19. Constituents of Food

Can you recall ?

What is meant by diet? For what purposes do we need food? What are the different tastes that foodstuffs have? How do we experience these tastes?

You have learnt that foodstuffs have constituents that are useful to us in different ways. Let us learn some more about the constituents of food.

Carbohydrates

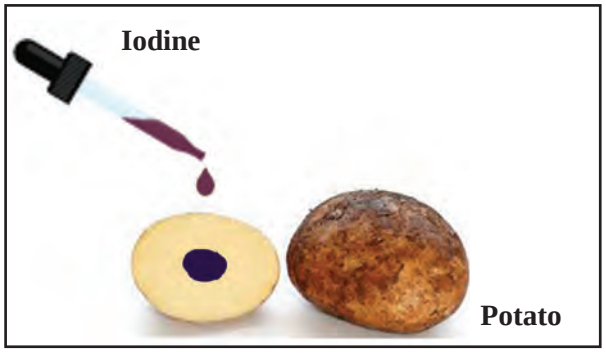
Try this.

Materials : A piece of a potato, tincture of iodine, a dropper.

Procedure : Add some water to a tincture of iodine to dilute it. Using a dropper, put a few drops of it on the piece of potato and observe.

What do you see?

The piece of potato turns a blackish blue.



Starch : Starch turns blackish blue when it comes in contact with iodine. So we can infer that there is starch in the potato. Sago and sweet potato also contain starch. Cereals like jowar, bajra, wheat, rice contain a lot of starch. We obtain flour from these grains. These grains form our staple diet. We get energy from starchy foods. Our body uses this energy for different kinds of work. This energy also keeps the body suitably warm.

Starchy foods

Do you know?

When the starchy foods we eat are digested, sugars are formed. These sugars burn slowly in all parts of our body, releasing energy. In other words, sugars formed by the digestion of starch act as fuel for our body.

Use your brain power!

Why do we feel hungrier in winter than we do in summer ?

Can you tell?

(1) What substances do we use to give our food a sweet taste?

(2) Of the foods that we eat raw, which ones are sweet?

Sugars : Food-stuffs that taste sweet contain different kinds of sugars. For example, we can obtain jaggery and table sugar from sugarcane because it contains a sugar called sucrose. Ripe fruits like mango, banana, chickoo as also honey and milk also contain various kinds of sugars. They, too, give us energy.

Try this.

Materials : A fine sieve, some whole wheat flour.

Procedure : Sift the flour.

What do you see?

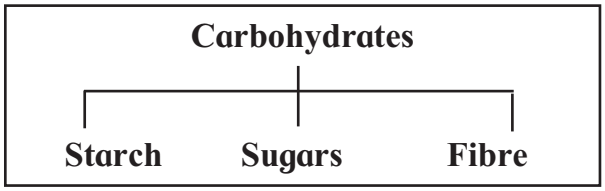
Most of the flour falls through the sieve. But some larger particles are left on the sieve.

Fibre : When grain like jowar, wheat is ground into a flour, the particles in the flour are not all alike. When the flour is sifted, we find the larger particles left behind on the sieve. These particles are fine pieces of the skin or bran of the grain.

Bran is a fibrous substance. In the process of digestion, fibre has a special function. Fibrous substances help the food to move forward in the alimentary canal at the right speed. The undigested food is of no use to the body. Fibre helps to form stool from this undigested food. Fibre is also called 'roughage'.

Fruits and vegetables, especially their skins, whole grains and pulses are all sources of fibre in food. If our food does not contain enough fibre, it can lead to constipation.

Up to now we have learnt about three types of substances present in our food – starch, sugar and fibre. These substances are together called carbohydrates. The most important use of carbohydrates is to provide the body with energy.



Use your brain power!

Threads get stuck between the teeth when we eat certain types of mangoes. Which kind of carbohydrate are they?

Try this.

Materials : Two sheets of white paper, a printed page, a little cooking oil.

Procedure : Rub a little oil on one of the white sheets. Now place the sheets on the printed page, one by one, and try to read the matter through each sheet.

What do you find?

You cannot read the matter through the ordinary sheet, but you can see through the oiled sheet of paper. The oil makes the paper translucent.

