

Balanced Diet

Food is essential for human life. As man's life is dependent on air, similarly food is also essential to keep it alive. It is food only which makes the man been all sorts of troubles or we may say that all the activities of life are centered around getting food. For getting food, we invest our power, money and mental capabilities because food has many advantages. Balanced diet is that diet in which all the essential nutrients needed for the body are present in a fixed ratio. As protein, carbohydrates, fat, mineral salts, water, vitamin, fibre etc.

Main Functions of Food

1. **Growth and Development of Body :** When a man is born, his body is very small, but as the time passes we see with our own eyes that he grows. The small cells of the body get mixed with one another and grow. The cells increase because of the presence of protein in the food.
2. **Source of Energy :** Body requires energy to do routine work. Food acts as patrol to run this machine of the body. This is the contribution of food that we walk, move and run. If we keep taking good and needed food, our body remains vigorous and strong.
3. **Body Temperature:** The food that we take undergoes many changes in stomach and intestines. The juices that come out of it are carried to different parts of the body through blood and maintain the temperature of the body.
4. **Rebuilding of Dead Cells.** We keep on doing one or the other work through out the day. When we sit and relax or sleep, even then some organs of our body keep on working.

At that time breakage takes place in the cells with in the body. Due to this breakage of cells, heat is produced in body. Where as the body gets heat out of this breakage, there the cells also become lifeless and food is required to rebuilt them.

5. Proper Functioning of the systems of the body :

Organs of the body keep on doing their work. Many organs jointly make one system which does its compete work. We have many systems in our body as blood circulatory system, digestive system, respiratory system etc. Mineral salts and vitamins are needed for the proper functioning of these systems.

Our body is a complicated system. It has many organs and different parts. If they are to be kept in order and healthy, then it needs to be taken care of properly. Therefore every one must have the knowledge of the qualities of good and bad food. Different activities of body depend upon different chemical substances of food. On the basis of chemical division, food items are divided as under:

1. Protein
- 2 Carbohydrates
3. Fat
- 4 Mineral salt
5. Vitamins
6. Water
7. Fibre

Protein : Protein is word of great language which means to come first. In protein, a mixed matter is produced with the organic mixing of carbon, hydrogen, oxygen, nitrogen, sulphur and phosphorous.

Protein is of two types:

- 1. Vegetable Protein-** Which is got from vegetation.

2. Animal Protein - Which is got from animals.

Sources of Protein :

Vegetable Protein

- | | |
|----------------------|------------------|
| 1. Soyabean | 2. Groundnut |
| 3. Massar | 4. Lobia, grams |
| 5. Mah, Mungi Pulses | 6. Cashew nut |
| 7. Almonds | 8. Pista |
| 9. Dry Peas | 10. Chestnut |
| 11. Wheat | 12. Barley |
| 13. Maize | 14. Machine rice |

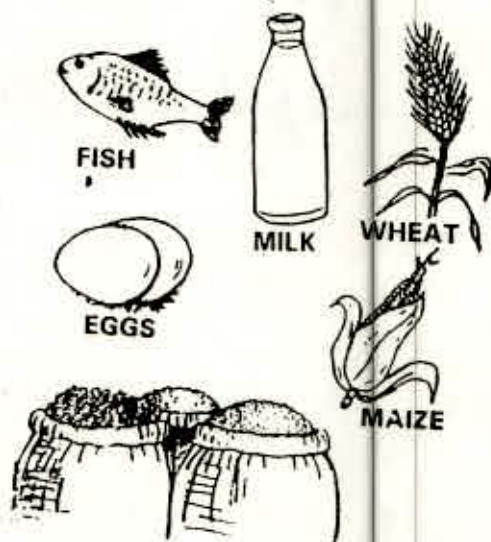


Fig. 20

Animal Protein

- | | | | |
|-----------|----------|---------|---------|
| 1. Cheese | 2. Lever | 3. Meat | 4. Fish |
| 5. Egg | 6. Milk | 7. Curd | |

Advantages of Protein :

1. The main advantage of protein is to help in the physical growth and development.
2. To repair the breakage of cells inside the body.
3. To maintain the temperature of the body.
4. To check the movement of various matters moving provide the body.
5. When the ratio of carbohydrates and fat become less in the body, of that time protein performs the function of generating energy.

