



To Your Health

Nutrition & Health Coaching

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Scientific References: Daily Protein Intake Calculator

Preface

To Your Health developed the Daily Protein Intake Calculator drawing on findings and recommendations from more than a dozen peer-reviewed studies, expert position papers, and clinical guidance sources. Research focused on protein requirements across age groups, activity levels, and physiological conditions — with particular attention to how needs differ for older adults, active individuals, and those at risk for sarcopenia or muscle loss.

The calculator's recommended ranges reflect a synthesis of this evidence base. Key named sources include the PROT-AGE Study Group, Mayo Clinic Health System, and the International Society of Sports Nutrition (ISSN). The full list of sources consulted is organized below in two sections: (1) peer-reviewed journal articles and expert position papers, and (2) clinical and public health guidance.

Section 1: Peer-Reviewed Journal Articles & Expert Position Papers

1. Evidence-Based Recommendations for Optimal Dietary Protein Intake in Older People: A Position Paper From the PROT-AGE Study Group

- **Year:** 2013
- **Authors:** Bauer JM, Biolo G, Cederholm T, Cesari M, Cruz-Jentoft AJ, Morley JE, Volpi E, Boirie Y, et al.
- **Publication:** *Journal of the American Medical Directors Association*, Vol. 14, Issue 8
- **Summary:** Foundational position paper recommending a minimum of **1.0–1.2 g/kg/day** of protein for healthy older adults, and **1.2–1.5 g/kg/day** for older adults with acute or chronic illness. The paper established that the traditional RDA of 0.8 g/kg/day is insufficient for most older adults and set the standard for age-stratified protein guidance that informs the calculator's elderly-range recommendations.
- **URL:** <https://www.sciencedirect.com/science/article/pii/S1525861013003265>

2. Protein Intake and Exercise for Optimal Muscle Function with Aging: Recommendations from the ESPEN Expert Group

- **Year:** 2014
- **Authors:** Deutz NEP, Bauer JM, Barazzoni R, Biolo G, Boirie Y, Bosy-Westphal A, Cederholm T, Cruz-Jentoft A, Krznarić Z, Nair KS, Singer P, Teta D, Tipton K, Calder PC
- **Publication:** *Clinical Nutrition*, Vol. 33, Issue 6
- **Summary:** European Society for Clinical Nutrition and Metabolism (ESPEN) expert consensus recommending **1.0–1.2 g/kg/day** as a baseline for healthy older adults, with **1.2–1.5 g/kg/day** indicated in illness or injury. The paper also emphasizes the combined role of protein intake and resistance exercise in preserving muscle mass and function with age, informing how the calculator treats activity level as a key variable.
- **URL:** <https://pmc.ncbi.nlm.nih.gov/articles/PMC4208946/>

3. International Society of Sports Nutrition Position Stand: Protein and Exercise

- **Year:** 2007
- **Authors:** Campbell B, Kreider RB, Ziegenfuss T, La Bounty P, Roberts M, Burke D, Landis J, Lopez H, Antonio J
- **Publication:** *Journal of the International Society of Sports Nutrition*, Vol. 4
- **Summary:** Classic ISSN position statement establishing that **1.4–2.0 g/kg/day** is appropriate and safe for physically active adults. Provides the scientific basis for the calculator's higher protein ranges in moderately active and very active populations.
- **URL:** <https://pubmed.ncbi.nlm.nih.gov/17908291/>

4. International Society of Sports Nutrition Position Stand: Protein and Exercise (Updated)

- **Year:** 2017

- **Authors:** Jäger R, Kerksick CM, Campbell BI, Cribb PJ, Wells SD, Skwiat TM, Purpura M, Ziegenfuss TN, Ferrando AA, Arent SM, Smith-Ryan AE, Stout JR, Arciero PJ, Ormsbee MJ, Taylor LW, Wilborn CD, Kalman DS, Kreider RB, Willoughby DS, Hoffman JR, Krzykowski JL, Antonio J
- **Publication:** *Journal of the International Society of Sports Nutrition*, Vol. 14
- **Summary:** Updated and expanded ISSN position stand addressing protein quality, timing, distribution across meals, and adaptation to exercise. Supports higher protein ranges (**1.4-2.0 g/kg/day**) in active populations and informed the calculator's exercise-stratified recommendations. Also addresses protein needs across different training types and age groups.
- **URL:**
<https://pmc.ncbi.nlm.nih.gov/articles/PMC5477153/>

