

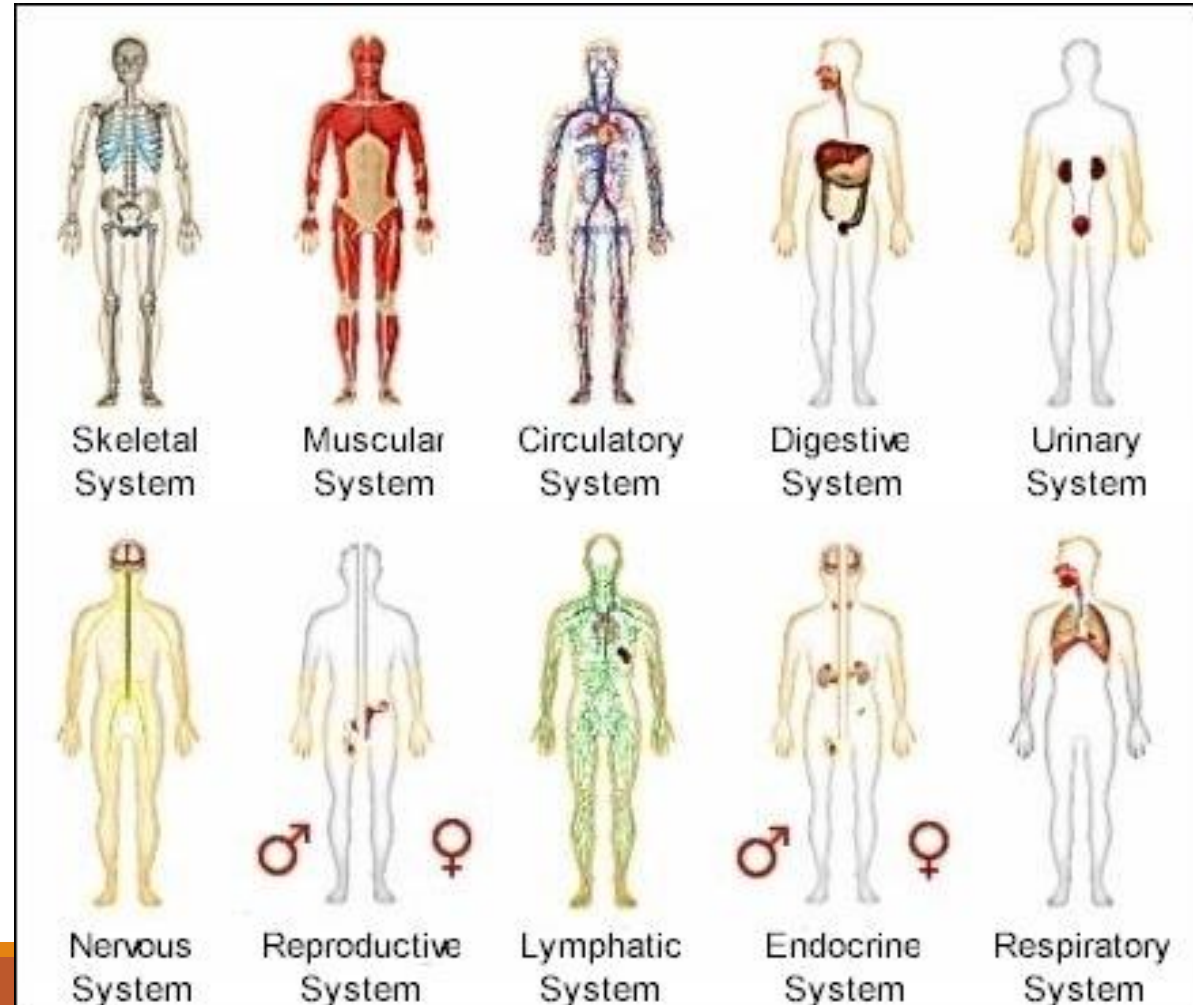
Section 3.2 Human Systems

SNC2DP

MRS. FRANKLIN

Human Organ Systems

There are 11 organ systems in the human body. All systems must work together to ensure the proper functioning of the human body.



Human Organ Systems

There are 3 main systems that we will focus on in the course of this unit:

