

Q Establish the relationship between free radical & ageing process.

Ans. ① One prominent theory of ageing — "The free radical theory" — involves the continuous formation of free radicals as a result of exposure to oxygen & harmful exposure to environmental factors.

① These highly reactive substances lead to damage & alterations in the structure of proteins, lipids, carbohydrates & chromosomal material in cells which probably leads to changes associated with ageing.

② Tissue damage by free radicals & pro-oxidant radicals like superoxide, peroxide & hydroxyl radicals is the basis for inflammatory & degenerative changes.

The process of ageing brings about physiological, psychological, immunological changes which influence the nutritional status. In the ageing process free radicals are thought to cause degenerative changes, perhaps leading to cancer, cataract formation, atherosclerotic plaque, arthritis & Parkinson's disease.

Q. "Ageing brings down immunity" → why?
Ans. The process of ageing brings down ~~down~~ physiological, psychological & immunological changes.

→ The continuous exposure to free radicals as a result of exposure to oxygen & harmful exposure to environmental factors, with ageing, there is an imbalance in cellular functions & signalling, decreasing innate activation of an already weakened adoptive immune system.

→ Decreased physical activity & less intake of healthy diet also with ageing also brings down immunity.

Geriatric Nutrition:

Q1

Bring out the importance of calcium & fibre during old age.

Ans1

Importance of Calcium during old age:-

- Calcium needs during old age increases.
- Women over 50 yrs of age who are not receiving estrogen require more calcium as there is increased losses resulting in demineralization of bone & osteoporosis.
- Calcium is needed to decrease the prevalence of fractures & dental decay.

Importance of Fibre during old age:-

- Fibre helps in regulate bowel movement smoothly.
- Fibre ^{also} helps in reducing cholesterol which may reduce the incidence of atherosclerosis.
- Excess of Fibre may reduce the absorption of iron & certain trace elements.
- Fibre increase should be gradual otherwise bowel discomfort, distension & flatulence will result.

Q2.

What are the reasons of anaemia during old age?

Ans.

Characteristics of Anaemia:-

- Feeling of Fatigue
- Anxiety
- Lack of energy & sleeplessness

cause of anaemia:-

- Inadequate intake of Iron can be caused by low dietary intake.
- Lack of haem iron or vitamin C or blood loss.
- ~~Vitamin~~ Deficiency of Vitamin B₁₂ & folate.

Treatment of Anaemia:-

- Using iron supplements together with a diet providing iron sources of high bio-availability & vitamin C to enhance absorption.

Q) Write the implications of small & frequent meal in geriatric diet plan.

Ans. Small & frequent meals instead of three heavy ones favours more complete digestion & free from distress & also increase nutrient absorption.

Q) State the metabolic changes found during ageing? How does it affect the geriatric nutrition?

- Ans. → After the age of 35 the Basal metabolic rate decreases due to reduced muscle mass & other metabolically active tissue mass.
- As ~~there~~ there is ~~reduction~~ reduction in physical activity which affects the energy needs.
 - Percentage of muscle tissue decreases & fat tissue increases as the age increases.
 - Resting metabolic rate decreases approximately 15-20 percent over the life span, due to

change in body composition & reduction in physical activity.

- Lean body mass declines approximately 2-3 percent/decade.
- Body protein level in the healthy elderly is 30-40 percent less than that in young adults.
- The average body fat percentage in males increases from about 15 percent when young to 25 percent at the age of 60 yrs.

Q) How can degenerative diseases be prevented during old age?

Ans) The elderly need more calcium, iron, zinc, Vitamin A & antioxidants to prevent age related diseases. Present evidence shows that 600 gm/day of antioxidants rich in fruits & vegetables should be taken by the elderly person.

→ Vitamin C which is an antioxidant plays an important role in preventing complication of diabetes.

→ Studies have shown that Vitamin E retards the development of coronary artery disease.

Q) Write the requirement of VB₁₂ & Vitamin C (according to RDA, 2020) of an old person.

Men ≥ 60 yrs	$\frac{Vc}{80mg}$	$\frac{VB_{12}}{2.2 \mu g}$
Women ≥ 60 yrs	65 mg.	2.2 μg .

The requirement getting high during this period to prevent age related disease.

Q) What would be your suggestion for correcting vitamin B₁₂ deficiency during old age.

Ans. → The diet should include animal foods like liver, egg yolk, shrimps & curd.

→ Hydroxy cobalamin should be given in a dosage of 1,000 mcg.