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Australia's National Science Agency

Protein for Weight Loss

What the evidence tells us

April 2026

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The protein story

Report Summary

Protein requirements might be higher than you think

On average, Australians appear to be getting enough protein for general health. But for the two in three adults who are overweight or obese, and for older Australians, current intakes could fall short of what is needed for optimal weight loss and healthy ageing.

Think protein first for weight management

Protein is more satiating than carbohydrates or fat and eating enough may help to reduce overall kilojoule intake. Prioritising protein at every meal is one effective strategy for managing weight and reducing cravings.

Higher protein intakes are needed for healthy ageing

Adequate protein intake is essential for healthy ageing, helping to preserve muscle and bone strength as we get older. Because ageing reduces the body's ability to use protein efficiently, older adults may need more protein than the average Australian is currently consuming.

Whole food proteins are the best choice

Diets high in ultra-processed foods can dilute dietary protein, meaning people might eat more to meet their protein needs. Choosing high quality, whole food sources – lean meat, fish, eggs, dairy, nuts and legumes – provides more protein per kilojoule and stronger satiety signals.

People using weight loss medication may not be getting enough protein

Emerging research suggests that people using GLP-1 receptor agonists for weight management are at risk of falling short of recommended nutrient intakes, particularly protein, with fewer than one in ten meeting their daily requirements. Given that these medications reduce overall food intake, prioritising protein-rich whole foods becomes even more important.

The CSIRO Total Wellbeing Diet: built around protein

The CSIRO Total Wellbeing Diet is designed around the latest protein-science, with at least 25 g of protein at every main meal to support hunger management, reduce cravings and preserve muscle mass during weight loss. For those who find changing eating habits difficult, the Fast Start program offers a structured, high-protein entry point to help build confidence and achieve early results.

Protein needs are personal – find out yours

Protein requirements vary depending on age, weight, sex and health goals. Our free online protein calculator at totalwellbeingdiet.com/protein helps Australians find their personal target.

Background

Obesity is a global public health challenge. In Australia, two-thirds of adults are classified as overweight or obese,[1] and this is expected to increase to more than three-quarters of the adult population by 2030.[2] There is growing recognition that nutrition plays a crucial role in the development of obesity and weight management across the life course.[3]

Weight management is influenced by a range of complex factors including the amount and types of food consumed. Creating an energy deficit is one important factor in weight loss, but being able to sustain a lower-kilojoule diet for an extended period of time can be difficult. The macronutrient composition of the diet, such as higher protein and the timing of meals, may also be related to weight loss success.

With most adults struggling to control their weight, it is important that the latest nutrition science is communicated in a way to support improvements in diet quality and promote longer-term, sustained weight loss.

About Total Wellbeing Diet Online

In late 2014, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Digital Wellness launched an online version of the CSIRO Total Wellbeing Diet. The dietary components of the Total Wellbeing Diet were developed through clinical trials, which provided the scientific substantiation that a higher protein, lower carbohydrate diet is safe and effective in weight loss and disease risk management.[4,5] This science was initially translated into a series of popular books and then more recently an online platform.[6,7]

The Total Wellbeing Diet is a 12-week higher-protein dietary plan, structured around three meals (breakfast, lunch, and dinner) and two snacks each day. The diet uses a food group system where portions of food are presented as standard units for: fruit, vegetables, meat and alternatives, breads and cereals, dairy foods, healthy fats and oils, and indulgences. Meals are designed around a template of standard units, which ensures daily allowances of food groups are met and provides optimal nutrition and energy to promote weight loss.

There is also an option to use meal replacements for the first three weeks of the program. In this menu plan, up to two meals per day can be replaced with a high protein, high fibre meal replacement shake, combined with a healthy balanced main meal.

Aim of this report

This report reviews recently published scientific research around the importance of dietary protein in relation to the personalised needs of Australians trying to manage their weight.

Why protein matters

What is protein

Protein is composed of amino acids that are the building blocks required for the structure and function of tissues and metabolic processes in the human body. Proteins are made up of 20 amino acids, nine are essential amino acids that we must get through our diet because the body cannot make them in adequate amounts.

Protein, carbohydrate and fat are the key macronutrients in our diet. Protein is a source of energy, providing 17 kilojoules per gram.

The nutritional quality of specific proteins depends on the essential amino acid profile and the bioavailability of the protein. Animal source proteins tend to have higher digestibility and more complete amino acid profiles, but many plant proteins can meet requirements when consumed within varied diets.

Protein is continuously made and broken down by the body. The body doesn't store protein; therefore, adequate amounts of protein from the diet are required to support the body to function.

The role of protein

Protein has many roles in the body.

- Protein is essential for growth and repair of body tissues including lean body mass
- Proteins are required to make enzymes, hormones and other metabolic compounds.
- Protein contributes to satiety, feeling of fullness, and appetite regulation.
- Protein plays a critical role in the muscle synthesis, maintenance of muscle mass and strength, and recovery from activity, injury or illness.

Benefits of protein for weight management

Protein in our diet may have a positive effect on weight management.

- Biological drive for protein: The “protein leverage” hypothesis proposes that humans may prioritise meeting our protein needs, which could influence overall energy intake when diets are relatively low in protein.
- Metabolic enhancement: Protein has a higher thermic effect than carbohydrate or fat, which may slightly increase energy expenditure and may help offset the decrease in metabolic rate that can occur with energy restriction.
- Better appetite control: Protein is generally more satiating than carbohydrate or fat and can increase satiety signals (e.g., gut hormones), helping people feel fuller after meals.
- Reduced food cravings: Higher-protein meals may reduce cravings in some people, potentially by altering how the brain responds to food cues.
- Improved body composition: During weight loss, higher protein intakes can help preserve lean body mass and may support a greater proportion of fat loss (particularly when combined with resistance training).

