

Components of Food

- **Nutrients**

- The components required by our body are known as **nutrients**.
- They give us the energy to carry out various life processes like respiration, growth, movement, nutrition, etc.
- Major nutrients present in our food are **carbohydrates, proteins, fats, vitamins, and minerals**.
- There are two types of vitamins: **fat-soluble** (vitamin A, D, E, and K) and **water-soluble** (vitamin B and C)
- In addition, dietary fibres and water are also required by our body.

- **Functions of major nutrients**

- Carbohydrates and fats are known as energy giving foods.
- Proteins are required for growth and repair of our body.
- Fats help in energy production and helps in smooth functioning of joints.
- The food items containing proteins are known as body building foods.
- Vitamins and minerals help in protecting our body against diseases.
- The bacterias that are good for our health are called **probiotics**.

- Sources of **carbohydrates** - Wheat, potato, maize, sweet potato, etc.
- Sources of **proteins** - Pulses, milk, fish, meat, etc.
- Sources of **fats** - Oil, ghee, milk, butter, etc.
- Sources of **vitamins** -
- **Vitamin A**: Carrot, papaya, fish oil, etc.
- **Vitamin B**: Liver, wheat, rice, etc.
- **Vitamin C**: Lemon, *amla*, tomato, etc.
- **Vitamin D**: Milk, butter, eggs, fish, etc. Our body can also synthesize vitamin D in presence of sunlight
- **Vitamin E**: Soyabeans, whole grain cereals, eggs, sprouts etc.

- Sources of **minerals** -

- **Iodine**: Spinach, ginger, fish, etc.
- **Iron**: Spinach, apple, liver, etc.
- **Calcium**: Eggs, milk, etc.
- **Phosphorous**: Milk, banana, wheat, rice, etc.
- **Dietary fibres**
- Dietary fibres are also known as roughage.

- Source of dietary fibres is plants material like potatoes, fresh fruits, and fibrous vegetables, etc.
- Roughage helps our body get rid of undigested food.

Balanced diet

- All the nutrients required by our body in the right quantities constitute a **balanced diet**. It should also contain a good amount of roughage and water.
- The representation of the optimal number of servings of food so as to get a balanced diet is known as **food pyramid**.
- The food should be cooked properly so that its nutrients are not lost.
- Washing vegetables and fruits after cutting or peeling them may result in loss of some vitamins.
- Repeated washing of rice and pulses may remove some vitamins and minerals present in them.
- Vitamin C gets easily destroyed by heat during cooking.
- The consumption of excess fat-rich food (such as *samosa*, *poori*, *malai*, *peda* etc.) will not provide much energy to the body and can lead to a condition called **obesity**.

• **Test for carbohydrates**

- Carbohydrates are mainly present in the form of starch and sugars.
- Starch can be tested using iodine solution.
- Appearance of blue-black colour on adding iodine indicates the presence of starch.
- Glucose can be tested by Benedict's test
- Appearance of brick-red precipitate confirms the presence of glucose.

• **Test for proteins**

- Proteins can be tested using copper sulphate and caustic soda.
- Appearance of violet colour on adding above two mentioned chemicals indicates the presence of proteins.
- The above test is known as Biuret test.

• **Test for fats**

- Fats can be tested by crushing a food item on a piece of paper.
- Appearance of oily patch indicates the presence of fats.

All the nutrients required by our body in the right quantities constitute a balanced diet. It should also contain a good amount of roughage and water. Deficiency of a particular nutrient can lead to a deficiency disease.

- **Disorders** caused by deficiency of vitamins and minerals
 - Deficiency of Vitamin A - **Night blindness**
 - Deficiency of Vitamin B1 - **Beriberi**
 - Deficiency of Vitamin C – **Scurvy (bleeding gums)**
 - Deficiency of Vitamin D - **Rickets**
 - Deficiency of Iron - **Anaemia**
 - Deficiency of Iodine - **Goitre**
 - Deficiency of Calcium – **Weak bones and teeth**
- **Carbohydrates, fats and proteins**
 - Sources of **carbohydrates** - wheat, potato, maize, sweet potato, etc.
 - Sources of **proteins** - pulses, milk, fish, meat, etc.
 - Sources of **fats** - oil, ghee, milk, butter, etc.
 - Deficiency of proteins – kwashiorkor characterized by oedema, matchstick legs, bulging eyes, etc.
- **Deficiency of proteins and carbohydrates** – marasmus characterized by total disappearance of fat layer, thin and wrinkled skin, retarded physical and mental growth.