

The elderly and nutrition

Fact sheet

A healthy diet and regular exercise are important to live longer and to postpone chronic diseases and limitations as long as possible. This also applies to the elderly.^{14,19} The elderly are a very diverse group of people. The ageing process varies from one person to another. While there are general dietary guidelines, additional, more specific recommendations may be required.¹³

The general dietary guidelines stem from the 2006 Guidelines for a healthy diet¹² and the Dutch dietary reference values,^{9,10,11} supplemented by the Health Council of the Netherlands' advisory report on vitamin D.¹⁶ Within these nutritional guidelines, the following general recommendations are especially important for the elderly:

- Energy requirement decreases with increasing age. Accordingly, limit the use of products with a high energy density, such as soft drinks, alcohol and snacks. Eat more food with a favourable nutrient density.
- Eat plenty of fruit, vegetables, and whole-grain products each day, as these promote regular bowel movements and prevent cardiovascular disease.
- Eat fish twice a week, including oily fish once a week. This helps prevent cardiovascular disease and may also help to prevent visual disorders, and cognitive decline.
- Take extra vitamin D for healthy bones.
- Take sufficient exercise.
- Limit the amount of salt in the diet, to prevent high blood pressure, and because kidney function is declining. It is also important to drink enough.
- Avoid foodborne infections! Read the Hygiene and foodborne infections fact sheet at: www.voedingscentrum.nl/factsheets.

Additional dietary recommendations may be needed for those suffering from an illness, disability or loss of appetite, for example. Overweight and undernutrition can be a problem for the elderly. This fact sheet addresses the specific recommendations and difficulties associated with diets for elderly people.



For whom is it relevant?

The number of elderly people will continue to increase substantially over the coming decades.¹⁷ According to Statistics Netherlands (CBS), the number of people over the age of 65 will increase from 2.5 million in 2009 to 4.7 million in 2041. In 2050, an estimated 25% of the population will be aged 65 and above, and a third of this group will be over 80. The period up to 2025, will be characterised by an increase in the proportion of 65- to 79-year-olds, in particular. After that, there will be a sharp increase in the group aged 80 and above.³⁹

The older we get, the greater the risk of diseases and limitations. There is a decline in perceived health and in physical capability. More than 90% of people over the age of 65 live independently. Half of them suffer from one or more chronic diseases. Coronary artery disease, stroke, arthritis and type 2 diabetes cause the greatest loss of healthy years of life. A healthy diet is very important in this regard.²⁷

The Netherlands Nutrition Centre's recommendations are relevant to the elderly themselves, to their informal caregivers, their family and to all healthcare professionals who have dealings with elderly people.

What issues are involved?

One of the aims of current government policy is to enable the elderly to live independently for as long as possible. Good health has an important part to play here. Healthy eating and adequate exercise are important if the elderly are to stay physically fit.

Obstacles to healthy eating

It can be more difficult for elderly people to eat healthily. The main obstacles are the diseases and

limitations that may affect them. For example, elderly people may have problems chewing and swallowing. In addition, they often suffer from several chronic diseases, for which they have to take a range of medication. When taken alone or in combination, these medications have adverse effects, such as dry mouth, tender or bleeding gums or poor appetite.

That, too, can cause problems with chewing, swallowing and eating in general. Moreover, medications can affect nutrient absorption.²⁶ Diseases such as dementia, depression and heart failure may, of themselves, cause elderly individuals to lose their appetite. In addition, people's social environment (low income, poverty or loneliness) may cause them to eat less or to eat less well.

