

Chapter 2

Components of Food

What Do Different Food Items Contain?

Nutrients:

Nutrients are the substances that an organism needs for the growth, repair, and maintenance of its body. Our food has five major nutrients:

1. Carbohydrates

Test for carbohydrates (starch):

The presence of starch in a food item can be tested by using a dilute iodine solution. This is based on the fact that iodine produces a blue-black color in combination with starch. So, a food item gives a blue-black color by adding a dilute iodine solution containing starch.

2. Fats

Test of Fats:

The presence of fat in a food item can be tested on the basis of the fact that fats produce a greasy patch when rubbed on a clean sheet of paper. The greasy patch produced on the paper is translucent (allow some light to pass through it).

3. Proteins

Test of Protein:

The presence of proteins in food materials is tested on the basis of the fact that proteins give a violet color with a solution of copper sulphate and caustic soda. Violet color is produced when a few drops of copper sulphate and caustic soda are added to some amount of milk in a test tube.

4. Vitamins

5. Minerals

Along with these nutrients roughage and water are also needed by our body.

What Do Various Nutrients Do For Our Body?

◆ Carbohydrates:

They are called energy-giving food. The major forms of carbohydrates in foods are sugar and starch and it comes from cereals like wheat and rice. Example: Wheat, rice, maize, potatoes, sweet potato, sugar, jaggery, banana, mango, melon, and papaya.

◆ Fats:

Like carbohydrates, fats also provide energy to our body. Fats give much more energy as compared to carbohydrates. Example: Butter, ghee, milk, cheese, oil, egg yolk, etc.

◆ Proteins:

Proteins are needed for the growth and repair of our bodies. Proteins rich foods are called body-building food.

Plant sources of Proteins

Example: Soybeans, peas, almond, gram, moong, etc.

Animal sources of Proteins

Example: Milk, cheese, egg, fish, meat, etc.

◆ Vitamins:

Vitamins are a group of nutrients that are needed by the body in small quantities. Vitamins help in protecting our bodies against diseases. There are different vitamins and it is represented by the alphabet. Example: Vitamin A, Vitamin C, Vitamin D, Vitamin E, Vitamin K.

* A group of vitamins B₁, B₂, B₆, and B₁₂ are together known as vitamin B-complex.

◆ Minerals:

Like vitamins, minerals are also needed by our body in small quantities. Minerals are needed by our body for proper growth and for maintaining good

health. Some important minerals needed by the body are Calcium, iodine, iron, phosphorus, sodium, and potassium.

Sources of calcium	Milk, eggs, green leafy vegetables, fish.
Sources of iodine	Sea food, iodised salt.
Sources of iron	Spinach, green leafy vegetables, eggs, apples.
Sources of phosphorus	Milk, banana, pulses.

Roughage: Dietary fibres are known as roughage. Roughage does not provide any nutrient to our body, but it is essential component of our food. Roughage is fibrous material present in food which cannot be digested.

Example: Whole grains, pulses, potatoes, fresh fruits and vegetables.

Functions of roughage:

- Adds bulk to food.
- It helps to digest food and absorbs nutrients.
- It helps our body to get rid of undigested food.

Water: It is essential for our body and it makes up almost 70% of our body weight.

Functions of water:

- Water helps our body to absorb nutrients from food.
- It helps in throwing out waste products from our body as urine and sweat.
- It controls our body temperature and keeps our body cool, clean and healthy.

Balanced Diet

- ◆ A diet that contains all the nutrients needed by our body in the right amount along with an adequate amount of roughage and water.
- ◆ A balanced diet depends on the age of a person and occupation of the person

Retaining the nutritional value of food:

Only selecting the right food is not enough. The food should be cooked in a proper way so that its nutrients are not lost.

- Always wash fruits and vegetables before cutting them. If they are washed after cutting, the vitamins and the other nutrients are lost.
- Never remove peels of fruits and vegetables as the skin contains important nutrients.
- We should avoid repeated washing of rice and pulses as it may wash away soluble vitamins and minerals.
- Cooking or heating destroys vitamin C, so we should use vitamins rich fruits and vegetables like salad.
- We should throw water in which the seeds are soaked.

Deficiency diseases

The diseases which arise due to the lack of nutrients (like carbohydrates, fats, proteins, vitamins, and minerals) in our diet over a long period of time are called deficiency diseases.

◆ Diseases caused by deficiency of vitamins:

Vitamin	Deficiency disease	Symptoms
Vitamin A	Night blindness	Poor vision, loss of vision in night or complete loss of vision.
Vitamin B ₁	Beriberi	Weak muscles and very little energy to work.
Vitamin C	Scurvy 	Bleeding gums, loosening of teeth, wounds take longer time to heal.
Vitamin D	Rickets 	Bones become soft and bent.

◆ Diseases caused by deficiency of minerals:

Mineral	Deficiency disease	Symptoms
Iron	Anemia	Weakness and lack of RBCs.
Calcium	Bone and tooth decay	Weak bones, tooth decay
Iodine	Goiter 	Gland in the neck appears swollen, mental disability in children.
Proteins and fats	Kwashiorkor 	Bones become soft and bent.
Proteins and carbohydrates	Marasmus 	Growth stops completely, person becomes very thin and weak.