

“Protein, Resistance Training, & Body Composition”

Michael J. Ormsbee, PhD

©2026

1. This data is 15 years old. Where do we stand now?

Yes. More recent NHANES data show that Americans still get roughly 15 to 16% of their calories from protein, with very little difference across body weight categories.
(<https://pubmed.ncbi.nlm.nih.gov/39203929/>).

2. How do you calculate fat-free mass?

Fat-free mass is your total body weight minus your fat mass. If you have a body fat estimate, multiply your weight by the fraction that is *not* body fat.

3. Why do sedentary people need more protein?

I wouldn't say sedentary people generally need more protein than active people. But most people need more protein than what they commonly eat. Aim for 1 gram per pound and you will likely hit right around that 0.7 to 0.8 grams per pound that the data indicates is ideal. The point is that protein matters even if someone isn't exercising, while resistance training gives the muscle a reason to use it. However, data indicate that when trying to lose weight, you might even want to aim for a higher amount of total daily protein. If you eat more protein and keep kcals the same (or even lower than “usual”), then the percentage of fat and/or carbohydrates will be lower. Macro for Macro, in this situation, protein is a big win.

4. In the 2012 BMC study, was training combined on the same day or split?

Overweight/Obese, sedentary/untrained men and women randomized to 1 of 4 groups:

- Control (no exercise)
- Aerobic Training (30 min treadmill @ 60% HRR),
- Resistance Training (30-minute full body – 4 sets 8x12 reps)
- Combination (15 min Aerobic, 15 min Resistance)

All training sessions were performed at a frequency of 5 sessions per week.

“The Combination intervention produced the greatest improvements in body composition, significant decreases in total body fat, fat percentage, android fat percentage, and gynoid fat percentage.”

5. What about 5 mg of creatinine for older adults?

I suspect you mean 5 *grams of creatine*, rather than 5 mg of creatinine. Creatine at 5 g per day has been studied alongside resistance training in older adults. Click here:

<https://pubmed.ncbi.nlm.nih.gov/23053133/>

6. Were the 20 to 40g whey servings added to meals or taken alone?

The whey was added to the day (taken alone), not added to each meal.

7. What ages are counted as younger and older?

There isn't one age cutoff across all these studies. Some studies I presented were over 70 years of age.

8. Did the younger versus older study include men and women? Yes, many did, but it depends on the exact study you are referring to from the slide deck.

9. What are your thoughts on fasting and muscle loss?

I'm less concerned with the fasting window itself than with whether someone eats enough overall, gets adequate protein, and continues resistance training. A long fast can make those goals harder to meet, especially during weight loss. pubmed.ncbi.nlm.nih.gov

10. Does a 300 lb person need 300 g of protein a day?

No. One gram per pound is a simple upper-end target for some people, not a rule I'd apply blindly; for

someone at a higher body weight, I'd set a practical goal using their body composition, goals, and total food intake. You can use grams per fat-free mass (usually quite similar to grams per kg Body mass). However, at the higher end of body mass, you could use a target body mass...for example 250 grams for a 300 pound person. Overall, keep in mind that this can be tough if you are not used to it. So set realistic protein goals and work up over time.

11. How do you justify the difference between 1.2 and 1.6 g/kg?

That range reflects different needs and goals, not two competing prescriptions. I'd generally start with a realistic target, then consider training, age, energy restriction, and whether the person can meet it consistently. [PMC](#)

12. Has research compared whey, plant protein, food, leucine, and menopausal women?

Yes, those questions have been studied, though they are not all answered by one study. Whole foods and plant proteins can contribute; leucine matters as part of a complete protein, so source matters in terms of how much to eat and in what combinations to meet the leucine threshold for muscle protein synthesis.

13. How can clients do this when food is expensive or hard to access?

I'd start with what they can reliably get and afford, such as beans, lentils, eggs, milk, yogurt, canned fish, or other familiar staples. Protein shakes can also average out to \$3-4 per serving (if you buy a powder and use it as a meal/feeding). A protein target should help someone eat better, not turn every meal into an expensive project.

14. How do we know when protein is more than needed, and what happens to the excess?

There isn't a single cutoff for everyone, but increased protein intake doesn't keep producing more muscle indefinitely. The body uses amino acids for many jobs; it can break down excess amino acids, use some for energy, and excrete the nitrogen in urine. In overfeeding studies (of protein), the excess is not put on as body fat. The final answers are unknown at this time, but there may be an increase in the thermic effect of food to offset the extra kcals (Jose Antonio's research).

15. Could getting more protein increase saturated fat or cause harm?

The food source matters. I'd look at the whole diet and favor a mix of protein foods that still leaves room for fiber, produce, and healthy fats, rather than assuming every high-protein diet has the same health effects. If the protein is primarily meat, then saturated fat could become something to think about. However, if there are varied sources of protein intake, then this should not be an issue. The protein overfeeding studies typically use food and powdered shakes and show no health issues or blood biomarkers changes in healthy people.

16. What do we know about protein intake on incretin therapy?

Appetite and total food intake often fall, which can make adequate protein harder to achieve. In general, my take is that when starting a GLP-1, the focus and attention on protein intake and resistance training must be emphasized...similar to the extreme weight loss study I reviewed from our lab on extreme weight loss.