Malnutrition

The obstacles to healthy eating are risk factors for malnutrition. It is difficult to recover from malnutrition, so it is important to identify such risk factors in time. The Longitudinal Aging Study Amsterdam³⁴ estimated that 7% of elderly people living independently, and making no use of home-care services, are malnourished. In the group of elderly people who do make use of home-care services, the figure is twice as high. In institutions, one out of every four or five elderly people is malnourished. Malnutrition results in a rapid loss of muscle mass. This, in turn, means that there is a greater risk of falling, of fractures, and mortality. In the elderly, poor appetite and difficulty climbing stairs are important determinants for the development of malnutrition.^{29,35,38}

Overweight

Aside from malnutrition, obesity also poses a problem. In the Netherlands, according to the cut-off points for adults (for further details of cut-off points see "Scientific state of the art"), people's average BMI increases up to the age of 70. Accordingly, there is a corresponding increase in the percentage of people who are overweight or obese. Fat percentage also increases, so – for a given body weight – elderly people, on average, have more fat and less muscle mass.^{23,28}

The relationship between energy requirement, overweight and malnutrition

As older people generally take less exercise, the amount of muscle tissue decreases. As a result, their basal metabolic rate falls by 2% to 2.9% every 10 years. Accordingly, their energy requirement decreases with increasing age.¹⁰ If the amount of food eaten remains the same, this decrease can lead to the development of overweight. It can also lead to the development of malnutrition, if the reduced requirement results in a poor appetite.



Scientific state of the art

This fact sheet addresses what is currently known about the specific recommendations and difficulties associated with diets for elderly people. This involves the intake of nutrients, the role of diet in various disorders, as well as overweight and malnutrition.

Same amount of protein, fat and carbohydrate

For the elderly, there are no specific recommendations regarding the protein, fat, and carbohydrate composition of the diet.^{10,12} At international level, however, there is a debate concerning a possible increase in the protein level recommended for the elderly.^{1,36} The Health Council of the Netherlands¹⁵ and the European Food Safety Authority (EFSA)⁶ take the view that elderly people do not require extra protein.

Loss of muscle mass and muscle function

As a result of ageing, disease and reduced physical activity, there is a loss of muscle mass and muscle function. This is called sarcopenia. Sarcopenia is accompanied by an imbalance between the synthesis and breakdown of muscle protein. As a result, there is a loss of muscle mass. This process begins sometime after the age of 30 and is progressive, such that it increasingly causes physical problems for those aged over 70. To prevent sarcopenia, it is important to engage in muscle-strengthening activities and to take enough protein. Research shows that physical activity involving resistance/weight training is the most important method for stimulating protein synthesis to the point where it more than compensates for the process of muscle protein breakdown. Without the simultaneous intake of protein, however, the balance between synthesis and breakdown remains negative, resulting in a loss of muscle mass.³³

Focus on water

In elderly people there is a decline in kidney function. Accordingly, more urine is required to flush away any waste. So elderly people need to drink more, about 1.7 litres/day.^{12,13} Under normal circumstances, even in extreme old age, the feeling of thirst is sufficient to ensure that elderly people drink enough liquid.

In elderly people who are less self-reliant, a stronger focus on their fluid intake is required. The same applies to elderly people suffering from urinary incontinence and constipation, illness, and hot summers.³¹

Checking vitamins

The Health Council of the Netherlands takes the view that people over the age of 50 are not likely to be in greater need of vitamins A, E and C and most B vitamins. Only in the case of vitamin B6 is a higher level recommended.⁹

In old age, the body absorbs less vitamin B12 from food. As a result, some elderly individuals may develop a deficiency. If someone already has a deficiency, it is almost impossible to compensate for this by means of a normal diet. In such cases, vitamin B12 injections will usually be administered. Another option is to take a very high dose supplement.

Extra vitamin D

The Health Council of the Netherlands¹⁶ recommends that all elderly people take vitamin D supplements. This is because the Council considers it likely that taking vitamin D and calcium supplements counteracts the decrease in bone density seen in postmenopausal women and elderly men. That, in turn, reduces the risk of fractures. The importance of maintaining a high calcium intake is that vitamin D alone does not seem to be effective.

