



# Briefing Paper on the Role of the Dietitian in the Prevention and Management of Nutrition-related Disorders in Older Adults

Dietitians play a key role in the prevention and management of nutrition-related disorders in older adults (i.e. in this paper referred to as individuals aged over 65 years). Dietitians, as members of integrated multidisciplinary teams, are uniquely qualified to apply scientific evidence to the promotion of healthy eating, individualised nutritional therapy and counselling to individuals and groups (Arvantitakis et al., 2009).

The role of the dietitian should be regarded in the light of response to demographic challenges with an increasing proportion of older adults all over Europe. According to the World Health Organization (WHO) the concept of *Active Ageing* is built on three main pillars: participation, health, and security with nutrition as part of each of these pillars (WHO,2002). The main purpose is to maintain autonomy through physical independence, to prevent disability by rehabilitation and to ensure quality of life of older adults (WHO,2002).

The European Union (EU) has taken several actions to facilitate the creation of an active ageing culture in Europe, based on the principle of “a society for all ages”. The European Innovation Partnership on Active and Healthy Ageing (EC,2012), aims to increase the number of healthy life years by two years by 2020.

The key priority pillars are:

- prevention, screening and early diagnosis,
- care and cure,
- active ageing and independent living.

## ***Older adults in the European Union***

The proportion of people of working age in the EU-28’s age pyramid is shrinking, while the relative number of those retired is expanding. In 2015, older adults had a nearly 18.5% share of the population in EU28 member states (Eurostat, 2015). In 2060, this share is expected to account for about one-third of the population in EU (Europe in figures: Eurostat yearbook, 2015). The distribution of those aged  $\geq 80$  years is projected to be almost tripled between 2011 and 2060 (Eurostat, 2015). The growth in the relative share of older adults may be explained by increased longevity, which is often referred to as ‘ageing at the top’ of the population pyramid. However variation exists between countries, genders and between educated and socially advantaged (Eurostat, 2015).

The group of older adults ranges from newly retired to people 100 years and above, indicating a heterogenous population in different aspects including e.g. mental, medical, and functional abilities and thereby in their nutrition needs. Chronological age often does not correlate well with biological age.

## ***Important concepts for the understanding of ageing***

Ageing is an irreversible and progressive process, affecting social, mental, emotional and physiological abilities, which may impact the capability to nourish properly. A number of nutrition-related disorders are of relevance within the context of geriatric nutrition, each having its own etiology and requiring a specific treatment approach.



### ***Anorexia of ageing***

Worldwide surveys have clearly shown a linear decline in food intake from the 20<sup>th</sup> to the 80<sup>th</sup> year of life, in both men and women. Older adults in very high ages often fail to adequately regulate food intake and develop a physiologic anorexia of aging. This physiologic anorexia depends not only on decreased hedonic qualities of feeding with aging (taste and smell), but also on altered hormonal and neurotransmitter regulation of food intake. The physiologic anorexia of ageing puts older persons at high risk for developing malnutrition when they develop either psychologic or physical disease processes (Goeminne et al., 2012; Landiet al., 2016).

### ***Malnutrition***

A recently used definition for malnutrition is the one proposed by the European Society for Clinical Nutrition and Metabolism (ESPEN): “Malnutrition due to starvation, disease or ageing can be defined as a state resulting from lack of uptake or intake of nutrition leading to altered body composition (decreased fat free mass) and body cell mass leading to diminished physical and mental function and impaired clinical outcome from disease”(Sobotka L, 2012; Cederholm T et al., 2015). Malnutrition with this definitions does not include overnutrition.

### ***Undernutrition***

Undernutrition is characterized by a deficient energy or protein intake or absorption, and is often described as protein energy malnutrition. Prevalence of undernutrition in the elderly varies largely, as result of the variety in criteria used and different health care settings. Prevalence of undernutrition in the community, acute care setting, and residential care setting are estimated at about 5-30%, 25-60% and 15-70% respectively (Agarwal et al., 2013). Undernutrition is frequently accompanied by multiple or single micronutrient and/or mineral deficiencies, although these may occur in the absence of macronutrient depletion and may result in specific deficiency syndromes (WHO, 2015).

As result of the various physiological, social and economic parameters, often referred to as the “nine d’s” (dementia, dysgeusia, dysphagia, diarrhoea, depression, disease, poor dentition, dysfunction, and drugs) (Agarwal et al., 2013), older adults are especially vulnerable to both starvation-related and disease-related undernutrition. Whereas starvation-related undernutrition is caused by insufficient intake only, chronic and acute disease-related undernutrition are accompanied by mild to moderate or marked inflammation activity respectively (White et al., 2012).

