Digestion in Humans

Nutrition in animals takes place in five steps:

Our food contains the following components: Carbohydrates, fat, proteins, vitamins, minerals, and roughage.

1. **Ingestion -** The process of taking food into our body is called ingestion.

2. **Digestion -** The process in which the food containing large, insoluble substances is broken into small, water-soluble substances is called digestion.

3. **Absorption -** The process in which the digested food passes through the intestinal wall into the bloodstream is called absorption.

4. **Assimilation -** The process in which the absorbed food is taken in by the body cells and used for energy, growth, and repair is called assimilation.

5. **Egestion -** The process in which the undigested food is removed out from the body.

Digestion in Humans:

The alimentary canal (digestive tract) consists of the following organs: Buccal Cavity (Mouth), Oesophagus (food pipe), Stomach, Small Intestine, Large intestine, Rectum, and Anus.

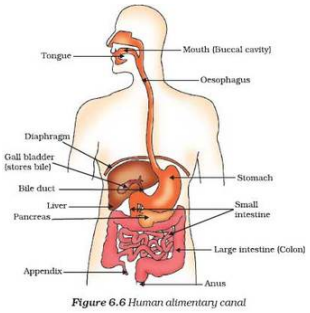


Figure 6.6 Human alimentary canal

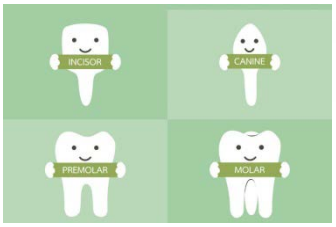
Buccal Cavity (Mouth):

1. The digestion of the food starts in our mouth.

2. The buccal cavity contains the tongue, teeth, and salivary glands

Teeth:

We have four different types of teeth: Incisors, Canines, Premolar, and Molar.



Type Of Teeth	No Of Teeth In Lower Jaw	No. Of Teeth In Upper Jaw	Total No. Of Teeth	Function
Incisors	4	4	8	Cutting and biting
Canines	2	2	4	Piercing and tearing
Premolar	4	4	8	Chewing and grinding
Molar	6	6	12	Chewing and grinding

Salivary Gland:

1. It is located in the buccal cavity.
2. It secretes a watery liquid called saliva.
3. Saliva is a digestive juice that helps to digest the starch present in the food partially.
4. The partially digested food is swallowed by the tongue and goes down into the oesophagus (food pipe).

Oesophagus (food pipe):

Oesophagus carries the slightly digested food from the mouth to the stomach. The food coming from the mouth moves down through oesophagus by the process of peristalsis.

During vomiting, the food moves in the opposite direction, from the stomach to mouth by the process of anti-peristalsis in the food pipe (oesophagus).

Stomach:

The stomach is a thick-walled bag-like structure. The inner lining of the stomach secretes:

Mucous - It protects the lining of the stomach.

Hydrochloric acid -It kills bacteria that enter the stomach with food and makes the medium in the stomach acidic (acidic medium is necessary for the proper action of digestive juices on proteins).

Digestive juices -It breakdown the proteins into simpler.

Small Intestine:

The small intestine is a highly coiled and tube-like structure. It is about 7.5 m long in an adult. The partially digested food enters into the small intestine from the stomach. It is the site for the complete digestion of food.

The secretion from the liver and pancreas goes to the small intestine.

1. Liver secretes bile juice, which is stored in the gall bladder (sac-like structure). Bile plays an important role in the digestion of fats.

2. Pancreas secretes pancreatic juice which acts on carbohydrates and proteins and changes them into simpler forms.

3. The partly digested food now reaches the lower part of small intestine where the intestinal juice completes the digestion of all components of food.

In the small intestine:

The carbohydrates get broken into simple sugar like glucose.

Proteins are broken into amino acids.

Fats are broken into fatty acids and glycerol.

Large Intestine:

The large intestine is about 1.5 m long. It is smaller and wider than the small intestine. It absorbs salts and water from undigested food. The remaining waste passes into the rectum and is removed out from the body through the anus. This is called egestion.