Review of the science

This section summarises scientific evidence on higher-protein dietary patterns and weight loss from recently published systematic reviews and meta-analyses.

Protein for weight loss

An umbrella review (a review of systematic reviews) found little evidence that simply increasing protein changes body weight, fat mass or waist circumference when total kilojoules are unchanged. However, when higher protein was part of a lower-kilojoule diet, the evidence more consistently supported modest reductions in body weight and fat mass. The authors noted that many of the underlying reviews were low quality, meaning confidence in this finding was limited.[8]

Two other systematic reviews, with meta-analysis, have reported that higher-protein diets lead to greater weight loss than lower-protein diets. One of these reviews included 37 studies in adults living with obesity and reported that higher-protein diets led to 1.6 kg (95% CI 1.2 to 2.0) greater weight loss than lower-protein diets.[9] The other review, not specifically in adults with obesity, reported an increase in weight loss of 0.64 kg (95% CI: -1.12, 0.17) with higher-protein compared to lower-protein diets.[10]

Some studies reported poor adherence to the prescribed, higher-protein diets, even in controlled clinical trials, so the effect could possibly be larger when people are able to follow the diet plan more closely.[9]

Protein and lean mass

Weight loss in individuals with obesity can be accompanied by a reduction in lean (muscle) mass. A systematic review of randomised controlled trials found that higher protein intakes significantly reduced the loss of muscle mass in adults with overweight or obesity undertaking weight loss; however, higher protein did not prevent declines in muscle strength or physical function. The review suggested that protein intakes >1.0 g per kg body weight per day may help limit loss of muscle mass during weight loss interventions, and intakes >1.3 g/kg/day may potentially increase muscle mass.[11]

Protein and other health outcomes

Higher-protein diets have been associated with small but favourable effects on systolic blood pressure, some lipid outcomes and insulin, compared with lower-protein diets.[10] In a systematic review of 26 trials, with meta-analysis, higher-protein diets produced a greater reduction in systolic blood pressure of 1.16 mm Hg (95% CI: 2.13 to 0.20) compared to lower-protein diets. This effect was less evident among participants aged <50 years and in studies shorter than 12 weeks.[10]

The same review reported modest improvements in total cholesterol and triglycerides with higher-protein compared with lower-protein diets, but no clear effects for HDL or LDL cholesterol. The meta-analysis estimated a greater reduction in total cholesterol of 0.08 mmol/L and a greater reduction in triacylglycerol of 0.12 mmol/L for higher-protein diets. The review also reported a statistically significant lowering effect on insulin compared with lower-protein diets.[10]

While higher-protein diets have been associated with favourable effects on markers of cardiovascular health,[10] another review that examined cardiovascular outcomes in relatively healthy adults found no benefit of higher-protein diets for outcomes such as stroke, myocardial infarction or death.[12]

Findings from reviews on the relationship between higher-protein diets and Type 2 Diabetes are mixed. An umbrella review reported higher protein intake may be associated with an increased risk of Type 2 diabetes.[13] However for people with established Type 2 Diabetes, higher-protein diets (generally defined as >30% of energy or >1.0 g/kg/day) may benefit insulin sensitivity and cardiometabolic markers such as reductions in insulin resistance, LDL cholesterol, and triglycerides, but do not appear to significantly improve glycaemic control.[14,15]

How much protein do we need?

Recommended intakes in Australia

The Nutrient Reference Values for Australia and New Zealand[16] are a set of evidence-informed recommendations for the intake levels of essential nutrients considered adequate to meet nutritional needs of the general population.

There is an estimated range of intake which allows for an adequate intake of protein, and other macronutrients, whilst maximising general health outcomes.

It is recommended that protein provides between 15-25% of total dietary energy.

Protein requirements can vary by sex and over life stages.

The recommended protein intake for men aged 19-70 years is 0.68 g to 0.84 g per kg body weight and for women 0.60 g to 0.75 g per kg body weight.

Recommendations for older adults are 0.86 g to 1.07 g per kg body weight for men and 0.75 g to 0.94 g per kg body weight for women.

Table 1. Protein requirements for Australians

Age	Estimated Average Requirement (EAR)	Recommended Dietary Intake (RDI)
Men		
19-30 years	52 g/day (0.68 g/kg)	64 g/day (0.84 g/kg)
31-50 years	52 g/day (0.68 g/kg)	64 g/day (0.84 g/kg)
51-70 years	52 g/day (0.68 g/kg)	64 g/day (0.84 g/kg)
>70 years	65 g/day (0.86 g/kg)	81 g/day (1.07 g/kg)
Women		
19-30 years	37 g/day (0.60 g/kg)	46 g/day (0.75 g/kg)
31-50 years	37 g/day (0.60 g/kg)	46 g/day (0.75 g/kg)
51-70 years	37 g/day (0.60 g/kg)	46 g/day (0.75 g/kg)
>70 years	46 g/day (0.75 g/kg)	57 g/day (0.94 g/kg)

Source: Nutrient Reference Values for Australia and New Zealand – Protein, National Health and Medical Research Council, 2006. Available from: https://www.eatforhealth.gov.au/nutrient-reference-values/nutrients/protein[16]

Different needs for different people

Healthy ageing

Older adults are at an increased risk of conditions such as sarcopenia (age-related loss of muscle mass) and osteoporosis (reduced bone density) which can lead to reduced physical strength and function, compromising individuals' independence, quality of life, and overall health and well-being.[17, 18] Adequate protein intake plays an important role in mitigating these risks.

