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# Weight loss and malnutrition in the elderly

## The shared role of GPs and APDs

This article forms part of a series looking at the relationship between diet and good health, and the role of the dietitian in the primary health care team. This review highlights some of the physical, social and medical factors that can indicate compromised nutritional status in the elderly, the screening tools available to detect malnutrition, and when to involve a dietitian.

■ **Malnutrition is broadly defined as a nutritional deficit (undernutrition), excess (overnutrition) or imbalance.<sup>1,2</sup> Malnutrition and unintentional weight loss are issues frequently underestimated in older people that can be limited, managed and controlled by timely nutrition intervention.**

Malnutrition and unintentional weight loss impact mortality, morbidity, length of stay and re-admission to hospital,<sup>3</sup> with nutrition support reducing readmission by more than 29%.<sup>4,5</sup> Malnutrition is closely linked with recurrent falls and fractures, lost independence requiring support and care, poor wound healing, and an increase in complications including infections, pressure sores and skin ulcers.<sup>1</sup>

Clinical features of protein energy malnutrition include reduced body weight, muscle wastage and decreased strength, reduced respiratory and cardiac muscular ability, skin thinning, decreased metabolic rate, hypothermia, apathy, oedema and immunodeficiency.<sup>6</sup>

Muscle loss in the elderly may reflect sarcopenia, wasting or cachexia.<sup>7,8</sup> Sarcopenia is a progressive component of aging exacerbated by limited physical activity, resulting in decreased functionality and increased frailty.<sup>8,9</sup> Wasting is primarily a result of inadequate dietary intake, while cachexia is characterised by catabolism, an increased metabolic rate and protein degradation.<sup>8</sup>

Calcium, vitamin D, vitamin B12 and folate are micronutrients frequently underconsumed in older people. These deficiencies induce a decreased immune response that could negatively impact on quality of life and health status.<sup>10</sup>

In the absence of adequate dietary calcium, vitamin D will mobilise skeletal stores of calcium and phosphorous to ensure serum levels are maintained, at the expense of bone health.<sup>11</sup> However, a deficiency in vitamin D will also reduce the absorption of dietary calcium, placing bones at further risk of fractures.<sup>11</sup> Vitamin D and calcium supplementation can significantly reduce fractures and increase bone mass density for the elderly.<sup>12,13</sup>

Vitamin B12 and folate are essential to prevent anaemia, neuropathic degeneration of nerve fibres and irreversible neurological damage such as burning and tingling of the hands and feet (parasthesia), dementia, glossitis and chelosis. Low vitamin B12 is also an independent risk factor in developing venous thromboembolic disease in men over the age of 70 years.<sup>14</sup>

Table 1. Risk factors for malnutrition

|   |   |
|---|---|
| <b>Physical</b>   | Anorexia  |
|   | Lost taste and smell  |
|   | Poor dentition  |
|   | Dysphagia   |
|   | Texture modified diets and thickened fluids   |
|   | Early satiety   |
|   | Physical impairment restricting activities of daily living (ADL) and ability to self feed |
|   | Unintentional weight loss   |
|   | Muscle wastage  |
|   | <b>Social</b>   |
| Limited knowledge and skills in food, nutrition and cooking |   |
| Living alone, social isolation, loneliness                  |   |
| Reduced mobility and lack of transport                      |   |
| Lack of assistance with ADL                                 |   |
| Restrictive diets (eg. vegetarian, halal, kosher, low fat)  |   |
| Excessive alcohol intake                                    |   |
| <b>Medical</b>  | Polypharmacy  |
|   | Drug nutrient interactions and adverse effects  |
|   | Infections  |
|   | Fractures   |
|   | Wounds and pressure sores   |
|   | Dementia  |
|   | Depression  |

Table 2. Side effect of medications that impact on nutrition<sup>24</sup>

|                          |  |
|--------------------------|--|
| Nausea/vomiting          | Antibiotics, opiates, digoxin, theophylline, nonsteroidal anti-inflammatory agents (NSAIDs)          |
| Anorexia                 | Antibiotics, digoxin   |
| Decreased sense of taste | Metronidazole, calcium channel blockers, angiotensin converting enzyme inhibitors (ACEIs), metformin |
| Early satiety            | Anticholinergic drugs, sympathomimetic agents  |
| Reduced feeding ability  | Sedatives, opiates, psychotropic agents  |
| Dysphagia                | Potassium supplements, NSAIDs, biphosphonates, prednisolone  |
| Constipation             | Opiates, iron supplements, diuretics   |
| Diarrhoea                | Laxatives, antibiotics   |
| Hypermetabolism          | Thyroxine, ephedrine   |