In addition, the intake of vitamin D is also especially important for people over the age of 70, who have low vitamin D levels in the blood, and in individuals who no longer live independently. In these groups, taking extra vitamin D and calcium almost certainly reduces the risk associated with falling.

In 2010, the EFSA established the conditions under which manufacturers are permitted to display the following claim on their packaging: "reduces the risk of bone loss, thereby reducing the risk of fractures". This is permitted if the daily intake is at least 1,200 milligrams of calcium via the diet, or a combination of 1,200 milligrams of calcium and 800 IU of vitamin D (= 20 µg).^{7,8}

Recommended daily allowances of extra vitamin D/day in micrograms

Women		Men	
Aged 50-69	10 µg/d (400 IU)	Up to 69 years of age with dark skin and/or not enough time spent outdoors	10 µg/d (400 IU)
Aged 70 and above	20 µg/d (400 IU)	Aged 70 and above	20 µg/d (400 IU)

Table 1. Recommended daily allowances of extra vitamin D/day in micrograms¹⁶

Nutrition and disorders^{26,32}

Many elderly people experience problems with bowel movements. Obstipation and constipation, in particular, are common issues. In such cases, taking extra fibre may help. This should be insoluble fibre, which is found in whole-grain products, fruit and vegetables. This should always be combined with additional water.

As a result of ageing, disorders such as the eye disorder AMD (Age-related Macular Degeneration), dementia, Parkinson's disease and depression are becoming more common. At the present time, there are no specific dietary recommendations for people with any of these disorders. Various studies into the relationship between nutrition and cognitive decline are currently in progress. There is increasing evidence (from observational studies) that the condition of the blood vessels may be a factor. One focus is the possible role of omega-3 fatty acids. To prevent AMD, a diet rich in fruit and vegetables, and with plenty of fish, appears to be important for good retinal health.³⁰

If elderly people have injuries, a good nutritional status is essential for effective wound healing. The requirements for this include an adequate supply of vitamin C, vitamin A, and specific amino acids, such as proline, arginine and glutamine.

The importance of healthy teeth

More and more elderly people still have their own teeth (or some of them). That makes good oral health in old age increasingly important, for effective chewing. Good oral care is also important for those who have had all their teeth removed. So regular visits to the dentist continue to be necessary.

Malnutrition

Malnutrition leads to a sharp reduction in body weight and/or the lower energy intake is associated with deficiencies of essential nutrients.²⁴ In its advisory report entitled "Undernutrition in the elderly", the Health Council of the Netherlands specifically focuses on malnutrition resulting from an inadequate intake of protein and energy. Vitamin and mineral deficiencies are not always associated with changes in body weight.

Malnutrition is associated with slower recovery, additional and more serious complications, and reduced muscle mass. This can lead to a deterioration in general condition, reduced cardiac and lung capacity, impaired resistance, less effective wound healing, a greater risk of developing pressure ulcers, a decreased quality of life, and, finally, an increased mortality risk.



Much is still unclear about the diagnosis and treatment of malnutrition, and about the scientific basis for this condition.¹⁵ The Netherlands Nutrition Centre recommends that people remain alert for signs of malnutrition. In cases of suspected malnutrition, it is important to visit a doctor. The latter can then assess the seriousness of the situation, and refer the patient to a dietitian.

How can you identify malnutrition? The Health Council of the Netherlands takes the view that there is no gold standard for diagnosing malnutrition in the elderly. The question of whether the currently available screening tools present a true picture has yet to be reliably determined. In practice, the criteria presented in Table 2 are used.²⁴

Criteria for determining malnutrition

Malnutrition	More than 5% unintended weight loss* in the last month or more than 10% in the past six months or BMI of less than 20
Risk of malnutrition	Unintended weight loss* of 5% to 10% in the past six months or not having eaten (virtually) anything for 3 days or eating less than normal for 1 week

Table 2: Criteria for determining malnutrition (from the National Primary Care Collaboration Agreement on Malnutrition (LESA))

*Unintended weight loss is when, due to circumstances beyond their control, an individual loses weight unconsciously or without wishing to do so. This may be due to an increased nutritional requirement resulting from an illness or surgery. Another cause is a decreased food intake, due, for example, to loss of appetite, poverty, social isolation or illness.