Defects caused by the Deficiency of Protein

1. Kwashiorkor : Because of the deficient of protein, this disease affects children from one to three years of age initially, the legs of child become very thin. Then swelling comes over the face and body. Skin gets rough and red. There is hair loss and the colour of the hair gets brown the child does not remain happy and gets irritated.

2. Marasmus: a child suffering from this disease is thin and weak because his muscles get contracted. He starts looking very skeletal.

3. Hunger Edema: By staying hungry and because of the deficiency of protein human body gets insufficient food and lot of water gets collected in the cells. The whole of the body looks swelled.

4. Plugger: the skin becomes rough and dry

5 Defect in Liver: when there is less inhale of Protein, then the liver is affected. A drunkard gets affected by this disease very soon. The liver gets enlarged due to the deficiency of protein. This disease can be overcome by taking a balanced diet.

Defects of Excess of Protein cannot be accumulated in the body. The quality of protein does not get absorbed in the body. It gets discharged in the form of urea through the kidneys which causes unnecessary load over the kidneys and becomes the cause of many diseases of the kidneys. The flexibility of the blood vessels also gets affected pains of joints also start.

Protein is such a matter as becomes harmful if taken in excess and also create imbalance if taken lesser quantity, it is essential to know the proper quantity.

Quantity of Protein : Children in the age group of one to six years need protein the most. A young man needs 7 gram of protein after every kilogram of body weight. Children need protein the most. A normal person should have 70 to 100 gram of daily protein

Carbohydrates

It supplies the maximum energy and heat to the body. If taken in excess, it is turned into fat and it gets accumulated in the body. If you have a full meal, you don't have deficiency of carbohydrates. It is got from all sorts of grains 70 to 80 % part of the diet of Indians is supplemented by it.

Sources of Carbohydrates

- | | | |
|------------------|---------------|-----------|
| 1. Sugar | 2. Jaggery | 3. Honey |
| 4. Rice | 5. Wheat | 6. Maize |
| 7. Barley | 8. Massar | 9. Millet |
| 10. Corn | 11. Grams | 12. Lobia |
| 13. Sweet Carrot | 14. Potatoes. | |

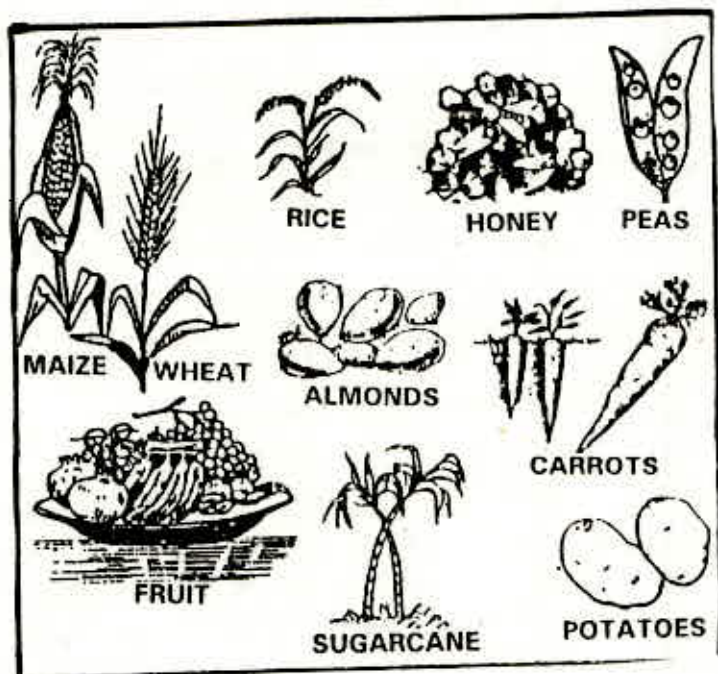


Fig. 21

Uses of Carbohydrates :

1. Carbohydrates give strength to our body. Heat is generated in the body.

2. Oil or ghee if taken without carbohydrates cause discomfort to the stomach but if taken flour or sweet things, they get digested soon.

