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Modern Guidelines for Nutrition in Old Age: The Role of Preventive Diets in the Prevention of Chronic Diseases

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Abstract

Increased life expectancy, coupled with declining fertility rates, is leading to a global demographic shift towards an ageing population. The number of older people (aged 60 and over) is expected to more than double by 2050 and more than triple by 2100. From an individual perspective, this is a positive development, but at the societal level it poses a number of challenges in terms of managing people's health, quality of life, and economic circumstances. Although life expectancy is increasing, for many people the quality of life is declining, which can have a negative impact on both health and social institutions. The nutritional needs of older people differ from those of younger people, mainly due to age-related physiological changes. Their calorie requirements may decrease due to slower metabolism and reduced physical activity, but their requirements for certain macro- and micronutrients may increase. With advancing age, the risk of chronic diseases such as cancer, metabolic and cardiovascular diseases increas, as does the risk of osteoporosis, cognitive decline, and disability. In order to maintain health in old age and prevent the development of cardiovascular and metabolic diseases, it is important to reduce the intake of simple carbohydrates (to a maximum of 10% of total carbohydrate intake) and saturated fatty acids (to a maximum of 20–25 g per day), while ensuring adequate protein intake (1.0–1.2 g per kg of body weight) and consuming at least 400 g of fruit and vegetables per day. The salt intake of Hungarian seniors also significantly exceeds the recommended level (instead of 2 g per day, men over 65 consume 6.2 g and women consume 4.7 g), and fluid intake is insufficient, too (the recommended amount is 35 ml per kg of body

weight). Among preventive strategies, nutrition is critical, yet it is currently underrepresented in the healthcare system and does not receive sufficient emphasis in care processes. A personalized healthy diet has significant benefits for older adults and can prevent, modify, or improve many age-related diseases and conditions. This review focuses on issues related to the nutrition and nutritional needs of older adults based on the latest guidelines. It also presents the most common complications resulting from poor nutrition and the possibilities for diet therapy.

Introduction

Aging is one of the most significant risk factors for the development of non-communicable diseases, such as cardiovascular disease, diabetes, cancer, and neurodegenerative disorders (Shang et al., 2023). The expected doubling of the proportion of people over 60 years in the global population by 2050 will have serious health and economic consequences, especially in developing regions (WHO, 2025). In Hungary, the proportion of older people was 20.6% in 2022, which is expected to reach 26.9% by 2050. Further increasing the importance of appropriate nutritional strategies for the elderly population in both primary and secondary prevention (Kovács et al., 2025). The implementation of preventive nutritional strategies is key to long-term health sustainability and maintaining the quality of life of an aging population (Domínguez et al., 2023) (Chen et al., 2025). In addition, the unique nutritional needs of the aging body require special attention, as physiological changes with age affect nutrient absorption, metabolism, and requirements. These changes include a decrease in energy expenditure, a reduction in muscle mass and bone density, and a deterioration of the senses, such as taste and smell (Kovács et al., 2025).

In addition, a slowing of digestive functions, there is a decrease in stomach acid production, that can affect the absorption of certain vitamins and minerals, such as vitamin B12 and calcium, leading to deficiencies (Assmann et al., 2015). Upkeeping physical health and reducing the incidence of chronic diseases, proper nutrition also contributes to maintaining mental health and slowing cognitive decline, which further improves quality of life (Sun & Li, 2023). This is particularly relevant in Hungary, where less than 27% of older people consider themselves to be in good health, one of the lowest rates in the European Union, and where age-related chronic non-communicable diseases account for more than 75% of disability-adjusted life years (Ungvári et al., 2023). Based on the results of the latest National Nutrition and Nutritional Status Surveys from 2019, more than 70% of people over the age of 65 are overweight or obese in both sexes (Sepler et al., 2022), which poses a significant health risk regardless of age. Nevertheless, preventive nutrition is underrepresented in the healthcare system in Hungary today and does not receive sufficient emphasis in care processes. This is best demonstrated by the fact that, according to the latest domestic surveys, 49% of people over the age of 65 are at increased risk in terms of their nutritional habits (Susovits et al. 2022). A personalized healthy diet has significant benefits for older adults and can prevent, modify, or improve many age-related diseases and conditions.