Recently, ESPEN, published a Consensus Statement providing a minimum set of criteria for the diagnosis of malnutrition to be applied independent of clinical setting and etiology, and to unify international terminology. In individuals classified as ‘at risk of malnutrition’ by validated screening tools, ESPEN recommends to diagnose malnutrition based on two options. Option one, requires Body Mass Index (BMI) <18.5 kg/m<sup>2</sup> to define malnutrition. Option two, requires the combined finding of unintentional weight loss (mandatory) and at least one of either reduced BMI or a low fat free mass index (FFMI). Weight loss could be either >10 % of usual body weight indefinite of time, or >5% over 3 months. Reduced BMI is <20 or <22 kg/m<sup>2</sup> in subjects younger and older than 70 years, respectively. Low FFMI is defined as <15 and <17 kg/m<sup>2</sup> in females and males, respectively (Cederholm et al., 2015).



### **Overnutrition**

Overnutrition, is characterized by positive energy balance meaning that energy intake exceed energy expenditure. Overnutrition could be may be accompanied by nutrient deficiencies and or sarcopenia called Sarcopenic obesity. Whereas obesity generally is considered a health risk, an increasing number of reports suggest that indicators of obesity for the general adult population may require modification. It has even been suggested that a mild increase in adiposity may be beneficial for frail older persons (Winter et al.,2014; Woo, 2015). At the same time, obesity may be accompanied by sarcopenia, known as ‘sarcopenic obesity’, due to a combination of chronic, obesity-related low-grade systemic inflammation and a sedentary lifestyle (Soeters et al., 2008).

### **Sarcopenia**

The European Working Group on Sarcopenia in Older People (EWGSOP) developed a practical clinical definition and consensus diagnostic criteria for age-related sarcopenia (Cruz-Jentoft et al., 2010). Prevalence of sarcopenia is estimated to range from 3 to 20%, depending on the criteria used (Dupuy et al., 2015). It has concluded that “Sarcopenia is a syndrome characterised by progressive and generalised loss of skeletal muscle mass and strength with a risk of adverse outcomes such as physical disability, poor quality of life and death.” The EWGSOP recommends using the presence of both low muscle mass and low muscle function, i.e. strength or performance, for the diagnosis of sarcopenia. Primary sarcopenia directly results from ageing itself, whereas secondary sarcopenia may result from physical inactivity, disease, and/or nutrient deficiencies (Cruz-Jentoft et al., 2010).

### **Cachexia**

Cachexia is described as “A complex metabolic syndrome associated with underlying illness and characterised by loss of muscle with or without loss of fat mass. The prominent clinical feature of cachexia is weight loss in adults (*corrected for fluid retention*) or growth failure in children (*excluding endocrine disorders*). Anorexia, inflammation, insulin resistance and increased muscle protein breakdown are frequently associated with cachexia. Cachexia is distinct from starvation, age-related loss of muscle mass, primary depression, malabsorption and hyperthyroidism and is associated with increased morbidity“(Evans et al., 2008). Although the term sarcopenia is mostly related to age-related changes in muscle mass and strength, sarcopenia has also been used to refer to the loss of muscle mass and strength as result of cachexia (Muscaritoli et al., 2010).

### **Frailty**

In the past decades frailty was defined as a clinical syndrome, in which three or more of the following criteria were present: unintentional weight loss ( $\geq 10$  lbs/4.5 kg, in the past year), self-reported exhaustion, weakness (handgrip strength), slow walking speed, and low physical activity (Fried et al., 2001). This ‘definition’ of frailty placed heavy emphasis on the physical problems encountered by older people. Nowadays a multidimensional concept is considered more appropriate. According to this multidimensional approach, frailty can be defined as: “A dynamic state affecting an individual who experiences losses in one or more domains of human functioning (physical, psychological, social), which is caused by the influence of a range of variables and which increases the risk of adverse outcomes” (Gobbens et al., 2010). Following the new concept of health, the definition of frailty has been suggested to further adapt into: “The weakening of health, i.e. the resilience or capacity to



cope, and to maintain and restore one's integrity, equilibrium, and sense of wellbeing in three domains: physical, mental, and social" (Boers & Cruz-Jentoft, 2015).

*Physical frailty* has a negative impact on physical function, ADL's (Activities of Daily Living) and quality of life, and increases risk of injuries from falls. Characteristics of physical frailty partly overlap with those of sarcopenia (Mijnarends et al., 2015).

Nutrition not only influences physical frailty, but cognitive frailty as well. Both low intake of energy and protein, and micronutrients are associated with functional and cognitive decline (Halil et al., 2015).

