



# NEET Biology

## Short Notes

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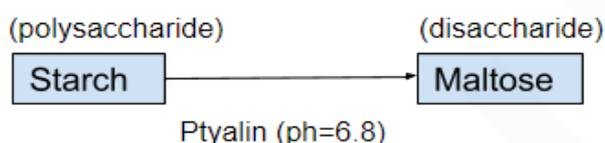
In this article, we are providing you Short Notes on Digestion and Absorption for NEET 2019! This is an important chapter to pay attention from the Unit Human Physiology as a certain number of questions are asked from this chapter in NEET, AIIMS, JIPMER and other medical entrances. The content deals with the entire mechanism of Digestion of Food. Let's begin with the process of Digestion of food in Different parts.

### Digestion Of Food

Mechanical and chemical processes are involved in digestion.

**1. Digestion in Mouth-** tongue, teeth and lips play important role in mechanical digestion through chewing and mastication.

- Ptyalin or salivary amylase present in human saliva digest 30% starch in the buccal cavity. It is absent in saliva of mammals cows and buffaloes and predatory carnivores like lions and tigers.
- The chemical process begins in the oral cavity through the hydrolytic action of carbohydrate splitting enzyme and ptyalin at an optimum ph of 6.8.



- Bolus (mass of food) passed through the pharynx into the oesophagus and this process is known as swallowing or deglutition.
- Peristalsis is the coordinated contraction of involuntary circular muscles through which bolus passes down from the oesophagus.
- The gastro-oesophageal sphincter is present b/w oesophagus and stomach which control the passage of food into the stomach.

**2. Digestion of food in Stomach-** G-cells secrete Gastrin hormones which stimulate gastric juice by gastric glands when food enters into the stomach. Hormones, nerve and chemical substances control the secretion of gastric juice.

- Gastric juice contains mucus and bicarbonate which play an important role in lubrication and protection from excoriation by highly concentrated hydrochloric acid.
- HCL of gastric juice converts ferric ions into ferrous ions, which help in the absorption of ions.
- **Achlorhydria** (non-secretion of HCL) lead to iron-deficiency anaemia.
- **Renin** is a proteolytic enzyme found in the gastric juice of infants, that act on **casein**, which is a soluble protein.
- The gastric gland secretes lipases that act on emulsified fat and convert it into fatty acid and glycerol. food contains 1% emulsified fat.
- In stomach **endopeptidases** such as pepsin breaks proteins into smaller molecules.
- **HCL** converts inactive pepsinogen into active pepsin.

**3. Digestion in Small Intestine-** Mechanical and chemical digestion takes place.

- **The muscularis** layer of the small intestine generates various movements that facilitate digestion.
- Mechanical digestion usually occurs through **segmentation**.
- Chemical digestion involves **Goblet cells** found in the intestinal epithelium, which secrete mucus.
- Secretions of the **goblet cells** along with secretions of the brush border cells of mucosa consists of the intestinal juice or succus entericus.



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- **Succus entericus** contains alpha- **Dextrinase, maltase, lactase, sucrase (<1%)** digestive enzymes and water (**99%**).
- **Peptidase** converts oligopeptides into amino acids.
- **Nucleotidase** converts nucleotides into nucleosides and phosphate, while **nucleosidase** converts nucleosides into pentose and nitrogen bases.
- **Intestinal lipase** converts fats into monoglyceride and fatty acids.
- **Fibrinogen** of blood can be hydrolyzed by **trypsin** into fibrin leading to blood coagulation but does bring about coagulation of milk.
- **Chymotrypsin** hydrolyze casein into **paracaseinate** which coagulates to form **calcium paracaseinate**.

**4. Digestion in Large Intestine**-no significant digestive activity takes place.

- E.coli feed on undigested waste present in the colon and in turn produces vitamin-B12, B1, B2 and K which are absorbed by the wall of the colon.
- Faeces enter into the caecum of the large intestine through an ileocaecal valve, which prevents backflow of faecal matter.

**Hormonal Control of Digestion**- Activities of GIT are regulated under neural and hormonal control.

- Food present in the oral cavity stimulates the secretion of saliva.
- Similarly, neural signals stimulate gastric and intestinal secretions.
- The neural mechanism, regulate muscular activities of different parts of the alimentary canal.

Secretion of digestive juices is regulated by local hormones by the production of the gastric and intestinal mucosa.

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