1) Digestive System

2) Respiratory System

3) Circulatory System

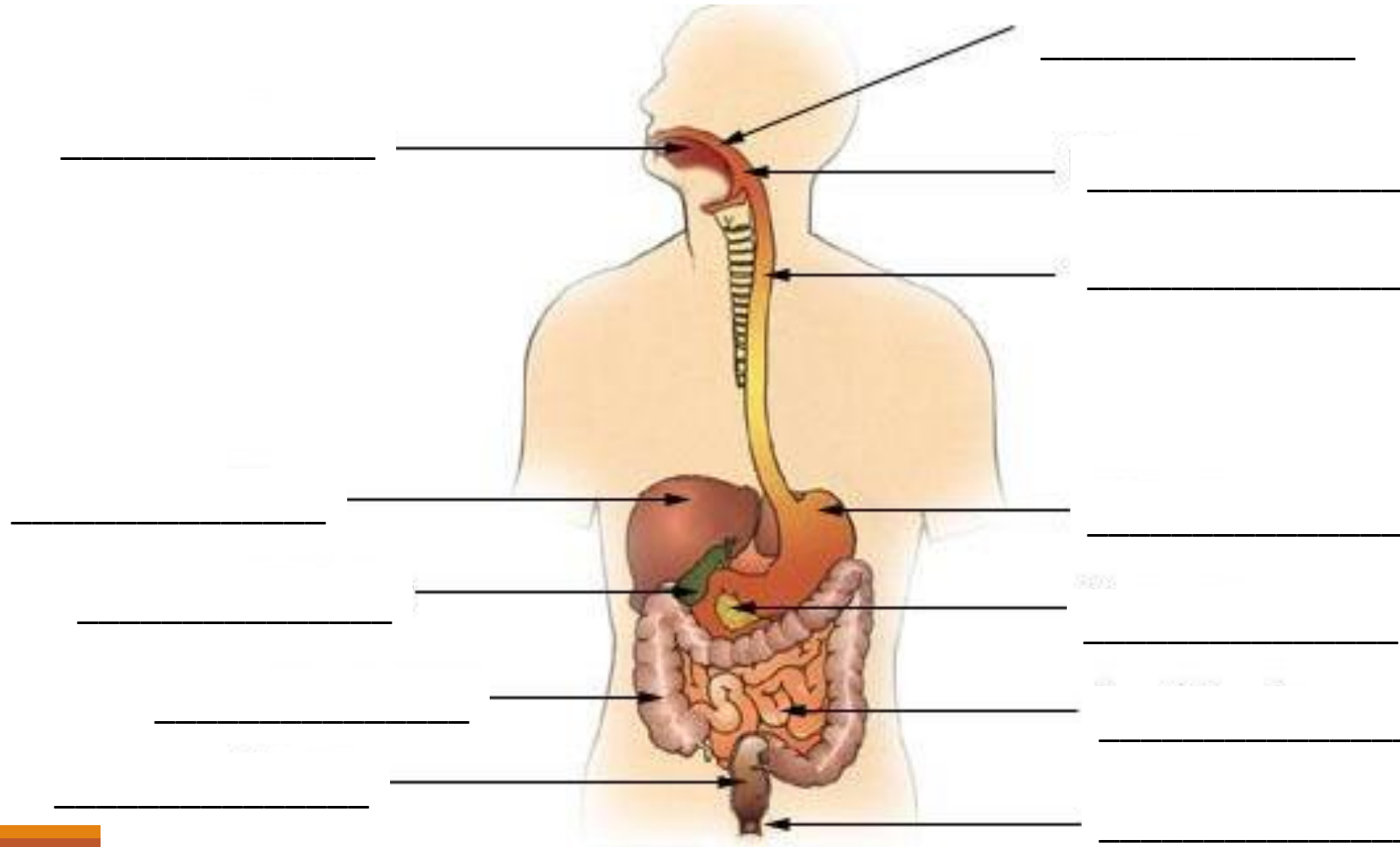
Digestive System

The digestive system is responsible for chemically and mechanically break down food.

Mechanical Digestion:

Chemical Digestion:

Organs in the Digestive System



Four Stages of Digestion

There are 4 main stages in the process of digestion:

1) Ingestion -

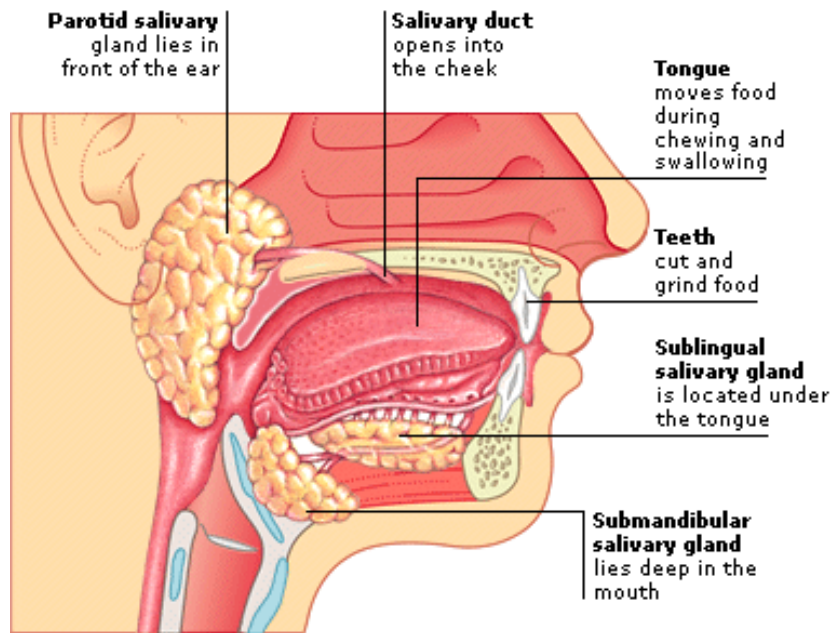
2) Digestion -

3) Absorption -

4) Excretion -

Stage 1: Ingestion

The process of ingestion occurs in the mouth. The teeth, tongue and salivary glands play a vital role in the ingestion and breakdown of food.



