

Ch 14. Digestive System

Fundamentals of Biology for
Competitive Exams

Why the Digestive System is needed?

1. The food that is eaten , needs to be **converted into soluble form** that can be **absorbed by the blood** , for distribution as energy throughout the body.
2. The **process of digestion** includes **any chemical change** involving breaking down of food **into simpler, soluble forms**.

This enables the soluble form of food to be absorbed through the living membranes of other systems in the body.

- **Enzymes** play an important role in digestion.

Enzymes

1. Enzyme is a protein and is destroyed by heating

2. It is substance specific and acts only on one kind of substance called Substrate.

3. It always forms the same end product in soluble form of substrate.

4. It only affects the rate of a chemical reaction and always speeds up the reaction. Like a catalyst it can be used repeatedly

5. It acts best at a particular degree of acidity or alkalinity. It acts best within a narrow range of temperature of 35 to 40 degrees C , called the 'Optimum Temperature'.

The digestive system

- 2.2 Liver is the largest gland in the body, located in upper right side of abdomen. It secretes Bile into the stomach through the bile duct.

2.3 Pancreas is another digestive gland located to the left side of the liver. It secretes pancreatic juice. This juice has three enzymes Amylopsin, Trypsin, Steapsin.

1.1 Mouth: lips, tongue and salivary glands. 2.
1.2 Teeth: Incisors, Canine, Premolars, Molars. 20 milk teeth; 28 till 30years of age. 32 thereafter.

- (1) Alimentary canal is 9 metres long , highly coiled in small intestines.
- (2) Digestive glands

- 2.1.1 Saliva: is a solvent that stimulates the taste buds, and moistens and lubricates food to help in swallowing
- Food particles are formed as 'bolus' for swallowing in a mass

Stomach is the muscular bag part of the Alimentary canal , at the end of the oesophagus tube , and opens below in to the small intestines.

1.3 Oesophagus is the tube connecting the mouth to the stomach. Peristalsis is a wave of constriction caused by the circular muscles of the gut pushing the food along the Oesophagus.

1.2.1 Structure of tooth: a) Crown above the gum and neck. Crown is made of Enamel , and neck and below is made of Dentine . Cement fixes the tooth , and Pulp is the central space in the tooth.

2.1 Three salivary glands : (a) parotid below each ear; (b) sub mandibular in lower jaw; (c) sublingual : below the tongue.

• Enzyme ptyalin converts starch into 'Maltos'