



Optimizing nutrition in older people

Miriam E. Clegg^{a,*}, Elizabeth A. Williams^b

^a Oxford Brookes Centre for Nutrition and Health, Department of Sport, Health Sciences and Social Work, Faculty of Health and Life Sciences, Oxford Brookes University, Gypsy Lane, Oxford OX3 0BP, UK

^b Department of Oncology & Metabolism, Human Nutrition Unit, The University of Sheffield, Beech Hill Road, Sheffield, S10 2RX, UK



ARTICLE INFO

Keywords:

Older adults
Elderly
Nutrition
Diet
Appetite
Ageing

ABSTRACT

Older adults are at increased risk of malnutrition, for a variety of physiological and psychological reasons. This has implications for health, quality of life, independence and economic circumstances. Improvements in nutrition are known to bring tangible benefits to older people and many age-related diseases and conditions can be prevented, modulated or ameliorated by good nutrition. However, practical and realistic approaches are required to optimize diet and food intake in older adults. One area where improvements can be made relates to appetite. Encouraging older adults to prepare meals can increase appetite and food intake, and providing opportunities for older adults to eat a wide variety of foods, in company, is a simple strategy to increase food intake.

The protein requirement of older adults is subject to controversy and although considered the most satiating macronutrient, it appears that protein does not elicit as great a satiating effect in older adults as it does in younger individuals. This indicates that there is potential to increase protein intake without impacting on overall energy intake. Other areas where simple practical improvements can be made include both packaging of foods that are easy to prepare and the education of older adults on the safe storage and preparation of food. Research into improving the diets and nutritional status of older adults has indicated that many of the strategies can be easily and cost-effectively undertaken.

1. Introduction

Increased life expectancy coupled with a decline in fertility rates has led to a global demographic shift towards an ageing population. The number of older persons (those aged 60 years or over) is expected to more than double by 2050 and to more than triple by 2100, [1]. From an individual's perspective this is a positive phenomenon, however at a societal level it presents numerous challenges in terms of managing people's health, quality of life, and economic circumstances.

Even though life expectancy has increased, for many the quality of these latter years has not improved, which has a significant impact on healthcare costs. With ageing comes an increased likelihood of developing chronic diseases such as diabetes, cancer and heart disease, and an increased risk of frailty, cognitive decline and disability. Improvements in nutrition are known to bring tangible benefits to older people and many age-related diseases and conditions can be prevented, modulated or ameliorated by nutrition [2]. The current review will focus on dietary issues and nutrition requirements of older adults. Furthermore, it will examine how foods and diets can be adjusted to enhance appetite and optimize dietary intake.

2. Methodology

This review presents a comprehensive detail of the nutritional problems and potential solutions in available in older adults in order to enhance appetite and optimize dietary intake. The review was written using peer-reviewed articles known to the authors and complemented through a search of PubMed and CINAHL. Keywords used included “ageing”; “elderly” and “older” alongside “nutrition”; “appetite” and “food intake”. Articles published in peer-reviewed; English language journals up to January 2018 were reviewed and considered for inclusion. Reference lists from articles retrieved were also checked.”

3. Dietary issues in older adults

A range of psychosocial and physiological factors influence nutritional intake and status in older adults. For example a change in body composition with ageing has a profound effect on nutritional status and requirements. From 70 years onwards both lean body mass and total body weight decrease [3]. This reduction in body weight and loss of lean body mass, results in an increased risk of sarcopenia, osteoporosis,

* Corresponding author.

E-mail address: mclegg@brookes.ac.uk (M.E. Clegg).

frailty, a resulting increased propensity for falls and fractures, infection and an overall increased risk of mortality and morbidity. Other physiological factors include reduced physical function, visual impairment, poor dentition, and gastrointestinal changes. From a psychological and social perspective bereavement, depression, isolation, dementia and socioeconomic constraints are all factors that impact on the nutritional status of older adults. Collectively these factors can result in a reduction in appetite, and a reduced ability and motivation to purchase and prepare food [2]. Depression and isolation are major contributors to weight loss in older people. Depression can lead to increases in serotonin and corticotropin releasing hormone which are potent anorectic neurotransmitters [4] and it is well established that people living alone consume less food [5] and have a poorer diet quality [6]. The need to prepare foods or catering limitations for just one person is also an issue [7].

Risk of malnutrition (characterised by low body mass and weight loss) increases [8] after 65 years of age. The UK National Diet and Nutrition Survey (NDNS)¹ showed that free-living men and women aged 75–84 years were consuming just 88% and 77% of estimated requirements for energy, respectively [9]. A secondary analysis of this data was performed using the criteria of the Malnutrition Advisory Group (MAG) for detecting risk of malnutrition. Approximately 14% of adults over 65 years of age were at medium or high risk of under-nutrition based on the composite measure of low body mass index (BMI) and recent reported weight loss [8]. More recent data from the NDNS (combined 2012/13–2013/14) shows that low energy intake persists in the UK, with the average for men and women 65 years and older falling below the estimated average requirements for individuals over 75 years of age [10].

