

# Muscle Mass – The Key to Longevity

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › Muscle-centric medicine is part of the solution for many chronic health problems, as most are rooted in skeletal muscle insulin resistance
- › Resistance training is superior to cardio exercise because muscle mass optimizes you for longevity. The greater your muscle mass, the higher your survivability against all diseases
- › You need protein reserves to survive serious disease, and most of your protein reserve is stored in muscle. If you have very little muscle, you're going to pass away prematurely because you have no amino acid reserves. Your muscle also interfaces with your immune system
- › It's never too late to start building muscle, even if you're in your 70s or even 80s, using diet and exercise
- › High-quality animal protein is essential for muscle growth. Most people need 1 gram of protein per pound of ideal body weight (the weight you would ideally be). Divide that by the number of meals you eat to get your per-meal quota which, for older adults should be around 30 to 50 grams per meal

In this interview, Dr. Gabrielle Lyon, an osteopathic physician, reviews what I believe is one of the best health optimizing strategies there is, namely strength training. She's a graduate of Midwestern University and has spent a good part of her professional career focusing on how to increase strength and muscle mass, which is an often-overlooked foundation for health and longevity.

## **Muscle Mass Is a Key to Longevity**

Lyon and I both strongly believe muscle-centric medicine is part of the solution for many chronic health problems, including obesity, yet very little attention is given to it.

*"Obesity, Alzheimer's diabetes and cardiovascular disease actually begin in skeletal muscle, years before they become apparent," she says. "Obesity, diabetes, these are diseases of skeletal muscle insulin resistance.*

*But what's so shocking is that everyone is focused, especially in the medical community, on attacking obesity, as opposed to fixing the underlying problem, which is really augmenting skeletal muscle and optimizing muscle with nutrition, which is primary, and training, secondary."*

As explained by Lyon, while there's certainly benefit to cardiovascular exercise – mitochondrial biogenesis, for example – resistance training is far more foundational to your long-term health, because skeletal muscle is the organ of longevity. Muscle mass optimizes you for longevity.

The greater your muscle mass, the higher your survivability against all diseases, including cancer. According to Lyon, cachexia, for example – the loss of muscle mass – kills 1 in 5 cancer patients.

You need protein reserves to survive serious disease, and most of your protein is stored in muscle. If you have very little muscle, you're going to pass away prematurely because you have no amino acid reserves. Your muscle also interfaces with your immune system.

*"Listen, aging can be highly catabolic. There's this immunosenescence that happens. The body doesn't regulate the way that it used to. But moving and contracting skeletal muscle is the best defense that we have," Lyon says.*

## **Muscle Is Your Metabolic Regulator**

As explained by Lyon, muscle is the regulator of your metabolism, and here's why:

*"Skeletal muscle is your primary site for glucose disposal – 80-some percent. Individuals who are struggling with elevated blood sugar, elevated glucose, elevated triglycerides, skeletal muscle is your primary site for disposal and utilization of these nutrients, these substrates. Having healthy skeletal muscle will manage that metabolic currency.*

*It's really interesting because, as we age, the health of muscle decreases [unless] we become extremely focused on stimulating muscle through diet – I think the diet is most important because it is accessible to everybody – [and] resistance training and cross training ... [resulting] in states like diabetes, hypertension, cardiovascular disease. Insulin resistance actually begins in skeletal muscle."*

The good news it's never too late to start building muscle, even if you're in your 70s or even 80s, using diet and exercise. It becomes more difficult to add muscle with advancing age, yes, but it's far from impossible. To prove it is possible, I'm 67, and over the past year, I've put on 25 pounds of muscle mass and now weigh over 200 pounds.

## **The Case for Animal Protein**

In terms of diet, skeletal muscle requires high-quality dietary protein, ideally animal protein, to stimulate muscle protein synthesis. There's 20 amino acids and nine of them are essential, which means you have to get them from your diet, as your body cannot make them from other substrates. In particular, skeletal muscle requires branched-chain amino acids – leucine, isoleucine and valine.

Must you eat animal protein? No, but one of the problems with avoiding animal protein is that it is quite difficult to obtain enough complete essential amino acids, especially branched chained amino acids to stimulate mTOR.

While there are plants that are high in protein, they're not identical or even equivalent to animal protein in most cases. Certain micronutrients found in animal foods you simply

cannot get from plants. This includes vitamin B 12, vitamin A (retinol not beta-carotene), creatine, bioavailable iron, carnitine and carnosine, all of which are important for muscle growth and health in general. Lyon comments:

*"I consider high-quality protein to be animal-based proteins. That's not to say, if you are an individual who is vegan or vegetarian, that you cannot get the same amount of protein. You can, but that would require additional supplementation*

...