Ageing is associated with lower muscle protein synthesis, meaning that older adults may also need more protein to offset this anabolic resistance.[19]

Emerging evidence indicates that protein intakes above the recommended dietary intakes are warranted for older populations.[20] Protein intake of at least 1.0-1.2 g/kg/day has been suggested for healthy, ageing populations.[20, 21] For those with chronic or acute conditions, even higher intakes (1.2-1.5 g/kg/day) are recommended to promote muscle and bone strength, immune health, and overall quality of life.[22] In more severe cases of illness, malnutrition, and chronic conditions, recommendations can increase to 2.0 g/kg/day.[22]

Women's health

Menopause is associated with an increased risk of developing obesity, metabolic syndrome, cardiovascular disease, sarcopenia and osteoporosis.[23, 24] The progressive decline in oestrogen contributing to menopause is associated with weight gain and changes in body composition, an accelerated decline in bone mineral density and decreased muscle mass and strength.[23, 25] When oestrogen is deficient, the balance of muscle protein is also disrupted, shifting from protein synthesis toward protein breakdown, contributing to the muscle wasting observed in some postmeno-pausal women.[26]

Protein plays a particularly important role during this life stage in preserving lean mass and managing changes in appetite and body composition.[27] The European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO) recommend protein intake of 1.0-1.2 g/kg/day for postmenopausal women to support bone health, muscle mass and muscle strength.[28]

A more recent narrative review found that, while higher protein intake was associated with greater muscle mass and strength in postmenopausal women among observational studies, evidence from interventions remains limited. The authors conclude that a minimum intake of 0.8 g/kg/day should be met, with higher intakes likely beneficial.[27] It is worth noting that recommendations for this life stage largely draw on the broader literature for older adults.[27]

Active people

Protein plays a critical role in supporting the physiological demands of physical activity and exercise training, particularly for muscle repair, adaptation, and recovery. Regular exercise, particularly resistance training, substantially increases dietary protein requirements.[29, 30]

The International Society of Sports Nutrition (ISSN) recommends an overall daily protein intake of 1.4-2.0 g /kg/day for most exercising individuals to build and maintain muscle mass, with higher intakes of >3.0 g/kg/day potentially beneficial for promoting fat mass loss in resistance-trained individuals.[29] A recent systematic review and meta-analysis of 74 randomised controlled trials supports this guidance, finding that intakes of ≥1.6 g/kg/day produced significant additional gains in lean body mass, particularly in younger adults undertaking resistance exercise.[30]

Protein considerations for GLP-1 usage

Use of glucagon-like peptide-1 (GLP-1) receptor agonists for obesity management is increasing. Because these medications commonly reduce appetite and overall kilojoule intake, there is growing attention on potential nutritional risks during longer-term use, particularly if people find it difficult to eat enough nutrient-dense foods.

Emerging research in people using GLP-1s has reported dietary patterns of low intakes or deficiencies in some nutrients, particular for vitamin D, iron and B vitamins.[31] There is also concern that some weight lost during GLP-1 treatment may come from lean body mass, which strengthens the rationale for prioritising adequate protein and calcium. One study within this review specifically analysed 3-day food records from 69 GLP-1 users, finding 72% of participants consumed less than the recommended daily intake for calcium and fewer than 10% met recommended protein levels.[32] Most studies on nutrient intakes in GLP-1s users are observational (e.g., database or cross-sectional analyses), so these findings show an association rather than proving cause and effect; larger prospective studies are needed to confirm the extent of these risks.

Specific diets or eating patterns

The National Nutrition and Physical Activity Survey was conducted in 2023/2024 by the Australian Bureau of Statistics. This survey was designed to collect information about the food and nutrient intakes of Australians using 24-hour dietary recall. Data was collected from about 8,600 adults and the results weighted to reflect the general Australian population.[33]

This survey suggests that around one in four Australians are following a specific diet or eating pattern.

- 31% reported to follow an energy restricted diet.
- 4% reported to follow a high protein diet and 10% a low carbohydrate diet.
- 5% described themselves as vegetarian or vegan.
- 22% reported to follow a low meat or meat free diet.

While dietary restriction can support weight loss for some people, it may also increase the risk of nutrient shortfalls if food choices become too limited – so balance and variety remain important, especially when reducing kilojoules for weight loss.

Around one in five Australians reported to follow a low meat or meat free diet, which could be for cultural, ethical or other reasons. A meta-analysis of two cross-sectional studies reported higher animal-protein intake was linked with 18% higher odds of obesity (OR 1.18; 95% CI 1.12–1.24). In these studies, animal-protein intakes of around 45–68 g/day (about 9–11% of total energy, on average) were associated with obesity.[34]

