



## Episode 561: Angelo Keely on Essential Amino Acids and Eating More Protein!

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This episode is brought to you by Just Thrive Health, one of my top sources for supplements. I've seen first hand how incredible their products are and today I'm sharing the three I use most. The first is their spore-based probiotic. Unlike many probiotics, this one is shelf stable, doesn't have to be refrigerated, and survives all the way through the digestive system so it gets exactly where it needs to go. Because they are heat stable, I can also add these to smoothies, soups and even baked goods for my younger kids and these are the only probiotics I've seen a noticeable difference from using. They also have a product called IGG that helps calm the immune system and that was very helpful to me personally when I was working on recovering from my autoimmune conditions. Lastly, their new Just Calm product has been great when I'm going through some stressful times lately. It contains a proprietary "psychobiotic" strain known as BL 1714™. Psychobiotics are a new class of products with beneficial bacteria that can support your mood, cognition, and emotional health. Check out these and all of their products at [justthrivehealth.com/wellnessmama](http://justthrivehealth.com/wellnessmama) and use the code wellnessmama15 to save 15%.

Katie: Hello, and welcome to "The Wellness Mama Podcast." I'm Katie, from [wellnessmama.com](http://wellnessmama.com) and [wellnesse.com](http://wellnesse.com), that's wellness with an E on the end. And this episode is all about essential amino acids and how to know if you're eating enough protein. I'm here with Angelo Keely, who is the co-founder and CEO of Kion, which is a supplement and functional food company dedicated to helping health and fitness enthusiasts live long, active, and playful lives. And the reason I wanted to have Angelo on is that I've mentioned on social media a couple of times about taking essential amino acids and also now creatine as I'm working on gaining muscle. But even if you don't have strength training goals, things like this can have a really, really important impact for long-term health because they support lean muscle mass, which is correlated to longevity, and to a lot of other positive outcomes as we age.

We get pretty in-depth in this episode, talking about what essential amino acids are, and why they're so important, the difference between essential and non-essential amino acids, understanding protein synthesis in the body, how to think about protein versus amino acids, the core reason you should be eating more protein, and how to hack or supplement your diet to make sure you're getting enough of these essential amino acids, and why this can lead to a higher basal metabolic rate, which is really important, as well as how to build lean muscle without gaining size, the difference between amino acids and branched-chain amino acids, and then

we go in-depth on a lot of these topics. So definitely a fact-packed episode. And this is something I've been really incorporating into my daily routine, and I've noticed some really good results. And we talked about how to optimally time and supplement, and all those caveats, who can take it, when you should take it, etc. I know you will enjoy this episode as much as I did. Let's join Angelo. Angelo, welcome. Thanks for being here.

Angelo: Thanks for having me, Katie. It's great to be back.

Katie: Well, I'm excited to chat with you again, I'm excited to go deep on a topic that I have been learning more about recently. But before we do, I have a note in my show notes. And with you, these never cease to amaze me that your voice was the on hold music for Kinko's for a long time, and I would love to hear this story.

Angelo: Well, when I was in high school, I realized that I had the ability to beatbox. And I slowly, like, developed a kind of, like, human beatbox skills. And actually, the secretary at my high school found that out and her husband ran an ad agency. And he was like, "Oh, you gotta come, do work for me," or whatever. So he got me like a Chili's commercial. He got me on the Kinko's on hold music. Yeah. So it was like, I can't remember it was now but it was something like, "Kin [vocalization] Kinkos [vocalization]." That was if you called Kinkos in, I don't know, 2001.

Katie: I love it. And I've gotten to hear you a few times with that and it's amazing. It never ceases to amaze me, which, I feel like we could spend the whole hour just talking about all of the random incredible things you've done in your life. But probably will be more helpful to the audience if we get to go deep on the topic of essential amino acids. Because I've mentioned these on social media several times, I've been using them quite a bit as I'm trying to gain strength right now. And I've shifted from just trying to lose weight and be smaller to now, how much weight can I pick up off the ground? So to start broad, can you kind of explain for anyone who isn't familiar with what essential amino acids are?

Angelo: Absolutely. So lots of people have heard and obviously are aware of that water makes up a large part of the body. Sixty percent of our body approximately is water in adult male, adult female, it's about 55%. What is the rest of our body made of? Like, what's the solid body mass? What people don't realize is half of it is amino acids. So amino acids are very, very key to being a living organism and specifically to being a human being. There's about 20 amino acids that are in our body, I say about because it's kind of debatable, exactly, sometimes, but it's 20. And of those, 11 are what we call non-essential amino acids, and 9 are essential amino acids.

The fundamental difference between the two groups is essential means you must eat them, they must be taken in exogenously, your body cannot synthesize them. On the other hand, the 11 non-essential amino acids, if you get the 9 through food, then your body can synthesize the other 11. That doesn't mean that you

wouldn't also eat the other 11. In most situations, if you eat a complete protein, most meat is a complete protein. Most single plant-based foods are not complete proteins, you have to combine plants to get a complete protein. But if you do, typically about, especially with meat, about 50%, like, steak is essential and about 50% is non-essential amino acids. So that gives you a kind of a big overview of what they are.