Overweight

No official cut-off points have been determined for overweight and obesity in the elderly. Elderly individuals who are carrying slightly more weight, have no greater mortality risk.^{4,20} Their BMI and waist circumference may, therefore, be higher than those of younger adults before such individuals can be said to be overweight.^{3,21} The Obesity Management Task Force confirms that, in the light of current knowledge, it is not possible to reliably predict elderly people's health risks based on their body weight. The Task Force also spotlights the problem of overweight in the elderly. Obesity causes metabolic syndrome and can lead to functional limitations, bone inflammation, decreased pulmonary function, reduced cognitive and visual function, type 2 diabetes, and dementia. Elderly people suffering from sarcopenic obesity (overweight in combination with low muscle mass) are at extra risk of disability, illness and mortality. It is difficult to identify those who fall into this group.²³

Elderly people are advised not to attempt to lose weight until they have a BMI in excess of 30kg/m². Even then, they should only take this action if they have complications or limitations that would benefit from a reduction in body weight, such as type 2 diabetes and cardiovascular diseases. It is important for elderly people who wish to lose weight to be properly supervised, and to use a weight-loss regime that is tailored to their specific situation. Their energy-restricted diet should have a good nutrient density, combined with an ample amount of protein. Adequate levels of physical exercise are also required (European Association for the Study of Obesity).²⁴ Weight-loss regimes are not recommended for elderly individuals whose energy requirement is already less than 1,500 kcal.

The food consumption of people above the age of 70

The Dutch National Food Consumption Survey (DNFCS) of independently-living individuals over the age of 70 (2010-2012) showed that they eat more saturated fatty acids and salt, and less whole-grain products, fruit and fish than is recommended.²⁵ One in five elderly people are seriously overweight. Only one in four people over the age of 70 comply with the recommendation that they should take extra vitamin D. A small proportion of the elderly (less than 15%) may have an excessively low intake of vitamin A, B2, B6, folic acid, and vitamin C (men only). The limited number of elderly people with functional limitations in this DNFCS had a lower intake of energy, protein, vegetables, alcohol, calcium and magnesium, and an increased risk of malnutrition.

The SENECA study¹⁸ showed that 32% of women and 10% of men over the age of 75 have an energy intake of less than 1,500 kilocalories per day. Below this level, it is virtually impossible to take in sufficient essential nutrients through the diet. Nineteen percent of elderly men and twenty-six percent of elderly women had a low intake of one or more micronutrients. The average intake of vitamins A, B1, B6, C, D, E and calcium in elderly women in healthcare institutions was below the recommended daily allowances. The risk of a lower intake increases if these elderly people are dependent on others for their food and drink.^{22,40}

Looking to the future

In 2015, the tasks taken on by local authorities include caring for the chronically ill and the elderly. At the same time, society in general and local authorities in particular are having to deal with a rapidly growing group of elderly people who continue to live independently at home. The government is actively encouraging this development. This coincides with cutbacks in healthcare, impacting day care and home support services, for example. Greater demands are being made of elderly people's social networks and of their ability to live an independent life. Clearly, therefore, care for the elderly is going to change. At the present time, the

consequences of this are unclear, as is the information requirement in the fields of nutrition and health.

Various developments are currently in progress.

For instance, it is not yet known whether the protein recommendations for the elderly will be changed. New studies may clarify the relationship between diet and disorders such as AMD and cognitive decline. With regard to AMD, there is considerable interest in the results of the AREDS II study. Better criteria may also be developed for diagnosing overweight and malnutrition in the elderly.

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Selection of the literature used (the full list can be found at: www.voedingscentrum.nl/factsheetouderen)

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