

## CHAPTER : 12

### FUNCTIONS OF FOOD

#### Functions of food:

Air, water and food are 3 basic requirements for survival. Food, after water and air, is an essential element for a human being without which it is not possible to remain healthy and be alive for many days. A balanced diet with adequate proportion of carbohydrates, fats, protein, vitamin and mineral salts is essential for good health. Water has no nutrients yet in itself is included as a nutrient. This is because water is essential for various activities of body for life, for mainly proper balance and regulation of body temperature. Water is essential for ingestion, digestion, absorption, transportation and excretion of food. Food includes two types of food items: vegetarian food items and non-vegetarian food items. Milk, milk products, food items grown in farms such as cereals, lentils, oilseeds, green vegetables, stem-roots, fruits etc are vegetarian food items. People consuming vegetarian food items are called vegetarians. Eggs, meat, fish etc are non-vegetarian food items and people consuming these are called non-vegetarians.

Both the types of food items affect the physical growth and development. This effect is due to the presence of nutrients in the food items. Actually the nutrients present in the food are responsible for various activities of the body.

The nutrients present in food perform different functions. Various nutrients are — carbohydrate, fat, protein, vitamins, mineral salts and water —

**1. Carbohydrate—** Carbohydrates is the main source of energy. Fibers are also present in it in adequate quantity. These fibers help in digestive process by sending the food by synchronized contraction of stomach into small intestines where it gets digested easily. It helps in easy excretion and prevents constipation. All cereals like rice, wheat, maize, barley, millets, etc are main source of carbohydrates.

**2. Protein—** Protein is essential for body's growth, muscle formation, repair of damaged fibers, hormone formation and blood clotting. Cells are made of proteins. Therefore, protein is essential for cell formation. Hence known as 'formative element'.

**3. Fat—** Fat is a concentrated source of energy. It provides energy and calories to the body. Fat is stored in the fatty tissues under the skin and when needed (like on fasting day or while travelling or some other day when food is not available to the body) fat breaks down to provide energy to the body. One gram fat gives **9 kilo calories**. Ghee, oil, groundnuts, vegetable ghee, mustard oil, other oilseeds

contain fat in adequate quantities.

**4. Vitamins**— Vitamin is an organic compound which is called an essential nutrient element. It is required in small quantity but is important for body's health. Vitamins are essential for metabolism and complex chemical reactions. They provide protection to body and give strength to fight against diseases. They work as a catalyst in the body and help in various physical activities. Therefore, consumption of vitamin-rich food is very important.

**5. Mineral salts**— Vitamins mineral salts are also important for the body. They perform two important functions—

- (a) Formative functions
- (b) Regulatory functions

Minerals are important for growth and development of the body as well as for formative works. Various activities of the body are regulated by mineral salts. Some mineral salts are required in large quantities while others in small quantities. Minerals required in small quantities are called 'trace elements'. Though these are required in very small quantities yet these elements are very important for the body.

**6. Water**— After air, water is the fundamental requirement for a human being. Water works as a solvent and is important for various activities of body. 65% of our body is made up of water. Generally water is present in all food items.

**Food elements and their proportion**— Many nutritive elements are present in food. A person while including food elements in his daily diet should take care that it has carbohydrates, fat, and protein in adequate quantities. Carbohydrate should be 60-70%, fat- 20-30%, protein- 10-15%. Food is essential for

survival. It is essential for nutrition of body, growth-development, control-regulation etc. and also for social and psychological functions.

#### **Food helps in following functions—**

- 1. Physical work
- 2. Psychological functions
- 3. Social and cultural functions

**1. Physical work**— The food that we eat becomes a part of our body. The main functions of food are physical growth & development, repair of damaged nerves, control and regulation of various activities, etc.

