1st Edition 06/26

Protein and Bone Health

Why is Protein Important?

Protein provides the building blocks your body needs to maintain and repair muscle and support healthy bones. Strong muscles help stabilise joints, support mobility, and reduce the risk of falls. Adequate protein also supports collagen, bone mass and structure, enhances calcium absorption and helps reduce frailty.

Insufficient protein in your diet can lead to muscle loss and weakness that may impair mobility and impact everyday activities. This can lead to more severe muscle impairment called sarcopenia.

Protein and Food

The best way to achieve the recommended protein intake is to eat a diet rich in protein. Protein content in food varies so it is important to consume 'protein rich' foods. It is easy to add protein to your diet by focusing on food groups which contain higher levels of protein.[1,2]

Food Type	Examples	Serving size	Protein (g per serving)
Meat	Lean beef,lean lamb, lean pork, chicken breast	100g cooked	26-34g
Seafood	Cooked fish Canned tuna/salmon Prawns	100g cooked 1 small tin 100g cooked	23-35g 18-21g 27g
Dairy	Yogurt (natural) Hard cheese (cheddar) Milk (cow, soy) Cottage cheese Ricotta cheese	1 cup/250mL 2 slices/40g 1 cup/250mL 4 tbsp/60g 4 tbsp/60g	13g 10g 8-10g 10g 6g
Other	Eggs Tofu Peanut butter Tahini (sesame seed paste) Green peas (boiled)	2 eggs/100g 150g 2 tablespoons/30g 2 tablespoons/30g 1 cup/160g	14g 13g 8g 8g 8g
Legumes	Canned chickpeas, brown lentils, red kidney beans, edamame beans, baked beans	1/2 cup/120g	6-10g
Cereal/Grains	Breakfast cereal A serve of falafel	100g 3-5 balls	7g 5g
Nuts and Seeds	Almonds, peanuts, walnuts , pumpkin seeds	2 tbsp/30g	4-9g

Refer to Protein Food List

Protein and older adults (>65 years)

Protein needs in older adults increase compared to middle aged and younger adults. Older adults can benefit from higher protein intake to help maintain muscle mass, strength and physical function. With ageing:

- Muscle mass and strength naturally declines
- The body becomes less efficient at using dietary protein
- Appetite may decrease which can lead to low dietary protein intake
- The risk of falls and fractures increase.

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Recommended Protein Intake

Protein needs vary based on age, with the recommended intake increasing for older adults (over 65 years) and for those at-risk or with sarcopenia. Current advice for this group is to consume 1.0-1.5 g of protein per kilogram of bodyweight per day.[3] For example:

- If you weigh 55kg, you will need 55-83g of protein per day
- If you weigh 65kg, you will need 65-98g of protein per day
- If you weigh 75kg, you will need 75-113g of protein per day
- If you weigh 85kg, you will need 85-128g of protein per day

What is Sarcopenia?

Sarcopenia is a disease characterised by low muscle mass and strength which can affect walking, balance and everyday activities such as standing from a chair, leading to a loss of independence and reduced quality of life. An Australian study of institutionalised older adults found that improved protein intake reduced falls and fractures.[4]

How is Poor Muscle Health Assessed?

Health professionals use a structured approach to identify people at risk of poor muscle health or sarcopenia. The Australian and New Zealand Society for Sarcopenia and Frailty Research[5] sets out a clear approach for assessing muscle function if someone is at risk for poor muscle health.

Step 1: Involves identifying whether a person has any recognised risk factors associated with poor muscle health. If one or more risk factors are present, further screening is recommended (Step 2).

Step 2: Involves a questionnaire (can be self-administered) and/or a physical assessment (completed with a health professional). The questionnaire is known as SARC-F: Strength, Assistance in Walking, Rise from a chair, Climb stairs, Falls. The assessment includes five components, with each component scored from 0 to 2 according to the person's ability to complete the task. The scores are then added to give a total score. A total score of 0–3 indicates a low risk of sarcopenia, while a score of 4 or more suggests the person may be at risk of sarcopenia and may need further physical assessment and/or intervention.

