

15. NUTRITION DURING OLD AGE

Old age is the stage that comes after adulthood and is the last stage in human life. In this stage the growth ceases and wear and tear occurs at a larger pace which makes body shabby. Old age is best defined as the age of retirement that is, 60 years and above.

The process of ageing brings about physiological, psychological and sociological changes which influences the nutritional status and health.

Physical changes :

There is a reduction in weight and loss of muscle mass in old age. The body becomes lean and tissue metabolism slows down which also results in reduction in their total energy demand. Because of the decrease or imbalance of some hormones, the bone mineral density also decreases leading to the breakdown of bone and the chances of fractures increase. Osteoporosis is common in old age. The back bone gets curved, loss of teeth occur easily because teeth and gums become weak. The collagen hardens, thus the joints become stiff and there is pain in the joints. Elasticity of the skin decreases and due to muscle wasting the skin becomes wrinkled. The nails become stiff and hair turn grey. Neurological function during old age becomes weak leading to symptoms such as decrease in taste sensation, weak memory, hard to hear, poor eyesight. The digestive and excretory systems also become weak. The defence mechanism and immunity of the body is weak, so old people are more prone to infectious disease and colds. Due to muscle wasting, probability of various ailments relating to respiratory, heart problems and atherosclerosis increases. Reduced physical activity along with

hormonal imbalances may lead to diabetic in old age.

Social changes :

In this stage the person gets retired and because of his less movement his social circle is reduced to his family and neighbours.

Psychological changes :

Physical, economical stress and aloofness leads the person to psychological problems. The person becomes irritable. They often are embarrassed of themselves in their family and social life and thus remain sad. They become mentally and psychologically disturbed because of their pessimistic nature. In order to reduce the stress and maintain their overall physical and mental health, light physical exercise and entertainment should be provided.

The physical, social and psychological stress have an impact on their health and nutritional status, this results in reduced life expectancy. In order to lower the impact of physiological changes occurring due to old age, physical movements need to be maintained and their diet should be nutritious and a balanced one.

Nutrition related problems :

Old age people along with changes in the external organs, some internal changes also occur which leads to decrease in the working capacity. The digestive capacity decreases; due to inactiveness of endocrine gland the metabolic rate decreases thus affecting the digestion, absorption and metabolism of food. Chewing of food becomes difficult due to loss of teeth and decreased salivary production. The taste buds and papillae become atrophied and that affects the

ability to detect certain tastes. The secretion of digestive juices from duodenum, jejunum and bile juices etc. decrease leading to improper breakdown of food and thus leads to indigestion. The duodenum shrinks and because of this regurgitation, belching and heartburn problems occur. Indigestion often leads to improper absorption of nutrients required by the body. The muscles of the alimentary canal become weak, that is why the peristaltic movement is also affected. Constipation occurs frequently in old age and there is a problem in defecation. The probability of intestinal infection and diarrhea is increased.

Nutritional needs :

The nutritional requirement in old age depend mainly on physical change. Following are the nutritional requirements:

1. **Energy** : Basal Metabolic Rate and the physical activity decreases in old age. 25 percent less calorie is required in old age as compared to adult male. The calorie intake should be adjusted to maintain the normal body weight. Since there is wasting of lean body mass, energy dense food should be avoided because it may lead to various problems of overweight and obesity.
2. **Protein** : Wear and tear of body tissues increases in old age. Ageing decreases skeletal tissue mass and digestive capacity that is why for its maintenance protein is essential. Protein deficiency symptoms occur because there is a decrease intake of food in old age. Protein requirement in old age does not decrease it should be maintained between 1 to 1.4 gm/kg body weight.
3. **Fat** : Fat is the main source of energy, consumption should be less in amount in old age should not exceed 30 grams per day. The amount of essential fatty acids is more in the oils. Therefore, instead of ghee, vegetable oil should be used. Excess fat consumption in old age leads to increased risk of obesity, diabetes, heart diseases etc.
4. **Minerals** : The absorption of minerals such as iron and calcium decreases in old age. To maintain serum level of iron and calcium,

consumption of rich sources of iron and calcium like milk and milk products, green leafy vegetables should be encouraged. Iron deficiency causes anemia and calcium deficiency causes osteoporosis.