3. These matters are very important for cleansing stomach and intestines.

Defects caused by the Deficiency of Carbohydrate

1. If the body does not get carbohydrates in sufficient quantity, then ketones are formed in excess. The ratio of Alkaline decreases and that of acidity increases in blood. In this condition, unconsciousness can happen. This

- condition is caused in case of remaining hungry for a very long time or to the patients of diabetes.
2. If we take carbohydrates in lesser quantity, the fat inside our body is also not consumed properly.
 3. Proper cleaning of intestines is also not possible.
 4. The acidic matters get increased in stomach because of less intake of carbohydrates which are harmful for the body.
 5. If there is too much deficiency of carbohydrates, the body becomes weak and a person can die even.

Defects of excess of carbohydrates

Body becomes obese and there is fear of all the diseases caused by obesity. As high blood pressure, diabetes, pain in the joints and digestive system also got affected.

Quantity of carbohydrates: form 50 to 80% part of our diet. Its ratio depends upon the financial condition of a person. Carbohydrates form 50 to 60% part of balanced diet and a normal person should consume 400 to 700 grams of carbohydrates daily.

Fats :

Fats are of two types—animal fats and vegetable fats

Sources of Fats:

Animal Fats

Ghee, Meat
Butter, Fish
nut, khoa
Eggs
Milk

Vegetable Fats

Mustard, groundnut
Chest coconut oil, Dry
Coconut
groundnut,
Almonds, Soyabean

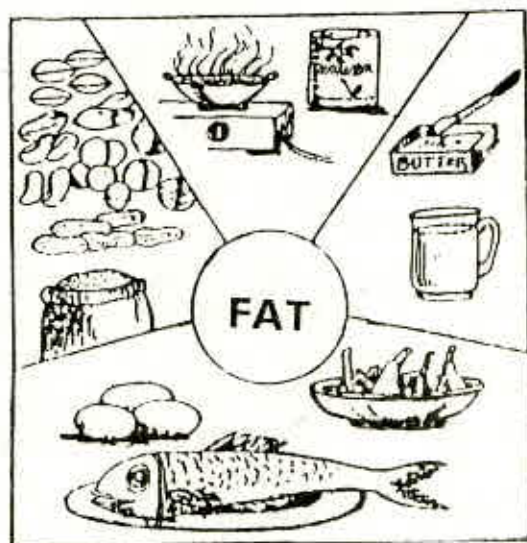


Fig. 22

Uses of Fats

1. It produces energy in the body.
2. Defends all the organs of the body from external injury.
3. It also takes care of vitamins A, D, E, and K for the body need.
4. Fat acids are also produced from fats for the body.
5. It maintains the body temperature. More consumption of fats in winter season is useful.

Defects caused by the deficiency of Fats:

Many defects are caused by the deficiency of fats but it is very difficult to ascertain carbohydrates and protein also in to fats to some extent. Its deficiency is realized after a long time

1. Skin becomes dry.

2. Deficiency of vitamin A, D, E, and K is also caused.
3. Because of the deficiency of fat acids, the skin becomes dry.

Defects caused by excess of Fats:

Its excessive use also causes many problems.

1. Body becomes shapeless because of obesity.
2. When animal fat is taken in excess, cholesterol accumulates in blood. This blood gets clotted in the blood veins and arteries and blocks them. As a result of which serious cardiac problems take place.
3. Because of excessive clotting of cholesterol in gall bladder, Stones get formed in it.
4. Digestive system gets affected.
5. The problem of diabetes i.e. intensified with its excessive consumption.

Quantity of Fats : For the diet of a normal person, the ration of fat should be about 50 to 75 grams daily.

Mineral Salts : Our body has 96% of proteins, carbohydrate fats and water and rest 4% are mineral salts . These mineral salts are more required for the body as calcium, phosphorous, sodium, chlorine, potassium, magnesium, sulphur, iron, manganese, copper, iodine and zinc. The ration other salts found in the body is very less. These are present in our diet in different ratio.

Sources : These mineral salts are found in plant in green leafy vegetables and green fruits. These are mostly found in green leaf vegetables, fruits, meat, egg, fish and milk. The ratio of iron is less in milk but other mineral salts can be received.