The role of food in various activities is as follows:

(i) **Food provides energy to the body**— Energy is required for various physical activities—walking, sitting, running, working, etc. even when we sleep our body organs work on their own performing breathing, digesting, and absorption activities. Energy is required for



**Figure : 12.1 (For Energy)**

performing all these activities. And we take this energy from the food we eat. Fat and carbohydrates are the main sources of energy. They provide energy and so are called energy-

giving foods. If needed, protein can also provide energy. 1 gram carbohydrate and protein gives 4 kilocalories and 1 gram fat gives 9 kilocalories. We should take energy from carbohydrates and fat because protein is essentially a formative nutrient.

- (ii) **Food helps in physical growth and development**— Body is a developing biological unit which is made up of small cells; cell is the smallest unit of body. Our body is made of numerous cells. When foetus is in mother's womb cells develop into tissues and body grows and develops. The process of body-building is active in infancy, childhood and adolescence. This is the reason why a child of 2.5kg-3.5 kg and 40-50 cm in length at the time of birth gains a weight of 50-75 kg and 5-6 feet in youth.



**Figure : 12.2 (For Growth)**

When in mother's womb, child receives nutrition from mother and after birth; he has to take food rich in nutritive elements by himself. The growth and development in children depends on balanced diet. In childhood, growth occurs at a rapid pace and so during this time nutritious and balanced diet is very essential. The food consumed during early years of life is essential to maintain health of the body. In the old age, formative nutritive elements are required in greater

quantities because in this age cells and fibers are formed less but are damaged more. So energy providing foods are required less and protein, vitamins and mineral salt-rich food is required more. Fig. 12.2

- (iii) **Protection to the body against diseases and control of various body processes**—Food provides protective power against diseases, keeps up the health and controls as well as regulates various functions of body. For example— control of body temperature, blood balance, acid-base balance, excretion, activation of enzymes, etc. the protective and regulatory functions carried out by various vitamins, mineral salts and water present in the food. Each of the elements is responsible for its own unique function in the body. If there is deficiency or over-sufficiency of any element disorder develops in the management of various processes and body gets afflicted with diseases. This in turn will adversely affect body's growth and development. Body gets strength against diseases from these nutritive elements and therefore, these elements are also known as 'protective elements'. Green leafy vegetables, other vegetables, fruits, milk, eggs, meat and fish are the main sources of these vitamins and mineral-salts. In addition to these sources, these nutritive elements are also found in lentils and cereals.

2. **Psychological functions**— Food not only fulfills our physical requirements but also gives psychological satisfaction. For the fulfillment of our daily requirements, only presence of nutritive elements in our body is not enough but also the quantity of food, choice of food, properly cooked food and a good environment while

eating is also essential. In this manner not only our hunger is satisfied but we feel contented too. We must have experienced that the food we eat daily also gives us mental satisfaction. A person belonging to north India who likes to eat wheat would not like eating rice or Idli-dosa for long. New food items are good for a change but then we like to eat food that we normally eat. Food also gives us relief from daily grid and tension. The delight of home-made food is incomparable to the food from hotel or restaurant. This is so because there is love, sentiment, affection attached. It is prepared keeping in mind the choice of every individual of the family.

**Food helps in following psychological functions:**

- (i) **Expression of emotions through food—** Emotions are expressed through food. A happy person eats more while an unhappy one eats less. Some people eat more to relieve their stress while some eat less.
  - (ii) **As a form of security—** Food is a symbol of security. If a person is away from home or is travelling if he gets familiar food he experiences a sense of security. Food fed by mother gives more protection than the case when it is provided by someone else. A child doesn't feel happy when someone other than his mother feeds him.
  - (iii) **Use of food as power—** History has been witness to many examples where food was used as form of power. Keeping enemies away from food was the easiest way to win a battle. A person is kept hungry to make him confess something. 'Hunger strike' is a common way of protest against any institution. Even in families food is used as a means of reward and punishment. Children are rewarded with special dishes on commendable work while they are refrained from eating their favourite food such as ice-cream as a form of punishment.
- 3. Social works and cultural importance—** Food helps in making and strengthening social relations. That is why food is served on various social functions. Food is a symbol of friendship. Snacks, *prasad*, feast are planned for social functions. Gatherings are organized to celebrate birthday, wedding, anniversary, tonsure, promotion in job, childbirth where feast and other elegant dishes are served. Special festivals are celebrated with good food.
- (i) **Food is a symbol of financial status—** Choice of an individual's food depends on his financial status. A middle-class man arranges his food with the seasonal fruits and vegetables and other normal food items while a rich man can even arrange un-seasonal food items to his food. He can add expensive nuts, fruits and vegetables in his diet. In this way food indicates a person's financial status. The food served to a guest is a symbol of our prestige and prosperity. Consuming good food and the resultant obesity from it is considered a symbol of prosperity in some communities.
  - (ii) **Food is a symbol of friendship and hospitality—** New food items are served to friends to strengthen the bond of friendship. Food is served as a symbol of hospitality — tea, coffee, drinks are served to guests. In India, guests are treated equivalent to Gods and as kind hospitality good food is served. Food can solve many big problems because it



