

Q: What are Proteins and carbohydrates? Give their

Digestion.

## Protein and Carbohydrates

### Carbohydrates :

Carbohydrates are the organic compound composed of carbon, hydrogen, and oxygen. Their chemical formula is  $C_n(H_2O)_n$ .

### Functions of Carbohydrates

Carbohydrates are the primary source of energy for body. They are also used to store excess glucose, in the form of glycogen. Furthermore, they are also fundamental element in structural composition of cellular and sub-cellular organelles.

### Protein :

Protein is the building block of structures. They are made up of amino acid units

joined together via peptide bonds.

Hormones formation

Enzyme development

Functions of Protein

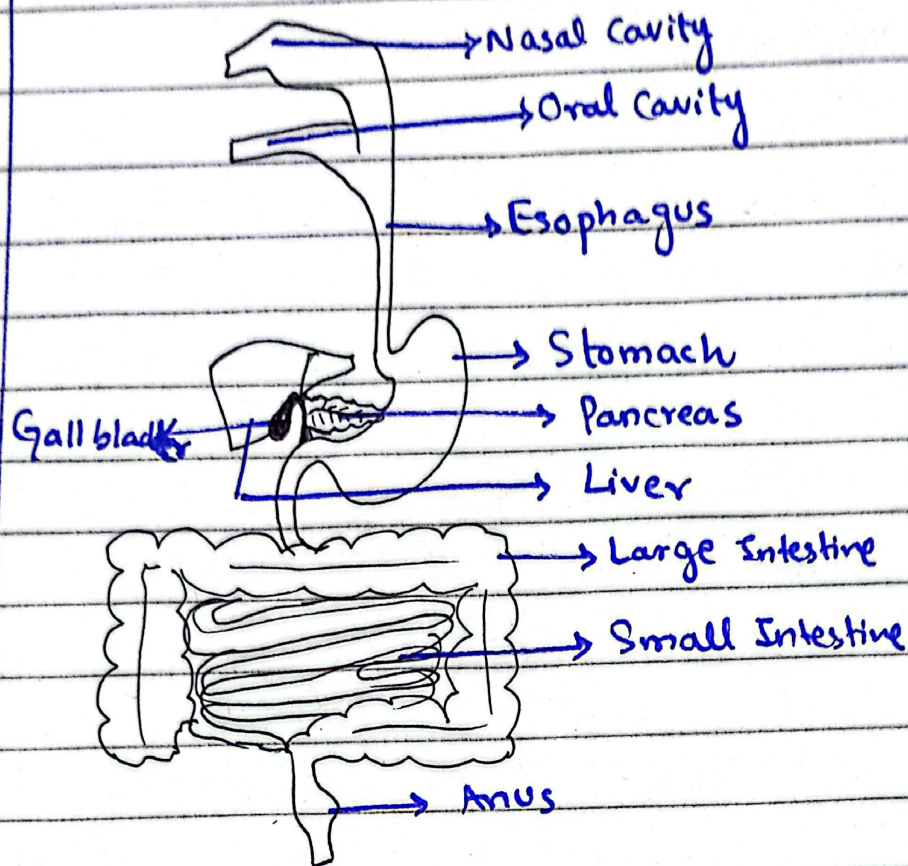
Structural component

Strengthens immunity

## Digestion of Proteins and Carbohydrates

Proteins and carbohydrates are digested by action by different co-factors in the human body. The digestive procedure is part of digestive system, which is illustrated below as well;

## Digestive System of Humans



## Digestive track

### 1. Initiation of Digestion:

When food enters the mouth process of digestion starts. Salivary glands release Salivary Amylase. This is the enzyme that carries out partial digestion. It acts on the food to break large molecules of carbohydrates and proteins into simpler ones.

## 2. Esophagus:

No digestion takes place here.

It merely transfers food from mouth to stomach via process called peristalsis. Peristalsis ensures the downward movement of food, towards stomach.

## 3. Stomach:

Food reaches the stomach and in response stomach secretes hydrochloric acid (HCl) and other enzymes. Due to acidic environment carbohydrate digestion freezes and protein is further broken down into simpler compounds.

## 4. Small Intestine:

This is the main site of digestion. After stomach food reaches here. Liver secretes bile and pancreas secretes pancreatic amylase, into the small intestine. These enzymes and fat further act on the undigested

proteins and carbohydrates. In the small intestine protein is broken down into amino acids.

The break down of disaccharides into monosaccharides also take place here.

Protein	→	amino acids
Dissaccharide	→	Monosaccharides
(Fructose)	→	(Glucose + Glucose)

### 5. Absorption :

In the small intestine, absorption of broken compounds take place. The useful compounds such as amino acid and monosaccharides are absorbed by tiny hairs on small intestine and made part of blood. Blood transport these substances to the target cell to be used further.

## 6. Large Intestine:

Fiber is added and the undigested part from small intestine is converted into stool in large intestine.

## 7. Removal:

The waste product in the form of stool is removed from movement by bowel movement. Anus is primarily responsible for this exit.

## Pathway of Digestion of Carbohydrate and Protein

