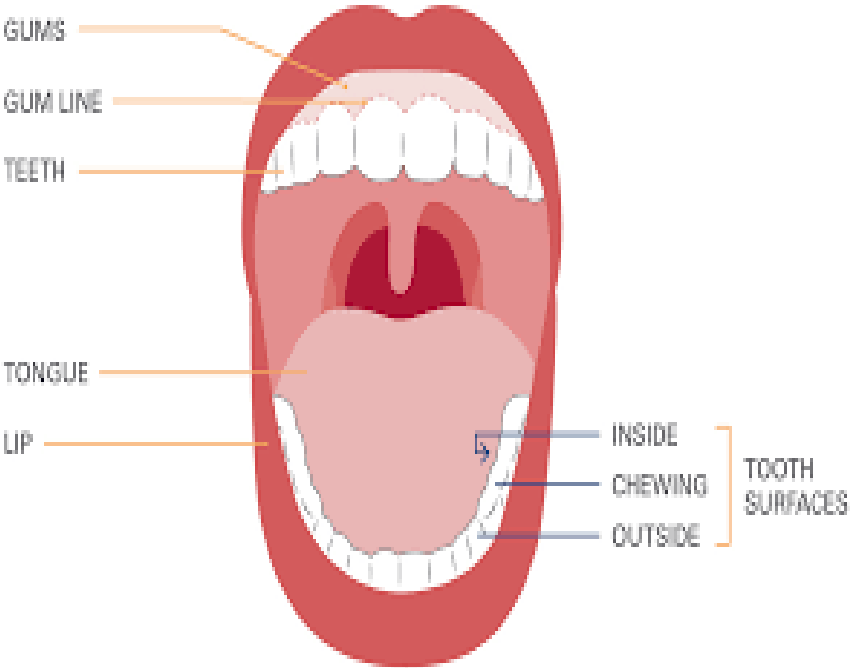
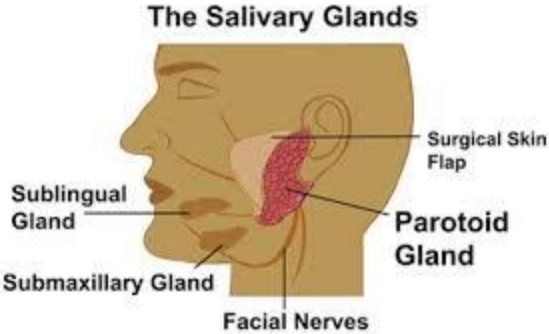
1. Ingestion(taking in food)
- 2.Digestion
- 3.Assimilation(utilize the nutrinentns)
4. Egestion(undigested food expel)

Parts of human digestive system

The Digestive System



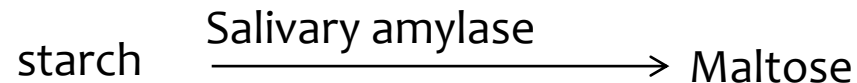
Buccal cavity



Digestion in the buccal cavity

- Food is taken in through the mouth, crushed by the teeth and mixed with saliva produced by the salivary glands.
- The tongue helps in mixing and swallowing food and taste it.
- There are four taste areas in the tongue.
- Digestion of food starts in the mouth.

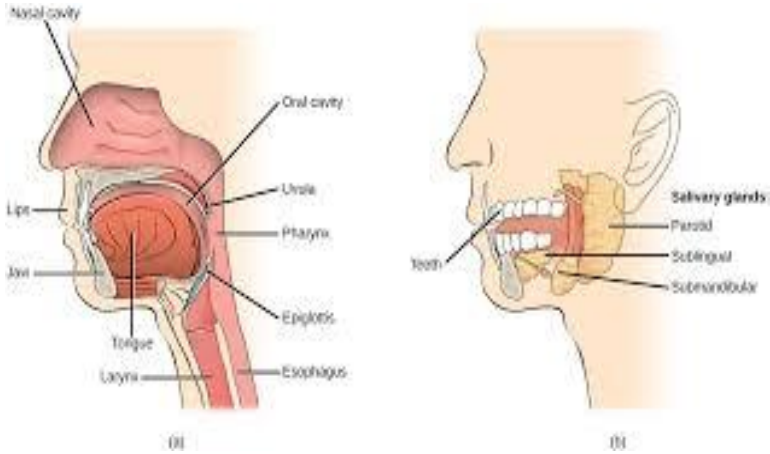
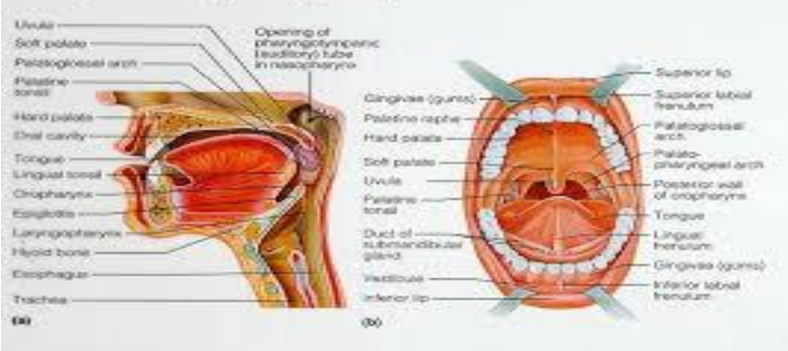
Salivary amylase act on starch in digestion of food,