*But one has to understand that 30 grams of protein from hemp is different from 30 grams of protein from, say, a chicken breast. (NOTE: I don't advise anyone to eat chicken because of the high linoleic acid content).*

*In fact, as you age, it becomes really important to realize that, if you are going to try to get your protein from, say, quinoa – people say quinoa is high in protein – it would take 6 cups of quinoa to get the equivalent of one 3-ounce chicken breast.*

*So, if you are listening to this, I really want you to take to heart that you need to focus on high quality proteins, and if you are vegan or a vegetarian, that you need to then supplement with something – some branched-chain or essential amino acids – in addition to your meal."*

On a side note, glutamine, a nonessential amino acid (meaning your body can generate it) is an important nutrient source for your immune cells, and the way your body generates glutamine is through muscle contraction. So, when you're contracting skeletal muscle, you're quite literally nourishing your immune system!

## **Finding Your Ideal Protein Intake**

To determine your personal protein requirement, Lyon recommends 1 gram of protein per pound of ideal body weight (the weight you would ideally be, not necessarily the weight you are now). Once you have that number, you can divide it by the number of

meals you eat to get your per-meal quota which, for older adults should be around 30 to 50 grams per meal.

For reference, there's approximately 7 grams of protein in each ounce of steak, so a 5-ounce steak would give you 35 grams of high-quality protein. For children, the average amount per meal is around 5 to 10 grams, while young adults typically can get away with 20 grams per meal.

For most normal-weight adults, 30 grams per meal is really the minimum you need to stimulate muscle protein synthesis. If you have a robust strength training program, you may need to go even higher. To make sure you're getting enough protein in your meals, consider using a free nutritional tracker like [Cronometer](#). That way, you're not guessing.

## **Will a High-Protein Diet Harm Your Kidneys?**

Some avoid protein for fear it might damage their kidneys. People with chronic renal failure do need to limit their protein intake so as not to tax their kidneys, but if your kidneys are healthy, you don't need to worry about this. Lyon explains:

*"I think the majority of individuals have healthy kidney function. Actually, protein intake has been shown to improve glomerular filtration rate, not have a negative impact. The body should be capable to manage high-quality protein without an issue, and there's been multiple meta analysis with individuals with healthy kidneys in terms of protein consumption. It's another falsehood.*

*The same thing with osteoporosis. People will say, 'You don't want to eat too much protein because it's bad for your bones.' Well, what do people think bones are made of? Bones are made of proteins. Yes. They are made of calcium, but the requirement is through protein. [Editor's note: Protein is the matrix that holds the calcium]. So, that's another falsehood.*

*When I went through my geriatric training, it became so apparent that what we were seeing in clinic, and what we were doing to protect aging individuals was so vastly different than what was out in the public sphere.*

*It's interesting. Individuals can ride the wave of youth for only so long, and then what ultimately happens is, as you age, you have to get good information, because the wiggle room for mistakes and the wiggle room for actually executing important and correct information becomes less ...*

*[Protein] is the one nutrient that will really be able to save people's lives. It is the pinnacle, because it protects skeletal muscle. Yes, carbohydrates have a protein sparing effect. Yes, you can do a ketogenic diet, and there may be protein sparing effects. But the question I would ask is why?*

*We know we need to prioritize protein because we have to optimize skeletal muscle. It is important for neurotransmitters. It is important for the immune system. It is important for regulation for mucin from gut lining. It is important for all things in the body, hands down, and it's essential.*

*Skeletal muscle goes through this process of anabolic resistance, and as we age, the efficiency [decreases]. Muscle is also a nutrient sensing organ. Its efficiency to utilize and sense protein decreases as we age."*

## **Should You Work Out Fasted?**

I believe time restricted eating (TRE) is best done 16 to 20 hours a day, every day. Sixteen to 18 hours is probably the sweet spot. This schedule will give you virtually all the same benefits as calorie restriction with respect to longevity benefits, but without any of the downsides, the primary one being compliance.

I prefer to do my workout in a fasted state, followed by an infrared sauna and swim, and then break my fast afterward. This will reduce the carbohydrate load in the muscles as they're using up glucose during the workout. This, in turn, gives you the additional benefits of autophagy.

Lyon also points out that when muscle contracts, it releases myokines, which play a role in both lipolysis (the breakdown of fat) and glucose utilization. When you train in a low-glycogen fasted state, myokine release is increased.

While we're on the topic of time-restricted eating, this will also help prevent excessive activation of the mechanistic target of rapamycin (mTOR). As explained by Lyon, mTOR is found in every tissue and responds to different nutrients and stimuli, including dietary protein, insulin, carbohydrates and exercise.

About five years ago, largely due to Dr. Ron Rosedale, co-founder of the Colorado Center for Metabolic Medicine, I was concerned about too much protein stimulating mTOR so I restricted my protein intake. However, mTOR is activated not only by protein but also by carbohydrates. A key misunderstanding about mTOR is that it's not protein that's the problem, or even carbs. You stimulate mTOR on a vegetarian diet as well.

The other more serious issue is that most people eat more or less continuously throughout each day, which will keep mTOR continuously activated. When you're eating all your meals within a window of, say, six to eight hours, and fasting for the remaining 16 to 18 hours, mTOR gets stimulated only once or twice a day, which is not a problem.

mTOR is best activated twice a day in a pulsatile fashion. When you activate it continuously as most people do, it can lead to an increase in risk in diseases like cancer.

## Timing of Your Post-Workout Meal

As for the timing of your post-workout meal, Lyon disagrees with the common notion that protein feeding can occur any time after your workout as long as it's within 24 hours.