In terms of how they function in the body, when you consume essential amino acids, they support what is called protein synthesis. So naturally, I think you can imagine, oh, your muscles have to do with protein, right? Like, most people are generally kind of familiar with that, but actually, all of your organs, all of your tissues are made of these amino acids. And constantly your body is going through protein synthesis, so protein is being broken down and then resynthesized within your body. And sometimes, or actually, all the time, you have to eat enough essential amino acids typically in the form of protein so that you remain in an anabolic state, meaning that your body is able to replace the breakdown of the existing proteins and build new ones.

If you don't eat enough protein, and you don't eat enough essential amino acids, then you'll be in a catabolic state. And thus you will, if you have enough muscle, you'll just break down your muscle, you become less strong. If you don't have any muscle, then literally you'll start to have tissue and organ failure. Because your muscles basically are the stores of amino acids for your body for all the other tissues in your body. And that's why muscle is so important not only for strength but as we age, it's basically a critical reservoir of these amino acids for all of your bodily function.

Katie: And I think that distinction is really important between just understanding protein versus essential amino acids. And I've been really excited to see there's more mainstream talk, especially for women about the importance of getting enough protein. And this was definitely a thing that I realized was a hole in my own philosophy for a while, I was not eating enough. And when I started actually tracking protein, I was massively undereating protein, and actually eating more of the right things helped me to get a much better body composition. But I feel like essential amino acids are a whole step above just that, like, of course, we should be eating enough protein like you just explained, but these work differently in the body and there's a difference in bioavailability from what I understand, is that right?

Angelo: Yes, that's correct. So in the way that I just described that a good complete protein source is about half of it is essential amino acids. That means if you eat, you know, a lot of chicken or a lot of steak, for example, you're getting essential amino acids, but you're getting all these other non-essential amino acids at the same time, which are not necessarily bad for your body. But the core reason why you should be eating more protein is because the essential amino acid composition of that protein, that's fundamentally what you really need. In studies where they directly compared eating, say, only 10 grams of essential amino acids or eating a complete protein, with 10 grams of essential amino acids and 10 grams of non-essential amino acids, you got the same benefit from only the 10 grams of essential amino acids.

So it's literally the essential amino acids in the protein that are giving all the benefit, and that benefit is to stimulate muscle protein synthesis. That is to actually help your body rebuild muscle and to build more

muscle. So a way to either hack your diet or a way to complement your diet, because it's very difficult to honestly eat enough protein. The old RDA guidance is really way inferior to what we absolutely need in our body for protein, unless, I don't know, if you're like a 20-year-old male, very inactive, like, maybe you can get away with that low protein. But if you're trying to exercise if you're trying to lose weight, if you're over 40, if you're pregnant, if you have any reason why you need more amino acids, which is basically most of us, then you need to be eating about, I don't know, 25%, 30% of your diet in protein, or the equivalent in amino acids.

And so the one way that you can really complement or support that is, in addition to just trying to get in your protein requirements, you basically eat about half of that amount of protein and just an essential amino acid dietary supplement. And that supports you to get those essential amino acids that you fundamentally need to remain in an anabolic state to keep supporting the development of your tissue and your muscle.

Katie: Yeah, I think that's a really important point that maybe a lot of people don't have a full understanding on is that anabolic versus catabolic. And there does seem to be a difference here, for women from what I understand, and just the natural body tendency. Like you said, men might be able to get away with it, more men are more anabolic, naturally, from what I understand, is that right?

Angelo: Yeah, really, every body is different. And the specific example I was giving too was, like, yes, of a male. Males typically are more anabolic, and they typically are able to digest and process the protein and absorb the essential amino acids, but also, younger people, like, not people that are in a very big growth stage, like, children actually need more protein and more essential amino acids. But I was trying to choose someone who's, like, not active, super healthy, young male. It'd be kind of, like, the ideal situation in which maybe you can get away with this very minimal essential amino acid intake.

But yes, women specifically do need to be consuming more protein and more...and thus, really underlying that is more essential amino acids. And I think that's probably maybe one of the greatest issues for women too, is, it's been very popularized for women to eat plant-based diets, which can be great, I think you can have a very healthy plant-based diet.

That said, plants are not oftentimes complete proteins on their own, so you have to mix and match them. And on top of that, they have lots of carbohydrates in them, so you have a very high caloric content to get not that much protein. So if you're trying to hit these much higher protein goals, then it's kind of double-stacked against you, you already need more essential amino acids. And you're eating a lot of food with a lot of caloric content without actually getting the core essential amino acids that you really need.

Katie: Whereas focusing on those core amino acids, to me, what I'm seeing in my own body is these are ways to kind of hack that lean muscle mass, and without increasing your calories drastically, which I think is a really big key, especially for women, I think guys more often are actually trying to increase calories as well. And

maybe, like, let's talk about that myth that if women get too much protein, or even, like, lift weights a little bit, we're gonna get bulky. Which I find funny because I've been trying really hard to get stronger and it is not an accidental thing, but I feel like the essential amino acids are kind of a hack to avoid that size gain while still getting the strength gain.