This enzyme reaction occur in the basic medium of the mouth



Anatomy of the oral cavity (mouth) (Figure 24.7)



❑ Initially digested food is formed into bolus and pushed to the posterior part of the buccal cavity.

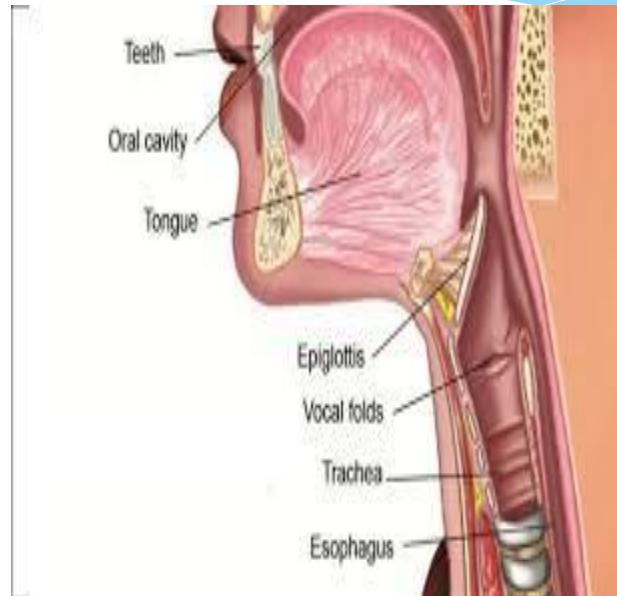
❑ Next food is pushed into the pharynx.

Pharynx is a common area to both respiratory and digestive system.

❑ There is a movable organ called epiglottis which is just above the opening of trachea.

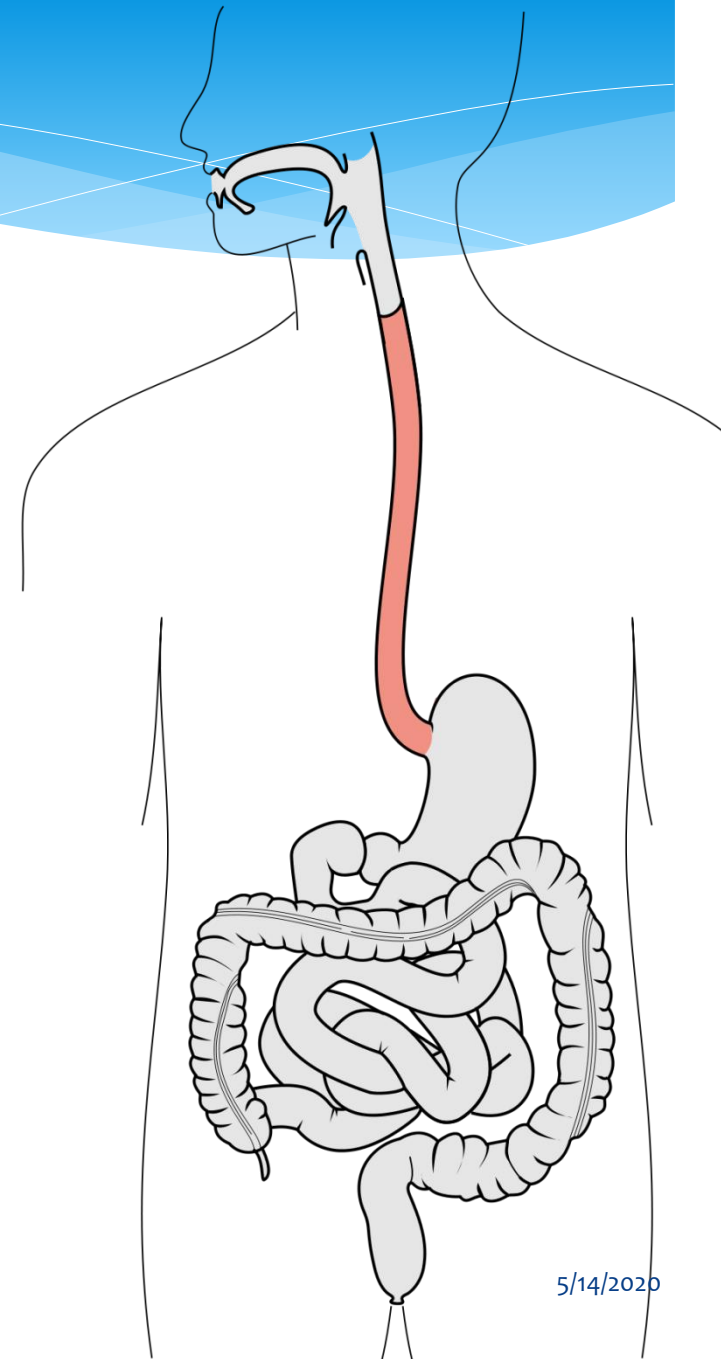
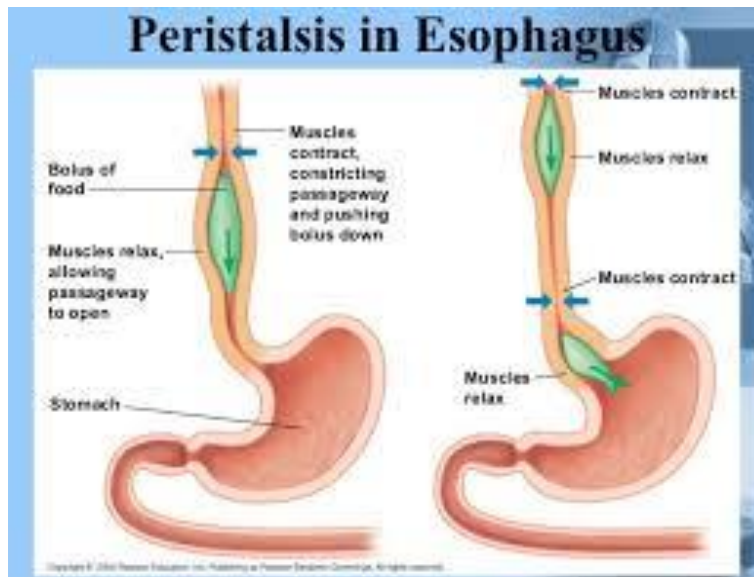
❑ When food bolus is swallowed the epiglottis moves down to the to close the opening of trachea so the bolus enters into Esophagus without entering into trachea.

