

Dietary Reference Values

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Introduction

Nutrition plays a critical role in healthy ageing and ensuring that any ageing individual has the best quality of life; with ageing, specific nutrient requirements arise due to problems like sarcopenia, cognitive impairment, and chronic illness, which is why dietary advice becomes more crucial (Roberts et al., 2021). This essay will concentrate on the Dietary Reference Values for older adults, evaluating the literature for these values and providing directions for improved dietary intake using the Eatwell Guide.

Dietary Reference Values

Dietary Reference Values (DRVs) are evidence-based guidelines for energy and macronutrient requirements, vitamins and minerals required for adequate nutritional status in healthy individuals or particular population subgroups (Powers, 2021). DRVs are intended to ensure a minimum intake of nutrients and prevent adverse effects of either lack or excess of nutrients. These values are important to the elderly because they undergo physiological changes in the body, such as slow metabolism, bad digestion of nutrients and high susceptibility to diseases (Berendsen et al., 2019). In older persons, DRVs are prescribed for certain nutrients such as protein, calcium, vitamin D, fibre and vitamin B12 for diseases like sarcopenia, osteoporosis, cognitive impairment and gastrointestinal disorders. These values are special to the nutritional needs that emerge with age for the purpose of improving health, promoting independent living, and improving the quality of life of the elderly.

Proper diet is one of the key factors of age management, and it helps older people to have means for muscles, bones, brain, and general health.. Amino acids maintenance status is crucial to avoid sarcopenia – a decrease in the muscle mass, which is a characteristic of the ageing process and is accompanied by an increased rate of falls, fractures and decreased ability to move (Bhattacharya

et al., 2022). The dietary reference intake for protein in older adults is 1.0–1.2 g per kg body weight per day, while in acute or chronic illness, it is 1.2–1.5 g/kg (Dewansingh et al., 2021). Lean meats, fish, dairy products, and legumes help preserve and repair muscles. Assessment of the relationship between protein intake and these outcomes has revealed that increased protein consumption correlates positively with scores in functional tests and negatively with risk factors for falls in older adults (Iuliano et al., 2021). Increasing calcium and protein intake through dairy foods is a feasible intervention in aged care residents to prevent falls and fractures.

Another concern for older people is proper bone health, which again makes them need adequate amounts of calcium and vitamin D to avoid bone density loss and fractures. Calcium is in the construction of bones, and parathyroid vitamin D increases calcium absorption and preserves bone mineral mass (Harvard T.H. Chan School of Public Health, 2020). According to the DRVs, older adults should consume 1,200 mg of calcium daily and 800 IU of vitamin D (Berendsen et al., 2019). These values are essential to decrease the rate of hip fractures and other injuries affecting mobility and independence. Dietary sources are dairy products, fortified plant-based milk, leafy greens and fatty fish. However, those who do not get enough sun exposure or consume the recommended dietary allowance may need to supplement. Iuliano et al. (2021) pointed out that an interaction of calcium and vitamin D supplements can decrease the incidence of fractures and enhance bone health in elderly patients.

Other nutrients required for managing the digestive and cognitive disorders associated with ageing include fibre and vitamin B12. Fibre keeps the gut healthy, relieves constipation, and promotes the presence of different bacteria in the gut. The dietary fibre intake of older adults should be at least 30 g per day, with foods like whole grains, fruits, vegetables, and legumes (Ioniță-Mîndrican et al., 2022). It is as important as food intake, whereby body water intake

guidelines for average healthy female and male adults are 1.6 and 2.0 litres, respectively, to avoid dehydration and its consequences (San Mauro Martín et al., 2017).

Vitamin B12 is the most essential at a daily requirement of 2.4 µg to prevent anaemias and support neurological functions. Older people suffer from poor absorption of B12 because gastric acid production decreases as one ages. Protein-rich foods such as fortified cereals, supplements and animal products, including eggs and milk, can be relied on (National Institutes of Health, 2024). Soh, Lee, and Won (2020) stress the need to maintain sufficient B12 to prevent the acceleration of cognitive impairment and peripheral neuropathy as the person ages.

DIETARY REFERENCE VALUES (DRVS) FOR OLDER ADULTS.

NUTRIENT	DRV	KEY BENEFITS	SOURCES
Protein	1.0–1.2 g/kg/day	Prevents muscle loss (sarcopenia)	Lean meats, fish, legumes, dairy
Calcium	1,200 mg/day	Maintains bone density	Dairy, leafy greens, fortified products
Vitamin D	800 IU/day	Supports calcium absorption, bone health	Sunlight, fortified milk, fatty fish
Vitamin B12	2.4 µg/day	Prevents anemia and neurological decline	Fortified cereals, supplements
Fibre	30 g/day	Promotes gut health	Whole grains, fruits, vegetables
Water	1.6–2.0 L/day	Prevents dehydration	Water, herbal teas, soups

Review the Evidence

Evolution of DRVs

DRVs for older people have been set to reflect the physiological and metabolic changes accompanying ageing. About 50% of community-dwelling elderly require nutritional support for their health, while 85% suffer from one or more chronic diseases that could be ameliorated by appropriate nutrition (Cristina and Lucia, 2021). The UK Scientific Advisory Committee on Nutrition (SACN) has helped revise these values. The most recent update was done in 2021 and included changes based on the evidence that nutrient requirements vary with age, especially energy, protein, calcium, and vitamin D (van Dijk et al., 2020). These updates were based on the National Diet and Nutrition Survey (NDNS), which showed that nutrient inadequacies were especially apparent in older people; 34% of people over 65 had intakes of vitamin D below the recommended amounts, and 51% did not meet their calcium needs (Richter et al., 2019). The SACN also highlighted the requirement for additional protein to avoid sarcopenia, consistent with data from European and D-A-CH guidelines that suggest 1.0–1.2 g/kg/day for healthy ageing adults.