## Physical factors and malnutrition

Weight loss can result from physical factors such as dysphagia, poor dentition, anorexia, altered taste and smell, and constipation (*Table 1*). Poor chewing and swallowing ability can significantly impact the type and amount of food consumed. Texture modified diets rarely have the same nutritional quality of a full diet, which can send dysphagic patients on a continuous downward spiral leading to protein energy malnutrition.<sup>15</sup>

## Social factors and malnutrition

Poor appetite, inappropriate food choices, food aversion, decreased energy and inability to self feed can result from social factors and can place individuals at risk of malnutrition.

Malnutrition is more common for institutionalised elderly than independently living elderly – with more than 50% of people living in hospitals or nursing homes affected.<sup>15</sup> Obtaining adequate vitamin D can be a challenge for institutionalised and house bound older people who have limited sun exposure.

Living or eating alone causes older people to eat less and increases their risk of compromised nutritional status, with men being particularly vulnerable. Many older people living alone exist on a 'tea and toast' diet that is low in energy, protein and micronutrients. Taste changes often result in a dislike and avoidance of nutrient dense foods (eg. lean meat). These factors place the individual at a higher risk of malnutrition and micronutrient deficiencies.<sup>15</sup>

Restrictive diets due to personal preference, cultural or religious beliefs, or for medical purposes (including low cholesterol, low salt, vegetarian, kosher and halal diets) can increase the risk of protein malnutrition and micronutrient deficiency as they remove or limit common high protein foods.

## Medical conditions and malnutrition

Chronic illness has the ability to alter and limit the type and amount of food consumed (due to pain, anorexia, nausea, fatigue and shortness of breath) and may benefit from nutritional intervention.<sup>3</sup>

Polypharmacy plays a large role in unintentional weight loss. More than 250 drugs impact the intake, absorption, metabolism and excretion of nutrients.<sup>15</sup> *Table 2* summarises the susceptibility of malnutrition from some commonly prescribed medications. *Table 3* provides specific examples of drug nutrient interactions of some common medications.

Constipation is another common complaint in elderly patients resulting from a combination of polypharmacy, low fibre diets and limited fluids.

Cognitive decline and self neglect of isolated older people increases susceptibility to malnutrition and deficiencies in folate, antioxidants and vitamin D.<sup>16</sup> The relationship between malnutrition and cognitive function is complex, with malnutrition likely to be a cause and consequence of cognitive decline.<sup>16</sup> Malnutrition may

cause cognitive deterioration which may influence eating behaviours, resulting in further deficiencies and cognitive issues.

Early identification of depression is important in screening for possible malnutrition. An independent relationship between nutritional deficiencies and depression exists with depression being the greatest factor triggering unintentional weight loss in elderly people.<sup>17</sup> Elderly with chronic medical illnesses and cognitive decline are most susceptible, with bereavement, polypharmacy, disability and social isolation also increasing the likelihood of depression in this group.

## Screening for malnutrition

As often the first point of contact of patient care in the community, general practitioners have the opportunity to identify and assess risk factors leading to compromised nutritional status in elderly patients. No one standard test or biochemical marker is used to indicate or diagnose malnutrition in the elderly. A combination of medical, social, anthropometric, biochemical, clinical and dietary data are required to thoroughly assess, monitor, evaluate and determine appropriate nutritional therapy.<sup>2</sup>

The Subjective Global Assessment (SGA) tool is the 'gold standard' for assessing malnutrition in hospitalised elderly due to its simplicity, accuracy and reliability.<sup>18</sup> The Mini Nutritional Assessment Short Form (MNA-SF) is well validated for early detection of malnutrition in community dwelling elderly people.<sup>19</sup>

Weight alone is inadequate in measuring nutritional status in older people as a stable weight may mask changes in body composition.<sup>9</sup> Adipose tissue replaces muscle mass in normal aging (*Figure 1*)<sup>9</sup> with greater rates being likely in a sick, elderly population.<sup>2</sup>

A body mass index (BMI) range of 22–27 kg/m<sup>2</sup> can be used to determine a healthy weight range in older people. Although age related changes in body composition can make BMI an unreliable indicator of malnutrition,<sup>7</sup> a BMI <20 kg/m<sup>2</sup> is a reasonable threshold to define a high risk of malnutrition.<sup>7</sup>

The Royal Australian College of General Practitioners publication *Guidelines for preventive activities in general practice* (the 'red book') is a useful tool for highlighting possible malnutrition (see *Resources*).

