

## GERIATRIC NUTRITION – CRUCIAL FOR HEALTHY AGING

*Jaspreet Kaur\**, *Sonika Sharma\*\** and *Manpreet Kaur\*\*\**

*\*Asstt. Professor, Government College for Girls, Ludhiana (Punjab), jaspreetk71@yahoo.com*

*\*\*Asstt. Professor, Department of Food and Nutrition, PAU, Ludhiana (Punjab)*

*\*\*\*Research Scholar, Department of Food and Nutrition, PAU, Ludhiana (Punjab)*

**Background and Objective:** Among all the age groups, older adults (> 60 years age) are one of the vulnerable groups in terms of health issues. They are prone to non-communicable diseases and malnutrition. Old age group is at high risk of developing macro as well as micronutrient deficiencies. So, the objective of the current review is to highlight the importance of geriatric nutrition for supporting healthy ageing.

**Methods:** Various research papers were assessed and reviewed regarding health problems in older adults and role of geriatric nutrition to overcome diverse health issues.

**Results:** Old age is one of the vulnerable and prone stages in terms of health status. Nutrition is an essential determining factor of elderly mass specifically over the age of 60 years. Concerns regarding geriatric nutrition have been underreported. Adequate nutrition is vital for better ageing. After reviewing the relevant studies, it was found that elderly age group usually suffers from sarcopenia, hypertension, renal failure, cardiac problems and joint problems. Malnutrition is also one of the major issues to deal with. Nutritional deficiencies such as protein and micronutrient deficiencies are more prevalent. Emphasis should be given on intake of all food groups like whole grains, pulses, milk and milk products to fulfill protein requirements whereas fruits and vegetable intake should be encouraged to fulfill micronutrient requirements such as vitamins and minerals.

**Conclusion:** Lack of awareness and attention, intolerance, loneliness are some of the main causes behind the increased vulnerability of nutritional deficiencies. Focus on geriatric nutrition is very imperative to tackle such health problems. Nutritional interventions can aid in healthy ageing.

### Introduction:

Among all the age groups, older adults (> 60 years age) are one of the vulnerable groups in terms of health issues. Older people are particularly susceptible to malnutrition since both lean body mass and basal metabolic rate decline with age and an older person's energy requirement per kilogram of body weight is also reduced. Dietary changes seem to affect risk-factor levels throughout life and may have an even greater impact in older people. As they are more likely to suffer from malnutrition, which may result in higher dependency in activities of daily living. They are also prone to non-communicable diseases and malnutrition. Old age group is at high risk of developing macro as well as micronutrient deficiencies. In India 50% of the elderly population is malnourished.

Balance of nutrients is very important for overall wellbeing. Many of the diseases suffered by older people are the result of dietary factors, some of which have been operating since infancy. These factors are then compounded by changes that naturally occur with the ageing process. It becomes still important in perspective of elderly masses due to physiological changes in the body. Immunity weakens with proceeding age which is influenced by lack of nutrients and change in dietary habits (Grubeck-Loebenstien *et al*, 2002). Once the body reaches physiological maturity, the rate of degenerative change exceeds the rate of cell regeneration. Body composition changes as fat replaces muscle, in a process called sarcopenia. It is also seen that basal metabolic rate declines about 5% per decade during adulthood. Osteoporosis and associated fractures are major cause of illness, disability and death in older people.

Calorie requirement decreases with age, although individuals vary, greatly depending on their activity level and nutritional status. Degenerative diseases such as cardiovascular and cerebro-vascular diseases, diabetes, osteoporosis and cancer which among the most common diseases affecting older person, are all diet-affected. Dentition, taste, smell, loss of memory and Parkinson disorders also influence food intake. Increasingly in the diet/debate, the role that micro-nutrients play promoting health and preventing on communicable disease is receiving considerable attention. Considering the high prevalence of poor nutritional status among elderly, more focus on diet and possible nutritional interventions are required. Micronutrient deficiencies are often common in elderly people due to number and a lack of variety in the foods they eat. The older people often suffer from decreased immune function, which contributes to this group's increased morbidity and mortality.

Other significant age-related changes including loss of cognitive function and deteriorating vision, all of which hinder good health and dietary habits in old age.

A lower food intake among those who live alone may be affected by both functional capacities (including fatigue and mobility) and loneliness. Study has shown that elderly people living with their partners living in a better way than those without partner (Barette *et al*, 2006). As people age, adequate nutrition propels the maintenance of health, physical performance and psychological wellbeing (Bates *et al*, 2002; Nijis *et al*, 2006).

Like other ages, old age is also very important in terms of better movement of life towards senescence. Elderly require more attention for better physiological and psychosocial progression. Lower income group should receive particular attention to meet their special needs. Any kind of physical activity is required for maintaining hypertension, diabetes and cardiac problems. Vitamins and minerals being protective in nature should be introduced in the diet to fight with infections and malignancies. The promotion and implementation of low cost, prevention-based initiatives such as health, nutrition, and physical education, could significantly enhance the possibility of maintaining good nutritional status for the elderly.