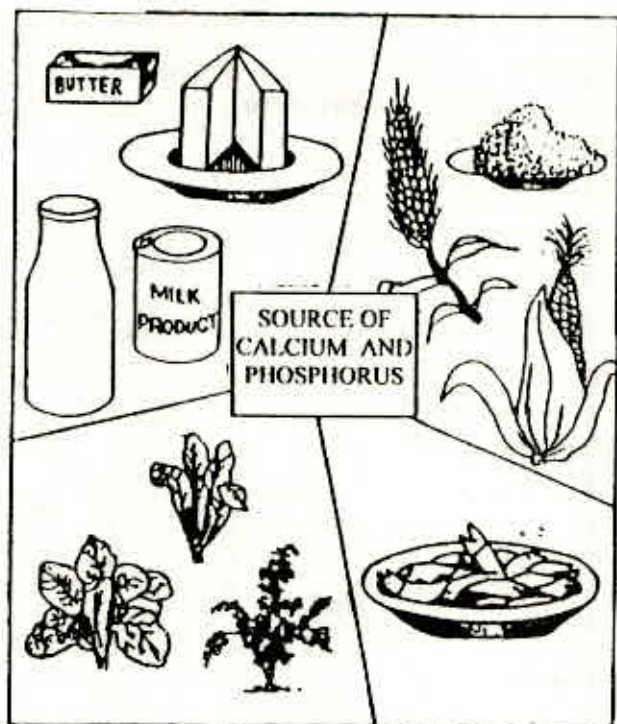


Fig. 23

Uses of Mineral Salts

1. They help in the formation of teeth and bones and make them strong.
2. They increase the muscular tissues. The muscular protein has phosphorus in it.
3. Mineral salts are greatly needed for the proper working of the body as for the proper functioning of heart, mineral salts are greatly required.
4. They make the colour of the blood red.
5. Calcium helps the blood to clot.

Defects caused by the Deficiency of Mineral Salts

1. Deficiency of calcium makes the bones and teeth weak. Bones of children get deformed and their growth is retarded.
2. Body becomes prone to diseases.
3. Deficiency of iron makes the skin colour pale.
4. Deficiency of iodine causes goitre.

Water : Our body has $\frac{2}{3}$ part of water in it. It comes next to air for the body need. If we don't eat food, we can survive for more than a month, but if we don't get water, we can survive only for some days.

Cells absorb $\frac{2}{3}$ part of the whole quantity of water of the body. $\frac{1}{2}$ part of it is among the cells or is in blood. It is formed by mixing oxygen and hydrogen.

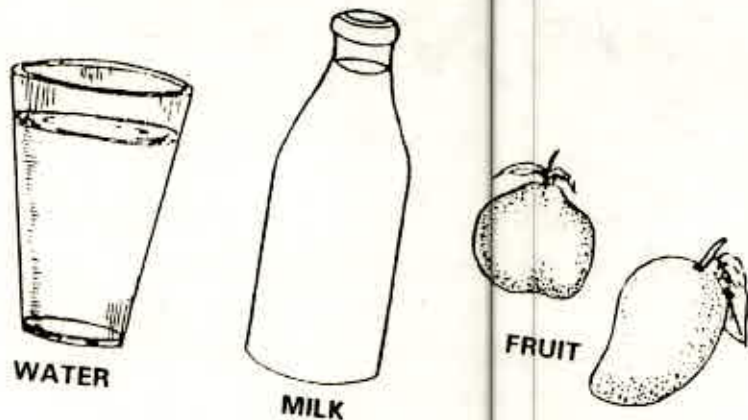


Fig. 24

Sources of Water : We get water from many components of food, milk, fruit and Vegetables in a pure form.

Uses of water :

1. Body cells get formed with the help of water cells of

different body parts have water in different ratio among them.

2. Water is very necessary for performing different functions of the body. It carries food to different cells and breakage of cells or waste material is also thrown out through water.
3. Whatever food we eat gets digested with the help of water.
4. It maintains our body temperature.
5. Food matters get dissolved in blood through water.
6. Blood circulation in the body is possible only because of water.
7. It keeps the body joints and organs supple.

