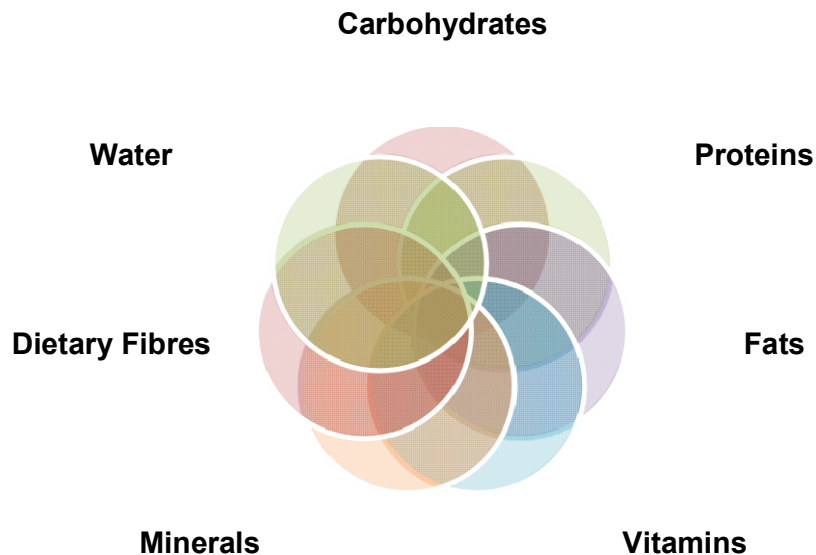


SCIENCE

Components of Food

- The components of food provide nutrition and hence, are also termed as **nutrients**.
- Different nutrients present in food

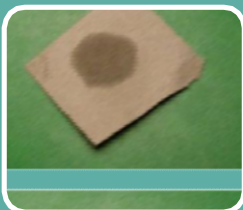


- Simple tests help us to detect the presence of a particular nutrient or a raw ingredient in cooked food.



To detect the presence of starch:

The presence of **starch** in food can be tested with **dilute iodine**. Iodine produces a **black-blue colour** on combination with starch.



The presence of **fats** 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 allows some light to pass through it when held against a source of light and hence, appears to be **bright** as compared to the rest of the paper.



The presence of proteins is detected by the fact that proteins give a **violet colour** with alkaline solution of **copper sulphate**.

Importance of Nutrients

- Food containing carbohydrates and fats are called **energy-giving foods**.

Nutrients	Sources		Functions
1. Carbohydrates	Cereals, maize potatoes, sugar, honey, banana, melon, papaya		<ul style="list-style-type: none"> Provide energy.
2. Fats	Butter, ghee, milk, cheese, oil, egg yolk, meat		<ul style="list-style-type: none"> Provide twice as much energy as compared to carbohydrates.
3. Proteins	Milk, pulses, peas, beans, chicken, fish, eggs, cheese		<ul style="list-style-type: none"> Necessary for the growth and repair of the body. Protein rich foods are known as bodybuilding food items.
Vitamins	Vitamin A	Carrot, milk, green leafy vegetables	<ul style="list-style-type: none"> Good eyesight Healthy skin Hair
	Vitamin B1	Whole grain cereals, potatoes, green vegetables	<ul style="list-style-type: none"> Growth and proper functioning of the digestive system, heart, nerves and muscles.
	Vitamin C	Citrus fruits, <i>amla</i> , tomato, guava	<ul style="list-style-type: none"> Healthy teeth, gums Healthy joints Increases the resistance of the body to infections and helps in fighting diseases.
	Vitamin D	Milk, fish, egg, butter. Some Vitamin D is also made in our body when the skin is exposed to early morning sunlight.	<ul style="list-style-type: none"> Normal growth of bones and teeth. It helps to absorb calcium from food.
Minerals	Milk, pulses, green leafy vegetables, seafood, salt (iodine), fruits, etc.		<ul style="list-style-type: none"> Proper functioning of the body. Formation of blood Coagulation of blood Functioning of muscles Functioning of nerves, thyroid gland, etc.
Dietary fibres	Plant products, whole grains, pulses, fresh fruits and vegetables		<ul style="list-style-type: none"> They are also known as roughage. Help to eliminate undigested food.
Water	Besides liquid water, many food items contain water, such as tomatoes, melons, cabbage and lettuce.		<ul style="list-style-type: none"> Absorbs nutrients from food. Helps in transportation and regulation within the body.

- | | | |
|--|--|---|
| | | <ul style="list-style-type: none">• Helps in throwing outwastes from the body as urine and sweat. |
|--|--|---|

Balanced Diet

- A balanced diet contains all the classes of food in adequate proportions which supply the required energy for the body and maintain **proper growth** and **functioning** of the body.
- The requirement of energy varies from person to person depending on age, gender, height, weight, type of occupation, lifestyle and climate.
- Food such as pulses, groundnut, sprouted seeds, fermented foods, spinach and a combination of flours are **highly nutritious**.
- **Junk food** refers to any food which is high in salt, fat, sugar or calories and low in nutrient content.
- Few examples of junk food are fried snacks, aerated drinks, gum, sugar candy, most sweets and desserts.
- Prolonged consumption of such foods can deprive the body of a balanced diet which may lead to problems such as **diabetes**, **heart diseases** and **obesity**.
- Obesity is a condition where **excess fat accumulates** in the body.

Preventing Loss of Nutrients

- It is important that **food is cooked right** so that its nutrients are not lost.
- Vegetables and fruits must be **washed before cutting**. This will prevent loss of nutrients.
- If vegetables have to be peeled, then the **peels must be as thin as possible** to prevent the loss of nutrients.
- Repeated washing of rice and pulses may remove water-soluble vitamins.
- Many nutrients and minerals are lost when excess water used for cooking is thrown away. Overcooking of food must be avoided.

Deficiency Disease

- Deficiency of one or more nutrients can cause **imbalance** or **disorders in the body**.
- Diseases which occur due to lack of nutrients over a long period are called **deficiency diseases**.

Nutrient	Diseases caused by its deficiency	Symptoms
Vitamin A	Loss of vision	Poor vision, loss of vision in darkness or sometimes complete loss of vision
Vitamin B1	Beriberi, pellagra, etc.	Weak muscles and very little energy to work
Vitamin C	Scurvy	Bleeding gums and wounds which take time to heal
Vitamin D	Rickets	Bones become soft and bent
Calcium	Osteoporosis, tooth decay	Weak bones and tooth decay
Iodine	Goitre	Glands in the neck appear swollen
Iron	Anaemia	Weakness
Proteins	Kwashiorkor in children	The stomach swells and bulges with swelling of feet. The child has stunted growth and reduced immunity.
Carbohydrates and Proteins	Marasmus	The child becomes thin. Bones can be seen through the skin; ribs can be clearly seen.