

# The Digestive System Functions

- **Ingestion**

- ✓ Taking in food

- **Digestion**

- ✓ Breaking food into nutrient molecules

- **Absorption**

- ✓ Movement of nutrients into the bloodstream

- **Defecation**

- ✓ Excretes to rid the body of indigestible waste

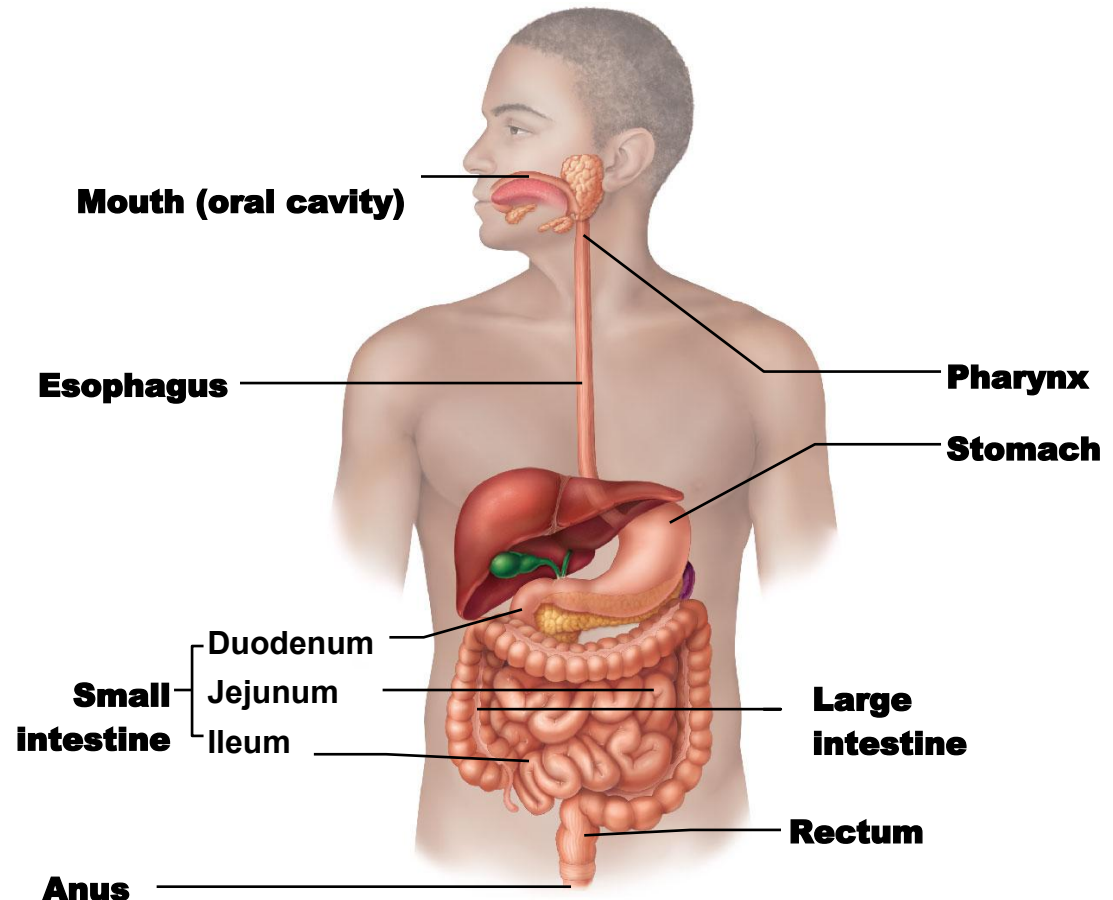
# Anatomy of the Digestive System

- Two main groups of organs:
  - 1. Alimentary canal** (gastrointestinal, or GI, tract)
    - ✓ Organs ingest, digest, absorb, defecate
  - 2. Accessory digestive organs**
    - ✓ Organs assist digestion in various ways