Materials and methods

The aim of this review is to summarize the most important and recent guidelines related to the nutrition of older adults and to present the most common complications resulting from poor nutrition and the possibilities for diet therapy. The Scopus, PubMed, and Web of Science databases were used to identify relevant literature, using keywords such as "old age," "nutrition," "guidelines," "prevention," "dietary manipulations," "quality of life," and "diet therapy." For greater transparency, the search results were summarized in a table showing the focus of the guidelines, their main findings, and the source.

Results

Most of the international studies included in the review do not merely report individual research findings, but represent comprehensive position papers or clinical practice guidelines based on expert consensus, which are summarized in Table 1.

Volkert et al. (2019) and Riddle et al. (2024) primarily draw attention to the need for immediate and routine screening, particularly for malnutrition and dehydration. Screening is key to early identification of nutritional risk and initiation of targeted interventions. Due to the prevalence of dehydration, adequate fluid replacement is essential. General guidelines recommend 1.6 liters/day for women and 2.0 liters/day for men, but intake should be individualized, taking into account individual health status and environmental factors (Volkert et al., 2019; Dorrington et al., 2020; Lyons et al., 2022).

In order to maintain muscle mass and function, the recommendations pay particular attention to protein intake, which is higher than that of young adults. Based on the recommendations, this is 1.0–1.2 g/kilogram of body weight/day (kg/day). In cases of illness, acute stress, or an active lifestyle, the requirement may increase further, with 1.2–1.5 g/kg/day being recommended (Dorrington et al., 2020; Lyons et al., 2022; Bauer et al., 2013). Adequate protein intake is critical in preventing sarcopenia.

Micronutrient deficiencies are common in older adults, particularly vitamin D, vitamin B12, calcium, folate, iron, and zinc (Dorrington et al., 2020; Lyons et al., 2022; Zaragoza-Martí et al., 2020;). Adequate intake of these nutrients is essential for bone health, immune function, and cognitive function.

The diet should follow a nutrient-dense, balanced pattern: plenty of vegetables and fruits, whole grains, high-quality protein sources (e.g., lean meat, fish, dairy products, legumes), and low intake of saturated fat (max 20-25 g/day) and added sugar (maximum 10% of total

daily calories) is recommended (WHO, 2023b; Lyons et al., 2022; Govindaraju et al., 2018; Thorpe et al., 2016).

Nutritional interventions should be tailored to individual needs (e.g., chewing and swallowing difficulties, loss of appetite, chronic diseases) (Volkert et al., 2019; Riddle et al., 2024.) and should always be supplemented with regular physical activity to more effectively preserve muscle mass and function (Lorbergs et al., 2021; Bauer et al., 2013).

Table 1: International nutritional recommendations for erderly people

Recommendation/guideline	Key points	References
Regular screening for malnutrition	All elderly people should be routinely screened for malnutrition and dehydration.	Volkert et al., 2019; Riddle et al., 2024.
Protein intake	1.0–1.2 g/kg body weight/day, up to 1.2–1.5 g/kg body weight/day in case of illness or active lifestyle.	Dorrington et al., 2020; Lyons et al., 2022; Bauer et al., 2013.
Fluid intake	Women: 1.6 l/day, men: 2.0 l/day, but tailored to individual needs.	Volkert et al., 2019; Dorrington et al., 2020; Lyons et al., 2022.
Micronutrients	Vitamin D, B12, calcium, folate, iron, and zinc are particularly important; deficiencies are common.	Dorrington et al., 2020; Lyons et al., 2022; Zaragoza-Martí et al., 2020; 2023.
Diet quality	Fruits and vegetables, whole grains, high-quality protein, low saturated fat and sugar.	WHO, 2023a. Lyons et al., 2022; Govindaraju et al., 2018; Thorpe et al., 2016.
Personalized advice	Advice tailored to individual needs, led by a dietitian is recommended.	Volkert et al., 2019; Riddle et al., 2024; Lorbergs et al., 2021.
Dietary supplements	If necessary, vitamin D, B12, calcium supplements, but under medical supervision.	Dorrington et al., 2020; Lyons et al., 2022; Foote et al., 2000.
Physical activity	In addition to nutrition, regular exercise is important for maintaining muscle mass and function.	Lorbergs et al., 2021; Bauer et al., 2013.

Dietary recommendations for older adults in Hungary: main guidelines and characteristics

Based on the results of studies examining the nutritional habits and recommendations of older adults in Hungary, the primary goals are to improve diet quality, reduce salt and sugar consumption, increase fruit and vegetable intake (min 400 g/day), and prevent vitamin and mineral deficiencies (Table 2).

