HUMAN DIGESTIVE SYSTEM

Explain ingestion, absorption, assimilation, and excretion.
S8LTIva-13

DIGESTIVE SYSTEM

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LESSON 1: STRUCTURES AND FUNCTIONS IN HUMAN FOCUS ON THE DIGESTIVE SYSTEM

The food that we eat plays a central role in the survival of species. It provides energy that enables us to carry out many activities that we do each day such as breathing, walking, studying, and cooking. Food must be broken down into a form that these microscopic cells can use. The body changes food into usable form using a group of organs referred to as the digestive system. Food must be broken down into a form that these microscopic cells can use. The body changes food into usable form using a group of organs referred to as the digestive system.

In humans, the digestive system is composed of the gastrointestinal tract (GI), also known as the alimentary canal and the accessory organs for digestion. The gastrointestinal tract starts at the mouth, continues to the esophagus, stomach, small intestines, large intestine (colon), and rectum, and ends at the anus. Accessory organs that play very important roles in the digestive process are the liver, gallbladder, and pancreas.

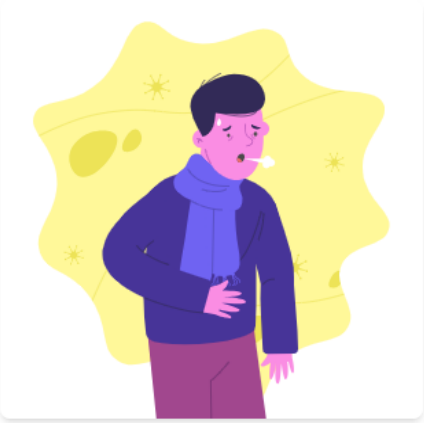
The chief function of the digestive system is digestion, the breakdown of organic compounds into their simple forms for use by the cells. It breaks down food mechanically and chemically.

INGESTION, DIGESTION, ABSORPTION, ASSIMILATION, AND EGESTION

DIGESTION

Marks the beginning of the digestive process. It involves the intake of food or substances into the body through the mouth. This step is essential as it sets the stage for the breakdown and absorption of nutrients.

INDIGESTION



A. Indigestion marks the beginning of the digestive process. It involves the intake of food or substances into the body through the mouth. This step is essential as it sets the stage for the breakdown and absorption of nutrients. The process starts with chewing, where food is mechanically broken down into smaller pieces, making it easier for the digestive system to process.

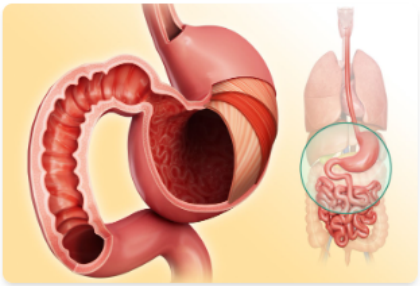
DIGESTION

B. Digestion is the second process involved in the digestive system. It involves the breakdown of large food molecules into smaller molecules for easy absorption by the cells. Both chemical and mechanical digestion begin immediately in the mouth.

- The liver produces bile, a green fluid that emulsifies large fat droplets into smaller ones, stored in the gall bladder for later use.
- The pancreas releases enzymes through the pancreatic duct to aid in digestion:
  - **Amylase:** Breaks down carbohydrates into sugars.
  - **Peptidase:** Breaks down proteins into amino acids.
  - **Lipase:** Breaks down fats into fatty acids.

After about four hours, the stomach pushes partially digested food into the small intestine for further breakdown and absorption.

ABSORPTION



C. Absorption occurs mostly in the small intestine where several digestive juices, pancreatic juice, and bile aid in the chemical digestion of food.

Absorption is the process of passing the soluble food molecules in the wall of the small intestine through the villi – tiny finger-like projections. Each villus contains blood capillaries that absorb water, glucose, amino acids, vitamins, minerals, and fatty acids, increasing the surface area available for nutrient absorption.

ASSIMILATION

D. Assimilation occurs mostly in the small intestine where several digestive juices, pancreatic juice, and bile aid in the chemical digestion of food.

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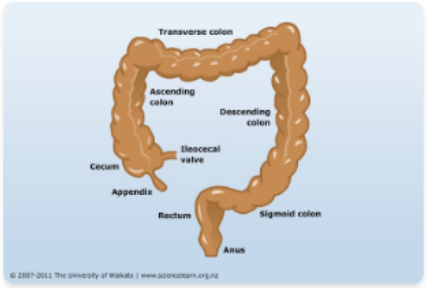
EGESTION



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