

CHAPTER – 9

NUTRITION

P. 114 CHECK YOUR PROGRESS 1

A. Answer these questions.

1. **Body-building:** Meat, milk
Energy-providing: Rice, wheat, sugar
Protective: Spinach, cabbage
2. **Monosaccharides:** Glucose, Fructose
Disaccharides: Sucrose, Lactose
3. i. Carbohydrates are a quick and economical source of energy.
 ii. Excess carbohydrates when converted into glycogen serve as a 'reserve source of energy' and produce energy during emergency.
4. i. Fats are the richest source of energy in our body.
 ii. Fats are essential for the absorption of fat-soluble vitamins A, D, E and K.
 iii. Subcutaneous fat acts as an insulator and protects against cold weather and pressure by retaining body heat.

P. 120 CHECK YOUR PROGRESS 2

A. Answer these questions.

1. Three types of proteins are trypsin, pepsin and rennin.

Functions of protein:

- i. Needed for growth and repair of the body, building and maintaining body tissues.
 - ii. Provide much of the body's nitrogen.
 - iii. Some proteins act as hormones and regulate many body functions.
 - iv. Antibodies are blood proteins which protect the body from foreign substances (antigens).
2. Kwashiorkor.
 3. A mineral is an inorganic element, occurring in the form of its salt. They are needed for proper growth, normal functioning and good health of our body, formation of red blood corpuscles, and maintaining acid-base balance and water balance of the body fluid.

Two major minerals found in our body are calcium and phosphorus.

4. **Two fat-soluble vitamins:** Retinol (Vit. A), Calciferol (Vit. D)

Two water-soluble vitamins: Thiamine (Vit. B₁), Riboflavin (Vit. B₂)

5. A diet which contains all nutrients in adequate amounts for energy, growth, repair and regulation of various body processes is called a balanced diet. A balanced diet broadly comprises of carbohydrates, fats, proteins, minerals and vitamins, water and roughage.

| 6. | Kwashiorkor | Marasmus |
|----|--|---|
| | Occurs due to deficiency of proteins in the diet of children. | Occurs due to deficiency of proteins as well as carbohydrates and fats in the diet of children. |
| | Stunted growth, loss of appetite, protruding belly and bulging eyes, dry and scaly skin, reddish hair. | Dry and wrinkled skin, weakness, ribs become prominent. |
| | Occurs in children between 1 to 5 years of age. | Occurs in infants less than 1 year of age. |

7. a. Iodine
 b. Calcium
 c. Potassium
 d. Sodium and Potassium
 e. Iron

P. 121 EXERCISES

I. Multiple-Choice Questions

A. Choose the most appropriate answer.

- | | | | |
|------|-------|------|------|
| 1. c | 2. a | 3. a | 4. b |
| 5. b | 6. b | 7. b | 8. c |
| 9. a | 10. d | | |

II. Assertion–Reason Type Questions

- | | | | |
|---------|------|------|------|
| A. 1. c | 2. c | 3. a | 4. c |
|---------|------|------|------|

III. Very Short Answer Type Questions

A. Complete the following paragraph by filling in the blanks (1) to (5) with appropriate words.

- | | |
|------------------|----------------------|
| 1. nutrients | 2. physical activity |
| 3. carbohydrates | 4. proteins |
| 5. balanced | |

B. Match the items in Column A with those in Column B and write down the matching pairs.

1. c 2. d 3. a 4. b

C. State whether the following statements are True (T) or False (F).

1. F 2. T 3. F 4. T

IV. Short Answer Type Questions

A. Answer these questions.

1. **Fat-soluble vitamins:** Vitamins which are soluble in fats are called fat-soluble vitamins. Occur in food containing fats that are stored in the body. Examples: Vitamins A, D, E and K are fat soluble.

Water-soluble vitamins: Vitamins which are soluble in water are called water-soluble vitamins. They are not stored in our body and are excreted out in urine when in excess. Examples: Vitamins B, C.

2. A mineral is an inorganic element, occurring in the form of its salt.

- i. **Calcium:** Milk, beans, green vegetables etc.
- ii. **Iron:** Beans, eggs, meat etc.