Mechanical digestion: Teeth breakdown the food into small pieces

Chemical digestion: enzymes breaks down the bonds in carbohydrates

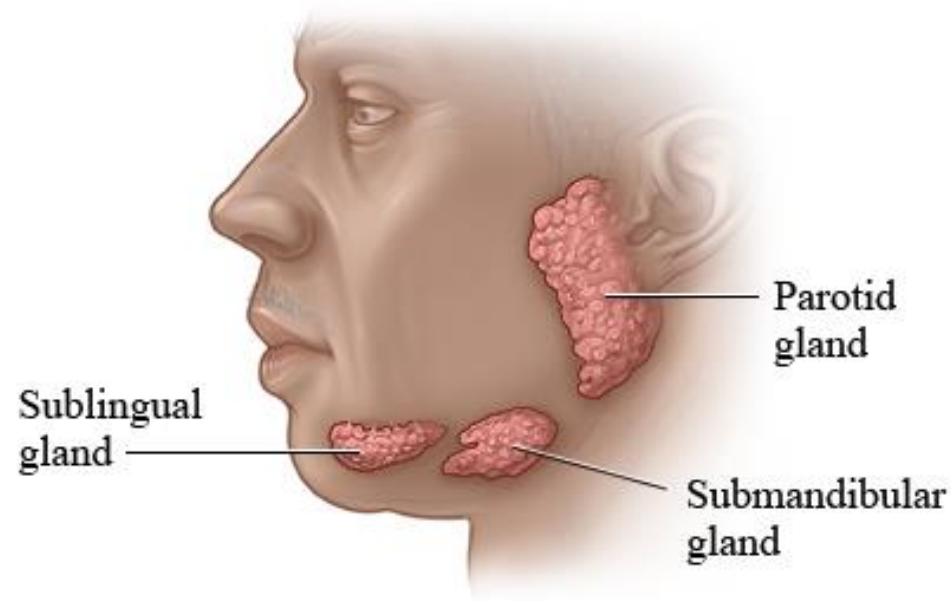
Stage 1: Ingestion - Mouth

The process of ingestion within the mouth involves the following:

- An enzyme (amylase) breaks down starches (carbohydrates) into simpler sugars
- Dissolves water soluble food particles
- Stimulates taste buds
- Lubricates the food so it can be swallowed

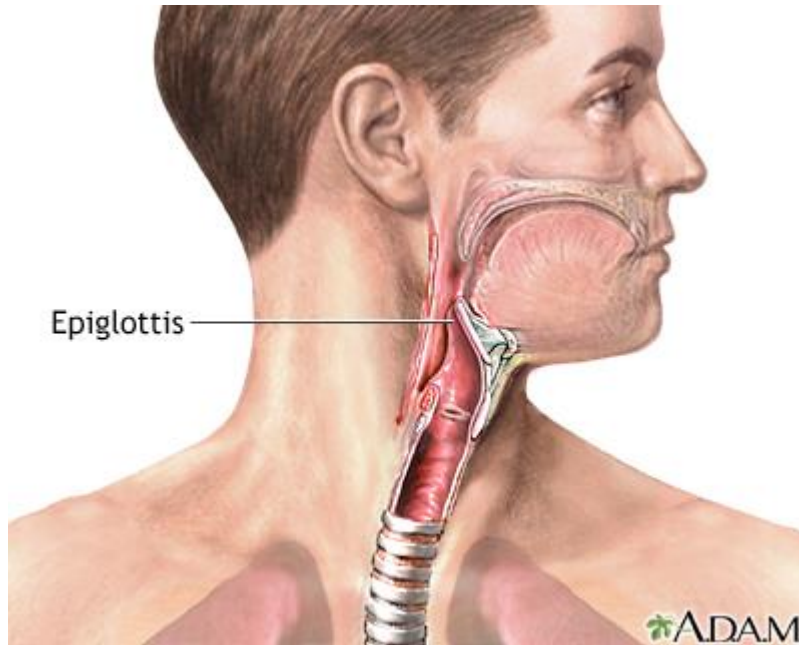
Stage 1: Ingestion - Mouth

The **saliva** is secreted from 3 salivary glands. The secretion of saliva is triggered before you have food in your mouth.



Stage 1: Ingestion - Esophagus

The mouth creates a bolus of food which the tongue pushes back to the back of the throat.