is said 'the way to heart is through the stomach'. Thus, many personal and social works can be easily carried out through food.

While making arrangements for food choice of others should be kept in mind. Arrangements of snacks, food, drinks are done for establishing mutual comfort and amicability. Food served on special occasions should be palatable, satisfying and should be healthy and nutritious.

Food is also a symbol of culture. For example — *makki ki roti* and *sarson ka saag* is famous in Punjab, *dal-bati churma* in Rajasthan, rice-sambhar in south India, fish-rice in Bihar and *vada-paav* in Mumbai. This way some food items display the culture of a society or a region. We all like to eat food according to our own traditions and culture.

Food is just not an article for eating but it is also a medium for expression of someone's happiness and security and a medium of displaying emotions, traditions and culture. Food relieves stress and strengthens social relations. A psychological and emotional response towards a certain type of food has no scientific reason and thus, it is difficult to change that response.

### IMPORTANT POINTS:

1. Air, water and food are 3 basic requirements for survival.
2. Water included as a nutrient because it is essential for various activities of the body, for mainly proper balance and regulation of body temperature.
3. All cereals like rice, wheat, maize, barley, millets, etc are main sources of carbohydrates.
4. One gram fat gives 9 kilocalories. Ghee, oil, groundnuts, vegetable ghee, mustard oil, other

oilseeds contain fat in adequate quantities.

5. Protein is essential for cell formation and so, protein is known as 'formative element'.
6. Vitamins give body the strength to fight against diseases and thus consumption of vitamin-rich food is very important.
7. 65% of our body is made of water.
8. Carbohydrate should be 60-70% of our food while fat should be 20-30% and protein- 10-15%.
9. Food as far as possible should be prepared keeping in mind every choice of every member of the family.
10. Food is just not a thing for eating but is a medium of displaying emotions, traditions and culture.

### EXERCISE:

#### 1. Choose the correct option—

- (i) The main source of energy is:-
  - (a) Carbohydrates
  - (b) Protein
  - (c) Vitamin
  - (d) Water
- (ii) Which of the following is not a physical function of food—
  - (a) Energy providing
  - (b) Growth and development
  - (c) Providing peace
  - (d) Protective and regulatory functions
- (iii) Which of the following is formative element?
 

(a) Carbohydrates	(b) Protein
(c) Water	(d) Fat
- (iv) What % of water is present in human body?

(a) 65%

(b) 67%

importance of food.

(c) 63%

(d) 64%

**ANSWERS:****2. Fill in the blanks—**

(i) \_\_\_\_\_ is a medium of expressing emotions.

(ii) Body requires more formative elements in \_\_\_\_\_

(iii) \_\_\_\_\_ repairs damages to the body.

(iv) Vitamin is a \_\_\_\_\_ compound.

(v) \_\_\_\_\_ and \_\_\_\_\_  
is found in abundance in green leafy vegetables,  
fruits, eggs and meat.

3. Why is food important for the body?

4. What are the functions of food? Describe  
briefly.5. Throw light on functions of various food  
elements.

6. Write the social functions and cultural

1. (i) a (ii) c (iii) b (iv) a

2. (i) food, (ii) old age (iii) protein, (iv) Organic  
(v) vitamin and mineral salts