Fats

Oil is a fatty substance. Paper becomes translucent when a fatty substance is applied to it. Paper becoming translucent is a sign of the presence of fats in the foodstuff kept on it.

Fats in our food also provide energy to our body. They give twice as much energy as carbohydrates. But, we include a smaller quantity of this constituent in our diet. Cream, butter, ghee, oil are examples of fats. Nuts, meat, egg yolk also contain fats.

The fats we eat get stored in our body. If food is not available for some time, the body can get energy from the stored fats.

There is a layer of fat under our skin. It gives shape to the body and like a blanket, also prevents loss of heat from the body.

Fatty substances

Can you tell?

Why are boxes of fragile articles like TV, refrigerator, light bulbs, glasses, mirrors packed with corrugated cardboard, thermocol or bubble wrap?

The cardboard, thermocol or bubble wrap protect the fragile articles. Even when the boxes shake, fall or get hit, the articles inside are not damaged. Similarly, the layer of fat in the body protects our internal organs. An injury from outside does not at once cause damage to our bones or other internal organs.

Use your brain power!

Why do we use a padding of cloth under a mortar when we place it on the floor and pound something in it?

Can you tell?

Suppose a wall is to be built. The cement, sand, water is all there but the mason says the most important material is still missing. What can that be?

Proteins

Just as stones and bricks are the building blocks needed for a wall, proteins are the building blocks of our body.

The body undergoes wear and tear continuously. Sometimes, it gets injured. But, the healing and repair of our body goes on all the time without our being aware of it. Proteins are necessary for that purpose. Proteins are required in plenty during the growing years of a person's life.

Major sources of protein

All the different daals, pulses, groundnuts, milk and milk products like yoghurt, khoya and paneer, eggs, meat and fish are rich sources of proteins. To get the required proteins, our daily diet should include daals, pulses as well as milk and milk products.

Our body requires carbohydrates, fats and proteins in large proportions. These food constituents are called macronutrients.

Macronutrients

Carbohydrates **Fats** **Proteins**

Vitamins and minerals

In addition to the macronutrients, we need certain food constituents in very small quantities. These micronutrients are vitamins and minerals.

Essential micronutrients

Vitamins **Minerals**

Vitamins : The different vitamins are named using the letters of the alphabet. For example, vitamins A, B, C, D, E and K are the most important vitamins. Although we need vitamins in very small quantities, a lack or deficiency of any vitamin results in serious disorders. For example, a deficiency of vitamin 'A' over a long period results in night-blindness. A deficiency of vitamin 'D' results in weak and brittle bones. Vitamins give us the ability to resist diseases.

Minerals : Iron, calcium, sodium, potassium are examples of minerals that are essential for the body. They are needed in very small quantities but they have an important part to play in all the necessary functions of our body.

For example, iron is necessary for carrying oxygen to different parts of the body. If there is a deficiency of

Sources of vitamins and minerals

iron in the blood, the body does not get enough supply of oxygen, and one feels constantly weak and tired. This condition is called 'anaemia'. The mineral calcium makes our bones strong.

Sprouted green gram

All kinds of fruits, vegetables, green leafy vegetables, sprouted pulses, their skins and the bran of cereals and pulses are all sources of vitamins and minerals. That is why, as far as possible, we should eat fruits with their skins and we should not sift flour to throw away the bran.

Can you tell?

What are the preparations that are served as mid-day meals in schools?

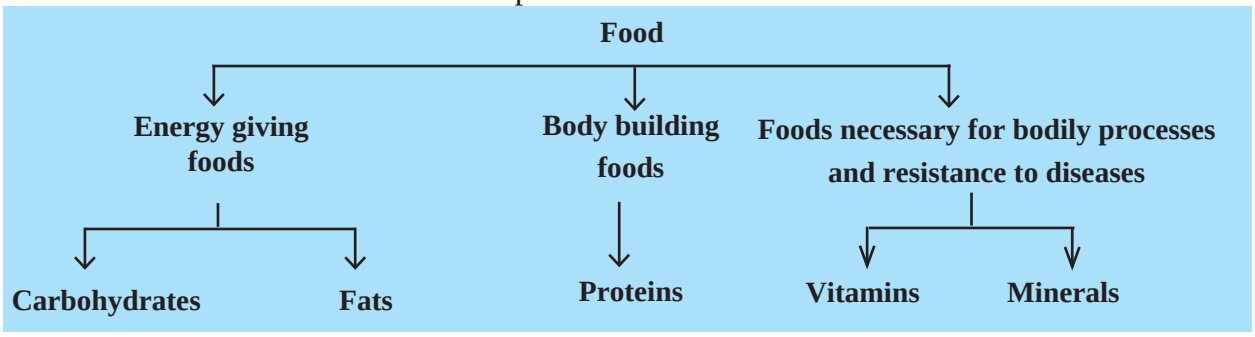
A balanced diet : What do we tell about ourselves when we say, 'I am fit and fine'?