Function of epiglottis

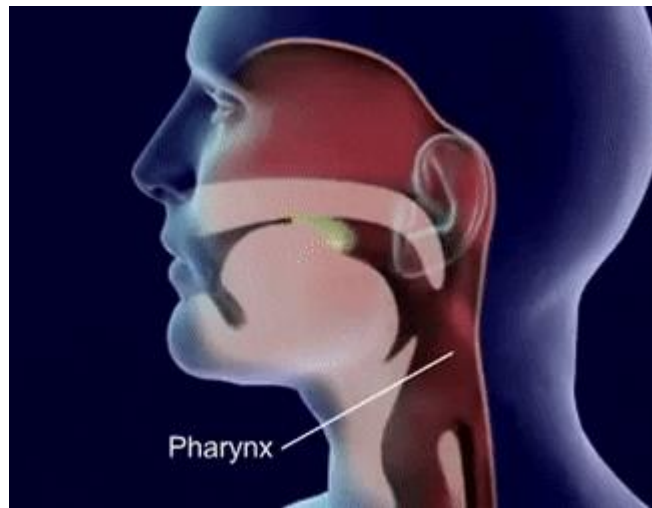


The food bolus passes through the esophagus by

- ❑ Peristaltic movements appear as waves
- ❑ How food is pass through the esophagus?



Function of the epiglottis and the peristalsis movements Of esophagus.....



Digestion in the stomach:-

- Chemical digestion and physical digestion occur.
- Food mix well and churn into a chyme.
- Secretions in the stomach HCl, Pepsin enzyme
- Chyme is semi liquid and partially digested, undigested parts