Defects due to less intake of water :

Many problems are caused due to less intake of water. Food does not get digested properly. Even if some of it gets digested, its juices do not reach the proper cells. Constipation is caused. Stomach remains heavy. Body gets weakened and face becomes pale. Brain always remain tired. Man feels heat. Waste matters are not thrown out properly. Dehydration is caused . Joints pain starts, Kidneys have stone formation.

Defects of excessive intake of water :

Some times by in thinking that we should consume more water as it has many uses. As it is said that too much of every thing is bad. Water should also be taken in right proportion. It we keep on drinking water through out the day, the stomach remains filled and we feel less hunger. If we keep on drinking water while eating, even then food does not get digested soon. There are less chances of taking water in excess. So we should remain conscious of the defects caused by taking less water

Quantity of Water:

The quantity of water keeps varying according to season, profession and diet. To satiate the thirst of water is the right quantity. Generally, one should take five to six glasses of water.

Vitamins : are found in a very small quantity in body weight. Although the proportion is very less, but they have many important functions. No work of the body is possible without them food deficient in vitamins cannot be called balanced diet.

Vitamin A : It dissolves in Fat.

Sources : It is got from fresh fruit and vegetables as orange, pineapple, mango, banana, papaya, spinach, fenugreek, mint, Radish leaves, carrot, cabbage, green chilli, tomato, guard, chilli, milk, curd, butter, cheese, egg, fish and liver. All those things should be taken fresh other wise the vitamins get destroyed in stale things and by over cooking.

Uses :

1. It keeps the eye sight intact.
2. It strengthens eyes, stomach and inner membranes of intestines.
3. It protects from infectious diseases
4. It increases appetite and keeps the digestive system in order.
5. It helps in the growth and strength of body. Children need this vitamin greatly.

Defects caused by its Deficiency :

1. Its deficiency causes night blindness.
2. Skin gets dry.
3. Throat, nose, eyes and skin get infection soon.
4. Body becomes weak and growth is retarded.
5. Lungs become weak.

Vitamin B : It is dissolved in water. It is a family of many vitamins as b-1, B-2, B-6 and B-12. It is also called vitamin B-Complex

Sources of Vitamin B : It is present in all grains, whole pulses, un seived flour , maize, rice shelled with hands, soyabean, eggs, meat, milk, curd, butter, cheese, cabbage, onion, spinach, tomato, turnip and salad.

Uses :

1. It gives energy to brain and the nervous system works properly.
2. Bones become strong.

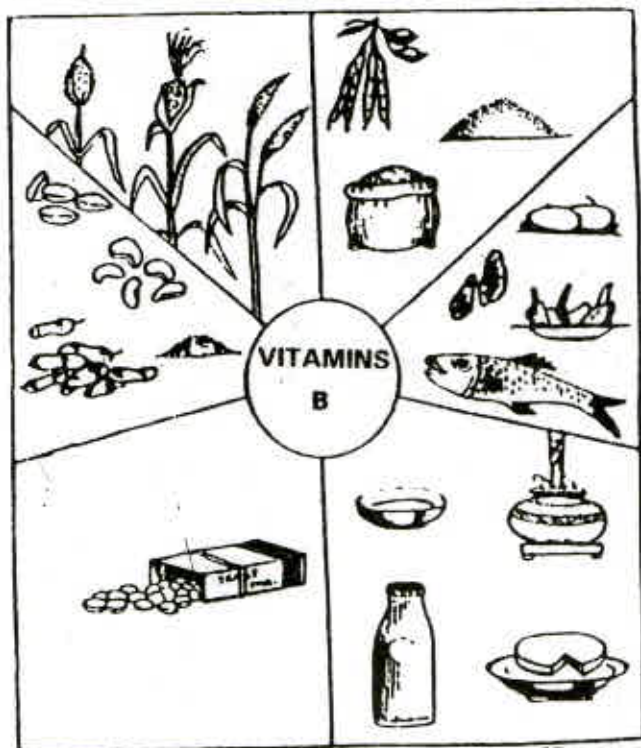


Fig. 25

3. Digestive system works properly and one feels proper appetite.
4. It helps in the growth of children.
5. It keeps the skin intact.