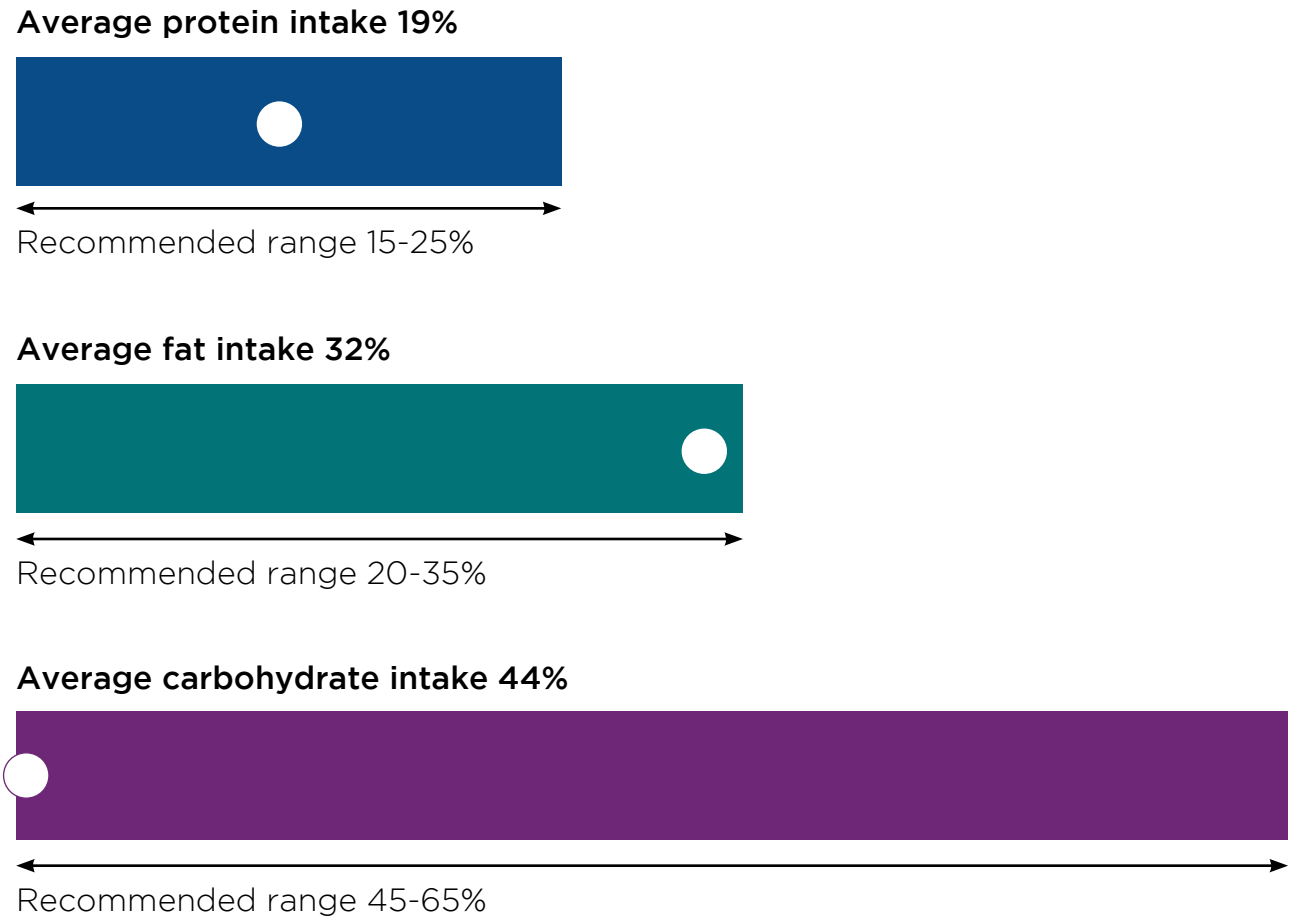
With only two studies, and both cross-sectional, these findings do not mean that animal protein itself causes weight gain. The overall dietary pattern, including food choices, portion sizes and total kilojoules, also need to be considered. But some animal-protein foods (or the ways they are commonly prepared) are more energy dense and can be higher in saturated fat, which may contribute to excess intake. More research is needed to understand whether the association differs by the type of protein-rich food (e.g., lean meats, processed meats, dairy, seafood) and by overall diet quality.[34]

Are Australians getting enough protein?

Population protein intake

Data from the National Nutrition and Physical Activity Survey 2023/2024 reported the average protein intake for Australian adults was 90.8 g per day which equates to 19% of daily energy.[33] This is within the Acceptable Macronutrient Distribution Range for protein of 15-25% of energy.

Figure 1. Percentage of energy from macronutrients among Australians



Note: The remaining ~5% of energy comes from dietary fibre and alcohol.

Who eats more protein

- Males consume more protein per day than females. The average intake for Australian males is 103 g compared to 79 g for females.
- Younger Australians consume more protein than older Australians. Males aged 18-29 years consume an average of 112 g compared to 101 g for males aged 50-64 years and 86 g for males aged 75 years and over. Females aged 30-49 years consume an average of 83 g compared to 70 g for females aged 75 years and over.

Table 2. Grams of protein, by sex and age group

Age	18-29 years	30-49 years	50-64 years	65-74 years	75 years+	18 years+
Adults	96.0	95.6	88.8	82.0	77.2	90.8
Males	111.7	108.7	100.6	90.7	85.6	103.4
Females	79.5	83.2	77.5	73.9	69.9	78.7

Source: National Nutrition and Physical Activity Survey, 2023 | Australian Bureau of Statistics.[33]

Protein choices of Australians

High protein foods most commonly consumed by Australians are dairy foods, particularly milk and cheese, and meat and poultry products.

Milk and dairy

- 69% of Australians reported consuming milk and milk products.
- 47% reported to consume dairy milk, and the average amount was 152 g.
- 22% of Australians reported to consume cheese and the average was 27 g.