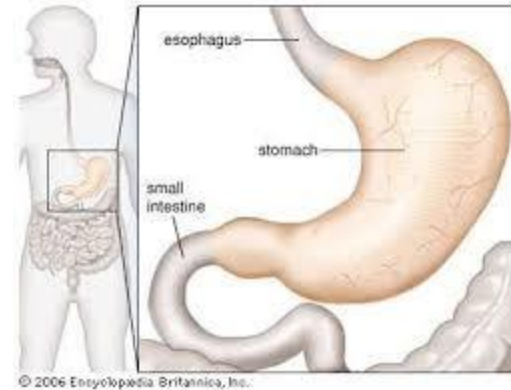
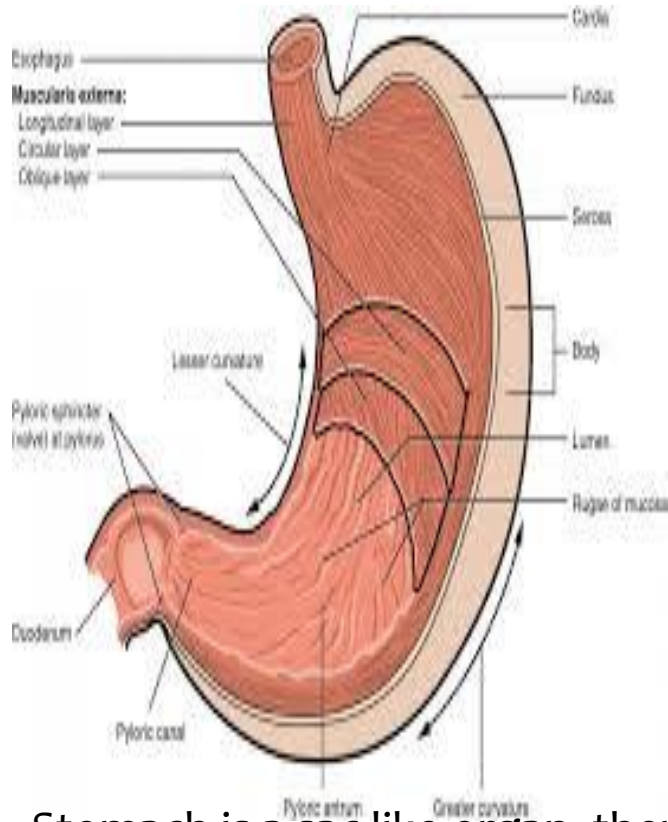
Protein $\xrightarrow{\text{Pepsin}}$ polypeptide

- HCl provide the acidic medium for pepsin

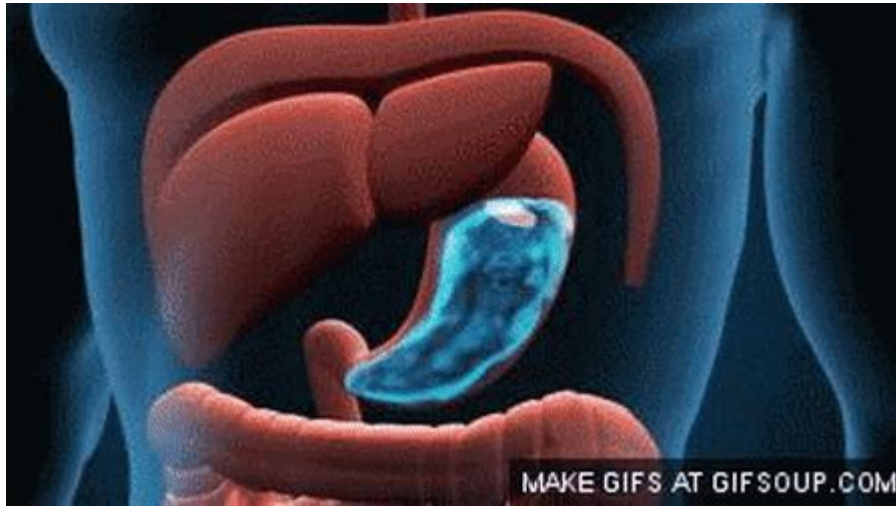
milk $\xrightarrow{\text{Renin}}$ coagulates