Malnutrition is associated with an increase in morbidity and mortality rates in older adults and a decrease in their quality of life. In residential and nursing homes, malnutrition often associates with cognitive impairment, hypotension, infection and anaemia, and impaired physical performance at everyday tasks such as dressing and washing. In hospitals, malnutrition is related to longer length of hospital stay, increased morbidity and mortality rate and increased complications such as fracture, infections and specific nutrient deficiencies [11].

Decreases in physical function can cause a variety of issues in terms of eating and preparing food. These include oral problems, impairment of masticatory function and swallowing problems that can lead to food avoidance [11,12]. Similarly decreases in enjoyment of food due to reduction in taste, smell and sight. Another major contributor to decreased food intake is the use of medication and polypharmacy with many drugs and medications required by older adults having a direct effect on appetite [13]. This decrease in appetite that occurs in older adults is known as the anorexia of ageing.

4. Appetite in older adults

Anorexia of ageing, has been defined by Morley and Silver [14] as ‘the physiological decrease in food intake occurring to counterbalance reduced physically activity and lower metabolic rate, not compensated in the long term’. Reduced appetite in older individuals has been well documented [15] with changes in appetite correlated with the delayed gastric emptying (GE) seen with advancing age. Most but not all studies suggest that the rate of GE and gastrointestinal transit slows in older compared with younger adults [15,16]. This means that food remains in the stomach for longer resulting in prolonged postprandial satiety. This delayed GE is caused by less compliant fundus of the stomach in older adults which further contributes to anorexia due to more rapid antral filling and an earlier antral stretch [17].

¹ The National Diet and Nutrition Survey assesses the diet, nutrient intake and nutritional status of the general population of the UK. More information can be found here: <https://www.gov.uk/government/collections/national-diet-and-nutrition-survey>.

Satiety hormones are also known to change with age. Several studies have demonstrated the presence of higher circulating concentrations of the anorexigenic hormone cholecystokinin (CCK) in older compared to young individuals, and a greater satiating effect of CCK in older people [18]. Greater increases have also been found postprandially in glucagon-like peptide 1 (GLP-1), following a high fat meal in older compared to younger people [19]. Ghrelin is the only peripheral hormone known to stimulate hunger. However, there is little consensus about its effects on appetite in older adults [20]. It has been suggested that hyperinsulinemia in the elderly could also be responsible for inhibiting ghrelin gastric expression and central sensitivity [21]. Furthermore in older males, the decline in testosterone results in a further increase in leptin [22] which may also decrease appetite. The combined actions of these hormones convey important anorexigenic signals to the hypothalamus which may have significant implications for food intake in the elderly.

5. Nutrient requirements of older adults

There is discussion in the extant literature as to the optimum nutrient requirements of older adults. Energy requirements tend to be lower due to altered body composition and reduced physical activity, however the requirements for many nutrients are thought to be unchanged [2] resulting in a need for a lower energy, yet more nutrient dense diet.

There is considerable debate regarding protein requirements in older age. Adequate dietary protein is particularly important in older adults to maintain muscle mass, support wound healing, skin integrity, immunity, and recovery from illness [23]. UK dietary reference nutrient intake values indicate that protein requirements for adults are 0.75 g/kg body weight per day [24]. However it has been proposed that this should be increased to 1.0–1.2 g protein/kg body weight/day for a healthy older adult, and to 1.2–1.5 g protein/kg body weight/day for older people who are malnourished or at risk of malnutrition [25]. One argument for increasing protein intake is that older adults may develop resistance to the positive effects of dietary protein on synthesis of protein, a phenomenon termed *anabolic resistance* that limits muscle maintenance and accretion. Older adults may also have higher protein needs to offset the elevated metabolism of inflammatory conditions. In healthy older adults and in a variety of diseases, protein anabolism is related to net protein intake. However others argue that increased dietary protein is not required in the elderly due to reduced needs associated with declines in lean body mass and the association between high protein intake and impaired renal function [23]. Up to 10% of community-dwelling older adults and 35% of those in institutional care in Europe do not have a sufficient food intake to meet a protein intake of 0.7 g/kg body weight/day [26].

UK dietary reference values for vitamins and minerals are the same for older adults (65+) as they are for the adult population (50+) [24], yet some micronutrients are of particular concern for certain subgroups of the older adult population. Micronutrients that are highlighted as important for older adults include calcium and vitamin D primarily for the preservation of bone mineral density and fracture prevention. Current recommendations established in 2016 indicate all population groups aged 4 years and older should have a Reference Nutrient Intake (RNI) of 10 µg/d (400 IU/d) vitamin D [27]. However a systematic literature review carried out by Lamberg-Allardt et al. [28] suggested that intakes greater than 10 µg/d vitamin D may be required in older adults where the synthesis of vitamin D in the skin may be reduced and the intestinal absorption of vitamin D may be lower than in younger persons.

There is evidence of low intake, impaired absorption and low status of certain B vitamins in older adults. Vitamins B₁₂, B₆ and folic acid are all involved in homocysteine metabolism, and elevated homocysteine has been linked with cardiovascular disease, impaired cognitive function and dementia [29,30]. Despite strong observational evidence to

Download English Version:

<https://daneshyari.com/en/article/8283831>

Download Persian Version:

<https://daneshyari.com/article/8283831>

[Daneshyari.com](https://daneshyari.com)