Being fit and fine means that we have enough strength and energy to study, play and carry out all our tasks quite easily, our body is growing well and we do not fall ill every now and then.

We all wish to be in good health. For good health, our body should get all the different constituents of food, namely, carbohydrates, proteins, fats, vitamins and minerals in the right quantities. A diet which provides all these constituents in the right quantities is called a 'balanced diet'.

Use your brain power!

1. Do we get all the different constituents of food from a meal that consists of a green veg *thaalipeeth* eaten with yoghurt?
2. Which food constituents do we get from the ingredients used to make *bhel*?



Do you know?

One eatable - Many constituents

- From every food item in our diet we get several constituents of food.

For example,

Chikki or Gud-dani : From the nuts, proteins, fats and carbohydrates, and from the jaggery, sugar and iron.

Banana : sugar, some minerals and fibre.

Boiled eggs : proteins, fats, some vitamins and minerals.

- We need variety in our diet to get all the types of food constituents.

Nourishment and malnutrition

For our body to be well-nourished, we must get all the different food constituents in the right quantities. If a person's diet lacks some constituents over a long period of time, that person does not get proper nourishment. Malnutrition has serious consequences for the person's health.

For example, if a person does not get enough carbohydrates and proteins, their growth is stunted. They feel constantly tired. They cannot cope with their studies or games or other tasks. Deficiencies of vitamins or minerals cause some specific disorders.

There are some misconceptions about diet. If a child eats sweets, chocolates, cakes, fried stuff, etc. and grows fat, some people think that the child is healthy. But if you eat only one kind of foodstuff, your body does not get all the necessary food constituents. Such a person would be malnourished.

Always remember –

It is better to eat freshly prepared food items that will make for a balanced diet rather than snack on tempting, readymade foods you see in the market.

What we have learnt –

- The body gets energy from carbohydrates.
- Proteins are necessary for the growth of the body as well as for the repair of the wear and tear of the body.
- Our body gets energy from fats, too.
- Although our body needs vitamins and minerals in small quantities, a deficiency of any of them can lead to a disease or disorder.
- Fruits, vegetables and their skins, cereals and pulses are all sources of fibre.
- From each of the food items that we eat, we get more than one food constituent.
- If the diet does not include all the food constituents in the right proportions, it leads to malnutrition. Malnutrition has serious consequences for a person's health.

Exercises

1. What's the solution?

The body requires an adequate quantity of proteins.

2. Use your brain power!

Why are children told to drink milk every day?

3. Give two sources of each of the following food constituents.

(a) Minerals (b) Proteins (c) Starch

4. Fill in the blanks.

(a) ..... in our food give us the ability to resist diseases.

(b) Calcium makes our bones ..... .

(c) Foodstuffs that taste sweet contain various kinds of ..... .

(d) A diet that provides all the constituents of food in the right proportions is called a ..... diet.

5. Answer the following questions.

(a) Of what use are the sugars that we get from the digestion of starch?

(b) Name the sources of fibre in our diet.

(c) What are carbohydrates?

(d) What is meant by malnutrition?

6. Match the following.

Column A	**Column B**
(1) Fats	(a) Jowar
(2) Proteins	(b) Oil
(3) Vitamins	(c) Bran of cereals
(4) Minerals	(d) Pulses
(5) Starchy foods	(e) Iron

Activities

1. Collect pictures of foods from which we get a variety of food constituents.
2. Obtain information about the meals served to the children at an *Anganwaadi*. Tell others about it.

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