- This can be happen in infants not in adults

Stomach



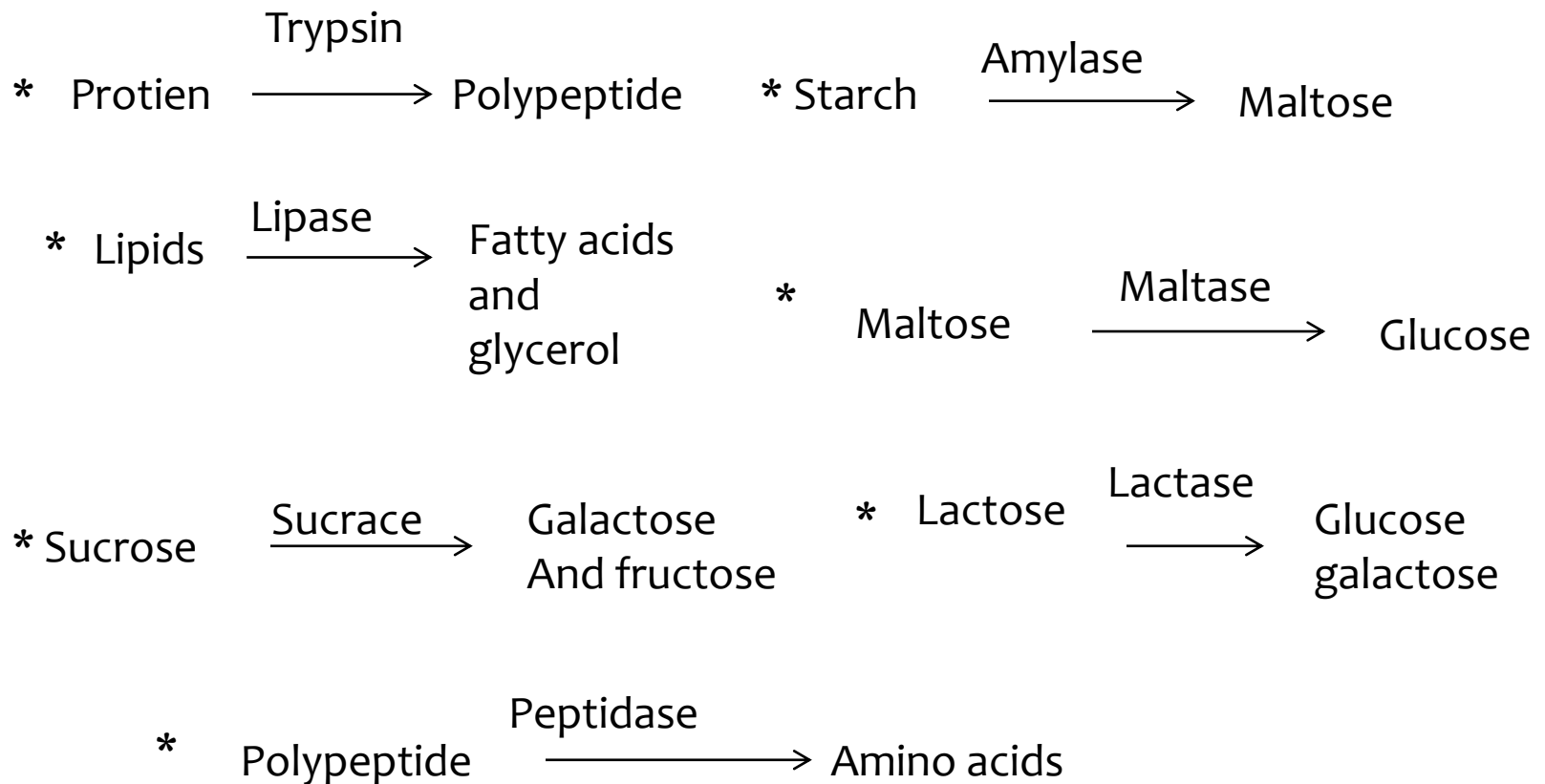
Stomach is a sac like organ, there is also
The muscle activity food bolus is broken down and
Mixed well into a chyme .



Digestion in the small intestine:-

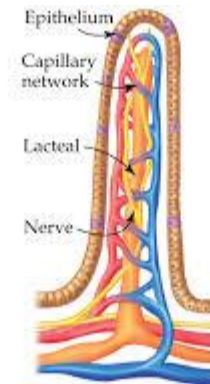
- ❖ Upper part of the small intestine is duodenum pancreatic enzymes and intestinal enzyme involve in digestion.
- ❖ Also bile carried by the bile duct to the duodenum.
- ❖ Intestinal juice contain following enzymes, Maltase, sucrace,,lactase,peptidase
- ❖ Pancreatic juice contain Trypsin, Amylase, Lipase
- ❖ Due to mixing of bile with food at duodenum the lipids in food broken down into
- ❖ Small droplets that process is called as the Emulsification so the enzymes can easy to Act on lipid droplets.

We will see how enzymes act on food in the Small intestine.....