# Organs of the Alimentary Canal

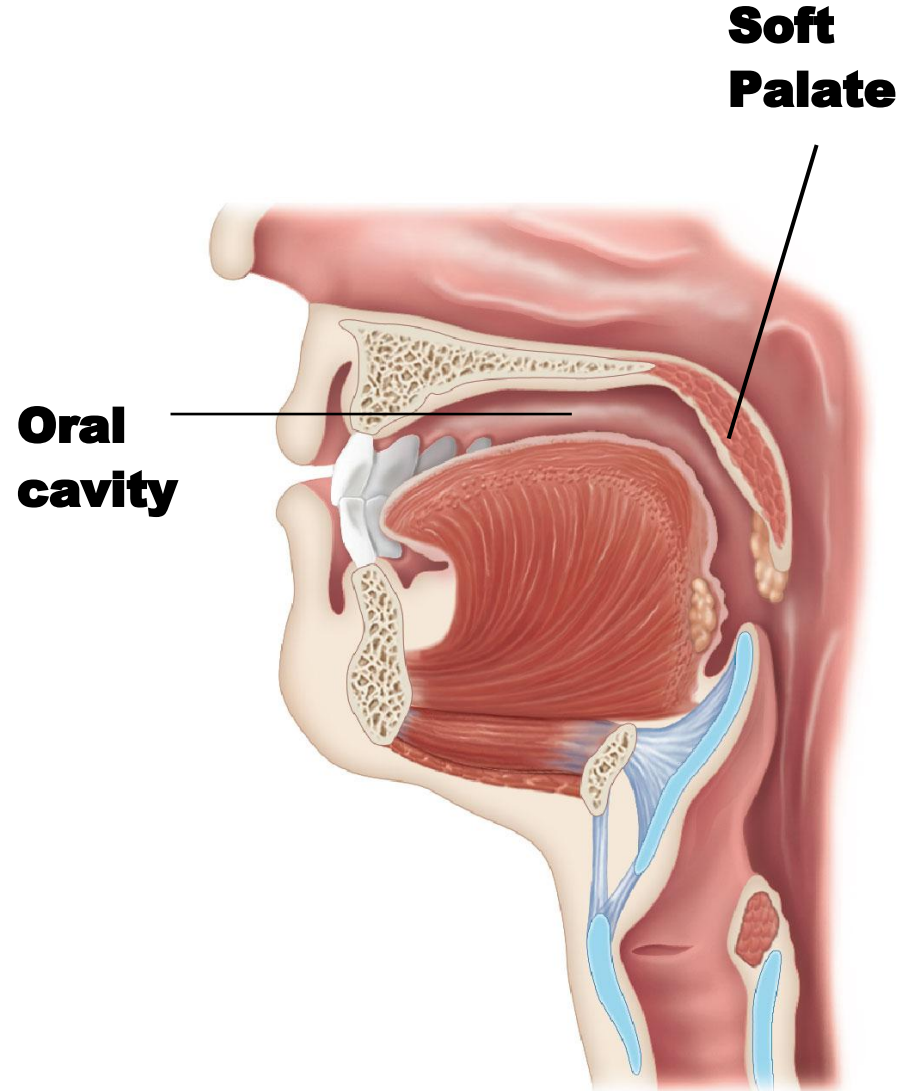
- The alimentary canal is a **continuous, coiled, hollow tube** that runs through the ventral cavity from stomach to anus:

- ✓ Mouth
- ✓ Pharynx
- ✓ Esophagus
- ✓ Stomach
- ✓ Small intestine
- ✓ Large intestine
- ✓ Anus



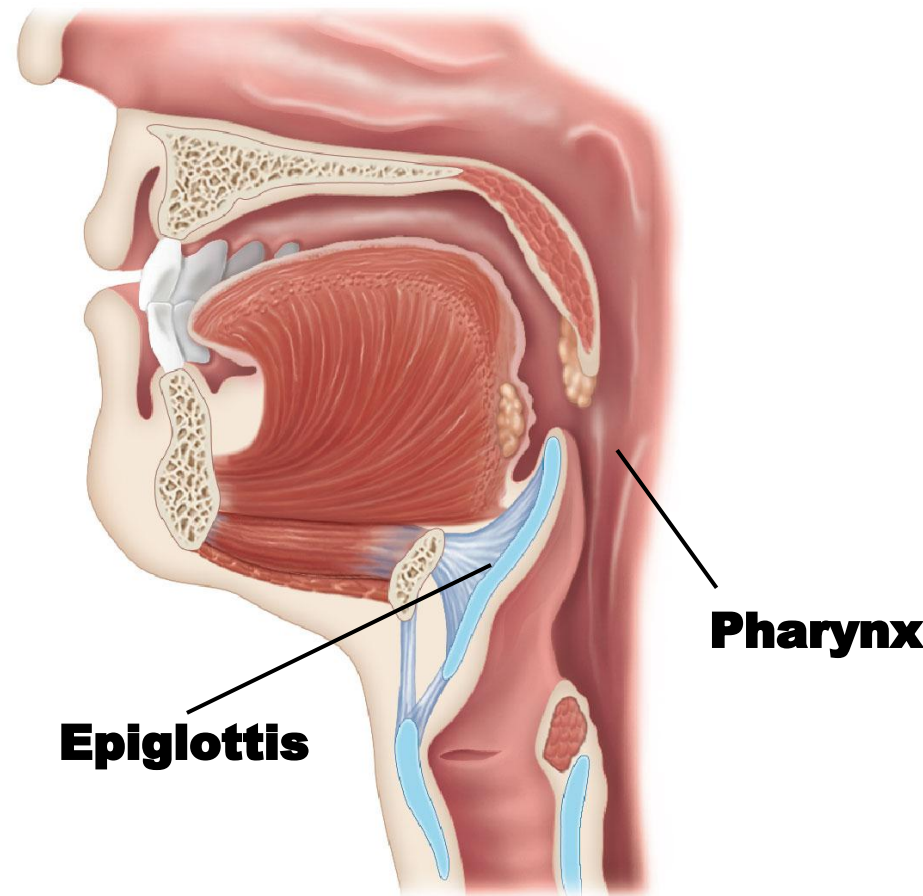
# Mouth (Oral Cavity)

- Structure
  - ✓ **Mucous membrane-lined cavity where food enters the digestive system**
- Function
  - ✓ **Holds food for initial mechanical digestion**
- The **soft palate**, posterior roof of the oral cavity, lifts to **block the opening to the nasal cavity during swallowing**



# Pharynx

- Structure
  - ✓ **Muscular passageway from nasal cavity to esophagus**
- Function
  - ✓ **Serves as a passageway for food, fluids, and air**
- The **epiglottis** located inferior to the pharynx **routes food into the esophagus** by covering the opening of the larynx during swallowing