**“ The current recommendation is very low for exercise. It's 150 minutes per week ... I would say that's probably the bare minimum that anybody should do, not the optimal; 30 minutes of moderate intensity exercise, five days a week, is likely not going to be enough. ~ Dr. Gabrielle Lyon ”**

She believes it's far better to eat that meal shortly after exercise. "In a geriatric population, we know that blood flow is optimized post-training, and we know that adding in a protein meal right after training ... is extremely beneficial," Lyon says. This goes for carbs too.

*"To gain muscle mass, you do need calories," she says. "Protein and carbohydrates play a different role post-training, whether one is for glycogen repletion versus muscle protein synthesis or muscle repair, both are very valuable."*

## **Are You Getting Enough Exercise?**

When it comes to executing an exercise program to optimize muscle, Lyon recommends working with an experienced coach to create a suitable program.

*"Volume is very important, and volume is exactly what it sounds like, it's the amount of repetitions. It's all cumulative in terms of weight and repetition. That is what we have seen in the literature. When you are new [to exercise], it is much easier to stimulate muscle tissue. So, if you are an untrained individual, you could get away with 10 sets per week.*

*I preface this by saying I don't actually develop training programs for individuals. I think doing this in-person with a professional trainer is really where you're going to get your benefit, because they can watch you. They can determine what moves you need to do.*

*You don't want to get injured, because injury really sets individuals back. There are certain groups of people that may have a predisposition to get injured, for example, an individual with hypothyroidism. I see that they have poor tissue turnover. They get joint pain. The recovery tends to be a bit of an issue, so getting with someone who knows what they're doing is really important.*

*That said, the current recommendation is very low for exercise. When I say very low, it's 150 minutes per week. That could be 30 minutes, five days a week of*

*exercise ... I would say that's probably the bare minimum that anybody should do, not the optimal, but the bare minimum; 30 minutes of moderate intensity exercise, five days a week, is likely not going to be enough."*

## **Exertion Is Important**

A key part of resistance training is actually exerting yourself. "It's called resistance exercise for a reason," Lyon says. "There needs to be a component of effort that I don't see people putting in." If you're on your phone or watching TV, chances are you're not putting in sufficient effort.

*"It's not just about putting in the time. I expect you to execute in a way that requires focus and a way that requires exertion that is intense enough that you are fatigued ... I would consider going to failure. Perceived exertion is really important.*

*There's a mind-muscle connection. You can do a lot of movements, but it doesn't mean you're actually targeting the muscle group that you are intending to target. If you do a certain exercise, maybe you're going to do a squat, and perhaps you compensate in a different way. You use your quads more than you use your hamstring or your glute.*

*Really focusing on the muscle that you are training is of extraordinary importance. You do need to create muscle damage. You do need to change the metabolic homeostasis in your body. You do need to have enough recovery, enough nutrients for recovery, but you do have to tax that muscle, and one way in which you tax the muscle is through effort.*

*One way that you also tax and understand the effort is through perceived exhaustion. I'm not saying you have to train to maximum exhaustion, but, if we are thinking about how to really step up and protect ourselves as we age, people are always looking for this external fountain of youth. It's not.*

*It's not something you're going to take in. The fountain youth truly is within this muscle system as the organ of longevity. That's how people are going to really excel and change the trajectory of the way in which they age."*

## **Blood Flow Restriction (BFR) Training**

An excellent strategy that can allow even the elderly to get a very intense workout while minimizing the risk of injury is blood flow restriction (BFR) training. KAATSU is the original BFR device, developed in Japan. With BFR, you can get the same results with just 30% of the weight you'd have to use otherwise. As explained by Lyon:

*"[With BFR], your body will recognize the same stimulus, growth factors, cell turnover, as you would if you were lifting heavier weights. It can be very valuable, especially when you are just starting out. Again, do it with a professional ... Something else that's interesting is electro stim suits, [but they're] a lot more expensive."*

While we didn't have enough time to really cover BFR in our interview, you can go to [Bitchute and type in KAATSU](#) and you will find my previous interviews on this topic. I know it is a bit pricey, which is why I was able to work out a deal with the manufacturer if you use the discount code. You'll find the discount code in the video description by clicking "MORE+" on any of the videos there.

I have been doing KAATSU for a few years now along with increasing my protein intake to 1.6 grams/kg of my body weight, which is about 150 grams of protein for me. To illustrate that you can have quite a dramatic change in your body by these techniques, the picture below is from my medical school days about 40 years ago. My arm size was 11 inches.

Interestingly I just talked to the guy with the glasses who was a classmate in school, Jay Bishop. He's a urologist in Arizona and his adorable wife Sue is on the left. She has had Type 1 diabetes for over 50 years and still doing well with virtually no complications.



## More Information

To learn more about protein and Lyon's muscle-centric approach to health, check out [her YouTube channel](#) and/or [sign up for her newsletter](#). If you're ready to make some serious changes and take your health to the next level, you can contact the [Institute for Muscle Centric Medicine](#), which Lyon founded. Lyon is also active on [Instagram](#).