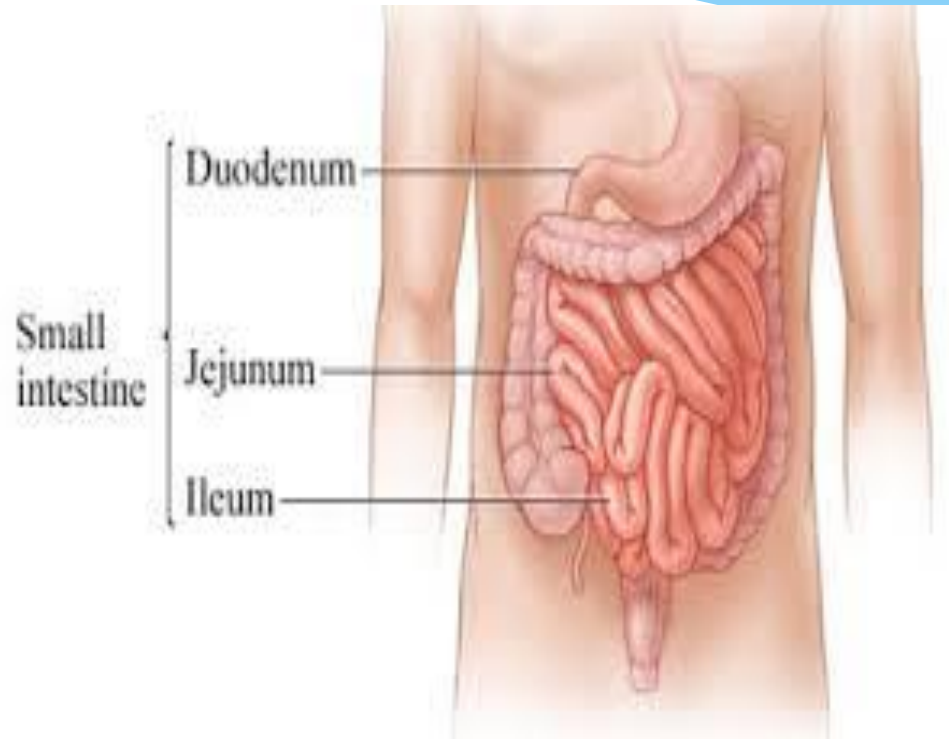


What happen to the end product of food digestion?

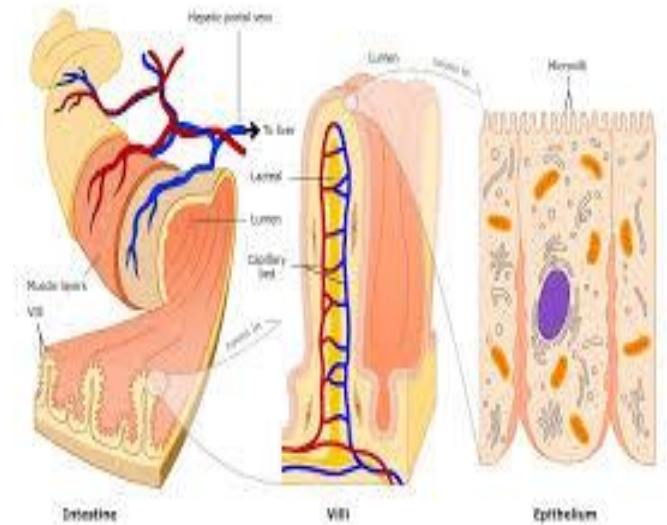
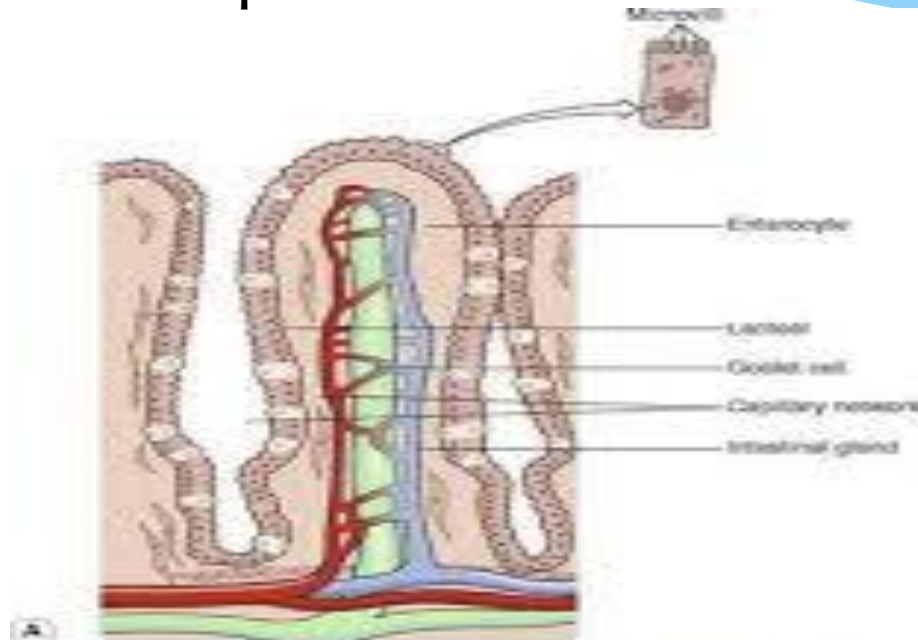
- Absorption take place in small intestine ,there are some adaptation in small intestine to do the absorption efficiently.
- Small intestine is a long tube.
- There are circular folds in inner wall.
- Finger like projections present in the circular folds as villi.
- Villi present thin epithelium with microvilli.
- Villi highly vascularized.



Small intestine.....



Villi present in the small intestine...