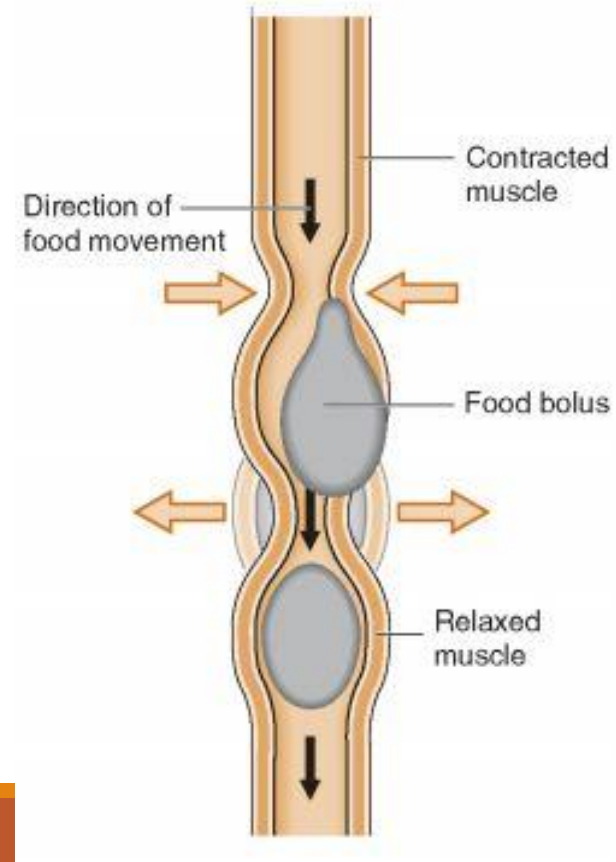
***Epiglottis** – flap covers trachea so food doesn't get in. It causes the food to only enter the esophagus.*

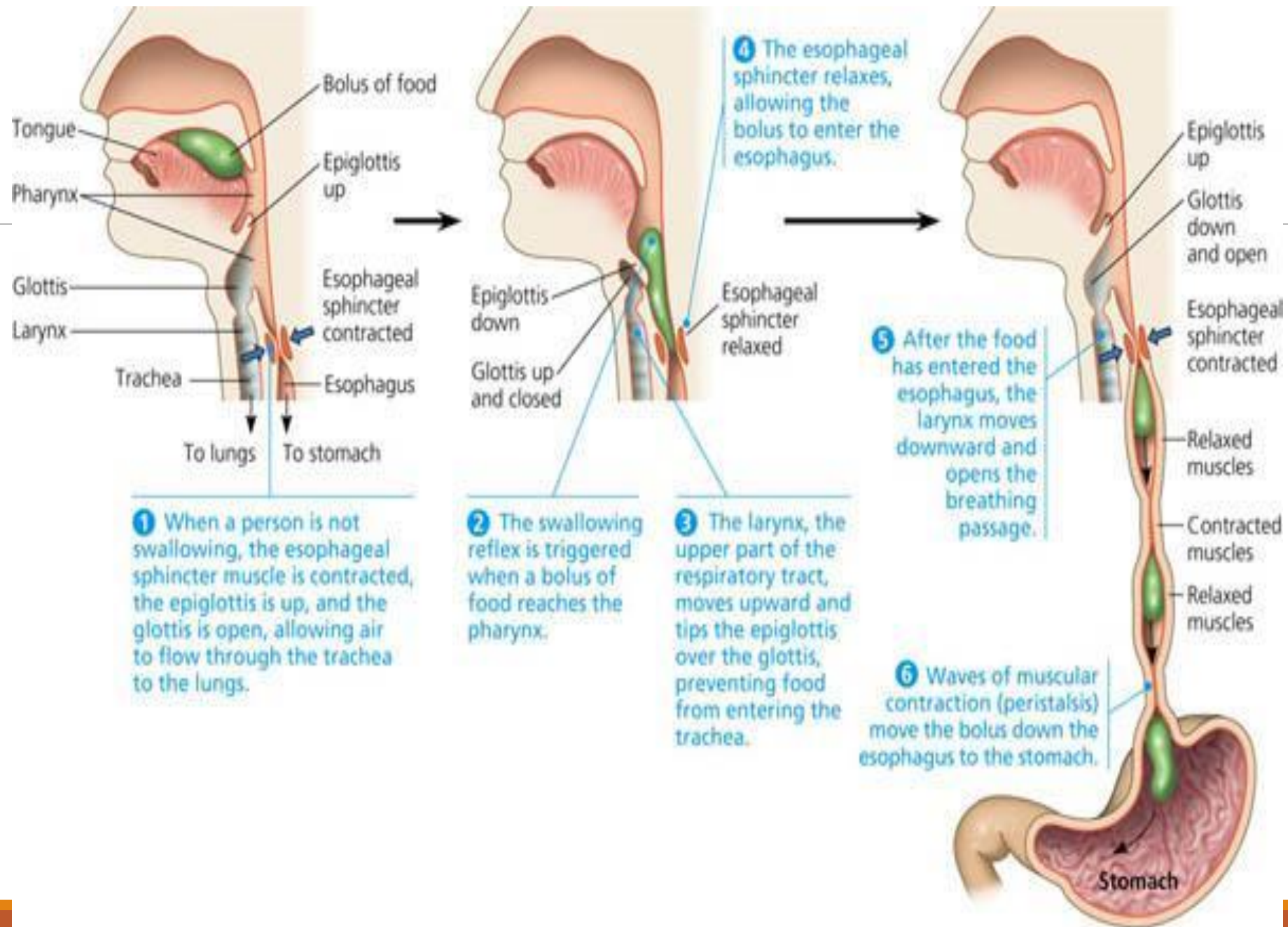
Stage 1: Ingestion - Esophagus

The walls of the esophagus walls are stretched by food and a series of rhythmic contractions occur (peristalsis) to help move food down into the stomach.

