



Biology Notes

On

Digestion and Absorption

Digestion and Absorption

The digestive system includes the digestive tract and its accessory organs, which process food into molecules that can be absorbed and utilized by the cells of the body. Food is broken down, bit by bit, until the molecules are small enough to be absorbed and the waste products are eliminated.

The digestive tract, also called the alimentary canal or gastrointestinal (GI) tract, consists of a long continuous tube that extends from the mouth to the anus. It includes the mouth, pharynx, esophagus, stomach, small intestine, and large intestine. The tongue and teeth are accessory structures located in the mouth. The salivary glands, liver, gallbladder, and pancreas are major accessory organs that have a role in digestion. These organs secrete fluids into the digestive tract.

Digestion and Absorption Short Notes PDF

What is Digestion?

Conversion of complex food substances into simple absorbable substances is called digestion. Animals exhibit holozoic nutrition, i.e. animals eat food which cannot be used by the cells directly; hence, food is digested first. Our digestive system applies both mechanical and biochemical methods for digestion.

Carbohydrates, proteins and fats are major components of our food. Food provides energy and organic materials for growth and repair of tissues. Vitamins and minerals also required in small quantities.

Food undergoes three types of processes in the body:

- Digestion
- Absorption
- Elimination

Digestion and absorption occur in the digestive tract. After the nutrients are absorbed, they are available to all cells in the body and are utilized by the body cells in metabolism.

The digestive system prepares nutrients for utilization by body cells through six activities, or functions.

Ingestion: The first activity of the digestive system is to take in food through the mouth. This process, called ingestion, has to take place before anything else can happen.

Mechanical Digestion: The large pieces of food that are ingested have to be broken into smaller particles that can be acted upon by various enzymes. This is mechanical digestion, which begins in the mouth with chewing or mastication and continues with churning and mixing actions in the stomach.

Chemical Digestion: The complex molecules of carbohydrates, proteins, and fats are transformed by chemical digestion into smaller molecules that can be absorbed and utilized by the cells. Chemical digestion, through a

process called hydrolysis, uses water and digestive enzymes to break down the complex molecules. Digestive enzymes speed up the hydrolysis process, which is otherwise very slow.

Movements: After ingestion and mastication, the food particles move from the mouth into the pharynx, then into the esophagus. This movement is deglutition, or swallowing. Mixing movements occur in the stomach as a result of smooth muscle contraction. These repetitive contractions usually occur in small segments of the digestive tract and mix the food particles with enzymes and other fluids. The movements that propel the food particles through the digestive tract are called peristalsis. These are rhythmic waves of contractions that move the food particles through the various regions in which mechanical and chemical digestion takes place.

Absorption: The simple molecules that result from chemical digestion pass through cell membranes of the lining in the small intestine into the blood or lymph capillaries. This process is called absorption.

Elimination: The food molecules that cannot be digested or absorbed need to be eliminated from the body. The removal of indigestible wastes through the anus, in the form of feces, is defecation or elimination.

Human Digestive System

Human digestive system consists of:

Alimentary Canal: The alimentary canal is a 6–9-metre long tube varying in diameter. It extends from the mouth to the anus and consists of Mouth, Buccal (Oral) Cavity, Pharynx, Esophagus, Stomach, Small intestine, Large intestine and Anus.

Mouth: Little digestion of food actually takes place in the mouth. However, through the process of mastication, or chewing, food is prepared in the mouth for transport through the upper digestive tract into the stomach and small intestine, where the principal digestive processes take place. Chewing is the first mechanical process to which food is subjected. Movements of the lower jaw in chewing are brought about by the muscles of mastication (the masseter, the temporal, the medial and lateral pterygoids, and the buccinator). The sensitivity of the periodontal membrane that surrounds and supports the teeth, rather than the power of the muscles of mastication, determines the force of the bite.

Buccal (Oral) Cavity

- First cavity of the alimentary canal
- Oral cavity consists of:
 - Upper part – Palate
 - Lower part – Teeth & Tongue
- Vestibule is space between buccal cavity and lips

Palate: Palate is the roof of buccal cavity. Palate has two parts i) Hard palate ii) Soft Palate

Hard palate: Bony due to maxilla & palatine bones. It has palatine Rugae. Rugae most developed in carnivores

Soft palate: Soft palates are Soft & Cartilage. End of the soft palate hanging structure is uvula. Uvula help to close internal opening of Nasal chamber

NCERT SOLUTIONS

NCERT Solutions for Class 12 Physics	Click Here
NCERT Solutions for Class 12 Chemistry	Click Here
NCERT Solutions for Class 12 Biology	Click Here
NCERT Solutions for Class 12 Maths	Click Here

MCQ Link for NEET/JEE

JEE/NEET Physics MCQ	Click Here
NEET/JEE Chemistry MCQ	Click Here
NEET Biology MCQ	Click Here
JEE Math's MCQ	Click Here

Notes PDF Link for NEET/JEE

Physics Notes PDF	Click Here
Chemistry Notes PDF	Click Here
Biology Notes PDF	Click Here
Math's Notes PDF	Click Here

[Follow on Facebook](#)By Team [Learning Mantras](#)