## **Aging:**

Aging is the process of becoming old and a natural part of human development stages. On the biological level, it is inevitable and uncontrollable due to molecular and cellular damage, which may lead to a gradual decrease in physiological function. Aging is usually accompanied by physiological changes that can have a negative impact on an individual, although these changes might vary depending on how one approaches the situation. Nowadays people are expected to live longer due to the decrease in mortality rates among the old and the young. Since the aging population is increasing dramatically worldwide, it has been a great challenge to the health and social system to deliver services to every individual (WHO 2015).

Gerontology is a human science that was developed in to study on physiological, social and biological human aging. Old people are of benefit not only to their own families but also to the community as a whole. Healthy aging is very crucial in every human development and every individual should practice good nutritional lifestyle in order to achieve optimal health. It is a state of having absence of chronic diseases. Moreover, it helps in developing and maintaining of functional ability to promote well-being in aging. (Nilsson *et al*, 2015) Multi-morbidity is quite common during old age. It is the presence of more than one chronic disease at the same time in an individual. As people age they tend to experience this situation, which causes functional decline and decrease in quality of life. Moreover, it may lead to increase in mortality rate due to high cost of treatment to the health care. Aging is associated with complex functional changes. The most common are : movement, sensory, cognitive, immune and skin functions. Professional education and training is encouraged for better understanding and differentiating of elderly aging process and challenges encountered. Additionally, positive behavioural attitude towards the elderly facing challenges due to aging should be put into practice when providing functional and psychological care. (Ryan *et al*, 2015).

## **Nutritional status of Indian Elderly:**

India's older population will increase dramatically over the next four decades. The share of India's population ages 60 and older is projected to climb from 8% in 2010 to 19% in 2050, according to the United Nations Population Division (UN 2011). Almost one-half (47%) of older Indians have at least one chronic disease such as asthma, angina, arthritis, depression or diabetes (Scommegna, 2012). Rising numbers of older people will put new and increasing demands on the health care system. In India, there is scarcity of comprehensive information on the nutritional status of elderly. There is, therefore, a need to develop database on the diet and nutritional status of the elderly from different parts of the country to enable the Government and NGOs to formulate policies and initiate strategies, which would contribute to the wellbeing of elderly population. The last study report is been during 1996-97 from NNMB which was the first large database on diet and nutritional status of the elderly in India. Ingle and Nath (2008) conducted a study at Allahabad which concludes that as the age advances there is corresponding decline in the nutritional status. Mean nutrient intake of malnourished elderly is less than the RDA and that of the well-nourished elderly. Per capita income and self-view of educational status are strongly associated factors contributing to the nutritional status of elderly. Out of the total of 360 elderly persons, 15% were found to be malnourished and 55% were at risk of malnutrition. There is thus an urgent need to review current recommended daily nutrient allowances for this group (Gheno *et al*, 2012)

## **Healthy Nutrition and its importance in elderly**

Nutrition describes the process of obtaining the right amount of nutrients from healthy foods in the right proportions in order to develop and maintain good health. According to the World Health Organization

“nutrition is the intake of food considered in relation to the body’s dietary needs. Good nutrition is an adequate well balanced diet combined with regular physical activity which is the corner stone of good health” (WHO 2015).

Nutrition contributes to the successful aging as food serves as a basic need in everyday life. The essential food nutrients needed in nutrition of the elderly can be divided into macro and micronutrients. The macronutrients include carbohydrates, proteins and fats while micronutrients are vitamins and minerals. The components of a health promoting diet are vegetables, berries, fruits, leguminous plants, whole grains, fish, vegetable oils, nuts, seeds, fat free and low-fat milk products. (THL 2014) As people get older, their bodies may acquire different needs and therefore, certain food nutrients may eventually be vital for good health. It has been found that fresh fruits and vegetables are essential for the elderly as different nutrients are obtained from them. Therefore, it is important that the elderly persons require adequate supply of fruits and vegetables in their daily diet to reduce the effect of chronic diseases. (Suominen, 2007).

According to the Finnish Nutrition Recommendation (2014), the energy requirement for elderly people should be lower while the micronutrient needs to be higher. They emphasized that fat intake in the daily energy should be slightly raised while carbohydrates should be slightly lowered. In addition, higher fiber intake, low salt, reduce intake of fat and increase fluid intake in the elderly diet. The importance of healthy nutrition in the elderly is influenced by the role of sufficient micronutrients in the elderly’s diet. Micronutrients such as vitamins and mineral supplements in elderly nutrition support in maintaining health and quality of life. Furthermore, the role that micronutrients play in elderly person’s diet is the prevention of non-communicable diseases. The deficiency of micronutrients in older people’s diet is usually common due to certain factors such as the reduction of food intake and inadequate variety of foods that they eat. For instance, the deficiency of Vitamin A in an elderly person’s diet may lead to night time vision changes, chronic dry eye and eye debris. Institutionalized elderly persons such as those living in the nursing home do not have adequate exposure to sunlight. Therefore, they need sufficient Vitamin D supplement in their diet. Their diet may be deficient from Vitamin D due to the intolerance to or dislike of dairy product. (Stanga, 2009)