Glands in the lining **produce mucus**

- keeps the tube moist
- facilitates movement of food





Stage 2: Digestion - Stomach

The stomach is a muscular, J-shaped organ that is present on the left side of the abdominal cavity.

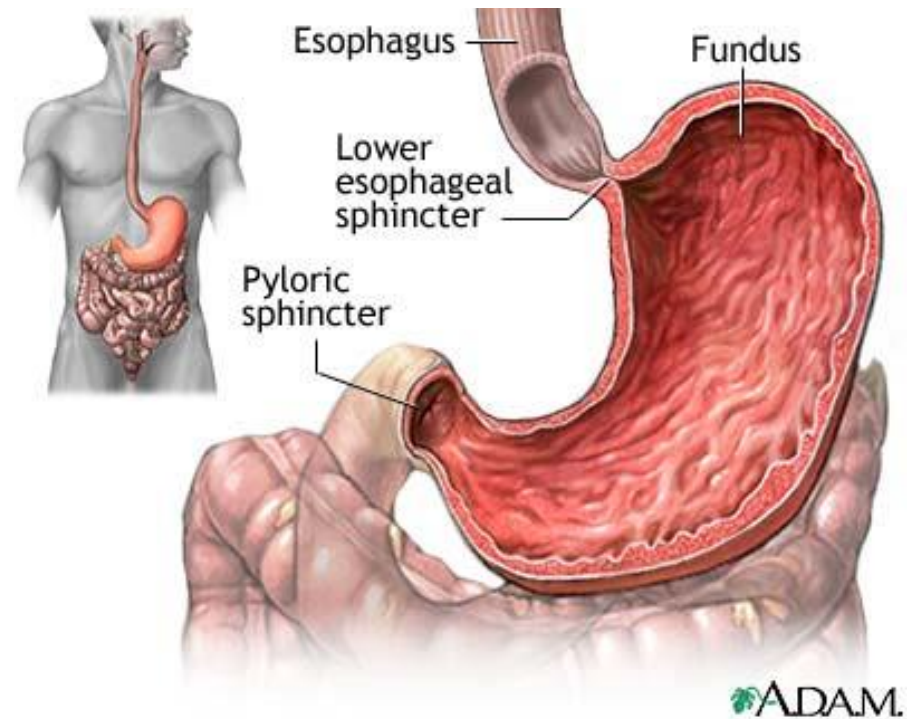
*Performs both chemical
and mechanical digestion*



 ADAM.

Stage 2: Digestion - Sphincter

The lower esophageal sphincter is a muscle that opens in the presence of the bolus of food and allows it to enter the stomach.



[Video](#)

Stage 2: Digestion - Stomach

The stomach walls are **folded** and can **expand** after a meal.

Glands on the stomach wall release _____

- HCl, salts, enzymes, water and mucus

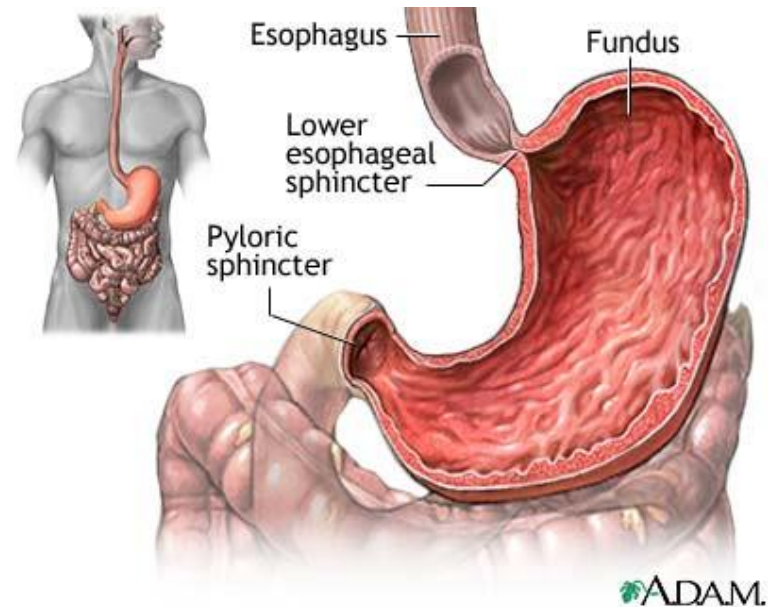
The wall is also covered in a _____

- Protects from the **acid** released from the gastric juices

Stage 2: Digestion - Stomach

The HCl breaks down food and destroys foreign bacteria. The stomach also _____ and _____ to churn the food.

Churning - Breaks up food and mixes with gastric juices. It creates chyme which is delivered into the small intestine.