Defects caused by it Deficiency:

1. Less appetite.
2. Growth of children is retarded.
3. Disease of beri-beri and other skin diseases start.
4. Tongue gets blisters.
5. Onset of hair fall.

Vitamin C: This vitamin gets dissolved in water. It is destroyed in fire and sun. It is also destroyed in stale food and dried vegetable.

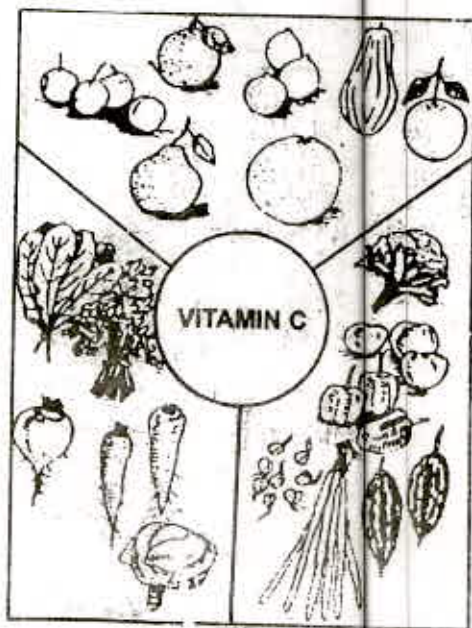


Fig. 26

Sources : It is generally found in citrus juice fruits. It is found in lemon orange, pineapple, guava, Malta, Mosmi, mango,

apple, banana, amla, cabbage, carrot, green chilli, spinach, tomato, bitter guard, lady finger, Radish leaves green coriander, chilai, brinjal and if the grains are sprouted we can get it .

Uses of Vitamins-C

1. Defends against colds.
2. Safeguards the body from infections diseases.
3. Strengthens teeth and gums.
4. Helps in speedy healing of wounds and fractured bones.

Defects caused by its Deficiency

1. Its deficiency causes pyoria disease to teeth.
2. Bones become weak.
3. Wounds don't get healed soon.
4. A person gets anaemic.
5. Bleeding does not stop soon.

Vitamin D : It gets dissolved in fat. It gets wasted in heat. It can keep itself accumulated in body.

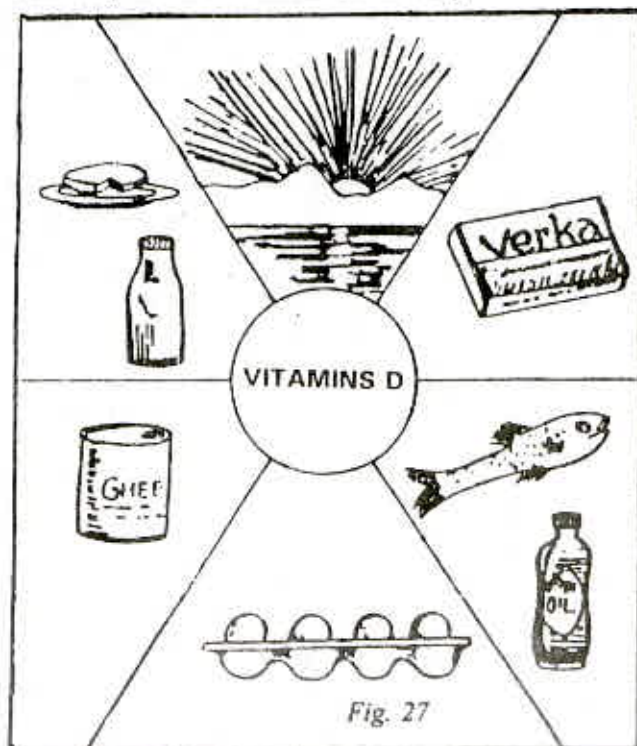


Fig. 27

Sources : Milk, yellow part of egg, cod liver oil, ghee, liver, wheat. It enters into the body by falling of the rays of the sun on naked body. Bones also become strong.