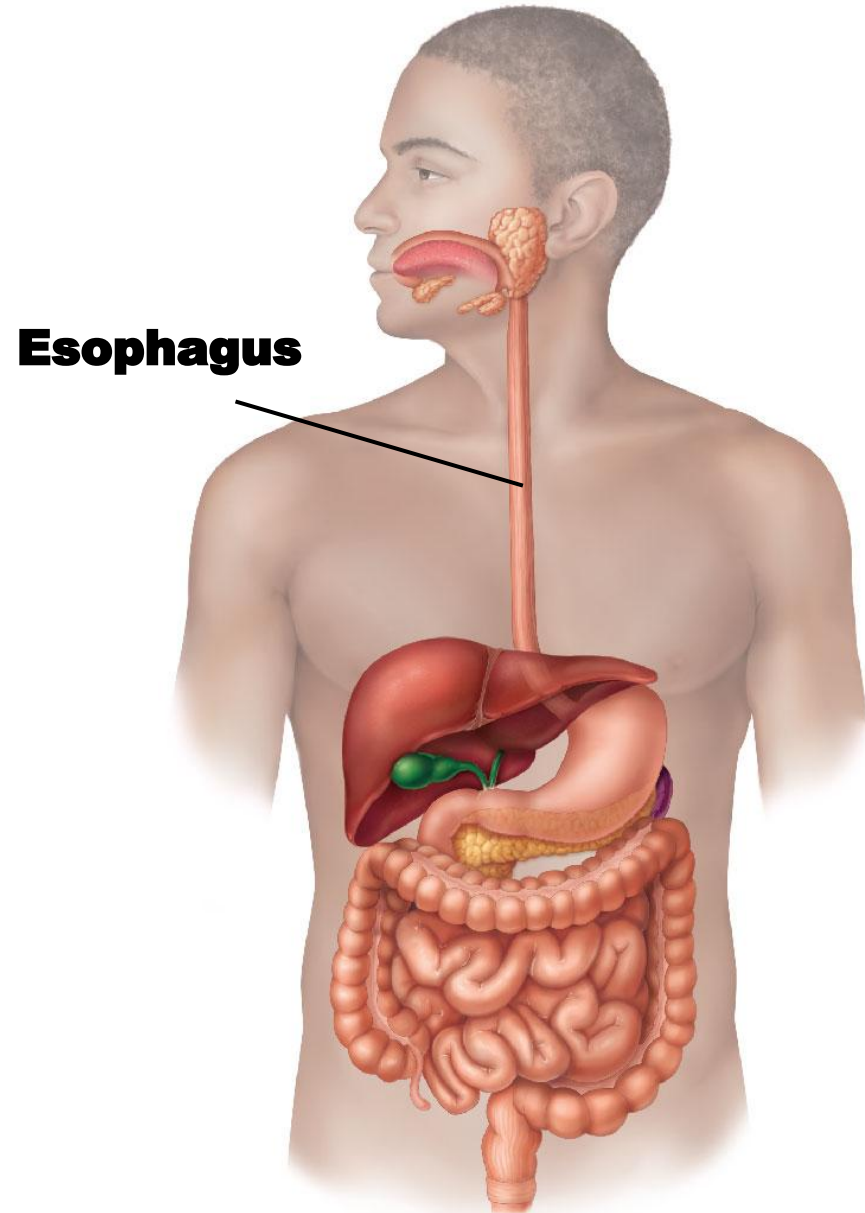
# Esophagus

- Structure

- ✓ ~10 inch long, muscular passageway for food running from pharynx to stomach through the diaphragm

- Function

- ✓ Carries food by involuntary contractions called peristalsis (slow rhythmic squeezing) to the stomach



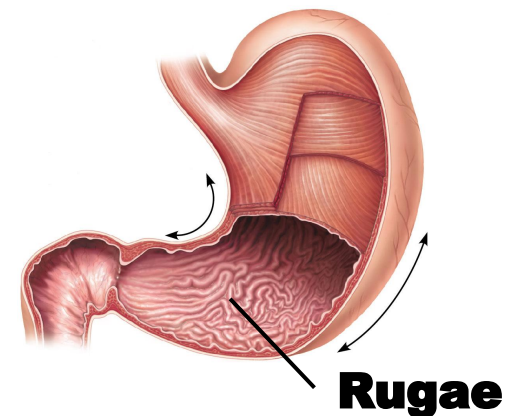
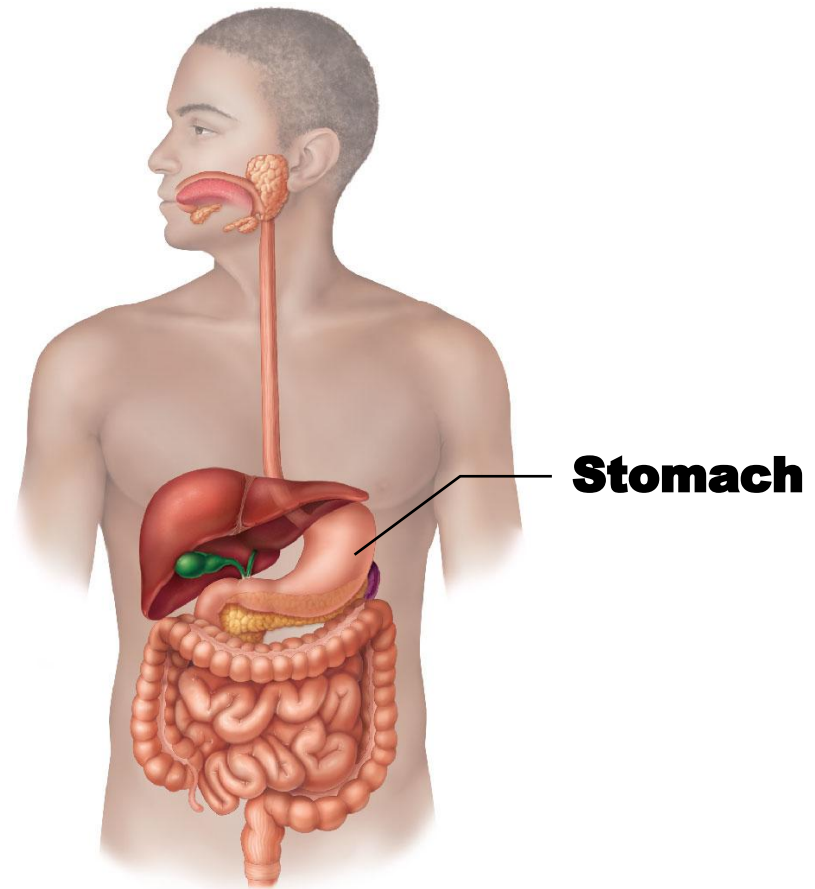
# Stomach