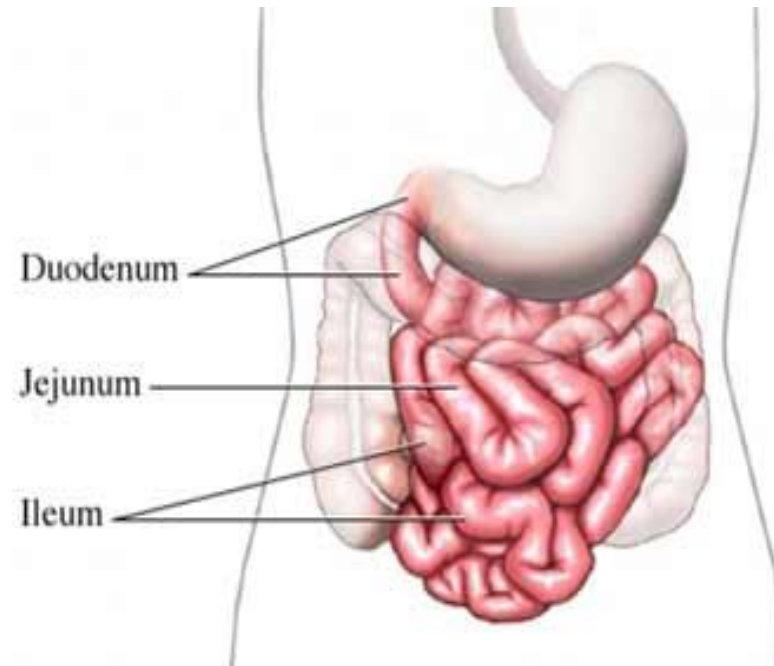


Pyloric Sphincter opens to move food into the small intestine

Stage 2: Digestion – Small Intestine

The small intestine is made up of three main parts:

- 1) Duodenum
- 2) Jejunum
- 3) Ileum



2. Digestion – Small Intestine

1) Duodenum:

- Receives secretions from the _____ and pancreas
- Further breaks down proteins, fats and carbohydrates
- The folds (villi) increase the surface area which increase _____

Stage 2: Digestion – Small Intestine

2) Jejunum and Ileum:

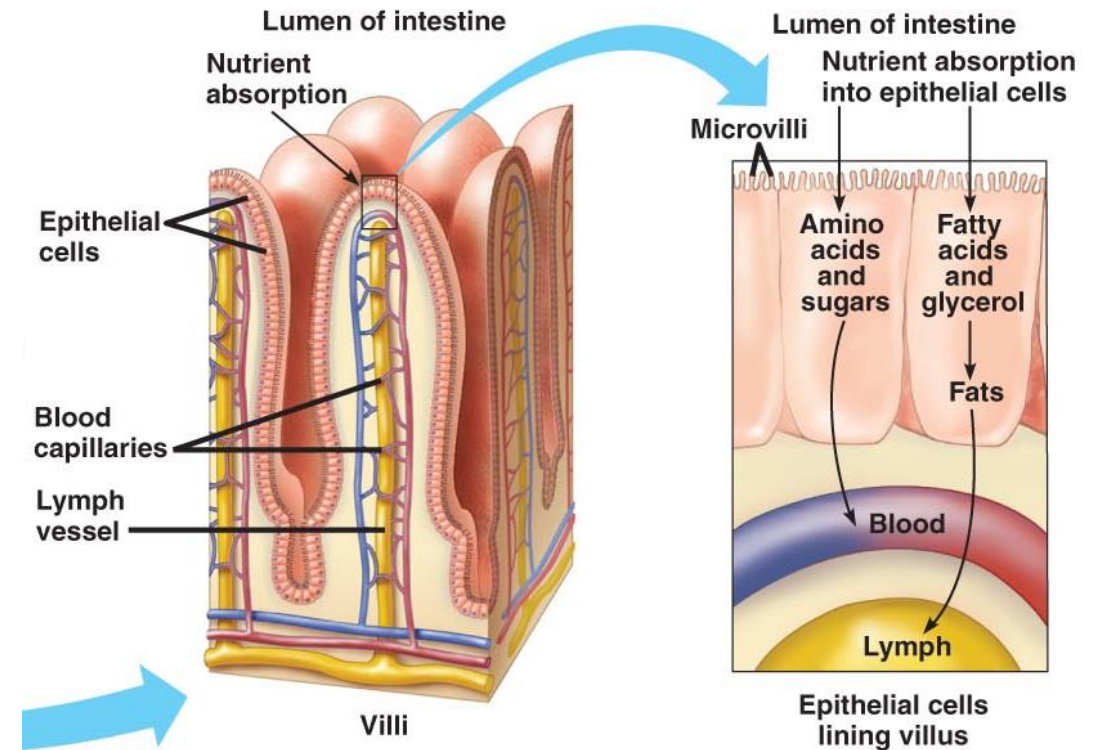
- Contains more folds (villi) than the duodenum, which enables more absorption to occur.
- Breaks down remaining proteins and carbohydrates to be absorbed
- _____ nutrients and pushes undigested material into the large intestine