Another importance of healthy nutrition in the elderly is to help to maintain healthy bone functioning. Due to aging related factors, the older people may be affected by diseases which can affect their bone functioning and reduce mobility. Osteoporosis is one common age-related problem among the elderly that enhances the risk of falling. According to Davies (2011), osteoporosis “is a condition in which the bones become less dense and more likely to fracture, which in turn can result in significant pain and disability”. Promoting the act of eating healthy food nutrients for example, sufficient Vitamin D in the elderly person’s diet helps in the absorption of calcium which together supports the older people against fractures and osteoporosis. Moreover, adequate Vitamin D in the diet of the older people helps in the proper functioning of the immune system, heart, brain and regulation of blood pressure. (Davies, 2011)

The importance of healthy nutrition can also improve healthy digestive system in the elderly. Bowel problems are usually common among older adults as many suffer from constipation due to inadequate intake of fiber and fluids. Therefore, the eating of adequate fiber foods such as whole grains helps to reduce constipation in elderly. Another important role of healthy nutrition among the elderly is to maintain a healthy body weight through physical activities. This can help to reduce obesity-related conditions such as hypertension, diabetes and heart diseases. Furthermore, healthy nutrition helps the body to receive adequate amount of oxygen and keeps the nervous system healthy. The food sources that perform these functions are iron and Vitamin B12. The sources of iron include liver, beef, ham and pork while some cereals, lean meat and fish are sources of both vitamin B12 and iron. However, many of the older people do not receive adequate amounts of these important nutrients in their diet. Lastly, healthy nutrition among the elderly helps to promote healthy mental functioning and wellbeing. (Montgomery *et al*, 2014).

## **Needs to Improve Geriatric Nutrition in Indian Scenario:**

### **Awareness**

Elderly subjects should be encouraged to include iron & micronutrient rich foods Consumption of fruits, vegetables, whole grains and good hydration of at least 1,000mL of fluids/day. Fat free and low fat free dairy products, legumes, poultry, fish at least once a week, supervised medications and ensuring the drug compliance in elderly. Government, NGO, community, families, medical & social science faculties need to give greater emphasis, to provide health care, societal support & nutrition services to the elderly (Genser, 2008).

### **Training**

Elderly patients are particularly at risk because more than 30% of all the prescription drugs are taken by this population (Salagre, 2013). At present, most of the geriatric Outpatient Department (OPD) services are available at tertiary care hospitals in India. Since 75% of the elderly reside in rural areas, it is mandatory that geriatric health care services be made a part of the primary health care services. This calls for specialized training of medical officers and other paramedics in geriatric nutrition. The elderly population has longevity on one hand and compromised quality of life on the other. The probable solution is multidimensional approach that comprises not only curative, but also non-curative methods of care that are essentially preventive which starts from the nutritional advice.

## Education

The adverse health consequences of malnutrition are impaired muscle function, decreased bone mass, immune dysfunction, anemia, reduced cognition, delayed wound healing and delayed recovery from surgery, increased risk of falls, disability and mortality. Anorexia and malnutrition lead to muscle wasting and loss of subcutaneous fat leading to weight loss in elderly people. Malabsorption, hyper metabolism, cancers, admission to elderly home, acute illness, hospitalization, depression, various drugs, dysphagia, oral infections, dental issues, GI conditions, endocrine conditions such as thyroid diseases, poverty, reduced access to food and dehydration contribute further to weight loss. Awareness in the patients, caregivers and physicians related to this often neglected issue is important (Akamine *et al*, 2007).

## Precautions

Elderly people are vulnerable group. The care of drug nutrient interactions in elderly people is essential. The purpose of review before recommending nutrition could be the presence of multiple diseases, polypharmacy, malnutrition and impaired metabolism in elderly individuals increases the risks of adverse events related to drug-food interactions (Krishnaswamy, 2011). When investigating pharmacokinetic and pharmacodynamic modifications in the elderly, other factors have to be considered, such as anorexia, dementia, depression, intolerance, gastrointestinal-tract disorders, social and economic factors, reduced abilities (visual and manual) and difficulties in chewing or swallowing. In order to develop a correct drug prescription plan and nutritional intervention to avoid any kind of undesirable drug-food interaction effect, it is necessary to adequately diagnose the disease and often re-evaluate the chosen treatment, identify disease stages and the necessary therapies to minimize the number of drugs administered, and select a reasonable nutritional assessment.

**Conclusion:** Lack of awareness and attention, intolerance, loneliness are some of the main causes behind the increased vulnerability of nutritional deficiencies. Focus on geriatric nutrition is very imperative to tackle such health problems. Nutritional interventions can aid in healthy ageing.

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