# "Protein Deep Dive for Athletes, Active Individuals and the Aging Population"

Webinar Questions Answered by Kelly Jones, MS, RD, CSSD, LDN

*Please note that these are brief answers to complex questions and are not meant as medical advice. Please seek medical advice from your personal healthcare professional for more complete information.*

- When calculating protein recommendations, do you use actual body weight, ideal, or adjusted?
- Do you recommend adjusted body weight or actual weight for protein calculations using the 0.25-0.4 g/kg 4-5x/day if someone has a weight loss goal?
- Do you recommend using actual, IBW or ADW to calculate protein needs for obese elderly patients with vs without wounds and/or increased nutrient needs? What range would you use? 1.2-1.5 grams/kg?

As mentioned during the webinar, I'm not a fan of broadly using IBW for any nutrient calculations as it can be so restrictive and unrealistic for many to see long term health improvements and feel good about progress psychologically. This is on top of it just not accurately representing what "ideal" is for someone based on genetics, gut microbiome alterations that have occurred throughout someone's life, stress, SDoH and more.

While some clinical HCPs in the weight loss setting have other philosophies, I do not believe using "ideal" or even adjusted weight is helpful to calculate protein needs, especially for those who are being put on calorie restrictive diets. Protein is incredibly important for not only satiety, which is hard to achieve while being put on a restrictive diet, but also to ensure muscle mass is not lost if they are losing body mass. Using current body weight for protein meets people where they are and ensures they are receiving adequate nutrition for the body they are in right now. This can be especially important if you are seeing someone in an acute care setting, when their body is under stress, needing to recover and support immune system function, and you won't have the ability to follow up with the person's health and diet once they are discharged or with another health care provider.

For someone with wounds, I would always use their current BW for protein needs as they are in a period of stress where weight loss should not be a priority. If someone has obesity and is elderly, my main goal would be to increase their muscle mass to support longevity and functionality, so using a muscle gain range with a drastically lower BW, even if ADW, may make it harder to put muscle on without a strength training program and harder to feel satiated. For those with no kidney risks or rare diseases that impact protein needs, I'd still use CBW for all of these scenarios and have any deficits coming from fat first, and carbs second. I also am not an expert in clinical care in the elderly, so in this situation, I would think critically with your team to

take what you can from the research presented in my talk and apply it to your niche by increasing protein recs in calculations if that is within your scope at your facility.

- What are your thoughts on time restricted eating with this increased recommended protein intake?

Time restricted eating covers such a wide range of eating windows. As a sports dietitian, I am not a fan of time restricted feeding for professional athletes, particularly those in endurance, strength, or high intensity intermittent sports. As mentioned in the webinar, those with active lifestyles, especially women of childbearing age, it may increase stress, reduce effectiveness of training sessions and ultimately impact hormonal health at an already sensitive time for women. It was also mentioned in the webinar how important it is to eat breakfast, and one that is protein rich.

That being said, rather than delaying food intake, I do believe eating within 10-12 hour windows may be beneficial for overall metabolic health while allowing ample time to get protein in doses that are more spread out to optimize it's use as well as eat adequately to prevent overeating, which can often happen with tight eating windows. By eating an adequate breakfast, lunch, and protein rich snacks as appropriate to the individual, people should be able to get to dinner naturally feeling they can eat a balanced meal without overeating or feeling the need to overeat afterwards. For nearly 15 years I have seen over and over again clients who stop having cravings at night without putting time limits on themselves, just by fueling better earlier in the day, which is inclusive of meeting protein needs and not restricting carbohydrates.

- Can you please share some examples of the evening protein to enhance MPS without fat gain?

The majority of research here is utilizing whey protein concentrate supplements. For those who are simply looking for muscle maintenance in a reasonable calorie restriction, sticking to just protein may be best which can also be achieved with egg whites, chicken breast, etc. For those with high activity levels or looking to gain muscle however, pairing protein with carbohydrates (yogurt, greek yogurt + fruit, edamame and crackers for example) is recommended to optimize protein's use for muscle recovery without depleting glycogen stores t support exercise.

- What are your recommendations for taking probiotic supplements with protein? Does it lessen the effect of the probiotic since the protein has no substrates to support the efficacy?

I feel probiotic supplement use currently has a lot of controversy surrounding it and if a person is not taking strains specific to the condition they are trying to improve or specific benefit they are looking to gain, it may not be worth taking at all. A gastroenterologist or functional dietitian should be working with individuals to determine what is best for them and following the directions for the specific probiotics they are taking. Having said that, there is some emerging

evidence that probiotics can increase peptide absorption. I think a diet rich in foods with naturally occurring probiotics along with protein is great and that with so many factors in the diet and how far most people are from meeting basic dietary guidelines, the timing of this isn't going to make a big difference in long term health for most. Will need to stay abreast of new data as it comes!

- How would you obtain an amino acid sample from the ileum?

Great question! So far as I know, both PDCAAS and DIAAS, samples are taken from animals, not humans, which is definitely something we should consider more in these discussions of quality.