- Structure

- ✓ C-shaped organ located on the left side of the abdominal cavity consisting of large mucosa folds called rugae

- Function

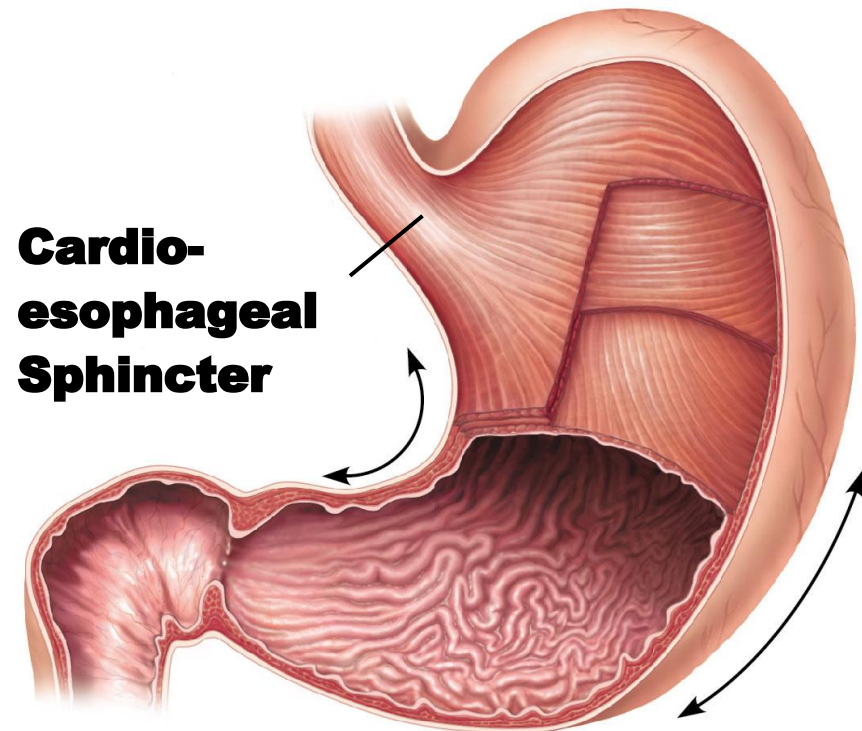
- ✓ Temporary stores food
- ✓ Continues mechanical digestion
- ✓ Chemical breakdown of protein begins
- ✓ Delivers chyme (processed food) to the small intestine





# Stomach

- The stomach has two sphincters, **circular muscles**:
  1. **Cardioesophageal sphincter**
    - ✓ Located where the esophagus meets the stomach
    - ✓ Regulates **the entry of food into the stomach**
    - ✓ Prevents **stomach chyme from going back up into the esophagus**