Stage 3. Absorption – Small Intestine

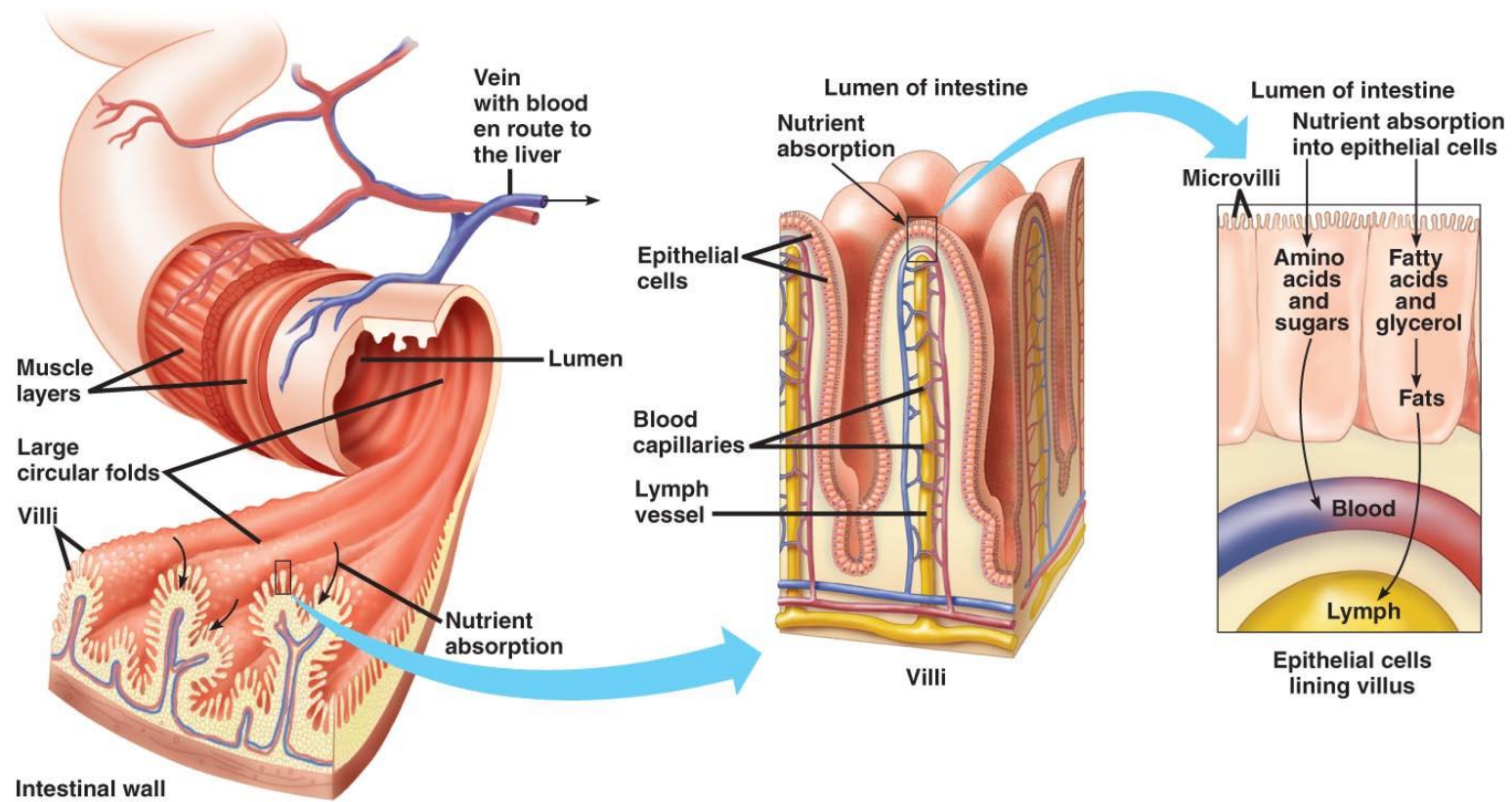
Villi: tiny finger-like projections covering the folds

- Increases the _____ for absorption
- composed of cells with _____ on the surface

There is a **capillary network** within the villi. The nutrients diffuse from small intestine into villi and into capillary network.

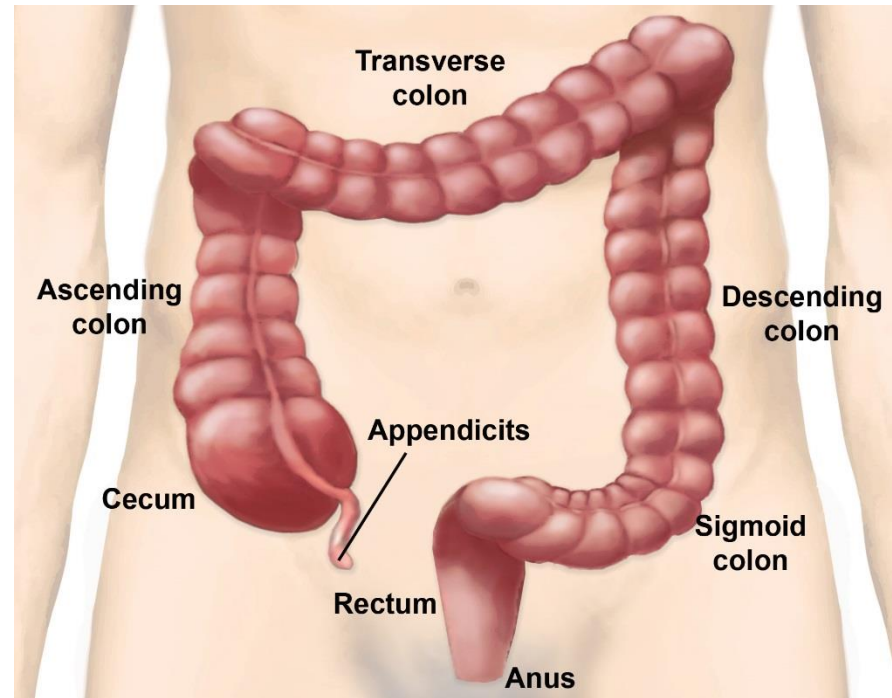


Stage 3: Absorption – Small Intestine



Stage 3: Absorption – Large Intestine

The large intestine (a.k.a _____) reabsorbs fluids and electrolytes. It absorbs 90% of water back into the blood



