Chapter 16: Section 2  The Digestive System

Food is processed in your body in four stages: ingestion (take in), digestion (break down), absorption, and elimination.

A. *Digestion* - breaks food down into small molecules that can be carried by **blood** to cells.

2 types

1. **mechanical** - food is chewed, mixed, and churned. (physical breakdown of food)
2. **chemical** - chemical reactions break down food. (acids, enzymes, etc.)

B. **Enzyme** - type of protein that speeds up a chemical reaction in your body

1. Many are involved in the digestion of **carbohydrates**, **proteins**, and **fats**.
2. Without enzymes, **the chemical reactions of your body would not happen** and in fact, **you would not exist**.

C. 2 parts of the Digestive System:

1. **accessory organs** - food does not pass through them (but they are important in mechanical and chemical digestion. (Pages 483-486 for this section)

   a. **teeth** - chew food
   b. **tongue** - mixes food with saliva and helps move it around
   c. **salivary glands** - produce saliva that contains water, mucus, and enzymes that start the process of **chemical** digestion in the mouth.
   d. **liver** - produces a greenish fluid called bile which breaks down _____.
   e. **gall bladder** - stores bile from the liver until it is needed in the small intestine
   f. **pancreas** - produces various enzymes that aid in digestion; also makes insulin which is a hormone that allows **sugar** to pass from the bloodstream into your cells.

2. **Digestive tract** - food passes through these organs. (pages 483-487)

   a. **mouth** - Here the teeth, tongue, and saliva change food into a soft mass.
   b. **esophagus** - muscular tube that moves food to the stomach using *peristalsis* or waves of muscle contractions.
   c. **stomach** - Here, food is digested **mechanically** by peristalsis, or **chemically** by digestive solutions (________________) with the help of enzymes.

   Food becomes a thin, watery liquid called **chyme**.

   **mucus** in the stomach protects it from acids.
d. **small intestines** - Have **villi** which are finger-like extensions that increase the surface area to help with absorption of nutrients. (Blood carries these nutrients to cells.)

e. **large intestine (colon)** - absorbs **water** from undigested chyme. The rectum and anus control the release of **solid waste** from the body.

D. **Bacteria** live in many of the organs of your digestive tract such as the **mouth** and **large intestine**.

1. It is a mutualistic relationship (both benefit.) the bacteria get **food** from us and they make some **vitamins** we need.

   a. They produce **vitamin K** which is needed for blood clotting and the B vitamins **niacin** and **thiamine**.

**DIAGRAM:**

- Teeth
- Tongue
- Salivary Glands
- Mouth
- Esophagus
- Liver
- Gall bladder
- Stomach
- Pancreas
- Large Intestine (colon)
- Appendix
- Small Intestines
- Anus
- Rectum