Digestion is a process that allows us to break down the food we eat into smaller nutrients that can be used by the body.

The three types of nutrients involved in the digestive process are:

1. **Carbohydrates**
2. **Proteins**
3. **Fats (lipids)**

Digestion can occur **mechanically or chemically**.

Mechanical digestion is the process of **physically breaking down** the food we eat into smaller pieces.

* Mechanical digestion occurs in the mouth by the process of chewing (mastication). This process uses the teeth to tear and grind food.
* The stomach performs mechanical digestion by the process of churning. This process occurs because of the smooth muscle in the stomach walls.
* The liver produces bile which contains bile salts which physically break down (emulsify) fats in the small intestine.

Chemical digestion is the process of using **chemicals (biological enzymes)** to alter the composition of molecules so that they are able to be absorbed.

Some common enzymes include:

|  |  |
| --- | --- |
| **Enzyme Type** | **Nutrient group it acts on** |
| Amylase | Carbohydrates |
| Protease | Proteins |
| Lipase | Fat/lipids |

Enzymes break down molecules into their simplest form before absorption can occur:

|  |  |
| --- | --- |
| **Nutrient** | **Simplest form** |
| Carbohydrate | Glucose |
| Protein | Amino acid |
| Fats | Fatty acid and glycerol |

**Carbohydrates** are broken down into glucose in the flowing places:

|  |  |
| --- | --- |
| **Location** | **Enzyme present** |
| Mouth | Salivary amylase |
| Small intestine | Pancreatic and Intestinal amylase |

**Proteins** are broken down into amino acids in the following places:

|  |  |
| --- | --- |
| **Location** | **Enzyme present** |
| Stomach | Gastric protease |
| Small intestine | Pancreatic and Intestinal protease |

**Fats/lipids** are broken down into fatty acids and glycerol in the following places:

|  |  |
| --- | --- |
| **Location** | **Enzyme present** |
| Small intestine | Pancreatic and Intestinal lipase |