Other guidelines have, therefore, adjusted DRVs internationally to suit the various regions. For example, the Korean Dietary Reference Intakes (KDRIs) revised in 2020 changed age groups and stressed the elderly population of 75 years and over (Kim et al., 2022). Likewise, Swedish research revealed that women 70+ years old had increased protein intake by 48% and that cultural dietary practices influenced the ability to meet the new DRVs (Samuelsson et al., 2019).

Scientific Insights

Scientific research has revealed the nutrients crucial for healthy ageing for many years. Protein is essential in preventing the ageing process characterised by muscle mass loss. Well-controlled

trials show that the increased protein intake of 1.2-1.5 g/kg/day benefits the prevention of frailty and functional status (Lin et al., 2020). A cross-sectional study in Taiwan revealed that higher intakes of RDA among robust older adults were 1.21 g/kg/day to maintain lean mass compared to insufficient protein intake (Wu et al., 2021). This is lower than the previous recommendations of 0.8 g/kg/day, indicating the need for new DRVs.

Calcium and vitamin D are as essential as each other. Research shows that 30–49% of older adults consume less than ten µg/day of vitamin D from diet alone (Samuelsson et al., 2019). Low vitamin D level is associated with a higher risk of falling and fracturing; therefore, adequate supplementation is required, particularly during winter. The DRVs for calcium are at 1,200 mg/day for bone health and to prevent osteoporosis, but according to NDNS data, 31% of older adults do not consume adequate calcium (Dorrington et al., 2020). fibre and vitamin B12 are recommended for digestive and neurological functions. Fibre of 30g per day helps in the reduction of constipation common in the elderly, and Vitamin B12 of 2.4µg per day helps in the prevention of cognitive impairment and anaemia (Stover, 2020). The vitamin B12 status of the elderly population is inadequate, and they need food supplements or fortified foods.

The Eatwell Guide for Older Adults

The Eatwell Guide is an easy-to-use guide that was developed to assist people in getting the right balance of nutrients. It focuses on seven key food groups: Fruits and vegetables, carbohydrates, proteins, dairy, healthy fats, and low amounts of sugars, salt, and saturated fats (NHS, 2022). The elderly can also follow the Eatwell Guide because there are modifications in energy needs, hunger, and nutrient breakdown as people age (Moshfegh et al., 2023). The guide helps older adults achieve their nutrient needs, calcium, protein, and fibre, in addition to their fluid and

energy needs (Clegg and Williams, 2018). Its role in the diet is to satisfy certain needs, for example, reducing the likelihood of sarcopenia or moderating a deficiency in vitamin D.

Older people have special nutritional needs due to factors such as dental issues, reduced appetite and chronic illnesses that limit their food intake. It is, therefore, possible to use the Eatwell Guide to ensure that meals satisfy these factors. Cereals, when taken with milk or other dairy products to complement calcium, vitamin D and vitamin B12, are very good for breakfast (Kit et al., 2023). Soft fruits such as bananas or berries may add fibre and vitamin C. The study conducted by Moshfegh et al. (2023) showed that 92% of older people consume breakfast, and thus, breakfast is the best time to consume nutrient-dense foods. Lunch should also include high protein-dense foods like grilled fish, chicken, or tofu with steamed foods like broccoli and carrots to meet the necessary nutrient requirement. For people with dental problems, soups and stews with low texture and hardness contain high amounts of nutrients (Watson et al., 2019). Additional sources of fibre include whole grains such as quinoa or brown rice, which are beneficial to digestion and the gut.

Like any other age group, snacks and water are just as crucial for the elderly. Protein-rich snacks like seeds or nut butter on whole-grain toast can be good for energy without making the appetite feel heavy (Marcus, 2023). Regular pure water, herbal teas, and fresh soup should be consumed, and fluid intake should be encouraged to avoid dehydration, which is rampant among the elderly (Berendsen et al., 2019). Dinner can be less heavy, including vegetable pasta with salad or baked potatoes with low-fat cheese. Consuming foods with omega-3, including salmon or walnuts, is good for the heart and the body (Clegg and Williams, 2018). According to the Eatwell Guide, older people should consume all five groups of foods in the right proportions and with the proper nutrients to meet their nutritional requirements. Hearing or visual impairment, respiratory disease

or arthritis, diabetes, dementia, frailty or dental problems can be managed to optimise nutritional intake.

Conclusion

In conclusion, older adults require personalised nutrition that will enhance their health, reduce diseases associated with ageing, and thus enhance their quality of life. Addressing specific nutrient requirements like higher protein for muscle mass, calcium and vitamin D for bone health, and fibre and water for digestive health meet issues like sarcopenia, osteoporosis and malnutrition. Several practical approaches that are based on the Eatwell Guide can help to achieve nutrient density and, at the same time, meet age-related changes and restrictions. Developing a diet that includes high-quality foods and designing specific nutrition plans for older persons will improve health and cognitive status, leading to more years of independence.

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