### ***Dysphagia***

Dysphagia is defined as the difficulty or impossibility to swallow liquids, food or medication. It is a frequent consequence of progressive neurological diseases and dementias, and an important risk factor for aspiration pneumonia, and a major cause of morbidity and mortality among the elderly (Sura et al., 2012).

Dysphagia is not a nutritional condition per se. However, it is a significant part of the etiology of malnutrition and a prevalent condition especially in nursing homes residents (Langmore et al., 1998). Treatment relies to a great extent on nutrition, and specifically on texture modification of food (Keller et al., 2012), as well as enteral nutrition (Leslie et al., 2003).

Besides dysphagia, sensory loss like loss of taste, smell and sight might impair the experience of food.

### ***Role of the dietitian***

The role of the dietitian is essential to promote health and quality of life and to prevent unfavourable health conditions, through evidence based nutrition. This means primary prevention to decrease the risk of non-communicable diseases, including sarcopenia and malnutrition, but also secondary prevention and treatment of malnutrition, including risk of dehydration. Dietitians thereby have a pivotal role in all care settings for older adults: acute hospital, community residential care sites, nursing homes, community primary care teams, rehabilitation teams and own-home care (ESCO, 2015). Their contribution can prevent avoidable admissions and promote early hospital discharges. They should have links with social services so that the provision of e.g. 'meals on wheels' is relevant and nutritionally appropriate (BDA, Malnutrition Task Force Group, 2016).

Furthermore, dietitians have an important role in the development of procedures and protocols for quality management of nutrition care and the implementation of current international, national and/or local clinical guidelines for the prevention and management of nutrition-related disease to relevant professional personnel within the older adults care environment. Whether it is in a strategic, educational, clinical or administrative role, dietitians also have a responsibility to evaluate the effectiveness of their own actions. The use of audit and research may be helpful in this process.

Dietitians play a critical role in developing national nutritional recommendations including sensory aspects and advising on incorporating these into menu policy in acute hospitals & community residential services.

At an academic level, dietitians can contribute to the inclusion of modules on nutrition for the older adults in nursing and medical training, development of continuing education programs



for professional colleagues and to the support of student training programs in the specialism of older adults.

The dietitian should initiate or conduct research of nutrition in ageing, to expand the knowledge about how to assess, diagnose, treat and prevent nutrition-related conditions in the older adults.

### ***Ethical considerations***

In the nutrition care process (NCP) of older adults, there are important considerations that need to be pointed out: consider functional age, quantity versus quality of life and presence of organic or functional mental health issues. In terminal illness the person's advance directives should be of primary importance before commencing therapy. ESPEN states "while reducing morbidity and mortality is a priority in younger patients, in geriatric patients maintenance of function and quality of life is often the most important aim" (Volkert et al., 2006).

### ***The nutrition care process***

Dietitians use the NCP as a structure to offer older adults the best way of nutrition care. This process starts with the nutritional screening, followed by assessment, diagnosis, intervention and monitoring documentation and nutritional status through all four steps of the process (Lacey et al., 2003).

### ***Nutritional Screening***

Nutritional risk screening is a rapid and simple procedure conducted by healthcare staff or community health care teams, aiming to detect patients at risk of malnutrition (primarily focusing on *undernutrition*), according to a validated screening tool in older people. The nutritional screening process aims to identify older people already malnourished, as well as older people at risk for future malnutrition (Lochs et al., 2006).

Multiple tools have been validated in older people, including for example, the Mini Nutritional Assessment (Guigoz et al., 1994), Malnutrition Universal Screening Tool (MUST) (Stratton et al., 2004), Nutritional Risk Screening (Kondrup et al., 2003), SNAQ65+ (Wijnhoven et al., 2012), and SNAQrc (Kruizenga et al., 2010), Patient-Generated Subjective Global Assessment (Bauer et al., 2002; Kim et al., 2013, Marshall et al., 2015).

In terms of diagnostic accuracy and predictive value, it was found that the available screening tools do not significantly differ from each other (Young et al., 2013; Van Bokhorst-de van der Schueren et al., 2014). Currently, it is recommended to consider choosing a validated screening tool that best aligns with their chosen nutritional assessment and is easiest to implement in clinical practice (Young et al., 2013).

### ***Nutritional Assessment***

The goal of nutritional assessment includes assessment of nutrient balance, anthropometry, body composition, functional and biochemical variables and symptoms expressed by the patient. The main aim is to identify the presence, etiology and extent of the nutritional problems. The diagnosis derived from the nutritional assessment, together with the personal goals of the patient are used for prescription of nutrition therapy and/or referral to other





health care professionals. The nutritional intervention and periodic monitoring of nutritional status is required. Evaluation, monitoring and documentation should follow within the NCP.

