

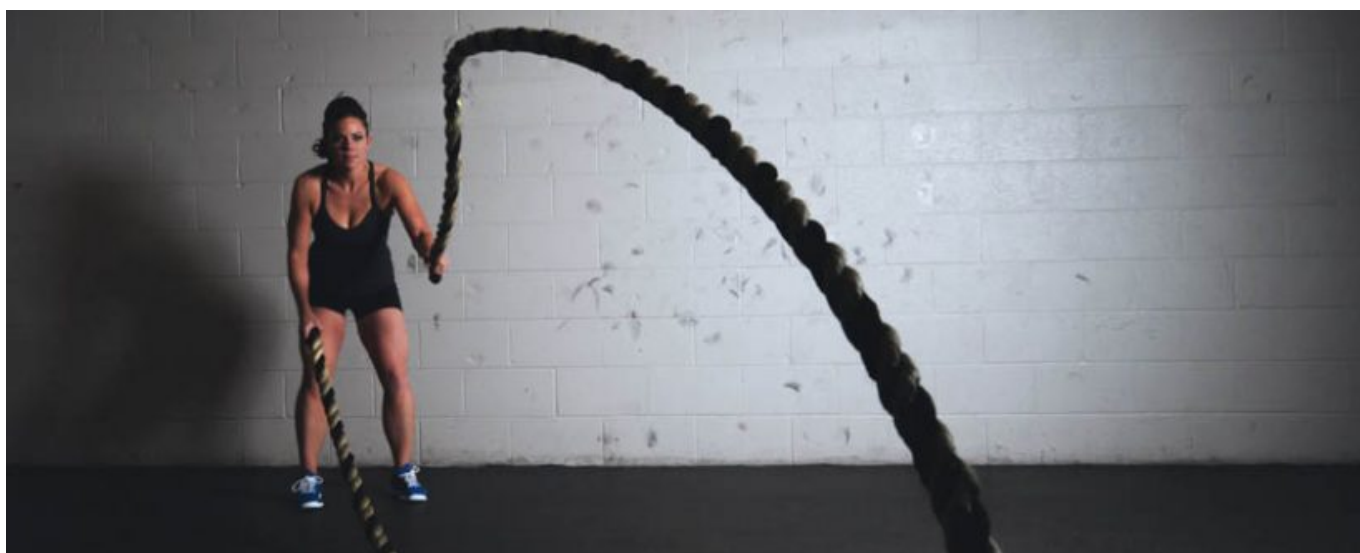


KARYN SHANKS MD

*Heart, Hope, Healing*

# Protein: How Much Do We Need to Support Optimal Health?

BY KARYN SHANKS MD | JULY 13, 2016



## How much protein do we *really* need?

So many rules, my goodness! For food, for behavior, for life!

So, let's start this little lesson with a few deep breaths. It's all okay. We don't need to be perfect. But it's good to be smart. The scientific literature has a few things to teach us about the amount of protein we need to consume in our diets to support robust health and what I have learned has been surprising.

I look at the food diaries of my clients every day in my office and almost no one consumes enough protein to meet their needs at the most basic level of function. There is a lot of untapped potential for health out there. Protein runs all of the major business of the body. Without enough we are left vulnerable and at risk for illness and loss of wellbeing and vital energy. Helping my clients optimize protein intake has been an important aspect of

improving their health.

## ***What is protein?***

It's a macronutrient that digests into amino acids and small protein fragments to become the foundation of all structure and function, working synergistically with healthy fats and the vast array of micronutrients that we get from our food to support us on every level.

## ***What are the benefits of getting enough protein?***

1. Supports muscle protein synthesis (MPS).
2. Supports neurotransmitter synthesis leading to improved sleep, mood and cognitive ability.
3. Supports energy production.
4. Supports detoxification.
5. Supports insulin and glucose metabolism.
6. Reduces inflammation.

## ***Why is muscle protein synthesis (MPS) important?***

1. It is good to be strong, stable, and balanced in our bodies.
2. Our muscles are the largest repository of mitochondria (where our energy is made) in the body. MPS ramps up the number of mitochondria and their function, improving our biological energy reserve.
3. Our muscles are the largest consumers of glucose in the body: MPS leads to greater insulin sensitivity and lower blood glucose levels.
4. Because of #2 and 3 and the impact of MPS on genetic expression, inflammation is reduced.