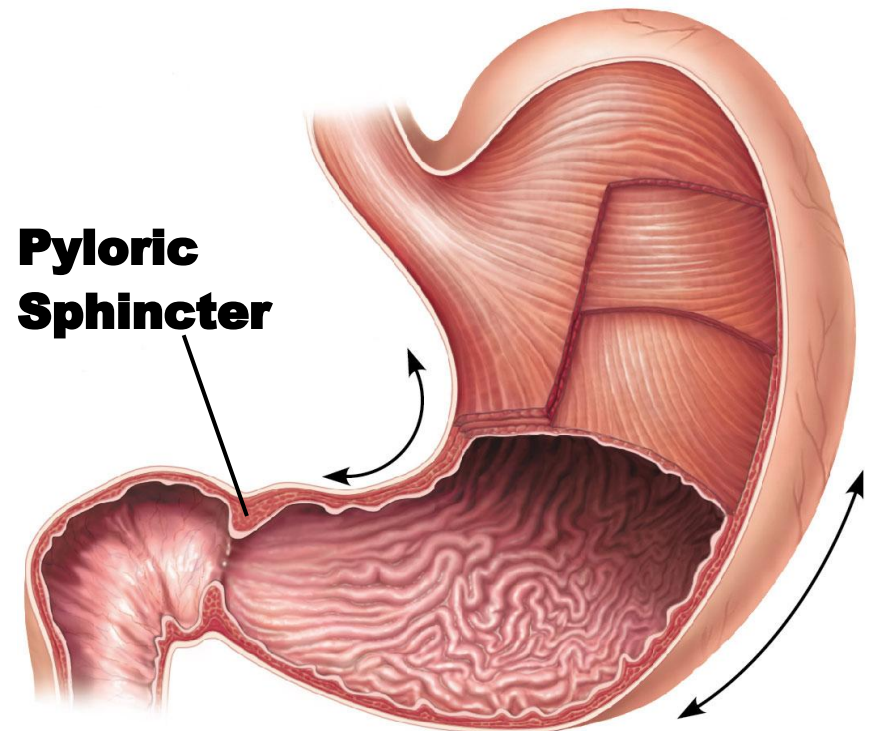




# Stomach

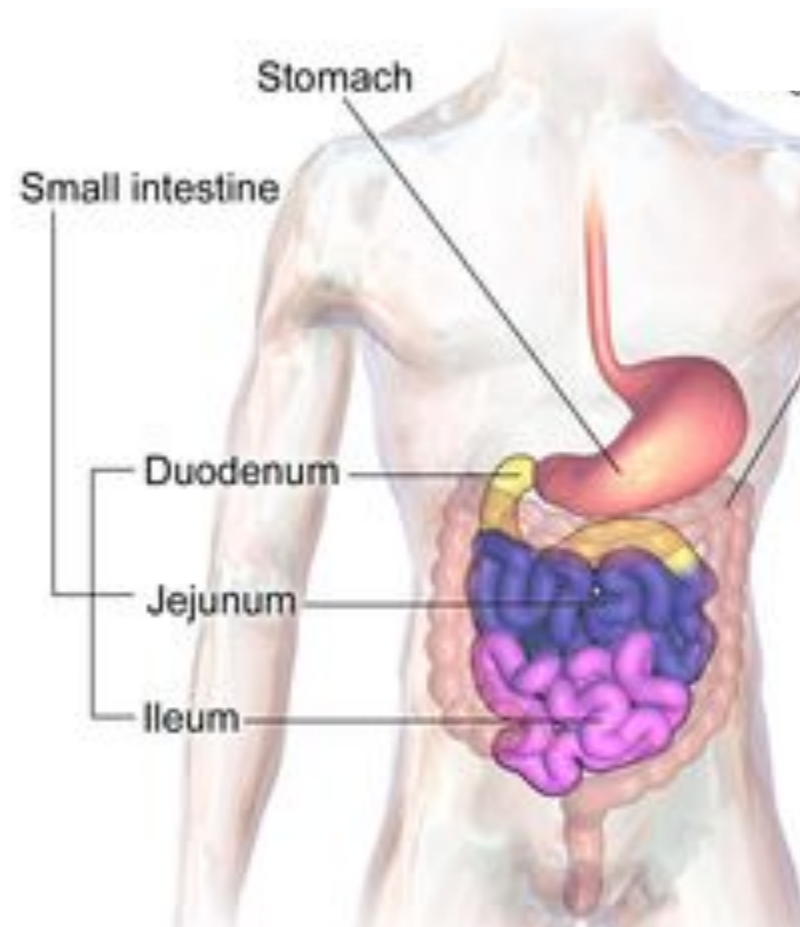
## 2. Pyloric sphincter

- ✓ Located where the stomach meets the small intestine
- ✓ Regulates **the release of stomach chyme into the small intestine (duodenum)**