Meat and poultry

- 63% of Australians reported consuming meat and poultry products.
- The proportion consuming red meat and poultry was similar. The average amount consumed was 125 g for red meat and 120 g for chicken.

Fish and seafood

- 15% of Australians reported consuming fish and seafood products and the average amount was 105 g.

Egg products

- 20% of Australians reported consuming eggs or egg products and the average amount was 90 g.

Plant-based proteins

- 16% of Australians reported consuming nuts and seeds. The average amount was 30 g.
- 9% reported consuming dairy and meat substitutes like soy and oat milk, and meat substitutes. The average amount was 169 g.
- Legume and pulses were consumed by almost 7% of Australians and the average amount was 151 g, although this ranged from 85 g in the 75+ year-old age group to 217 g in the 18-29 year-old age group.

Protein foods: best sources

Protein foods: best sources

Protein is found in a variety of foods, including animal and plant-based foods. The "best" protein sources will vary depending on:

- The amount, quality and bioavailability of protein
- Individuals' taste preferences, cultural or ethical considerations
- The cost and availability of foods within the local environment

Animal vs plant proteins: a balanced mix

Animal and plant-based foods contribute meaningfully to protein intake.

Animal-based protein foods generally have a higher-quality profile with all essential amino acids. They often have a higher protein concentration per serve and lean protein choices are particularly useful for weight management.

Examples include:

- Lean meats (e.g. skinless chicken, lean beef, pork loin)
- Fish and seafood
- Eggs
- Reduced-fat milk, yoghurt and cheese

Plant-based protein foods can contribute protein alongside fibre, vitamins and minerals. Plant-based protein foods may require larger serves or greater variety to achieve similar amounts of protein as animal-based sources.

Examples include:

- Legumes (lentils, chickpeas, beans)
- Tofu and tempeh
- Nuts and seeds
- Whole grains

A mix of animal and plant-based protein foods can increase diet variety, support nutritional adequacy while also align with personal values, cultural preferences and sustainability considerations.

Australian research examining adult dietary patterns with higher compliance with the Australian Dietary Guidelines and lower environmental impact found that diets containing around 60-80% animal-sourced protein (and 20-40% plant-based protein) were most nutritionally complete – meeting the greatest number of nutrient targets.

This balance of protein was the most common pattern of eating among Australians.[35]

It is important to note that avoiding animal-based foods for ethical, cultural or personal reasons is not inherently problematic for health or weight management, however vegetarian and vegan diets need to be well planned to support adequate protein intake and overall nutritional needs. This is particularly important for nutrients like vitamin B12, iron, zinc, iodine, calcium and omega-3 fatty acids.[36, 37]

Whole foods vs ultra-processed "protein" products

Whole and minimally processed protein foods should form the foundation of protein intake for weight management.

Emerging evidence suggests that diets higher in ultra-processed foods may contribute to "protein dilution", where a lower proportion of total dietary energy comes from protein.

When dietary protein is diluted by highly refined carbohydrates and fats, people may compensate by eating more food to meet protein needs, increasing total energy intake and the risk of weight gain.[38, 39]

Protein from whole or minimally processed foods:

- Typically, provide more protein per kilojoule
- Produce stronger satiety signals (more filling)
- Provide additional nutrients such as iron, calcium, fibre and healthy fats
- Less likely to be accompanied by excess added fats, sugars and sodium

For weight management, prioritising protein from whole foods over ultra-processed "high-protein" products may help maintain adequate protein intake while reducing excessive energy intake.

High protein whole foods

LEAN BEEF
150 G RAW

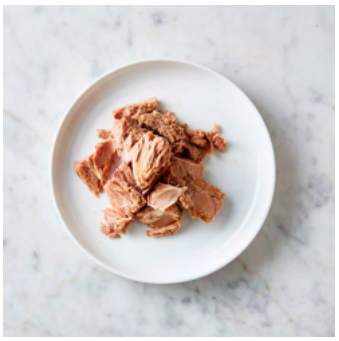
33 G PROTEIN | 915 KJ

CHICKEN
150 G RAW

33 G PROTEIN | 660 KJ

WHITE FISH
150 G RAW

30 G PROTEIN | 720 KJ



TUNA
150 G RAW

19 G PROTEIN | 710 KJ

MILK
1 CUP

10 G PROTEIN | 550 KJ

HIGH PROTEIN MILK
1 CUP

15 G PROTEIN | 535 KJ

HIGH PROTEIN YOGHURT
170 G TUB

15 G PROTEIN | 575 KJ

CHEESE
35 G

9 G PROTEIN | 600 KJ

EGGS
2 (50 G EACH)

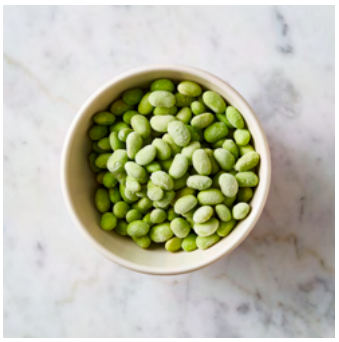
12 G PROTEIN | 600 KJ

TOFU
100 G

12 G PROTEIN | 530 KJ

NUTS
30 G

7 G PROTEIN | 745 KJ



LEGUMES
1/2 CUP

7 G PROTEIN | 450 KJ

Budget friendly and practical options

Including a variety of proteins can help to meet daily protein requirements. Practical strategies for budget friendly protein choices include:

- **Use frozen or canned alternatives.** These are often cheaper, last longer and can be nutritionally similar to fresh foods. Look for low or no-added-salt options where possible.
- **Choose generic or home-brand products.** They can be cheaper and nutritionally comparable to branded options.
- **Plan snacks and meals ahead of time.** Planning meals, and freezing leftovers, can help reduce waste and save money.
- **Consider buying in bulk.** Buy with a friend or freeze and store foods appropriately to extend shelf life. With dairy-based proteins like yoghurt, larger tubs can be cheaper per serve than individual portions.
- **Check clearance and sale items.** Reduced-price meat, fish or dairy can offer good value if used promptly or frozen.
- **Use plant-based proteins in mixed meals.** Adding lentils to a beef bolognaise or casserole, for example, can add protein and help the meat to go further in a meal.
- **Be flexible with protein choices**. When weather events or other national issues push up prices, switch to alternative protein choices. For example, when beef is expensive, pork or canned fish could be a cost-effective substitute.
- **Choose home-prepared meals** and snacks instead of packaged "high protein" products.
- **Add a natural protein boost.** Nutritional yeast is an affordable, versatile ingredient that adds flavour and around 7 g of protein per serve (2 tablespoons) to dishes like soups, casseroles and pasta sauces.
- **Shop around for the best prices.** Local shops, markets and independent businesses can sometimes offer competitive value.

With thoughtful planning and flexible food choices, affordable protein-rich diets can support health and weight management.

Supplements, shakes and meal replacements

Dietary supplementation

The National Nutrition and Physical Activity Survey suggested about one in three Australians (30%) report to take a vitamin or mineral supplement, with older Australians aged 65+ years most likely to take a supplement.

Only 1.5% of Australians take a protein or amino acid supplement, however this varied with age. Protein supplementation was higher than average in males aged 18-49 years, with around 2.2% taking a protein supplement. Whereas in females, supplementation was higher than average for those aged 50-64 years and 65-74 years – with 2.4% and 2.9% respectively taking a protein supplement.

Protein supplements – who might benefit

Protein supplements may include protein powders, bars and drinks. They are intended to supplement the diet, not be the main source of nutrition. People at risk of meeting their protein needs from food alone or who have higher protein requirements might benefit from supplementation. These groups include:

- Older adults at risk of sarcopenia or with low appetite where extra protein may help to meet their protein requirements and preserve muscle mass.
- People who may struggle to eat enough protein within a kilojoule restricted diet and supplements may be a practical way to eat more protein.
- Active people undertaking resistance training who cannot meet higher protein targets through food alone.

Meal replacement shakes

Food Standards Australia and New Zealand (FSANZ) describe meal replacements as a food that is specifically formulated to replace one or more meals of the day, but not as a total diet replacement. Formulated meal replacements need to meet a set of minimum requirements per serving, including at least 12 g of protein, plus 25% of the recommended daily requirements for specified vitamin/minerals. Meal replacements consumed as part of a structured program can help adults with obesity who:

- Need structure to help create an energy deficit.
- Have strong cravings, where temporarily reducing exposure to food may help.
- Would benefit from greater early weight loss to improve motivation and adherence to a balanced weight loss program longer term.

Find out how much protein you need

Protein needs are not one-size-fits-all. As the evidence in this report shows, protein requirements depend on a range of individual factors and getting the right amount can make a meaningful difference to weight loss success and longer-term health.

To make it easier for Australians to understand their personal protein needs, CSIRO Total Wellbeing Diet has developed a free online protein calculator. By entering a few basic details including current weight, age, sex and health goals, Australians receive a personalised protein target. Results include both a minimum daily target and an ideal range, along with practical guidance on how to reach it through high quality whole foods.

Knowing your personal protein target is a useful first step toward getting optimal protein each day, whether the goal is weight loss, healthy ageing, or maintaining muscle mass and strength.

The protein calculator is available at **totalwellbeingdiet.com/protein**

Protein balance: spreading protein across the day

Most Australians eat the majority of their protein at the evening meal, with average breakfast and lunch protein intakes, particularly for women, well below the levels associated with benefits for appetite control and muscle health. Aiming for at least 25 g of protein at each main meal and spreading intake more evenly across the day can help to manage hunger, reduce cravings and help preserve muscle mass during weight loss.

As this report has detailed, optimal protein intakes for weight loss are higher than the standard recommended dietary intake, particularly for people who are older, overweight or obese and wanting to lose weight and retain muscle.

Based on scientific evidence, the CSIRO Total Wellbeing Diet provides about 1.2-1.6 g of protein per kg body weight.

For an Australian woman weighing around 70 kg, this translates to a daily protein target of 85-110 g per day. For an Australian man weighing around 90 kg, the equivalent target is 110-145 g per day.

CSIRO's Total Wellbeing Diet, a higher-protein weight loss program followed by more than 200,000 Australians, provides 95-150 g of protein per day, depending on a person's energy requirements and chosen meal plan. Every main meal is built around at least 25 g of protein, spread evenly across the day to support hunger management and reduce cravings.

Example of the protein distribution on the Total Wellbeing Diet

Her protein needs are 85-110 g per day based on her weight of 70 kg

- 25 G BREAKFAST
- 25 G LUNCH
- 40 G DINNER
- 10 G SNACKS

His protein needs are 110-145 g per day based on a weight of 90 kg

- 30 G BREAKFAST
- 30 G LUNCH
- 50 G DINNER
- 15 G SNACKS

An easy way to get started: the Fast Start approach

For people who struggle with cravings or find it difficult to change eating habits, getting started can be the hardest part of any weight loss program. In 2022, CSIRO developed Fast Start to provide an accessible, structured entry point into a healthy, higher-protein, whole foods diet.