5. **Vitamins** : Low energy demand in old age require less energy dense food which may lead to vitamins deficiency. This is the reason vitamin deficiency symptoms are mostly seen in old age people. To rectify this deficiency, diet should include food sources such as fresh fruits and vegetables. Supplementation with multi vitamin may boost cell-mediated immunity.
6. **Water** : Intake of water should be at least 1.5 to 2 litres per day so that kidney can function adequately to eliminate solid waste.
7. **Fiber** : Nutritional value of fibers is very less. It stimulates peristalsis. There is a problem of constipation in old age because the muscles of large intestine becomes weak/ shrink. Fibre should be included in adequate amount in the diet to improve this condition. Fruits and vegetables provide fiber. Post dinner isabgol should be taken with milk to relieve constipation.

Meal planning for old age :

The nutritional requirement of both male and female old age persons are listed below in Table 15.1

Table 15.1 : Balanced diet for old age male and female (NIN-2010)

Food group	Amount of food (gms)	
	Male	Female
Cereals	285	210
Pulses	75	60
Milk (ml)	300	300
Roots and tubers	200	200
Green leafy vegetables	100	100
Other vegetables	200	100
Fruits	200	200
Sugar	20	20
Ghee/oil	25	20

The following principles and factors should be kept in mind while planning diet for old age :

1. A balanced diet according to their nutritional requirement elderly people should be planned which is low in energy, high in protein, vitamin and mineral salts.
2. Elderly cannot eat food properly at one time. Therefore, food should be eaten in small quantities 5-6 times a day which should be fresh, balanced, light and digestible.
3. Food should be soft, bland and less spicy.
4. Minimum oil should be use in the food.
5. Liquid, semi-liquid food items such as milk, buttermilk, soup, lemon water, fruit juice, khichdi, porridge etc. should be included in the diet.
6. Sufficient quantity of fibrous soft vegetables and fruits should be used to prevent constipation.
7. Adequate amount of milk and milk products and green leafy vegetables should be included in diet to prevent bone deformity and anemia.
8. Ample amount of water should be consumed.
9. Dinner should be taken at least 2-4 hours before sleep and milk is necessary before sleep.
10. The food should be attractive served in delightful pleasant environments so that they take food happily and with interest.

Important Points :

1. Old age is the last stage in the development process of human life, in which the process of the body stops body become shabby.
2. Physical, social and psychological changes in the old age are clearly visible and this has an effect on the nutrition and health of an older person.
3. Many digestive problems occur in old age such as decreased rate of digestion and absorption, less secretion of saliva, acidity, atrophid taste buds and low secretion of digestive juices. All this factors increases the chance of malnutrition.
4. Nutrition of old age depends on their physical activity. Due to lack of physical activity, energy requirement decreases, but the protein

requirement to repair cells does not decrease. Vitamins and mineral salts should be taken in adequate amounts to keep the physiological mechanism smooth and normal.

5. The diet prepared for elderly should be fresh, soft and light. Frequency should be 5-6 times a day. It should be low in energy, high in protein, vitamins and minerals.
6. The diet should include adequate amount of water and liquid beverages, soft fibrous vegetables and fruits, milk and milk products.
7. The food should be favorable to their mentality, in a buoyant atmosphere, with a variety of diversities, so that they happily accept food with interest.

Questions :

1. Select the correct answer for the following questions :
 - (i) In the evolutionary order of human life, the last stage of age is called:
(a) Childhood (b) Old age
(c) Infancy (d) Youth
 - (ii) In old age change is rapid :
(a) Dissolution (b) Physiological
(c) Mental (d) None of the above
 - (iii) Bone related disease during old age is called :
(a) Anemia (b) Osteoporosis
(c) Rickets (d) Beri-beri
 - (iv) Basal metabolic rate in old age is :
(a) Less (b) More
(c) Equal (d) All of the above
 - (v) It is essential to repair body cells in old age
(a) Energy (b) Fat
(c) Protein (d) Water
 - (vi) Iron deficiency can cause :
(a) Malnutrition (b) Anemia
(c) Osteoporosis (d) Rickets
2. Fill in the blanks :
 - (i) The last stage of life cycle, there is no development of body, it is called.....

- (ii) Nutritional requirement of elderly is predominantly dependent on changes that occur in this age.
 - (iii) More consumption of causes obesity and many diseases like diabetes, cardiovascular diseases.
 - (iv) Food for elderly should be fresh, light, satvik and
3. Why old age is called shabby are ?
 4. What kind of nutrition problems does an elderly face? Explain.
 5. What are the points to be kept in mind while planning meal for an elderly woman ?

Answers :

1. (i) b (ii) a (iii) b (iv) a (v) c (vi) b
2. (i) old age (ii) body (iii) fat