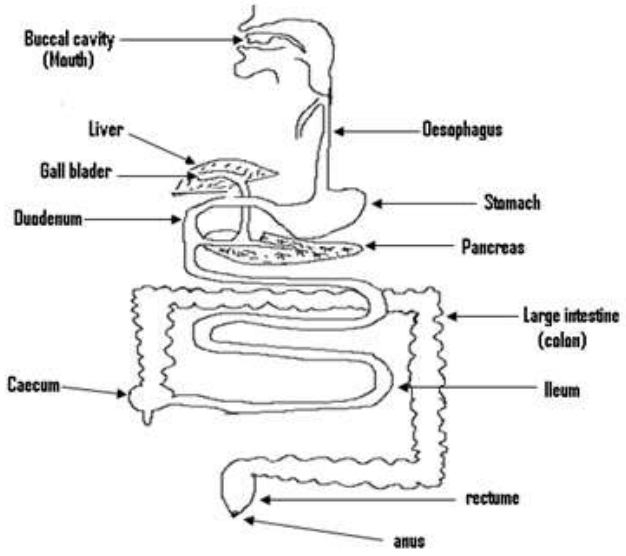
Chapter Twelve

Digestion



Introduction

- This is the breaking down of the food we eat into simple substances, so that the body can absorb them.
- The food we eat contains different food substances and during digestion, each of these food substances is broken down into a particular simple substance.
- This will enable these food substances to be absorbed into the body, or move into the blood for the body to be able to use them.
- While the protein within the food is converted into amino acid, starch (carbohydrate) is converted into simple sugar and fat is converted into fatty acid or glycerol.

The digestive system:

- Digestion occurs or takes place within the digestive system, or the alimentary canal.

- The digestive system is made up of the mouth, the oesophagus, the stomach, the duodenum, the small intestine and the large intestine.

Mouth:

- Digestion begins in the mouth, where the food is first chewed and mixed with saliva.
- The saliva contains an enzyme or a substance called ptyalin.
- If there is any cooked starch (carbohydrate) within the food, the ptyalin will first break it down into maltose.
- The digestion or the breaking down of the starch within the food we eat, therefore begins in the mouth.
- From the mouth, the food then enters the stomach through the oesophagus.

Stomach:

- Within the stomach is found an enzyme called pepsin.
- If there is any protein in the food, the pepsin will convert it into peptone.
- The digestion of protein therefore begins in the stomach.
- The stomach also contains hydrochloric acid, which kills the germs within the food.
– From the stomach, the food moves into the duodenum.

Duodenum:

- The duodenum contains a liquid called the bile, which emulsifies or breaks up fat into smaller particles. The fat therefore becomes emulsified.
- Also found within the duodenum are three enzymes, which are trypsin, amylase and lipase.
- Any protein which can still be found in the food is converted by the trypsin into peptone.
- Any cooked or uncooked starch which still remains in the food is converted by the amylase into maltose.
- The lipase converts the emulsified fat into fatty acid and glycerol.

- Fatty acid and glycerol are the end products of fat digestion, i.e. they can not be broken down into any simpler substances.
- The digestion of fat therefore ends in the duodenum.
- From the duodenum, the food enters the ileum.

Ileum:

- Before the food enters the ileum, all the protein within it had been changed or converted into peptone.
- An enzyme found within the ileum, completes the digestion of protein by converting the peptone into amino acid.
- The amino acid is the end product of protein digestion and for this reason, the digestion of protein ends up in the ileum.
- At this stage also, the carbohydrate had been changed into maltose.
- This same enzyme found within the ileum converts the maltose into simple sugar.
- Simple sugar is the end product of the digestion of carbohydrate.
-The ileum forms the first part of the small intestine.
- The movement or the absorption of amino acid, simple sugar and fatty acid as well as glycerol, into the blood stream occurs in the small intestine.
- These end products of digestion are then carried by the blood into the liver, where they are stored or kept.
- When any of these substances is needed by the body, the liver releases it into the body.
- The part of the food which the body does not need, comes out as faeces through the anus.

Importance of food to the body or to man:

- It is needed for growth.
- We need food in order to live.
- It provides us with energy.

Food substances:

- These are the names given to the ingredients, which are found within the food we eat. They are :
  (1) Carbohydrate.
  (2) Water.
  (3) Protein.
  (4) Fat.