The physical assessments can include one or more of the following:

- Hand grip strength test
- Standing and sitting from a chair 5 times
- Three metre timed 'up-and-go' walking test

Step 3: The results of the assessment help guide the next steps. Depending on the findings, this may involve general prevention advice or a more personalised management plan with support from healthcare professionals. This may include:

- Exercise, especially resistance-based exercises (people on a management plan should be referred to an Accredited Exercise Physiologist)
- Nutrition, including adequate protein intake (people on a management plan should be referred to an Accredited Practising Dietitian)
- Additional Nutrition Support when needed, including the use of an oral nutrition protein enriched supplements or multi-nutrient supplements. This may include a ready-to-drink nutrition supplement or a protein powder added to foods and drinks.

Protein and Bone Health cont.

Protein Supplements

Protein supplements (such as powders or ready-to-drink products) can assist older adults to achieve adequate protein intake, especially in those who:

- have reduced appetite
- struggle to meet protein needs from their diet
- are recovering from illness or hospitalisation
- are found to have poor muscle health
- have diagnosed sarcopenia

Supplements should be considered with guidance from a health professional.

Exercise Combined with Protein

Exercise should be combined with adequate protein to optimise muscle mass, strength and physical function.

For people living with sarcopenia or at-risk of falls exercise programs should be developed by qualified health professionals – physiotherapist or exercise physiologist - and be supervised. Exercises should include a combination of resistance training, challenging balance exercises and 'functional' movements (that mimic activities of daily living such as standing from a chair, climbing stairs, or carrying groceries).[6]

Other Common Risk Factors for Osteoporosis

Review other common risk factors for osteoporosis. If any risk factors apply to you – discuss these with your doctor.

Personal History	Medical Conditions	Medications
Family history of osteoporosis (parent/sibling)	Coeliac disease	Certain treatment for breast cancer
Previous fracture (from minor bump or fall)	Overactive thyroid or parathyroid	Certain treatment for prostate cancer
Loss of height (3 cm or more)	Rheumatoid arthritis	Glucocorticoids (steroids)
Smoking/Excessive alcohol	Early menopause/Low testosterone	Anti-epilepsy treatment
Inadequate calcium, vitamin D or lack of exercise	Chronic kidney disease or liver disease	
Age 70 years and over	Diabetes	

[1] Queensland Health. (2023). *Protein for older adults*. Nutrition Education Materials Online (NEMO). https://www.health.qld.gov.au.

[2] *Australian Food Composition Database - Release 3.0 | Food Standards Australia New Zealand*. (2023). Foodstandards.gov.au. https://www.foodstandards.gov.au/science-data/food-nutrient-databases/afcd/search

[3] Healthy Bones Australia. (2025). *Position Statement on the Management of Osteoporosis*. Healthy Bones Australia . https://healthybonesaustralia.org.au/health-care-professionals/gp-resources/

[4] Iuliano, S., Poon, S., Robbins, J., Bui, M., Wang, X., Groot, L. D., Loan, M. V., Zadeh, A. G., Nguyen, T., & Seeman, E. (2021). Effect of dietary sources of calcium and protein on hip fractures and falls in older adults in residential care: cluster randomised controlled trial. *BMJ, 375*(375), n2364. https://doi.org/10.1136/bmj.n2364

[5] Australian & New Zealand Society for Sarcopenia & Frailty Research. (n.d.). Australian & New Zealand Society for Sarcopenia & Frailty Research. https://anzssfr.org/

[6] Daly RM, Iuliano S, Fyfe JJ, Scott D, Kirk B, Thompson MQ, et al. *Screening, diagnosis and management of sarcopenia and frailty in hospitalized older adults: recommendations from the Australian and New Zealand Society for Sarcopenia and Frailty Research expert working group.* J Nutr Health Aging. 2022;26(6):637–651.