

Nutritional requirements of older people

Seminar held on the 13th May 2016

Defining the specific nutritional needs of older persons

Older persons are particularly vulnerable to malnutrition. Moreover, attempts to provide them with adequate nutrition encounter many practical problems. First, their nutritional requirements are not well defined. Since



both lean body mass and basal metabolic rate decline with age, an older person's energy requirement per kilogram of body weight is also reduced.

The process of ageing also affects other nutrient needs. For example, while requirements for energy may be reduced, some data suggest that requirements for other essential nutrients may in fact rise in later life. There is thus an urgent need to review current recommended daily nutrient allowances for this group. There is also an increasing demand worldwide for WHO guidelines which

competent national authorities can use to address the nutritional needs of their growing elderly populations.

Malnutrition and older persons

Many of the diseases suffered by older persons are the result of dietary factors, some of which have been operating since infancy. These factors are then compounded by changes that naturally occur with the ageing process.

Certain types of dietary fat seems to be associated with cancer of the colon, pancreas and prostate. Atherogenic risk factors such as increased blood pressure, blood lipids and glucose intolerance, all of which are significantly affected by dietary factors, play a significant role in the development of coronary heart disease.

Degenerative diseases such as cardiovascular and cerebrovascular disease, diabetes, osteoporosis and cancer, which are among the most common diseases affecting older persons, are all diet-affected. Increasingly in the diet/disease debate, the role that micronutrients play in promoting health and preventing non communicable disease is receiving considerable attention. Micronutrient deficiencies are likely to occur in elderly people due to a number of factors such as their reduced food intake and a lack of variety in the foods they eat.



Another factor is the price of certain foods rich in micronutrients, which further discourages their consumption. Compounding this situation is the fact that the older people often suffer from decreased immune function, which contributes to this group's increased morbidity and mortality. Other significant age-related changes include the loss of cognitive function and deteriorating vision, all of which hinder good health and dietary habits in old age.

Elevated serum cholesterol, a risk factor for coronary heart disease in both men and women, is common in older people and this relationship persists into very old age. As with younger people, drug therapy should be considered only after serious attempts have been made to modify diet. Intervention trials have shown that reduction of blood pressure by 6 mm Hg reduces the risk of stroke by 40% and of heart attack by 15%, and that a 10% reduction in blood cholesterol concentration will reduce the risk of coronary heart disease by 30%.

Dietary changes seem to affect risk-factor levels throughout life and may have an even greater impact in older people. Relatively modest reductions in saturated fat and salt intake, which would reduce blood pressure and cholesterol concentrations, could have a substantial effect on reducing the burden of cardiovascular disease. Increasing consumption of fruit and vegetables by one to two servings daily could cut cardiovascular risk by 30%.

The nutritional needs of elderly people are generally similar to those of younger adults.

Recommended daily intakes for micro nutrients

Nutrient	Recommended daily intake for 50+ years
Calcium (mg)	700
Phosphorus (mg)	550
Magnesium (mg)	270
Sodium (mg)	1600
Potassium (mg)	3500
Chloride (mg)	2500
Iron (mg)	14.8
Zinc (mg)	9
Copper (mg)	1.2
Selenium (µg)	60
Iodine (µg)	140
Vitamin A (µg)	600
Thiamin (mg)	0.8
Riboflavin (mg)	1.1
Niacin (mg)	12
Vitamin B ₆ (mg)	1.2
Vitamin B ₁₂ (µg)	1.5
Folate (µg)	200
Vitamin C (mg)	40
Vitamin D* (µg)	10

* The recommendation for vitamin D only applies for adults over the age of 65 years. With the exception of vitamin D, there are no specific recommendations for people aged over 65 years.

Energy

Energy requirements, however, decline with increasing age, particularly if physical activity is restricted.

Estimated energy requirements

Age (years)	Estimated energy requirement for males (kcal per day)	Estimated energy requirement for females (kcal per day)
19-50	2550	1940
51-59	2550	1900
60-64	2380	1900
65-74	2330	1900
75+	2100	1810

Although this often means eating less, requirements for protein, vitamins and minerals remain largely unchanged.

It is therefore important that older people choose a nutrient-dense diet, including foods which contain protein, vitamins and minerals such as milk and dairy products, meat, eggs, fish, bread, cereals, and fruit and vegetables.

Protein

Protein requirements become slightly lower in men, but increase slightly in women after 50 years of age. However, as energy requirements decrease, the protein density of the diet should be greater for both men and women i.e. more protein containing foods such as lean meat, milk and dairy foods, eggs and pulses should be eaten. Protein requirements may also be increased in some older people due to illness.

Protein requirements

Age (years)	Estimated protein requirement for males (g per day)	Estimated protein requirement for females (g per day)
19-50	55.5	45.0
51+	53.3	46.5

Important micronutrients

Vitamin D

Vitamin D is needed for the absorption of calcium from food and is therefore important for good bone health.

As vitamin D is mainly obtained from the action of sunlight on the skin, people who are housebound or live in institutions may be at risk of deficiency.

