

Ingestion

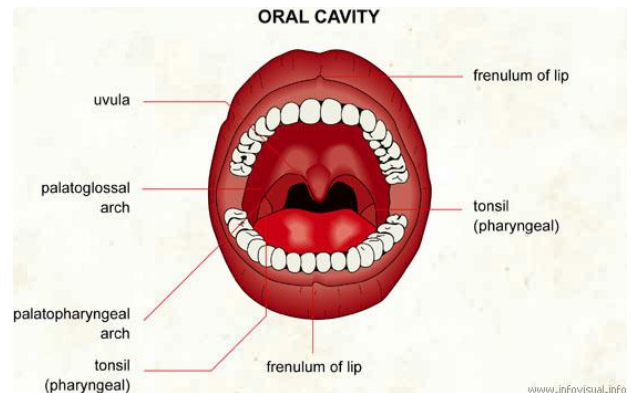
The Digestive System

The physical breakdown of food begins in the mouth with two types of processes.

The mouth is a complex structure in which food is broken down mechanically, and to a lesser degree, chemically.

1. Mechanical breakdown (mastication)

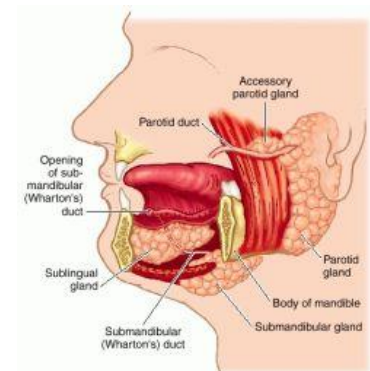
Food taken into the mouth is sliced into smaller by the sharp teeth in the front of the mouth. Then, food is grounded into a pulpy mass by the flatter teeth found in the back.



2. Chemical breakdown (Amylase)

As the food is pulverised, it is liquefied by saliva, a water secretion released by three sets of salivary glands. Saliva contains amylase enzymes, which breakdown complex carbohydrates into simple carbohydrates

- a. **Parotid glands:** The largest pair located just anterior to the ears. This gland conveys its saliva through the parotid duct.
- b. **Submandibular glands:** located inferior to the mandible, and secretes saliva on both side of the lingual frenulum.
- c. **Sublingual Glands:** located inferior to the tongue, and have many tube that lead to secretions in the lower cavity of the mouth

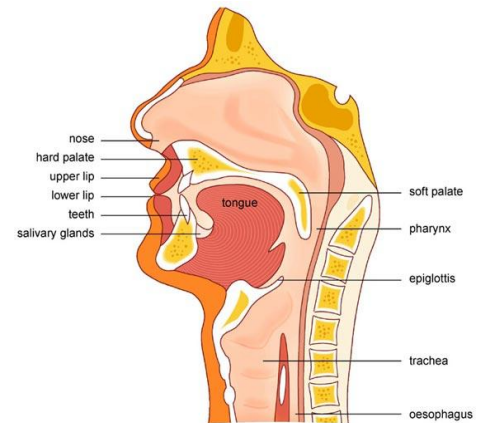


The release of saliva is triggered by the smell, feel, taste, and sometimes even by the thought of food. Saliva performs five main functions:

- 1. It liquefies the food, making it easier to swallow.
- 2. It kills or neutralizes some bacteria via the enzymes and antibodies it contains
- 3. It dissolves substances so they can be tasted
- 4. It begins to breakdown starch molecules
- 5. Cleans teeth, washing away bacteria and food particles

As food is chewed, it must be swallowed. The tongue plays an important role in swallowing by pushing food (bolus) into the **pharynx** (a funnel shaped cavity that connects the oral cavity to the esophagus).

Food (bolus) propelled from the pharynx into the esophagus is prevented from entering the trachea (windpipe) by the **epiglottis**. This flap of tissue acts like a trap door, closing the trachea during swallowing.



Esophagus

Involuntary contractions of the muscular wall of the esophagus propel food to the stomach. The muscles of the esophagus contract above the swallowed food mass, squeezing it along. This involuntary muscular action is called **peristalsis**. It is so powerful, that you can swallow while hanging upside down.