Extended primary care services such as the Medicare Health Assessment for Older Persons for patients over 75 years and Aboriginal and Torres Strait Islanders over 55 years provide the opportunity to assess nutritional status<sup>20,21</sup> and can provide Medicare subsidised access for eligible patients to an Accredited Practising Dietitian (APD) via a team care arrangement.

## Accessing APD services

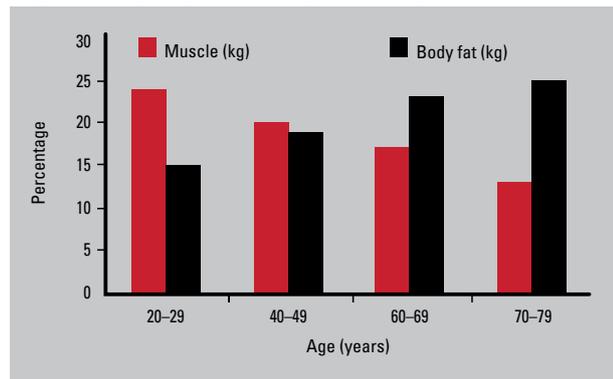
An APD can assess patients, educate and advise on the best dietary approach, liaise with carers and help organise nutritional supplements (as necessary) to manage and prevent unintentional weight loss and malnutrition in elderly patients (see *Resources*).

General practitioners can refer eligible patients to an APD (item 10954) for a maximum of five allied health services using the

Table 3. Specific drug nutrient interactions of common medications<sup>25</sup>

|              | Nutrients impacted   | Clinical symptoms   |
|--------------|--|---|
| Metformin    | Vitamin B12<br>Folate  | Nausea and vomiting<br>Constipation and diarrhoea<br>Weight loss<br>Loss of appetite<br>Altered taste |
| Pantoprazole | Calcium<br>Iron  | Osteoporosis<br>Nausea and vomiting<br>Constipation and diarrhoea                                     |
| Digoxin      | Potassium<br>Magnesium<br>Calcium<br>Thiamine  | Nausea and vomiting<br>Diarrhoea<br>Weight loss<br>Loss of appetite                                   |
| Phenytoin    | Folate<br>Potassium<br>Magnesium<br>Calcium<br>Vitamin B12<br>Biotin<br>Vitamin K<br>Vitamin D | Nausea and vomiting<br>Constipation<br>Weight gain<br>Loss of appetite<br>Altered taste               |

Figure 1. Body composition changes in healthy adult males



Enhanced Primary Care (EPC) program. Referrals must be made using the EPC program referral form for individual allied health services under Medicare.<sup>22</sup>

Frail elderly patients over 65 years of age may be eligible for dietetic services through home and community care.<sup>23</sup> Home and community care APDs support the frail elderly to maintain their independence in the community, enhance quality of life, and prevent premature or inappropriate admission to long term residential care.<sup>24</sup>

## Summary

General practitioners can help prevent and manage malnutrition in elderly patients by:

- weighing elderly patients at every appointment

- noting that a BMI <20 kg/m<sup>2</sup> is likely to indicate underweight in the elderly
- checking for possible muscle wastage, fat gain or oedema – even if weight is constant
- being cognisant that obesity may mask poor nutrition
- annually completing the Medicare Health Assessment for Older Persons >75 years to screen for nutrition risks
- using the RACGP 'red book' to screen for depression, dementia, falls history, polypharmacy and caregivers health
- undertaking tests where appropriate for vitamin B12, folate, calcium, vitamin D and blood glucose
- noting nutritional deficiencies caused by medications
- referring early to appropriate allied health professionals including APDs, dentists, speech pathologists, occupational therapists and physiotherapists.

### Resources

- The Royal Australian College of General Practitioners. 2009. Guidelines for preventive activities in general practice. 7th edn. Available at [www.racgp.org.au/guidelines/redbook](http://www.racgp.org.au/guidelines/redbook)
- To find an APD in your local area, visit the 'Find an APD' section of the Dietitians Association of Australia website at [www.daa.asn.au](http://www.daa.asn.au) or telephone 1800 812 942.

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