Good dietary providers of vitamin D (e.g. oily fish, margarine, eggs and fortified breakfast cereals) should also be eaten regularly.

Calcium

Adequate intakes of calcium can help to slow age-related bone loss, which can result in osteoporosis and fracture

Although requirements for calcium do not change as we become more elderly, it is still important that calcium requirements are met through the diet.

Milk and dairy products are the main providers of dietary calcium in UK diets and consuming them can help us meet our calcium requirements.

Contribution of dairy products to calcium intake



Bread (fortified with calcium) green vegetables, almonds and canned fish (eaten with the bones) also contain calcium but generally must be consumed in much greater quantities to provide as much calcium as dairy products.

Vitamin C

Vitamin C is needed for several functions in the body including:

- Formation and maintenance of healthy tissues
- Good wound healing.
- Anti-oxidant action i.e. helps to protect the body from damage caused by toxins.

Vitamin C requirements for older people are the same as younger adults, but unfortunately intakes are often sub-optimal.

An adequate intake of a plant-based diet, that includes recommended amounts of vegetable and fruit servings as well as other plant foods i.e. legumes, wholegrain cereal and wholemeal/wholegrain cereal products, nuts and seeds is recommended since it can help to prevent a myriad of chronic diseases including cancers, cataracts and cardiovascular diseases.

Folate and vitamin B₁₂

Folate and vitamin B₁₂ are required together for many functions including cell division and good nerve function.

Factors that increase the risk of malnutrition in older people

- **Difficulties chewing/swallowing:**
 - Dentition (e.g. poorly fitting dentures)
 - Stroke
 - Parkinson's disease
- **Health:**
 - Drugs, alcohol
 - Mental disturbances
 - Chronic disease and disability
- **Sensory perception:**
 - Reduced sense of taste
 - Reduced sense of smell
- **Manual dexterity:**
 - Stroke
 - Arthritis

- **Socioeconomic:**
 - Living alone
 - Bereavement
 - Lack of nutrition knowledge
 - Poverty
 - Institutionalisation

- **Malabsorption:**
 - Decreased gastric acid production
 - Previous surgery
 - Bacterial overgrowth

When several risk factors are present, an individual is more likely to become malnourished. As a result of these risk factors, the range of foods chosen may be more limited and extra care must be taken to ensure a balanced diet.

Malnutrition at any age increases susceptibility to illness and reduces the body's ability to make a full and speedy recovery.

Requirements for folate, vitamin B₁₂ and other B vitamins such as thiamin and riboflavin are either the same or slightly less than younger adults, however maintaining good intakes is important to prevent deficiency.

Unfortunately the National Diet and Nutrition Survey in older people identified low folate status in some groups as an area of particular concern.

This may be due to poor dietary intake or due to problems with absorption which are more common in older adults due to certain digestive diseases or side effects of certain medications.

Iron

Iron is important for many functions in the body including formation of red blood cells and transport of oxygen to tissues.

Requirements for iron in females over 50 years old are significantly less than younger females as menstruation has normally ended by this age and they no longer lose iron in menstrual blood.

Requirements in men over 50 years old remain the same as younger men, however the National Diet and Nutrition Survey of Older adults revealed that iron intake was below the recommended level for 30% of the population.

Iron absorption from the gut may also be reduced in older people, and this coupled with low intakes can increase the risk of iron deficiency anaemia.

Good dietary consumption of iron along with promoters of its absorption such as foods providing vitamin C will help to prevent this risk.

Dietary sources of nutrition

Nutrient	Good dietary sources
Iron	Meat and meat products, especially red meat ; cereal products such as fortified breakfast cereals and bread; eggs; pulses such as baked beans and lentils; dried fruit, dark green vegetables.
Calcium	Milk and milk products such as cheese and yogurt; fish with edible bones (such as canned sardines, pilchards and salmon); bread; pulses; dried fruit, dark green vegetables; nuts and seeds.
Thiamin	All cereals, especially breakfast cereals and bread; potatoes. Smaller quantities are found in a wide range of foods including meat and meat products, milk and milk products, and vegetables.
Riboflavin	Milk and milk products such as cheese; fortified breakfast cereals. Smaller amounts are found in meat and meat products.
Vitamin B ₁₂	Found naturally only in foods of animal origin including meat, fish, milk and milk products, and eggs. Also present in fortified breakfast cereals.
Folate	green leafy vegetables, especially sprouts and spinach; green beans and peas; potatoes; fruit, especially oranges; fortified breakfast cereals and bread; yeast extract; milk and milk products.
Vitamin C	Fruit and vegetables, especially citrus fruits and fruit juices, blackcurrants, blackcurrant juice, berry fruits, kiwi fruit, tomatoes, green leafy vegetables, green peppers and new potatoes.

The target audience for this Seminar was a good number of people responsible for the care of the residents within private, church and government Homes for the elderly. The objectives of this Seminar were to equip people working closely to one of the most vulnerable groups, with expert information coming from different professionals



related the nutritional requirements of the older person and to receive feedback for discussion and appropriate actions if necessary.