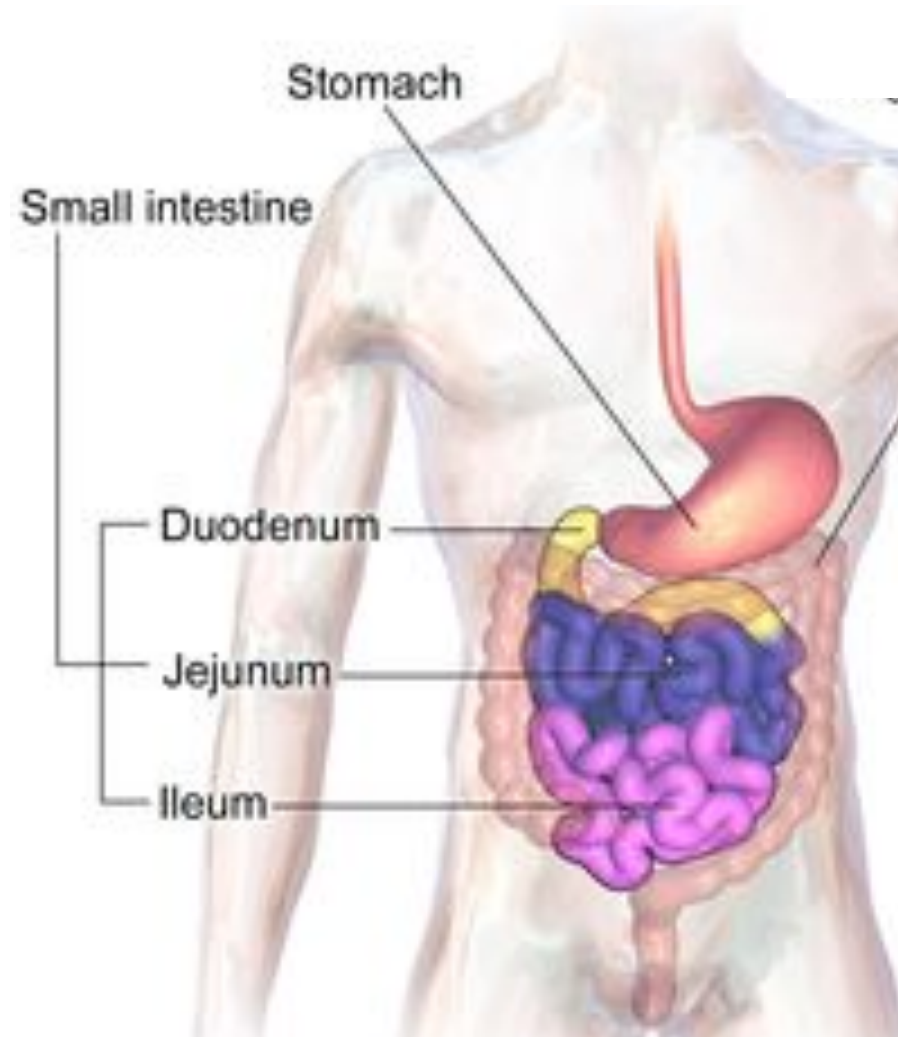
# Small Intestine

- Structure
  - ✓ Longest muscular tube of the alimentary canal (7-13 feet) consisting of mucosa projections called villi and microvilli
- Function
  - ✓ Chemically digests food assisted by enzymes secreted from accessory organs
  - ✓ Absorbs nutrients



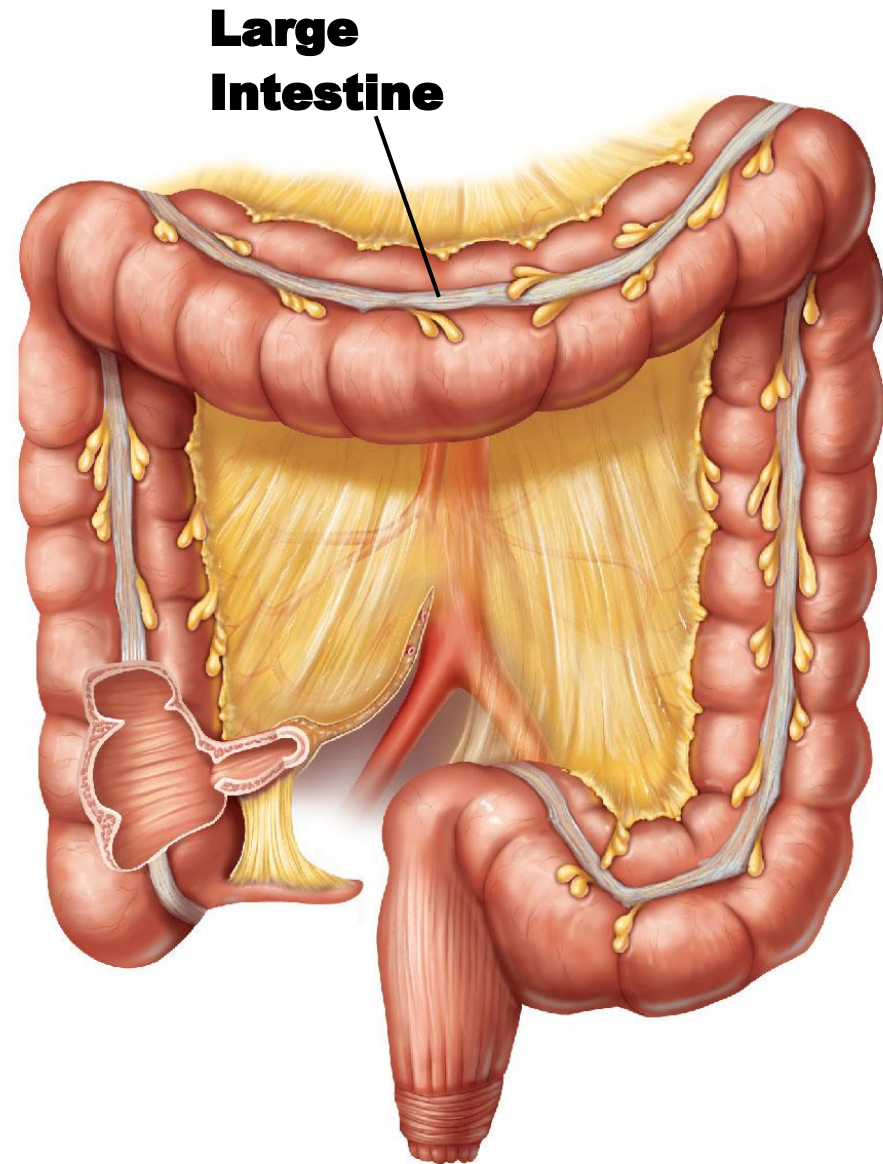
# Small Intestine

- The small intestine consists of three subdivisions:
  1. **Duodenum**
    - ✓ Continues **chemical** digestion
  2. **Jejunum**
    - ✓ Completes **chemical** digestion
    - ✓ Begins **absorption of nutrients**
  3. **Ileum**
    - ✓ Completes **absorption of nutrients**



# Large Intestine

- Structure
  - ✓ Short, large diameter tube consisting of many alkaline mucus producing goblet cells
- Function
  - ✓ Reabsorbs water from indigestible food (waste)
  - ✓ Stores food waste