5. Protein Requirements and Recommendations for Older People: A Review

- **Year:** 2015
- **Authors:** Nowson C, O'Connell S
- **Publication:** *Nutrients*, Vol. 7, Issue 8
- **Summary:** Comprehensive review concluding that protein needs in older adults are likely around **1.0–1.3 g/kg/day**, with evidence that at least **1.2 g/kg/day** is needed to maintain optimal muscle function. Supports the calculator's current minimum floor of 1.2 g/kg/day for all age groups and activity levels.
- **URL:** <https://pmc.ncbi.nlm.nih.gov/articles/PMC4555150/>

6. Amount of Protein Required to Improve Muscle Mass in Older Adults

- **Year:** 2020
- **Authors:** Doyeon Kim, Park Y
- **Publication:** *Nutrients*, Vol. 12, Issue 6

- **Summary:** Interventional study comparing **0.8, 1.2, and 1.5 g/kg/day** in older adults, finding that 1.2 g/kg/day and higher produced meaningful gains in muscle mass. Provides direct clinical trial evidence supporting the practical use of 1.2 g/kg/day as a minimum target and informs the design of the calculator's lower-activity ranges for older adults.
- **URL:** <https://pmc.ncbi.nlm.nih.gov/articles/PMC7352766/>

7. Testosterone and Progesterone, But Not Estradiol, Stimulate Muscle Protein Synthesis in Postmenopausal Women

Year: 2014

Authors: Gordon I. Smith, Jun Yoshino, Dominic N. Reeds, David Bradley, Rachel E. Burrows, Henry D. Heisey, Anna C. Moseley, Bettina Mittendorfer

Publication: *Journal of Clinical Endocrinology & Metabolism*, Volume 99, Issue 1

Summary: Using stable isotope tracer methods in premenopausal and postmenopausal women, this study found that postmenopausal women had ~20% faster basal muscle protein synthesis rates than premenopausal women, and that testosterone and progesterone each boosted that rate by an additional ~50%, while estradiol had no effect. These findings support the calculator's sex- and age-differentiated protein targets for middle aged women, where hormonal shifts during the menopausal transition meaningfully alter the biological drivers of muscle protein turnover.

URL: <https://pubmed.ncbi.nlm.nih.gov/24203065/>

8. Dietary Protein Intake Is Associated with Lean Mass Change in Older, Community-Dwelling Adults: The Health ABC Study

- **Year:** 2008
- **Authors:** Houston DK, Nicklas BJ, Ding J, Harris TB, Tylavsky FA, Newman AB, Lee JS, Sahyoun NR, Visser M, Kritchevsky SB; Health ABC Study
- **Publication:** *American Journal of Clinical Nutrition*, Vol. 87, Issue 1

- **Summary:** Large observational study demonstrating that higher protein intake was significantly associated with less lean mass loss in older adults over a three-year period. Provides longitudinal population-level evidence supporting higher protein targets in aging adults.
- **URL:** <https://www.sciencedirect.com/science/article/pii/S0002916523234486?via%3Dihub#s0050>

9. Biomarker-Calibrated Protein Intake and Physical Function in the Women's Health Initiative

- **Year:** 2013
- **Authors:** Beasley JM, Wertheim BC, LaCroix AZ, Prentice RL, Neuhouser ML, Tinker LF, Kritchevsky S, Shikany JM, Eaton C, Chen Z, Thomson CA
- **Publication:** *Journal of the American Geriatrics Society*, Vol. 61, Issue 11
- **Summary:** Prospective study of postmenopausal women finding that higher protein intake was associated with significantly better physical function and slower physical decline. Supports sex- and age-differentiated protein recommendations as used in the calculator's female ranges.
- **URL:** <https://pmc.ncbi.nlm.nih.gov/articles/PMC3928025/#S15>