- Regarding pairing plant protein foods, I was under the impression that there is an "amino acid pool" within the body so pairing can occur throughout the day. Can you please comment on that?

The amino acid pool is ever changing and will depend on what a person is ingesting over the course of a day. It is adequate to supply the needs of a generally healthy person who is eating enough calories and total protein over the course of the day, however not pairing proteins to obtain adequate leucine is a consideration for those who need to gain muscle mass or recover from frequent intense workouts. When adequate leucine and EAAs are more readily available in the bloodstream after a meal, this contributes to triggering of muscle protein synthesis, optimizing its effects.

- Does leucine need to be consumed after a workout to induce MPS? If so, what is the recommended timing?

Within 2 hours of a workout technically, but sports dietitians do recommend that the sooner, the better. Timing may depend on what, when and how much was consumed pre-workout, too.

- Studies have shown that the best amount of protein for muscle synthesis is about 2g protein/ kg BW using animal proteins. So, what amount is recommended when consuming only plant-based proteins for the same amount of synthesis?

So long as adequate total protein, leucine and essential amino acids are consumed, needs should be similar. As mentioned, soy has a comparable bioavailability to animal proteins, so there would be no conversion. You can also go back to the slides on how we do not eat single foods, but eat mixed meals most of the time, so multiple sources of protein can build higher quality sources in a meal to offer the leucine and EAAs needed, that are provided by a single animal protein. You can also see examples in the slides.

- How does collagen work to increase protein?

Collagen does provide protein but is not a complete protein and misses essential amino acids. Collagen has the most research support for benefiting joint recovery, especially after surgery,

but it should not be replacing complete protein sources. Ex: don't replace a protein powder or whole food based protein meal with 20 g of collagen.

- I recently heard women in menopause should add creatine. Is this recommended at a certain age? What about aging men also?
- What is the recommendation for creatine supplements? What should be on the label?
- Is there an upper limit on creatine monohydrate that you suggest or considered safe? What to look for best creatinine monohydrate supplements? How to know if it's good?

I am pro-creatine for all! https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7998865/
https://www.mdpi.com/2218-273X/9/11/642

Creatine loading protocols include .3g/kg per day for about a week, split into a few doses throughout the day. Loading is meant for those who have a tight schedule while they're working towards specific athletic goals or for those who have suffered a TBI. Typically, 3-5g per day is the recommended dose long term. Creatine monohydrate is the only form I recommend and is the one abundant research supports. Label should be creatine monohydrate only!

- What brand do you recommend for creatine?

I am a big fan of NOW Sports, Thorne, Klean athlete and Momentous as they are all 3rd party tested for sport and using the appropriate form (monohydrate).

- Regarding leucine, is it all in the egg white?

Roughly 40% of egg protein is in the yolk, including leucine. This comes along with 11 essential nutrients and unsaturated fats. Big fan of eating the nutrient dense yolk!

- What are your favorite plant-based protein options for snacks that are not liquid?

I love roasted edamame, roasted broad beans and fava beans mixed with pistachios (high quality protein), as well as homemade protein bars and bites (can search bars and bites at Orgain's site or my own). Kitehill also has a great unsweetened vanilla Greek yogurt that you can add a protein granola to.

- If a patient has CKD stage 3 from unknow etiology (no DM, no HP) and is a female age 45, that works out so needs protein for MPS - how much would you recommend with the CKD?

I do not feel comfortable answering this as I am not at all a specialist in kidney disease!

- Is there research that shows the impact of absorption and MPS of solid foods versus liquified foods, is one or the other better? And is there a better time to consume liquified versus solid foods? Or do we just need to make sure they are meeting calorie and protein needs?

A lot of research in the sports world uses whey protein, dairy, soy protein, soy milk, and pea protein, with the proteins mixed with fluid of course. I am not aware of any comparisons to solid foods however.

- I thought that any realistic portion size of plant foods provides "complete" protein. I eat an entire can of beans for a meal—that's around 385 kcals but depends on the bean. Black beans provide 1.9g of leucine and 23g of protein. It's not 'paired' with anything. it's providing ~50% of all EAAs or more in that one meal item. Thoughts on this providing complete AAs?

I am a firm believer in high fiber meals and going above the generic 25g a day that is recommended, however, for most people, I would not recommend an entire can of beans due to it providing more fiber than protein which is not ideal for many people's digestive tracts. I realize this is an affordable food and all that may be accessible to some individuals of low SES. For those who can pair protein from beans (maybe a cup) with another food that contains protein (quinoa, farro, even pasta etc.), it will balance out the limiting amino acids. I want to reiterate that for most people, eating enough protein and calories over the course of the day without worrying about leucine and pairing plant proteins, is fine. It's just those who need to gain muscle mass or are engaging in intense athletic activity who should think more about leucine and EAA content of meals.

- What does the research recommend for adolescent athlete protein intakes?