### ***Dietetic core competences working with older adults***

To perform their role in the prevention and management of nutrition-related disorders in older adults, dietitians must demonstrate key competences in the knowledge, skills and attitudes which underpin gerontology and geriatric nutrition. As such, dietitians should demonstrate an understanding of basic principles of gerontology and geriatrics, age-related changes in physiology and metabolism leading to i.e. sarcopenia and frailty, age-related changes in nutritional requirements and their nutritional implications, common age-related diseases and their nutritional impact, and the physical, social, and socio-economic predictors of malnutrition in older adults.

Dietitians specialising in the care of older adults should deliver a 'person-centred' approach (Dorner et al., 2010), that requires an understanding of food habits for this age group. Therefore, dietitians specialising in the care of older adults should:

- Approach and empower older adults in a respectful way and prioritise their overall quality of life;
- Focus on cognitive and physical abilities and how these affect the conditions for treatment goals;
- Take into consideration the financial situation, lifestyle and level of support from relatives or social workers;
- Take into consideration other risk relations according to nutrition in older adults compared to younger, making liberalization of diets rather than strict regimes important for nutrition status and quality of life in older people (Niedert et al., 2005).

Dietitians counselling as primary prevention of older adults should:

- Plan education programme supported specialized dietitians for improving malnutrition increased the nutritional knowledge and improved the reported management of malnourished patients in the community (Suominen et al., 2007; Kenelly et al., 2010);
- Make the required nutritional adaptation so as to prevent the deterioration of health status;
- Emphasise an active and healthy life style, i.e. both physically and mentally healthy;
- Monitor nutritional status including, anthropometric, body composition and functional measures according to NCP.

Dietitians working in the clinical setting should:

- Assess and diagnose nutrition-related problems for the prescription of nutrition therapy;
- Plan nutritional intervention by nutritional counselling, oral nutritional supplements, enteral or parenteral nutrition support whether is required (Volkert et al., 2006);
- Make suggestions to overcome drug-nutrient interactions and other risk factors for poor nutritional status;
- Work in collaboration with patient, family/carers to maintain nutritional status; develop a client-focused nutritional care plan; implementing eating/mealtime strategies for cognitively impaired; advising on lifestyle/social factors which impact on nutritional intake;
- Work in collaboration with all members of the health and social care team), such as linking with speech and language therapy in the management of dysphagia, or with



physiotherapy in the management of physical activity (e.g. preventing falling and sarcopenia);

- Monitor and follow-up and evaluate the effectiveness of nutrition therapy regularly;
- Document actions according to relevant requirements based on best clinical practices.

It is therefore important to consider the environment, as well as the menu composition (including seasonal variations), the quality of ingredients (including spices, herbs and seasoning), food preparation techniques, cooking time and cooking temperature, in order to maximise the eating experience.

Menus should provide textures accepted of older adults also with impaired oral and physical function, and a variety of colours and flavours. Menues should be adapted to suit requirements for modified diets. Familiar foods tend to be more acceptable to older people, however, since food habits are becoming more international, other choices may also be welcome.

The particular preferences and dislikes of the individual, together with the need for adapted cutlery or assistance in eating and drinking, should be documented and respected.

Individuals should be encouraged to maintain control of their food intake e.g., to choose and serve their own food with or without assistance. Special attention should be given to mealtimes, particularly with respect to meals, mealtimes and eating environment. Food safety is of particular concern as older adults are very vulnerable to the effects of food poisoning due to the high risk of immune-depression in this age group.

### **Conclusion**

In the inter-professional care of older adults, dietitians should operate at all levels (prevention, diagnosis, intervention and monitoring nutritional status), to maintain or improve nutritional health and promote active and healthy ageing and quality of life in older people. The health professional teams in EU members should include a specialized dietitian within the older adults care. They can optimize healthcare and research practices and be instrumental in developing and advocating policy change.



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### Further Reading

#### 1. Mini Nutritional Assessment (MNA)

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- <http://www.mna-elderly.com/>

#### 2. Nutrition Risk Assessment Scale (NuRAS)

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#### 3. Nutritional Risk Index (NRI)

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#### 4. MAG Screening Tool for Adults at Risk of Malnutrition



- [www.bapen.org.uk](http://www.bapen.org.uk)

#### 5. *Patient-Generated Subjective Global Assessment*

- [www.pt-global.org](http://www.pt-global.org)
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