10. Increasing Dietary Protein Requirements in Elderly People for Optimal Muscle and Bone Health

- **Year:** 2009
- **Authors:** Gaffney-Stomberg E, Insogna KL, Rodriguez NR, Kerstetter JE
- **Publication:** *Journal of the American Geriatrics Society*, Vol. 57, Issue 6
- **Summary:** Reviews the evidence that protein needs in older adults are substantially higher than the standard RDA for preservation of both muscle and bone health. Informed the rationale for elevated protein ranges in the calculator's 65+ age group.
- **URL:** <https://pubmed.ncbi.nlm.nih.gov/19460090/>

11. Nutritional Recommendations for the Management of Sarcopenia

- **Year:** 2010
- **Authors:** Morley JE, Argiles JM, Evans WJ, Bhasin S, Cella D, Deutz NE, Doehner W, Fearon KC, Ferrucci L, Hellerstein MK, Kalyani RR, Lochs H, MacDonald N, Mulligan K, Muscaritoli M, Ponikowski P, Posthauer ME, Rossi Fanelli F, Schambelan M, Laviano A, Schols AM, Anker SD; Society of Sarcopenia, Cachexia and Wasting Disease Trialist Workshop
- **Publication:** *Journal of the American Medical Directors Association*, Vol. 11, Issue 6
- **Summary:** Expert recommendations linking protein intake and nutritional strategy to sarcopenia prevention and management. It recommends that total protein intake should be **1.0-1.5 g/kg/day**. Supports the design of the calculator's elderly-range protein recommendations, where preserving muscle mass is a primary goal.
- **URL:** <https://pmc.ncbi.nlm.nih.gov/articles/PMC4623318/#S6>

12. Protein Intake Protects Against Weight Loss in Healthy Community-Dwelling Older Adults

- **Year:** 2014
- **Authors:** Gray-Donald K, Arnaud-McKenzie DS, Gaudreau P, Morais JA, Shatenstein B, Payette H
- **Publication:** *The Journal of Nutrition*, Vol. 144, Issue 3
- **Summary:** Observational study of community-dwelling older adults finding that higher protein intake was significantly associated with protection against harmful weight and lean mass loss. Strengthens the case for elevated protein recommendations in older adult populations.
- **URL:** <https://www.sciencedirect.com/science/article/pii/S0022316622008252>

Section 2: Clinical & Public Health Guidance

13. Are You Getting Enough Protein?

- **Organization:** Mayo Clinic Health System
- **Year:** 2024
- **Summary:** Mayo Clinic guidance explaining protein needs across activity levels: baseline **0.8 g/kg/day** for sedentary adults, **1.1–1.5 g/kg/day** for regular exercisers, and **1.2–1.7 g/kg/day** for some athletes. Notes that intakes above **2 g/kg/day** may be excessive. Informed both the calculator's activity-based ranges and its 150 g/day general public cap.
- **URL:** <https://www.mayoclinichealthsystem.org/hometown-health/speaking-of-health/are-you-getting-too-much-protein>

14. Assessing Protein Needs for Performance

- **Organization:** Mayo Clinic Health System
- **Year:** 2023
- **Summary:** Practical Mayo Clinic guidance on exercise-oriented protein needs, including age-related context and higher protein recommendations for adults engaged in strength and endurance training. Provided additional clinical grounding for the calculator's moderately active and very active ranges across age groups.
- **URL:** <https://www.mayoclinichealthsystem.org/hometown-health/speaking-of-health/assessing-protein-needs-for-performance>

15. Protein Needs for Adults 50+

- **Organization:** Stanford Lifestyle Medicine
- **Year:** 2026
- **Summary:** Stanford Lifestyle Medicine guidance recommending **1.2–1.6 g/kg/day** of protein for adults 50 and older — a range that directly aligns with the updated federal minimum

guidelines and the calculator's current recommended ranges for older active adults. Provides accessible, Stanford-affiliated clinical framing for the evidence on protein and healthy aging.

- **URL:** <https://lifestylemedicine.stanford.edu/protein-needs-for-adults-50/>

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