For the first three to six weeks, participants replace breakfast and lunch with high-protein meal replacement shakes providing 25 g of protein per serve, and have a regular Total Wellbeing Diet dinner. As confidence grows, healthy whole food meals are gradually reintroduced at breakfast and lunch, supporting a smooth transition to a full higher-protein eating pattern.

Research into Fast Start found that 80% of participants felt better in control of their cravings by week three, and hunger levels dropped significantly over the program. Among those who completed 12 weeks, 75% achieved clinically meaningful weight loss of 5% or more of their starting body weight.[40, 41]

References

1. Australian Institute of Health and Welfare (AIHW). A picture of overweight and obesity in Australia. Canberra 2017.
2. Australian Bureau of Statistics (ABS). National Health Survey - Information on health behaviours, conditions prevalence, and risk factors in Australia Canberra 2023 [Available from: https://www.abs.gov.au/statistics/health/health-conditions-and-risks/national-health-survey/latest-release.
3. World Health Organization (WHO). Healthy diet 2026 [Available from: https://www.who.int/health-topics/healthy-diet#tab=tab_1.
4. Farnsworth E, Luscombe ND, Noakes M, Wittert G, Argyiou E, Clifton PM. Effect of a high-protein, energy-restricted diet on body composition, glycemic control, and lipid concentrations in overweight and obese hyperinsulinemic men and women. Am J Clin Nutr. 2003;78(1):31-9.
5. Noakes M, Keogh JB, Foster PR, Clifton PM. Effect of an energy-restricted, high-protein, low-fat diet relative to a conventional high-carbohydrate, low-fat diet on weight loss, body composition, nutritional status, and markers of cardiovascular health in obese women. Am J Clin Nutr. 2005;81(6):1298-306.
6. Hendrie GA, Baird DL, Brindal E, Williams G, Brand-Miller J, Muhlhausler B. Weight Loss and Usage of an Online Commercial Weight Loss Program (the CSIRO Total Wellbeing Diet Online) Delivered in an Everyday Context: Five-Year Evaluation in a Community Cohort. J Med Internet Res. 2021;23(6):e20981.
7. Hendrie GA, Baird DL, James-Martin G, Brindal E, Brooker PG. Weight Loss Patterns and Outcomes Over 12 Months on a Commercial Weight Management Program (CSIRO Total Wellbeing Diet Online): Large-Community Cohort Evaluation Study. J Med Internet Res. 2025;27:e65122.
8. Ellinger S, Amini AM, Haardt J, Lehmann A, Schmidt A, Bischoff-Ferrari HA, et al. Protein intake and body weight, fat mass and waist circumference: an umbrella review of systematic reviews for the evidence-based guideline on protein intake of the German Nutrition Society. Eur J Nutr. 2024;63(1):3-32.
9. Hansen TT, Astrup A, Sjödin A. Are Dietary Proteins the Key to Successful Body Weight Management? A Systematic Review and Meta-Analysis of Studies Assessing Body Weight Outcomes after Interventions with Increased Dietary Protein. Nutrients. 2021;13(9).
10. Vogtschmidt YD, Raben A, Faber I, de Wilde C, Lovegrove JA, Givens DI, et al. Is protein the forgotten ingredient: Effects of higher compared to lower protein diets on cardiometabolic risk factors. A systematic review and meta-analysis of randomised controlled trials. Atherosclerosis. 2021;328:124-35.
11. Kokura Y, Ueshima J, Saino Y, Maeda K. Enhanced protein intake on maintaining muscle mass, strength, and physical function in adults with overweight/obesity: A systematic review and meta-analysis. Clin Nutr ESPEN. 2024;63:417-26.
12. Mantzouranis E, Kakargia E, Kakargias F, Lazaros G, Tsioufis K. The Impact of High Protein Diets on Cardiovascular Outcomes: A Systematic Review and Meta-Analysis of Prospective Cohort Studies. Nutrients. 2023;15(6).
13. Schulze MB, Haardt J, Amini AM, Kalotai N, Lehmann A, Schmidt A, et al. Protein intake and type 2 diabetes mellitus: an umbrella review of systematic reviews for the evidence-based guideline for protein intake of the German Nutrition Society. European Journal of Nutrition. 2024;63(1):33-50.