Unfortunately, our data on adolescents is limited, so we need to critically think her about what stage of puberty they are in and consider their activity level. Children's recommendations through age 13 are set at 0.95g.kg while teens are sadly 0.8g/kg despite them being in a stage of continued development and higher stress at times. These again are minimums to prevent deficiency. For a 14 year old boy who is still growing and also training for a sport 2 hours a day while being active outside, for example, I would set protein requirements around 1.6g/kg minimum for example, along with plenty of calories from carbs!

- Are any of the non-dairy milks better than others for protein?

Soy milk is the most effective alternative to dairy milk due to it's protein content. It's important to choose fortified options to obtain vitamins D and B12 as well as adequate calcium. There are several pea protein fortified options on the market now, too, including Orgain's also almond milk that offers 10g protein per cup.

- What are your thoughts on podcasters and influencers encouraging 1 gram per lb of weight for protein intake?

While I don't agree with every expert in this article, check out my comments here.

- What do you recommend for activities that involve both strength and endurance like obstacle races? And do you recommend mid-race protein or more carb heavy fueling if needed?

Depends on the length of the race and what their training looks like! But, likely around 1.8g/kg Definitely training the gut during training to tolerate carbs to keep intensity up. For those going 2 hours or longer regularly, a few grams (1-3) of BCAAs may benefit muscle mass and support immune function since carb intake cannot keep up with calorie expenditure. Gu actually makes a gel that includes BCAAs and NOW has a BCAA powder I trust to add to sports drinks.

- Do you recommend for women with perimenopause or menopause both calorie restriction and adequate protein for weight loss?

I do not recommend intentional calorie restriction in perimenopause and rather focus on including more protein as well as more veggies and fruits for fiber and antioxidants at meals. This helps to focus on positive nutrition intake rather than a scarcity mentality. When you can't have something or feel like you're restricting, you may be more likely to think about what you can't have. If your meals are more balanced and you feel more satiated from including more fiber, plus your blood sugar responses are better, you're less likely to overeat and have strong cravings for sweets, which may give the effect you're looking for long term. It's also an important time for all practitioners to consider mental health and body acceptance. Our bodies are meant to change and not stay the same as they looked when we were younger! If people get too caught up in calorie restriction, it can impact muscle loss even with adequate protein intake as well as negatively impact bone health further.

- I know you mentioned that the webinar isn't covering cancer patients' protein needs. Is there any resources that you can point towards for protein needs for this population?

I don't have anything top of mind specific to protein needs, but Alison Tierney is a great dietitian to follow for cancer nutrition!

- What should be added in terms of amino acids if you are using the Orgain Collagen powder?

You could just use one scoop of the collagen vs two with one scoop of any of their protein powders!

- Do you have any certain HMB supplement recommendations?

NOW Sports is Informed Sport Certified and Klean Essential AA + HMB is NSF Certified for Sport.

- Do you have any resources for helping people to get enough protein without counting macros if they suffer from a history of eating disorder?

Great question! Rather than give them numbers, you could talk about adequate portions sizes. Cover examples of what is “enough” as a minimum, and let them know it’s okay to have more than that (and talk through any fears related to that). Do this with visuals vs. with weighing or measuring. You cna also have them do a 3 day photo food log and review it to make recommendations on where they could add protein and how (just portion sizes? by sprinkling a tbsp of hemp seeds on their oatmeal? adding beans to a salad? Etc.)

- For those individuals who work out in the morning, would you recommend them to drink a fluid with protein before or during a morning workout?

For most people I would recommend carbs vs. protein. Doesn’t have to be anything big. Here are some food based options that shouldn’t cause any digestive issues in a short window before, or a half cup of juice or a hydration packet can work. More on eating before morning workouts in this article.

- If the patient is 350lbs, that would equate to 159g/day of protein and if we increase that to the 2g/day is 318g/day. So that would be around 50g per eating occasion assuming they eat 6 times per day. Is that not too much? Can we absorb that much at a time?

This question was asked during the webinar. Yes, you can absorb that much. The 0.25-0.4 g/kg per dose comes from data on how much can be utilized at a time. 50 grams really isn’t that much - just 8 ounces of chicken gets you there which is 1.33 chicken breasts.

- So, there isn't a concern about the saturated fat from animal protein in terms of insulin resistance and blood sugar control?

I didn’t take much time to discuss saturated fats (not great for metabolic health whether coming from animals or plants) in this webinar since there was so much to cover. If saturated fat is impacting heart health negatively and increasing chol and TGs, it will have correlations with insulin resistance too. The problem is many studies are looking at people with not only diets high in animal foods that provide saturated fat, but these diets may also be rich in ultra processed high sugar foods and low in fruits, vegetables, fiber and antioxidants. While I do believe animal proteins should be limited, I don’t believe we can blame animal protein specifically for something like diabetes and it’s etiology is multifactorial when it comes to the impact of food on development.

- In addition to the recommendations on protein for age, lifestyle, gender etc. does Kelly look at labs?

If someone's Albumin in labs is >/= 4.0 or eNPCR is 1, would you safely assume their protein intake is adequate?