

The parts of the digestive system of a vertebrate animal can be studied in two separate ways: those concerned with mechanical digestion and those with chemical digestion.

Mechanical Digestion

Mechanical digestion involves the physical breakdown of food into smaller particles. Processes as simple as chewing and swallowing both breakdown and move food molecules. There are 6 primary parts of human digestion involved in mechanical digestion.

Chemical Digestion

Even the best chewed food is not ready to be used by our cells to meet our nutritional needs, it must first be chemically broken down into simpler molecules. An example of this is the disaccharide molecule sucrose. Although sucrose is a very tiny molecule, it cannot be absorbed and used by the body, it must first be chemically broken down into its two constituent monosaccharides, glucose and fructose. This can only be done via the chemical action of the enzyme sucrase. Chemical digestion will be studied at a later date.

Part One -Mechanical Digestion and the Structure of the Digestive Tract

For the following parts of the human digestive system, explain the mechanical digestive role each plays.

1. **The mouth**

a) **Teeth** Explain the digestive function of the 4 types of teeth found in humans. (3 marks)

Incisors _____
canines _____
molars & premolars _____

b) **Salivary glands** Saliva has both a mechanical and a chemical function. (2 marks)

What are the two mechanical functions of saliva? _____

****Note the location of the 3 pairs of salivary glands on the accompanying diagram.****

c) **Tongue** The tongue has the obvious digestive function of sensing the taste of food, but additionally the tongue has two important mechanical roles. What are they? (2 marks)

Define the following: (3 marks)

bolus _____

mastication _____

papillae _____

d) **Hard palate/soft palate** Otherwise known as the 'roof of the mouth'; this layer of tissue separates the nasal and mouth cavities, also provides a surface against which the tongue can move food to swallow.

e) **Uvula** Describe the location and the digestive function of the uvula. (1 mark)

2. **Pharynx** The uvula marks the boundary between the mouth and the next region of the digestive system, the pharynx, commonly called the throat, it is common to both the digestive and respiratory systems as both food and air pass through it.

a) **Epiglottis.** Explain the function of the epiglottis. (1 mark)

Describe the process of swallowing. (2 marks)