The appendix is thought not to play a major role in the process of absorption and digestion.

Stage 3: Absorption – Large Intestine

Bacteria live within the large intestine and they produce vitamin K/B and break down undigested matter.

The **feces** is known as any undigested material that remains. It is stored in the large intestine for elimination through the rectum.

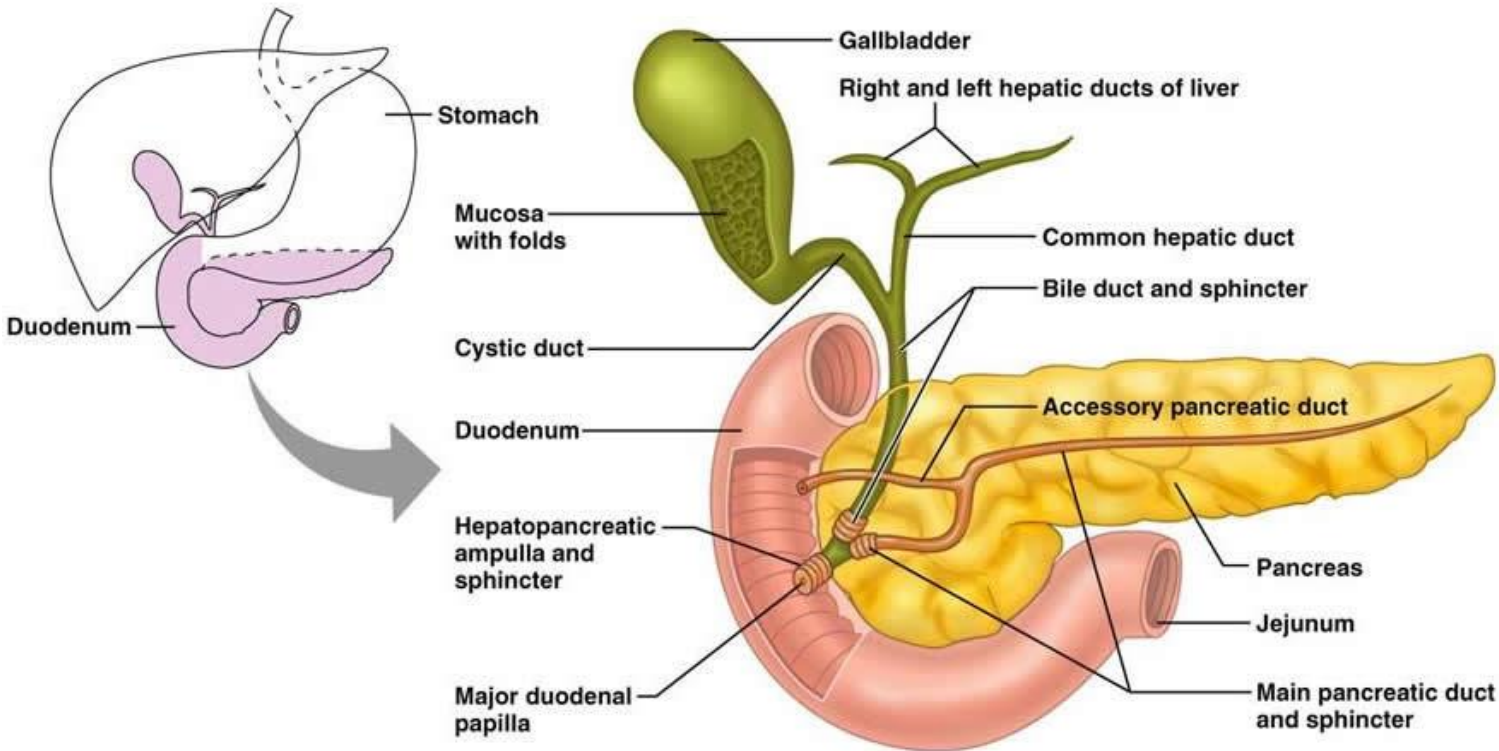
Stage 4: Elimination– Rectum

Main component of feces:

- _____: makes up plant cell walls, cannot be digested by humans
- Living and dead bacteria
- _____
- Toxic wastes are removed

People who don't eat enough cellulose (plant material and fibre) have fewer bowel movements and are at risk of colon cancer

Accessory Organs



Liver:

Pancreas:

Gallbladder:

Homework

- Complete pg. 99 of your textbook # 1, 2 & 4

- Complete the worksheets given in class