14. Yu Z, Nan F, Wang LY, Jiang H, Chen W, Jiang Y. Effects of high-protein diet on glycemic control, insulin resistance and blood pressure in type 2 diabetes: A systematic review and meta-analysis of randomized controlled trials. Clin Nutr. 2020;39(6):1724-34.
15. Flores-Hernández MN, Martínez-Coria H, López-Valdés HE, Arteaga-Silva M, Arrieta-Cruz I, Gutiérrez-Juárez R. Efficacy of a High-Protein Diet to Lower Glycemic Levels in Type 2 Diabetes Mellitus: A Systematic Review. Int J Mol Sci. 2024;25(20).
16. National Health and Medical Research Council (NHMRC). Nutrient Reference Values for Australia and New Zealand Including Recommended Dietary Intakes 2006 [Available from: https://www.eatforhealth.gov.au/nutrient-reference-values.
17. Coll PP, Phu S, Hajjar SH, Kirk B, Duque G, Taxel P. The prevention of osteoporosis and sarcopenia in older adults. Journal of the American Geriatrics Society. 2021;69(5):1388-98.
18. Beaudart C, Alcazar J, Aprahamian I, Batsis JA, Yamada Y, Prado CM, et al. Health outcomes of sarcopenia: a consensus report by the outcome working group of the Global Leadership Initiative in Sarcopenia (GLIS). Aging Clinical and Experimental Research. 2025;37(1):100.
19. Aragon AA, Tipton KD, Schoenfeld BJ. Age-related muscle anabolic resistance: inevitable or preventable? Nutrition Reviews. 2023;81(4):441-54.
20. Groenendijk I, de Groot LCPGM, Tetens I, Grootswagers P. Discussion on protein recommendations for supporting muscle and bone health in older adults: a mini review. Frontiers in Nutrition. 2024;Volume 11 - 2024.
21. Bauer J, Biolo G, Cederholm T, Cesari M, Cruz-Jentoft AJ, Morley JE, et al. Evidence-Based Recommendations for Optimal Dietary Protein Intake in Older People: A Position Paper From the PROT-AGE Study Group. Journal of the American Medical Directors Association. 2013;14(8):542-59.
22. Harris S, DePalma J, Barkoukis H. Protein and Aging: Practicalities and Practice. Nutrients. 2025;17(15):2461.
23. Simpson SJ, Raubenheimer D, Black KI, Conigrave AD. Weight gain during the menopause transition: Evidence for a mechanism dependent on protein leverage. BJOG: An International Journal of Obstetrics & Gynaecology. 2023;130(1):4-10.
24. Buckinx F, Aubertin-Leheudre M. Sarcopenia in Menopausal Women: Current Perspectives. Int J Womens Health. 2022;14:805-19.
25. Zhang C, Feng X, Zhang X, Chen Y, Kong J, Lou Y. Research progress on the correlation between estrogen and estrogen receptor on postmenopausal sarcopenia. Frontiers in Endocrinology. 2024;Volume 15 - 2024.
26. Lu L, Tian L. Postmenopausal osteoporosis coexisting with sarcopenia: the role and mechanisms of estrogen. Journal of Endocrinology. 2023;259(1):e230116.
27. Black KE, Matkin-Hussey P. The Impact of Protein in Post-Menopausal Women on Muscle Mass and Strength: A Narrative Review. Physiologia. 2024;4(3):266-85.
28. Rizzoli R, Stevenson JC, Bauer JM, van Loon LJC, Walrand S, Kanis JA, et al. The role of dietary protein and vitamin D in maintaining musculoskeletal health in postmenopausal women: A consensus statement from the European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO). Maturitas. 2014;79(1):122-32.
29. Jäger R, Kerksick CM, Campbell BI, Cribb PJ, Wells SD, Skwiat TM, et al. International Society of Sports Nutrition Position Stand: protein and exercise. Journal of the International Society of Sports Nutrition. 2017;14(1):20.

30. Nunes EA, Colenso-Semple L, McKellar SR, Yau T, Ali MU, Fitzpatrick-Lewis D, et al. Systematic review and meta-analysis of protein intake to support muscle mass and function in healthy adults. J Cachexia Sarcopenia Muscle. 2022;13(2):795-810.
31. Urbina J, Salinas-Ruiz LE, Valenciano C, Clapp B. Micronutrient and Nutritional Deficiencies Associated With GLP-1 Receptor Agonist Therapy: A Narrative Review. Clin Obes. 2026;16(1):e70070.
32. Johnson B, Milstead M, Thomas O, McGlasson T, Green L, Kreider R, et al. Investigating nutrient intake during use of glucagon-like peptide-1 receptor agonist: a cross-sectional study. Frontiers in Nutrition. 2025;Volume 12 - 2025.
33. Australian Bureau of Statistics (ABS). National Nutrition and Physical Activity Survey Canberra2023 [Available from: https://www.abs.gov.au/statistics/health/food-and-nutrition/national-nutrition-and-physical-activity-survey/latest-release.
34. Bricarello LP, Barboza BP, Retondario A, Fernandes R, Tureck C, de Almeida Alves M, et al. Association between animal protein intake and overweight/obesity: A systematic review and meta-analysis of observational studies. Nutr Metab Cardiovasc Dis. 2025;35(8):104027.
35. Ridoutt B, Baird D, Hendrie GA. Protein Source and Micronutrient Adequacy in Australian Adult Diets with Higher Diet Quality Score and Lower Environmental Impacts. Dietetics [Internet]. 2025; 4(3):[35 p.].
36. Melina V, Craig W, Levin S. Position of the Academy of Nutrition and Dietetics: Vegetarian Diets. J Acad Nutr Diet. 2016;116(12):1970-80.
37. Jakše B, Fidler Mis N, Fras Z, Tanous DR, Wirnitzer K. Effects of vegan diets and lifestyle on adult body composition: a narrative review. Food Funct. 2025;16(15):5994-6027.
38. Martínez Steele E, Raubenheimer D, Simpson SJ, Baraldi LG, Monteiro CA. Ultra-processed foods, protein leverage and energy intake in the USA. Public Health Nutrition. 2018;21(1):114-24.
39. Raubenheimer D, Simpson SJ. Protein appetite as an integrator in the obesity system: the protein leverage hypoth-esis. Philosophical Transactions of the Royal Society B: Biological Sciences. 2023;378(1888).
40. Brooker PG, Hendrie GA, Brindal E (2023) Understanding how meal replacements could be used within an established weight loss program to manage cravings and boost early weight loss. CSIRO, Australia.
41. Baird DL, Hendrie GA (2024) Fast Start: Summary of results. CSIRO, Australia.