Defects caused by its Deficiency

1. Bones become weak and the disease of rickets start.
2. Teeth are not cut at proper time.
3. Epilepsy, hysteria and marasmus are caused.
4. Muscles become weak.

Vitamin-E : This vitamin gets dissolved in fat.

Sources : Milk, ghee, wheat, maize peas, egg.

Uses: It increases the power of productivity.

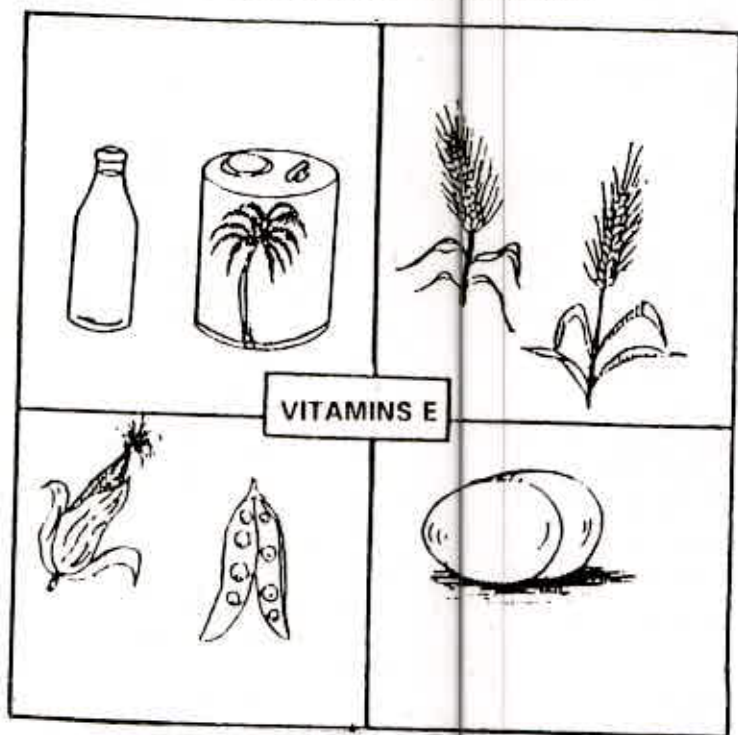


Fig. 28

Defects causes by its deficiency

1. Pimples and boils start appearing.
2. Its deficiency also causes infertility.

Vitamin-K : This vitamin is dissolved in Fat.

Sources : Fish, tomato, cabbage, spinach and sag.

Uses : It is very essential for the clotting of blood.

Defects caused by its deficiency :

1. Its deficiency interferes in the process of clotting.
2. Skin diseases are caused.

Fibre :

We take balanced diet for physical growth and energy which should have all the food constituents in appropriate ratio as protein, carbohydrates, fat, mineral salts, water and vitamins. But if all these constituents are taken in pure form, they are not of much use. The waste matters which are to be thrown out, can not excrete and it gets stuck with the inner membranes of stomach and intestines. Therefore all these constituents or each one of them cannot be called pure. Raw vegetables like radish, turnip, carrot, tomato, cucumber, salad, whole grains as wheat and gram flour should not be sifted while eating. The un seived flour works as a cleansing brush in stomach and intestines. Body remains vigorous. Therefore food should be fibrous.

Calorie: The smallest unit to measure food constituent is called a calorie.

An ordinary player can be given the following balanced diet.

Grains	3200 Calorie	Green Vegetable	400 grams
Pulses	410 grams	Fruits	400 grams

Milk	900 grams	meat	300 grams
ghee	80 grams	Egg	1
Sugar	80 grams		

EXERCISE

1. What are the various constituents of a balanced diet?
 2. What are the sources of protein, carbohydrates and fat and what is the correct ratio of their intake?
 3. Give the uses of mineral salts and vitamins?
 4. What are the defects caused by the deficiency of water, mineral salts and vitamins?
 5. What is the ratio of appropriate food to be taken by an ordinary player?
 6. Write down the sources and uses of the following vitamins :
Vitamin A, B,C,D,E, and K.
 7. Fibres are very useful for our body how?
 8. What is the cheapest source of Vitamin D ?
 9. What is meant by mineral salt ?
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