Table 2: Summary of dietary recommendations and habits of Hungarian elderly people

Recommendation/guideline	Key points	References
Reducing salt intake	Salt consumption among older adults significantly exceeds the recommended level. According to the WHO, less than 5 g per day would be ideal, but the Hungarian average is 11 g/day.	Sarkadi-Nagy et al., 2021; Rurik & Antal, 2003; Ulambayar et al., 2025.
Fruit and vegetable consumption	The proportion of people consuming fruit and vegetables several times a day is very low (11.7% for fruit, 8.9% for vegetables).	Soós et al., 2024; Rurik & Antal, 2003.
Fluid intake	36.3% of older adults drink only 1 liter per day, and 15.1% drink only half a liter, which is insufficient.	Soós et al., 2024; Ulambayar et al., 2025.
Vitamin and mineral deficiencies	Vitamin D, folic acid, biotin, and pantothenic acid intake is critically low, especially among the elderly.	Molnár et al., 2017; Guba et al. 2023; Soós et al., 2024.
Traditional gastronomy	Foods high in fat and carbohydrates, frequent use of fat, little fish, dairy products, vegetables.	Soós et al., 2024; Varga et al. 2022; Rurik & Antal, 2003; Ulambayar et al., 2025.
Weight optimization	Over 70% of older adults are overweight or obese, especially men.	Sepler et al., 2022; Soós et al., 2024; Ulambayar et al., 2025.
Use of dietary supplements	More than 40% of people over the age of 65 take some form of dietary supplement.	Horacsek, 2023; Soós et al., 2024; Rurik & Antal, 2003.
Eating habits	A minimum of three main meals a day is typical, with lunch being the most substantial; the number of meals increases with age.	KSH, 2019; Rurik & Antal, 2003

The salt and sugar consumption of Hungarian seniors significantly exceeds the recommended levels (instead of 2g/day, men over 65 consume 6.2g/day and women 4.7g/day), which contributes to the prevalence of high blood pressure and chronic diseases (Soós et al., 2024; Sarkadi-Nagy et al., 2021; Ulambayar et al., 2025). The consumption of vegetables, fruit, dairy products, and fish falls far short of international recommendations, which increases the risk of deficiencies and diseases (Soós et al., 2024; Rurik & Antal, 2003; Molnár et al., 2017). 48% of Hungarian women and 56% of men over the age of 65 consume less than 400 g of fruit and vegetables per day. This age group also has the lowest consumption of whole grains, at approximately 2.5 g per day. Low dietary fiber intake can be identified as a risk factor of cardiovascular and metabolic diseases and cancer in the elderly Hungarian population. (Zámbó et al. 2022). More than 80% of people over the age of 65 do not regularly eat fish , which significantly contributes to an unfavorable omega-3 to omega-6 fatty acid ratio. This can lead to cardiovascular and neurodegenerative diseases or worsen their prognosis (Varga et al. 2022). Deficiencies in vitamin D, folic acid, biotin, and pantothenic acid are particularly common, so

supplementation may be warranted (Molnár et al., 2017). Nearly 50% of women and men over the age of 65 take some form of dietary supplement (Horacsek, 2023). Low physical activity and the consumption of traditional, energy-dense foods further increase the risk of obesity and chronic diseases (Soós et al., 2024; Ulambayar et al., 2025; Rurik & Antal, 2003). Inadequate fluid intake (Soós et al., 2024; Ulambayar et al., 2025) increases the risk of dehydration. Dehydration is associated with increased hospitalisation, morbidity and mortality. Older adults are more susceptible to hypo/dehydration due to physiological and cognitive changes that occur with advancing age (Lacey et al. 2019; Mustofa 2023).

Conclusion

Regular screening, a personalized, nutrient-rich diet, adequate protein and fluid intake, and advice from a dietitian are the most important factors in the nutrition of older adults. Optimizing micro- and macronutrients, improving diet quality, and taking individual needs into account are key to supporting healthy aging.

Dietary recommendations for older adults in Hungary focus on reducing salt and sugar consumption, increasing the consumption of vegetables, fruits, dairy products, and fish, and preventing vitamin and mineral deficiencies. In addition, it is important to optimize nutritional status in old age, as this is an essential condition for maintaining mental and physical health. In addition to traditional medicine, the implementation of targeted education on diet and lifestyle will be essential in the future to support healthy aging.

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