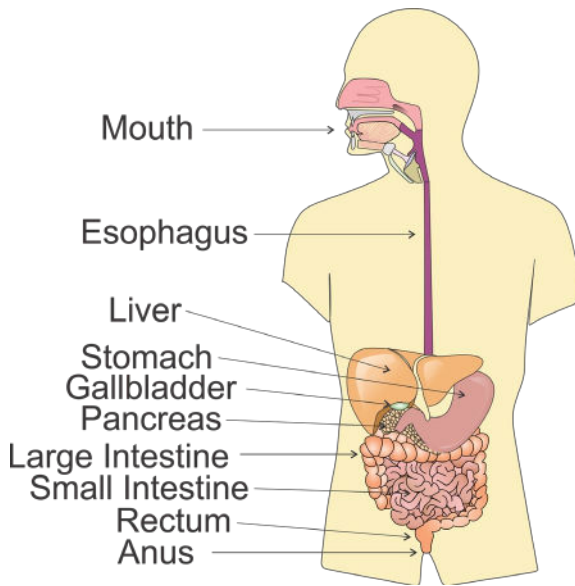


Human Body - Part I

Section 5: The Digestive System



The **digestive system** breaks down the food we eat into molecules that the body can use for energy, growth, and repair. It also removes waste materials that the body cannot use. Digestion begins in the mouth and continues through a series of organs that form the digestive tract. Food passes through the pharynx, esophagus, stomach, small intestine, and large intestine before leaving the body through the anus. Several accessory organs, including the liver, gallbladder, and pancreas, also help with digestion.

Digestion is the process of breaking down food into smaller substances that can be absorbed and used by cells. Both mechanical digestion and chemical digestion begin in the **mouth**. **Mechanical digestion** physically breaks food into smaller pieces through chewing, mixing, and churning. **Chemical digestion** changes food at the molecular level through the action of enzymes, which are proteins that speed up chemical reactions in the body. Saliva in the mouth contains enzymes that begin breaking down starches as food is chewed.

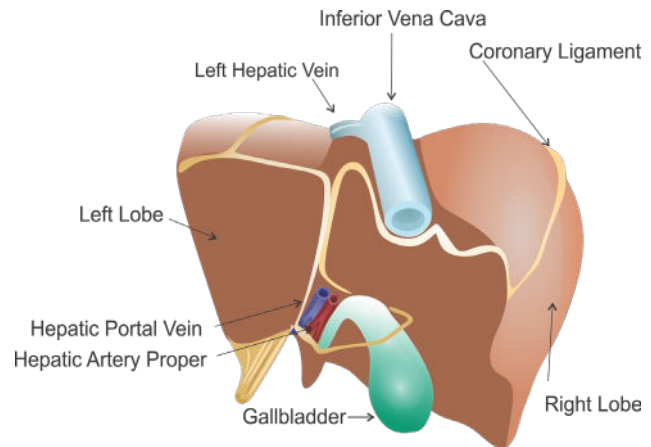
After swallowing, food moves through the pharynx and enters the **esophagus**, a narrow muscular tube that connects the throat to the stomach. Food travels through the digestive tract by waves of muscle contractions called **peristalsis**. These rhythmic contractions push food through the system even when a person is lying down. The **stomach** is a muscular organ located at the end of the esophagus. Its strong muscular walls contract and churn food while mixing it with gastric juices. These acidic digestive fluids and enzymes continue the chemical breakdown of food, turning it into a semi-liquid mixture called chyme.

From the stomach, chyme enters the **small intestine**, where most chemical digestion and nutrient absorption occur. The small intestine contains tiny finger-like projections called **villi** that increase surface area and allow nutrients to pass efficiently into the bloodstream. Nutrients absorbed here are transported to cells throughout the body. The remaining undigested material then moves into the large intestine. The **large intestine** absorbs water and some vitamins from the remaining waste material. After water is removed, the leftover waste is compacted and eventually eliminated from the body.

Human Body - Part I

Section 5: The Digestive System Cont.

Several accessory organs support the digestive system. The **liver** performs many important functions, including filtering blood coming from the digestive tract and producing **bile**, a substance that helps break large fat droplets into smaller particles. Bile is stored in the **gallbladder** until it is needed in the small intestine. The **pancreas** produces digestive enzymes that enter the small intestine and help break down carbohydrates, proteins, and fats during chemical digestion.



Review:

1. Compare chemical digestion to mechanical digestion.
2. Explain peristalsis.
3. What is the function of the small intestine?