3. Symptoms observed by the doctor:

- i. Stunted growth
- ii. Protruding belly and bulging eyes

Diet prescribed by the doctor:

- i. Fish
- ii. Milk (best source of animal proteins)
- iii. Lean meat

B. Differentiate between the following.

1. **Body-building food:** Food that is rich in proteins. Examples: Pulses, legumes, nuts, oilseeds, milk, eggs, fish, poultry, meat etc.

Protective food: Food that regulates metabolism. Rich in vitamins, minerals and water. Examples: Amla, guava, orange, etc.

2. **Monosaccharides:** These are smallest molecules containing a single unit of carbohydrate. This single unit cannot be hydrolyzed to smaller compounds. For example, glucose, fructose.

Disaccharides: When two molecules of simple sugars combine together with the removal of one molecule of water, disaccharides are formed. Disaccharides chemical formula: $C_{12}H_{22}O_{11}$. For example, sucrose, maltose.

3. **Water-soluble vitamins:** Vitamins soluble in water. They are not stored in the body but are excreted out in urine when in excess. Examples: Vitamins B,C.

Fat-soluble vitamins: Vitamins soluble in fats. Occur in food containing fats that are stored in the body. Examples: Vitamins A,D,E,K.

4. **Kwashiorkor:** Occurs due to deficiency of proteins in the diet of children. Occurs in children between 1 to 5 years of age.

Symptoms: Stunted growth, loss of appetite, protruding belly and bulging eyes, dry and scaly skin, reddish hair.

Marasmus: Occurs due to deficiency of proteins as well as carbohydrates and fats in the diet of children. Occurs in infants less than 1 year of age.

Symptoms: Dry and wrinkled skin, weakness, ribs become prominent.

V. Long Answer Type Questions

A. Answer these questions.

1. Deficiency of any of the essential nutrients in our diet for a prolonged period may cause a disease. Disease arising due to deficiency of nutrients is called deficiency disease.

Protein deficiency diseases and their symptoms:

- i. **Marasmus:** Dry-wrinkled skin, weakness, ribs become prominent.
- ii. **Kwashiorkor:** Stunted growth, loss of appetite, protruding belly, bulging eyes, scaly skin, reddish hair.

Mineral deficiency diseases and their symptoms:

- i. **Anaemia:** Weakness, loss of appetite, weight loss.
- ii. **Goitre:** Swelling in neck.

2. Vitamins are complex organic chemicals that are needed in our food in small quantities. Vitamins are classified according to their solubility in either fat or water. Accordingly, vitamins are of two types, fat-soluble vitamins and water-soluble vitamins.

Importance of vitamins:

- i. Vitamins are essential for growth, good health, proper vision and normal digestion process.
- ii. Vitamin D helps in maintaining calcium and phosphorus levels in body.

- iii. Vitamin B₁₂ is important for producing new blood cells.
- iv. Vitamin B₁₂ is essential for nucleic acid synthesis in rapidly dividing cells.
- v. Vitamin B₁ helps in carbohydrate metabolism.

Deficiency diseases:

- i. Vitamin A – Night blindness
- ii. Vitamin D – Picket
- iii. Vitamin B₁ – Beriberi
- iv. Vitamin C – Scurvy

VI. Structured/Application/Skill Type Questions

A. Given below is a table containing the names of vitamins. Categorize them into various types and put the odd one in the blank and complete the table.

1. **Category:** Fat-soluble vitamins

Odd one: Thiamine

2. **Category:** Water-soluble vitamins

Odd one: Calciferol

B. Given below is a table containing names of vitamins, their sources and deficiency diseases. Complete the table by filling in the blanks from 1 to 10.

- 1. Rickets
- 2. Ascorbic acid

- 3. Citrus fruits
- 4. Eggs
- 5. Pernicious anaemia
- 6. Niacin
- 7. Retinol
- 8. Carrot
- 9. Sea-food
- 10. Beriberi

C. Given below is a table consisting of a set of food items belonging to a common category. Complete the table by filling in the category and the odd one in the blanks. The first one is done for you.

1. **Category:** Carbohydrates

Odd one: Calcium

2. **Category:** Fats

Odd one: Sugar

3. **Category:** Proteins

Odd one: Calcium

4. **Category:** Minerals

Odd one: Sugar

5. **Category:** Vitamins

Odd one: Phosphorus