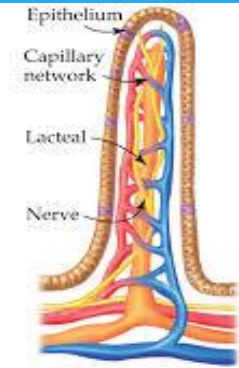
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← Villi

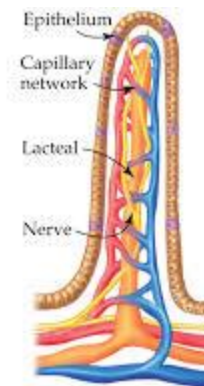
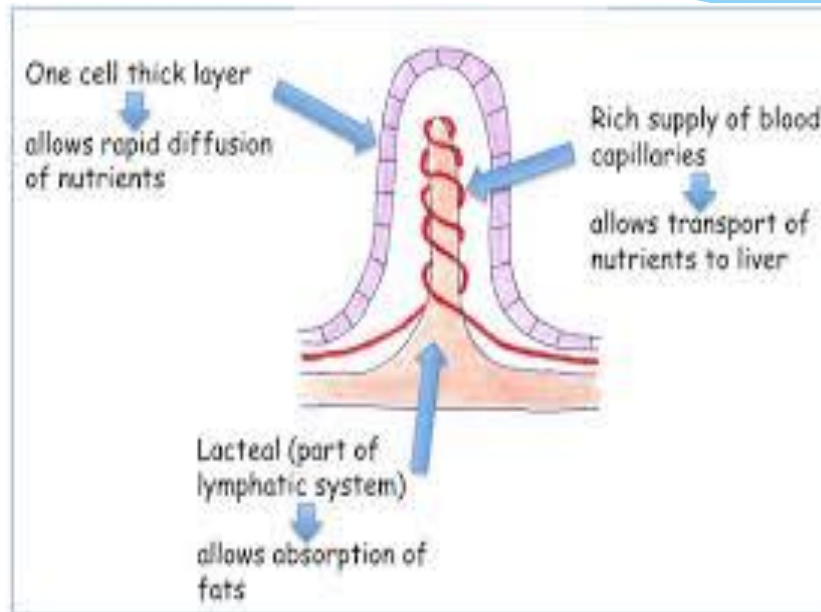
Digestive end products:-

- Amino acids
- Vitamins
- Mineral salts
- Monosaccharides (Glucose/Glactose/
 Fructose)
- Fatty acids and glycerol