17. Was overall dietary adequacy evaluated in the high protein groups?

In our studies, each participant worked with a registered dietitian for the study to take care of overall diet.

18. Did the 40% calorie restriction study assess micronutrients, and what was prescribed afterward?

That was not reported in the paper.

19. Are studies of protein and resistance training in people taking GLP-1 drugs underway?

This is an active research question in many of my colleagues' labs. Because people can lose lean mass alongside fat during substantial weight loss, it is important (see question 16 above and this paper: [pmc.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov/35444444/))

20. Did Jo et al. follow participants to see whether the weight loss lasted?

Unfortunately, we did not follow them after the study duration.

21. For weight loss clients with a BMI over 30, is 1.6 g/kg based on total weight or fat-free mass?

Most general protein ranges are expressed per kilogram of body weight. I'd individualize it using body

composition when available and make sure the number fits the person's overall diet. (see question 10 above),

22. What is the best way to measure body composition in a clinic?

DXA is useful when it's available and appropriate, but consistency matters with any method. The absolute best is to combine DXA with a BIA to assess Fat, Fat-Free, Bone, and Water mass.

23. Should active adults over 70 aim for 2.4 rather than 1.6 g/kg?

2.4 is certainly high... 1.6 should be fine and slightly above (may) be beneficial but it may also be unnoticeable. Older adults may benefit from more than the minimum, especially when active, but needs should be individualized around health, intake, and training. [PMC](#)

24. Can more than 20g protein after lifting improve muscle protein synthesis?

This depends on your age. For a 20-year-old, 20 grams seems no different from 40 grams. However, if you are over roughly 40 years of age, 40 grams in a single dose may be ideal. In a whole-body resistance exercise study, 40 grams of whey produced a greater muscle protein synthesis response than 20 grams, so 20 grams is not a universal ceiling. [pubmed.ncbi.nlm.nih.gov](#)

25. Does 1.4 to 2.0 g/kg apply to both men and women doing cardio and strength training?

Yes, that is a reasonable general range for active adults of either sex. I'd adjust within it based on the person's training, total energy intake, and goals.

26. Which home scale do you recommend if DXA isn't available?

I don't have one specific model I recommend. Use a dependable scale under similar conditions each time and treat its body fat reading as an estimate rather than a precise measurement.

27. Should everyone over 50 move to 1.8 g protein/kg?

It's not a bad idea, but no, not everyone has to do this. Age is one factor, but I wouldn't change everyone's target on their 50th birthday; activity, muscle-loss risk, health, and how much they currently eat matter, too.

28. Can evening protein disrupt sleep?

I haven't seen good evidence that a modest protein snack before bed generally harms sleep. A large meal or something that causes personal discomfort is a different question, so I'd pay attention to how the individual sleeps. [PubMed](#)

29. How much protein can we absorb in one sitting?

Your body absorbs far more than 20 or 30 g. The upper limit tested so far is 100g, and it is absorbed. The more useful question is how much a serving helps your particular goal, and the muscle-building response depends on the person, the meal, and whether they have trained.

30. What about gluconeogenesis with a high protein intake?

Your body can use amino acids to make glucose when needed, but that process alone is not a reason to avoid an appropriate protein intake. I'd focus on the total diet and whether the target is useful for the person.

31. Do we need more fiber when we increase protein?

I wouldn't automatically raise the fiber target just because protein went up. I would make sure the added protein hasn't crowded out fruits, vegetables, beans, and whole grains.

32. How is there room for vegetables if protein also increases fullness?

Protein doesn't have to take over the plate. I'd build meals with a useful protein serving and keep vegetables and other fiber-rich foods in the mix; the fullness can be helpful if the whole meal still meets the person's needs. This will need to be practiced, with small changes, over time.

33. Do animal and plant proteins differ for lean body mass?

Some studies show differences in short-term muscle protein synthesis, but longer-term training studies do not consistently show meaningful differences in lean mass when protein intake is adequate. Plant proteins can absolutely work; I'd pay attention to the amount and quality of the whole diet. [PubMed](#)

Disclaimer:

Financial support for this presentation was provided by Orgain. The views expressed herein are those of the presenter and do not necessarily represent Orgain's views. The material herein is accurate as of the date it was presented and is for educational purposes only and is not intended to be medical advice. The material presented in this webinar, is not intended to be a substitute for professional medical advice, diagnosis, or treatment. You should seek the recommendation of a medical professional regarding a medical condition or treatment or before starting a new nutrition and/or health regimen. Reproduction or distribution of these materials is prohibited.

©2026 Orgain, LLC. All rights reserved. Orgain, LLC is providing these webinars on an "as is" basis and makes no representations or warranties of any kind with respect to the webinars. Orgain, LLC nor any of its directors, employees or other representatives will be liable for damages arising out of or in connection with the use of this document. This is a comprehensive limitation of liability that applies to all damages of any kind, including (without limitation) compensatory, direct, indirect or consequential damages, loss of data, income or profit, loss of or damage to property and claims of third parties.