## ***How much protein do we need?***

This depends entirely on each of our unique bodies, stage of life, level of activity, state of health and energy requirements, but we can make some generalizations based upon the scientific data. Interestingly, according to the PROT-AGE Study Group, older adults need even

more dietary protein than younger adults to support optimal health, recovery from acute and chronic illness and to maintain good function. The same is true for adults of any age who are highly active or are challenged with acute or chronic illness.

*Minimum daily protein requirement for adults:* 1.0-1.2 grams protein per kilogram of body weight. For those of us who think in terms of pounds, there are 2.2 pounds per kilogram, so this converts to 0.5 grams protein per pound body weight. This is the minimum requirement for a generally well person who is sedentary. If you are this person and weigh 150 pounds, you need 75 grams of protein each day as a minimum standard.

For those who are ill or highly active, the protein requirements increase to 1.2-1.5 grams per kilogram body weight or 0.7 grams protein per pound of body weight. Elite athletes and body builders need even more—up to 2.0 grams per kilogram body weight, or 0.9 grams per pound body weight. So that 150 pound person in these categories will need close to their body weight in daily protein grams.

The other interesting scientific evidence that needs to be factored into how we think about the protein content of any given meal, is that a *minimum of 30 grams* of high quality protein is required at a *single meal* to stimulate muscle protein synthesis (MPS). This is because it takes at least 30 grams of protein to reach the 2.5-2.8 gram threshold for the amount of the amino acid, leucine, that we need. Leucine is a branched-chain amino acid that is necessary for the genetic signaling that initiates muscle protein synthesis.

So we must consider the total amount of protein that we need in a day, based on our body weight, level of activity and state of health, to promote MPS and maintain or recover function. And we must consume a minimum of 30 grams of protein at any given meal to achieve the leucine levels necessary to stimulate MPS. Stimulating MPS is a good thing and not just about growing big muscles. Steady growth and support of muscle tissue will lead not only to a stronger and more stable body, but also to increased energy, improved glucose utilization (necessary to maintain healthy blood glucose levels) and reduced inflammation throughout the body. Because MPS is the most expensive process in terms of protein requirement in the body, if we meet the minimums outlined above to support MPS, all other aspects of our structure and function supported by protein will be met. So this is a good standard to use.

## ***How much protein is in our high protein foods?***

1. Chicken, turkey, beef, bison: 1 ounce=7 grams protein
2. Fish: 1 ounce=5 grams protein
3. Salmon: 1 ounce=6 grams protein
4. Eggs: 1 egg=6 grams protein

## ***What are high leucine foods?***

1. Chicken breast 6 oz=2.9 gm
2. Beef 6 Oz=2.8 gm
3. Salmon 6 oz=2.7 gm
4. Egg (one)=0.54 gm (need 5 eggs)
5. Ground almond meal 1 cup=1.41 gm
6. Almond butter 1 cup=3.71 gm
7. Cashews 1 cup= 1.76 gm
8. Chia seed 1 oz=0.39 gm

## ***A note to vegans:***

You will need to work especially hard to meet your daily and per meal protein requirements for MPS. You will more than likely need to use protein supplements extensively to meet the minimum. Pea protein is a good option, augmented with a BCAA (branched-chain amino acids) supplement for leucine.

## ***We must also move.***

To promote growth and maintenance of muscle it is important to consume enough protein, but we also must move a lot throughout our day and challenge our bodies through resistance and endurance exercises. It is important that we each tailor our exercise programs to our needs, desires, goals and present functional capacity. It is good to work with a knowledgeable guide.

## ***My daily protein plan:***

Here's how it breaks down using myself as an example. I weigh 132 pounds and am highly active. I put my daily protein requirements at a minimum of 1.5 grams per kg body weight, or 90 grams per day. I need to consume at least 30 grams of protein, containing 2.8 grams of leucine at three separate meals, approximately 2-3 hours apart. The problem for me is that I eat only two meals between about 11 am and 6 pm because I try to consume all of my calories within an eight hour window (I'll explain why I do this in a later post-has to do with the health benefits of modified fasting). So what I need to do is eat enough healthy meat at my two meals to meet the 30 gram protein/2.8 gram leucine requirement and then add a protein shake between those two meals to get the remaining 30 grams.