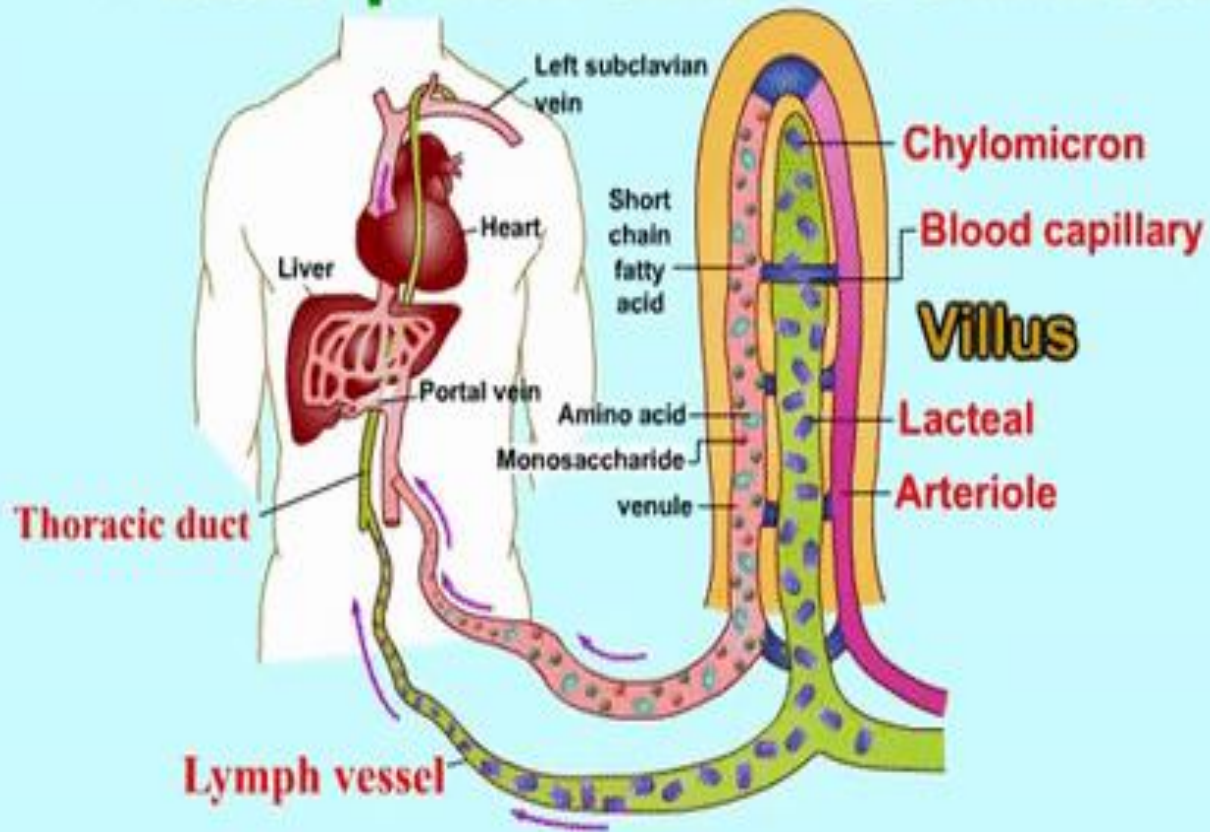


- Fatty acids and glycerol digest by the lacteals of villi
- Amino acid, monosaccharides, other nutrients absorb by the Blood capillaries of villi
- Excess glucose are stored in liver
- Excess amino acids excreted by the body
- Nutrients are utilize by the cells.
- Undigested materials are sent to the large intestine.

Parts of villi.....



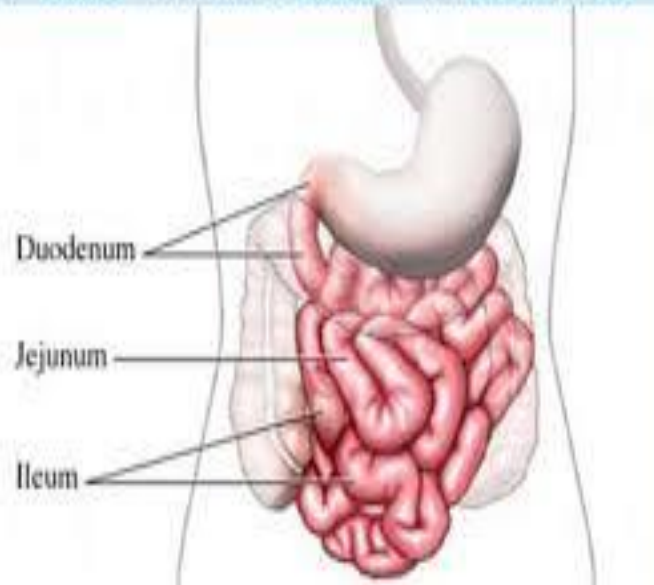
Absorption and Assimilation



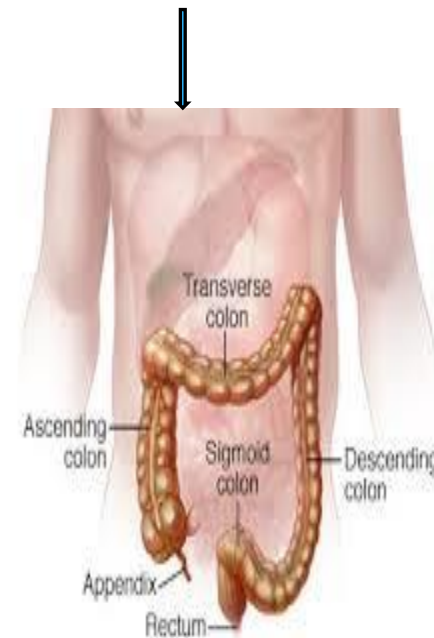
Processes in the large intestine:-

- Start with caecum and ends with anus, 1.5m long
Materials entering to the large intestine contains undigested cellulose
And water.
- No digestion take place in large intestine.
Absorb water from matter receive from ileum.
Faecal matter form in large intestine.
- When large intestine fill with faecal matter it passes out from the rectum.

Parts of the Small Intestines



Parts of large intestine



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Diseases and disorders associated with digestive system:-

- ❖ Gastritis
- ❖ Constipation
- ❖ Typhoid
- ❖ Diarrhoea


□ List out the reasons and symptoms related to above diseases.....

What kinds of preventive measures can be taken for avoiding above diseases?

Summary.....


You should focus your attention on following Points in the 6.1 in the unit 6,

- Definition of food digestion
- Parts of digestive system
- Digestion in the buccal cavity
- Digestion in the stomach
- Digestion in the small intestine
- Fate of the end product of digestion
- Processes in the large intestine
- Diseases and disorders associated with digestive system
- How should we maintain the digestive system healthy



Thank you.....

The end.....

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- ❖ Dear students..... this presentation I am sending by converting it into a pdf file If you can see it as a ppt then only you can see the GIF animations (you have to See them through the slide show in power point) regarding the functions of some parts of digestive system as epiglottis, Stomach, villi as well... please consider it.
 - ❖ Next I will send you the 2nd study pack for this unit to guide you to study The biological processes. This presentation may help you to focus your Attention on important points .

Study well, stay safe everyone!