# Large Intestine

- The large intestine consists of many subdivisions:

1. Cecum

- ✓ Appendix hangs from it

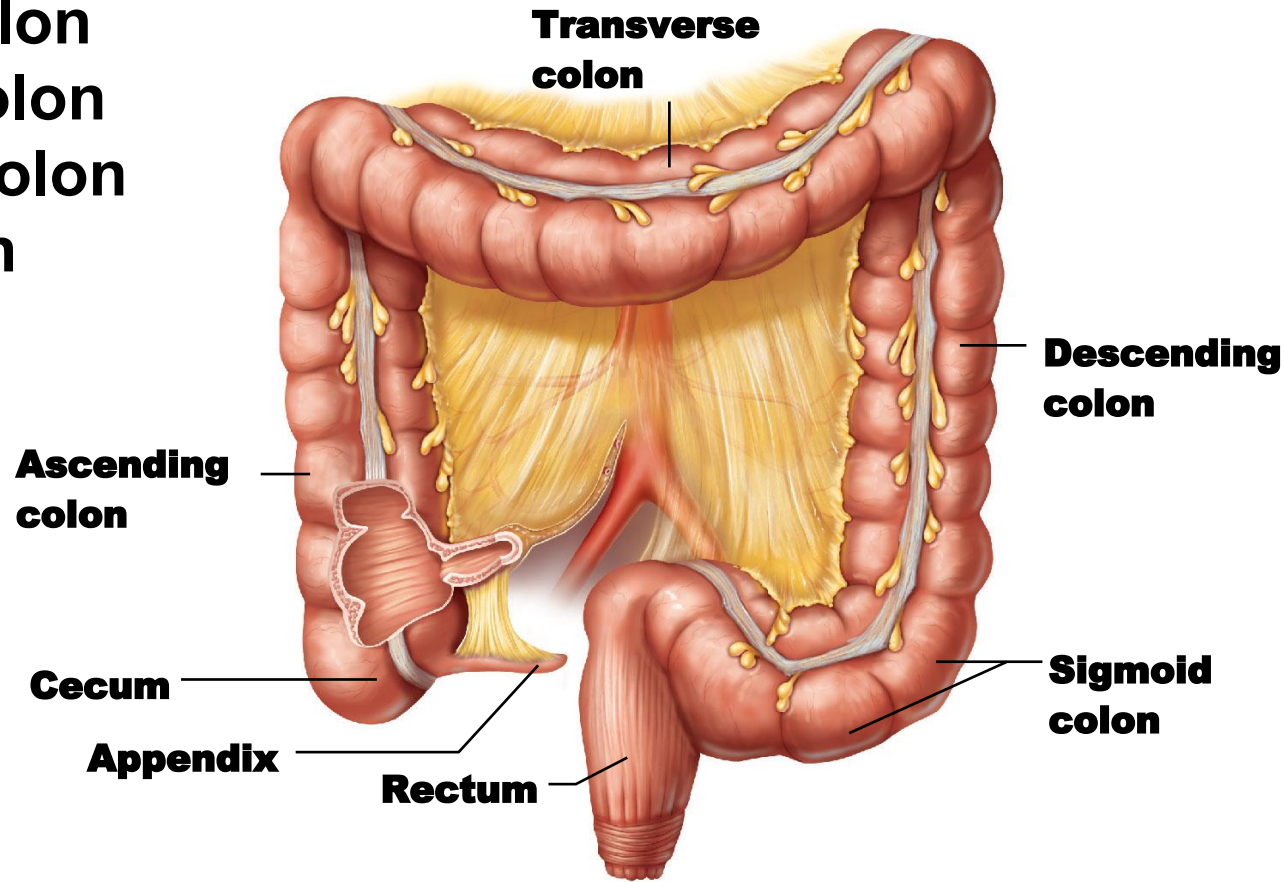
2. Ascending colon

3. Transverse colon

4. Descending colon

5. Sigmoid colon

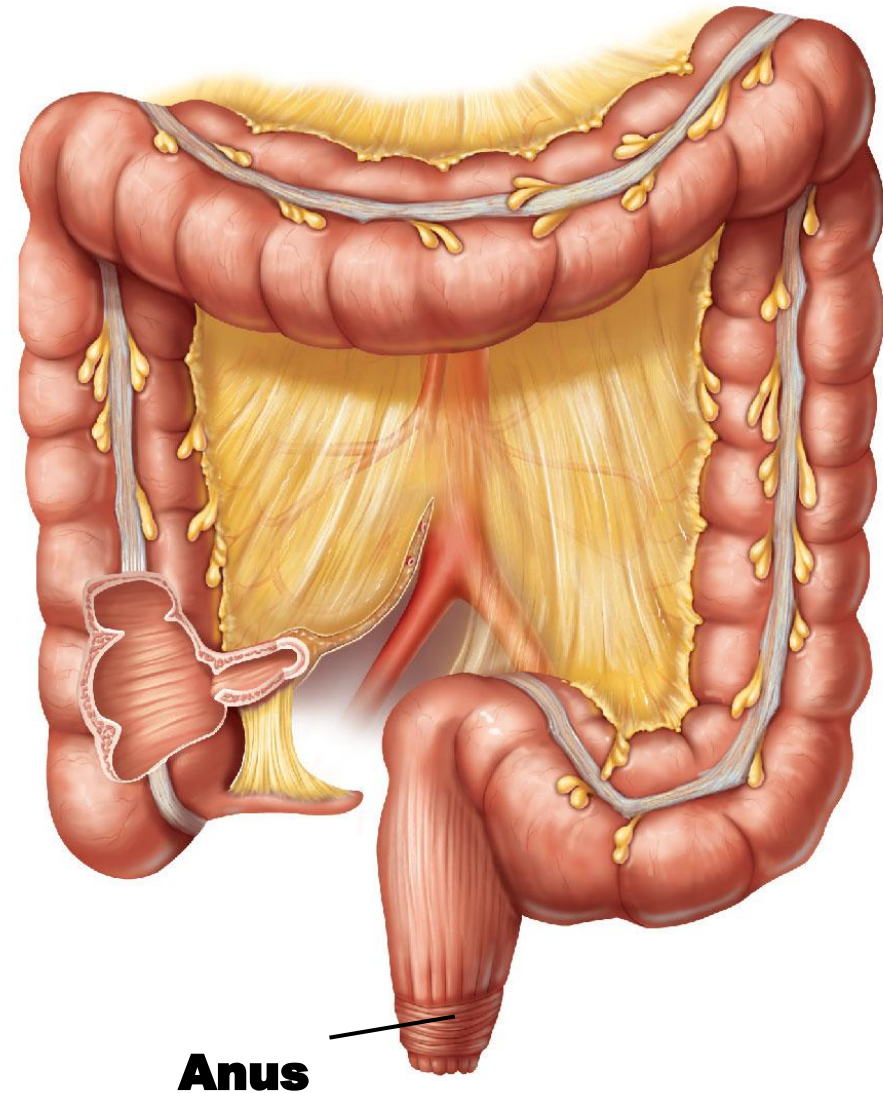
6. Rectum





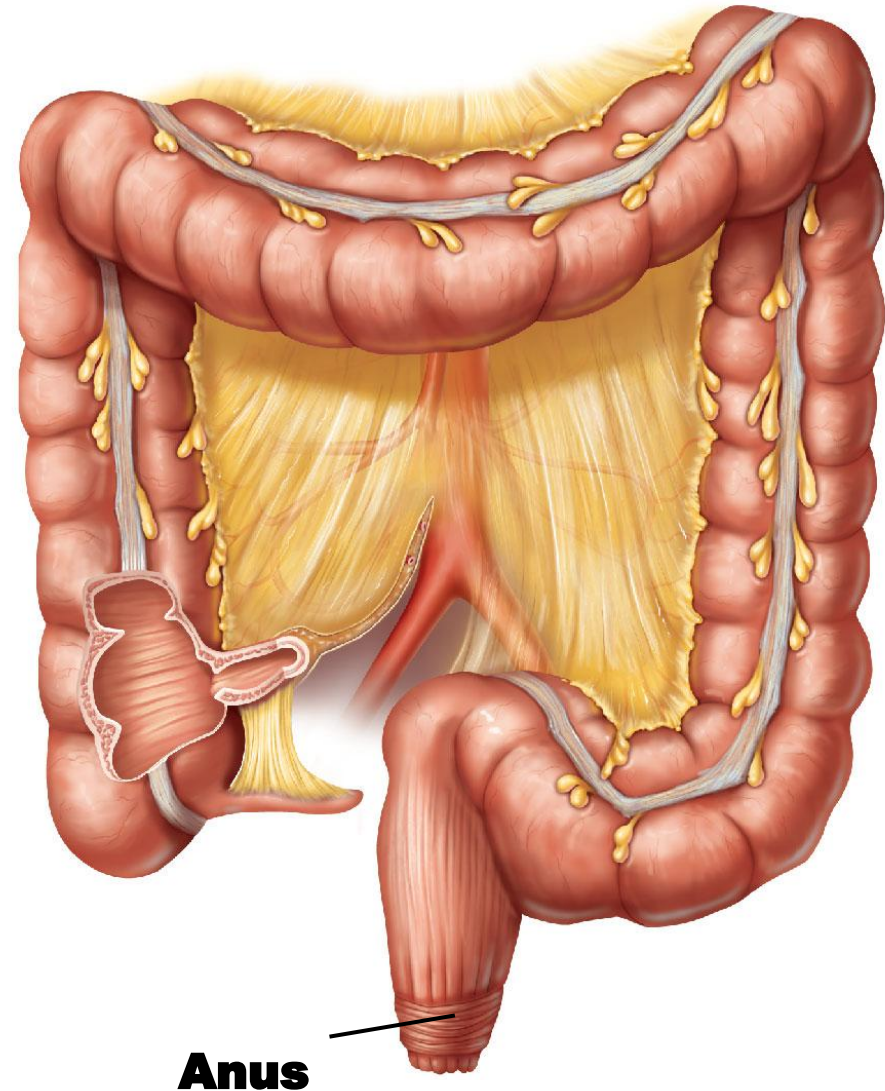
# Anus

- Structure
  - ✓ End of the alimentary canal consisting of circular muscles
- Function
  - ✓ Regulates defecation and eliminates food waste



# Anus

- The anus consists of two muscles:
  1. **External anal sphincter**
    - ✓ Formed by **skeletal** muscle
    - ✓ **Voluntary**
  2. **Internal anal sphincter**
    - ✓ Formed by **smooth** muscle
    - ✓ **Involuntary**





# Organs of the Alimentary Canal