I eat 5 ounces of meat or 7 ounces of fish twice daily. And I drink one protein shake 2-3 hours

after my first meal that also contains a leucine supplement. I also eat plant foods, including nuts, which will contribute to my total protein and leucine intake.

## ***The protein supplements I like to use:***

1. Opticleanse GHI creamy chocolate by Xymogen: 2 scoops contain 26 grams pea protein
2. PurePea by Designs for Health: 2 scoops contain 20 grams pea protein
3. BCAA powder by Designs for Health: 2 teaspoons contain 2.5 grams leucine
4. Great Lakes Hydrolyzed Collagen: 2 tablespoons contains 11 grams protein derived from grass-fed cows

I rotate my protein supplements. I alternate Opticleanse GHI creamy chocolate 2 scoops plus 1 tablespoon Great Lakes hydrolyzed collagen to get my total protein up to 30 grams (and I add 2 teaspoons BCCA powder to make sure I get the leucine I need) with Great Lakes hydrolyzed collagen 6 tablespoons, both mixed with plain water. On heavy workout days I use Great Lakes hydrolyzed collagen 6 tablespoons (33 grams protein) plus 2 teaspoons BCCA powder in my sports recovery drink, mixed with water. The Opticleanse GHI uses pea protein and contains a number of high quality nutrients to support detoxification. PurePea is a nice lower cost option that contains pea protein but no additional nutrients.

## ***How to jumpstart your protein plan:***

1. Start by measuring your body weight in pounds. I like to use an estimate of *ideal* body weight (for both over and under weight) for calculating protein needs.
2. Decide where you are on the 0.5-0.7 grams protein per pound body weight scale based on how active you are and whether your body is stressed by an acute or chronic illness. Error on the high side. If you are an athlete trying to build muscle go as high as 0.9 grams protein per pound body weight.
3. Calculate your total daily protein requirement.
4. Divide your total daily protein requirement amongst 3 meals.
5. Make sure that any given meal contains a minimum of 30 grams of protein in order to reach the leucine threshold that stimulates MPS.
6. If you are very ill or an elite athlete or body builder, your protein needs will be higher than 0.7 grams per pound of body weight and possibly as high as 0.9 grams per pound body weight, or higher. Work with a professional to determine what they are.
7. If you have kidney disease check in with your trusted health provider first. Those with severe forms of kidney disease, not on dialysis, may need a reduced protein intake.
8. High quality protein supplements are a great way to fill in the gaps of your food protein intake and are convenient for travel and those busy days.

9. It helps to keep track of your protein intake for a few weeks until you get familiar with the routine that you need to fulfill your needs. I keep a food log daily. It's the only way I can keep track of my nutrients and trouble shoot issues that come up.

Wilkinson DJ, et al, *Effects of leucine and its metabolite beta-hydroxy-beta-methylbutyrate on human skeletal muscle protein metabolism*. J Physiol. 2013 Jun 1;59(11): 2911-23. <http://www.ncbi.nlm.nih.gov/pubmed/23551944>

PROT-AGE study group: Protein intake and exercise for optimal muscle function with aging: recommendations from the ESPEN expert group. <http://www.ncbi.nlm.nih.gov/pubmed/23867520>

The Center for Medicine and Healing Arts Nutritional Resources page: <http://www.karynshanksmd.com/news/>

## KARYN SHANKS MD

Karyn Shanks, MD, is a physician who lives and practices in Iowa City. Her work is inspired by the science of Functional Medicine, body-mind principles, and wisdom gleaned from the transformational journeys of thousands of clients over her twenty-five-year career. Her work honors each individual and the power of their stories, their inner wisdom, and innate healing potential. She believes that the bones of healing are in what we do for ourselves. She is the author of *Liftoff*, a manual of energy recovery and healing through essential self-care practices.

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