Angelo: Yeah, I think it's really an unfortunate myth that somehow if you lift weights, then you're going to get really bulky. Maybe we just address that first. So if you break it down, and your goal fundamentally, as a woman is to have a more lean body, and a strong lean body. Like you're not trying to be skinny.

Like, you wanna be strong, you wanna have, you know, toned arms, and feel vibrant, right? Like, you wanna be strong. You fundamentally need muscle for that. On top of that, a big part of consistent health is having a higher basal metabolic rate. So that means how many calories your body just burns just doing nothing, not even exercising. And when you have more lean muscle, your body literally burns more calories just in the process of just being alive because your muscle requires those calories to support itself.

And when you start to build more muscle, it inherently increases that metabolic rate. And on top of that, too, as you build muscle, it is going to be replacing the other tissues at that same time because basically, it's requiring more calories to fuel itself. And it's ideally, if, let's say, for example, you're trying to stay leaner, and you wanna lose weight. And I hear you saying that too, like, at this point, you're trying to get even stronger. It literally is key into replacing that, the switch between say just, like, fat and muscle. Like, muscle is that key component. And the idea that you're gonna lift weights and just get like gigantic and bulky, I dare you, this is what I would say, like, anyone who's really tried, I dare you.

And if you really are trying to, you know, build muscle in such a way in which it's, like, you just don't wanna get bulky, there are clear resistance training techniques that are, for example, higher reps and lower weights, that are more inclined to do that. But even that, I mean, I think even if you tried to lift a lot of heavyweights, you're not gonna suddenly get that muscular. It just doesn't work that way. I think it's like so many of the myths in health, that there's some kind of, like, a super quick fix that's gonna, like, change everything. In the same way you're not gonna lose tons of weight, you know, like, in a week, you're not gonna get gigantic and bulky in a week from lifting weights. Yeah, sorry, did I address the question or did I end up going off a whole other tangent?

Katie: You did, and I think especially, I always think of, like, men with roughly 10 times the testosterone, if they're not gonna accidentally get bulky from lifting weights once, it's certainly not gonna happen for women. And if anything, we need to be much more aware of actually hitting those protein targets to maintain that lean muscle mass, not even muscle size.

But we know, and you could probably speak to this better than I can, there are so many studies that look at lean muscle mass and longevity, and all of your risk factors as you get older. So even if it's not about strength training, or it's not about physique at all, maintaining lean muscle mass is really important for reducing all-cause mortality and for life expectancy and functional strength as you age.

Angelo: Yeah, there's very kind of obvious common reasons for maintaining muscle mass as you get older. When you just think about people getting older, not having muscle and falling and, say, breaking their hip. Like, that's the most obvious example, but what many people don't realize is that muscle tissue, as I described earlier, it's a reservoir of these amino acids. It actually helps regulate the amino acids in the blood. And on top of that, it actually regulates glucose metabolism also. And it regulates all different types of other organ regulation within the body. So having more muscle and I don't wanna misquote here, but because in some cases, it's more muscle mass, and in some cases, it's more specifically, actually more strength that has the most importance, but muscle overall, is related to lower incidence of cardiac disease, lower diabetes, lower, like, various different forms of chronic illness that develop in later stage of life.

Katie: So let's talk a little more specifically now because you mentioned there's a huge difference in the availability of these essential amino acids, even in protein sources like meat, especially plant-based protein sources. I know from what I've read of you guys, it's almost completely bioavailable, which I'd love people to understand this. Because when you're talking about supplementing aminos, you're talking about a pretty small amount, but it's still having a pretty big impact, but walk us through some of the specifics.

Angelo: Yeah, absolutely. So when you eat a protein source, say chicken, your body has to break down that protein into the component amino acid parts, and then your body then actually absorbs those amino acids. So when you take the amino acids themselves, then your body is able to directly absorb them, but this is one of the biggest issues specifically around either taking essential amino acids as a complete complex or taking only an isolated amount of amino acids. So it's less common within women's health circles to be taking BCAAs, which are branched-chain amino acids. Those branched-chain amino acids are three of the essential amino acids. This is much more common though in, like, kind of more gym culture, etc. People will take just those three branched-chain amino acids.

If you only take those three, though, your body literally cannot use them on their own. It requires all nine essential amino acids, the other six to stimulate muscle protein synthesis. Thus, if you only take those three and this may be one of the biggest things I would try to highlight for people if they listen to the show. Don't listen to the show, and then go buy branched-chain amino acids, because you're going in the opposite direction. Literally, your body then has to pull the other amino acids out of your blood or out of your existing muscle tissue to support the stimulation of muscle protein synthesis, because it needs all nine.

So when you're taking essential amino acids as a dietary supplement, you must be taking an essential amino acid complex with all nine. When you have all nine, then your body is able to stimulate the muscle protein synthesis. Now, on that point, then there's also ideal ratios and these have been studied extensively for the

last 20 to 30 years. And so, this goes not only to the point of bioavailability but actually what proportion of the amino acids will have the greatest impact on stimulating muscle protein synthesis. And to create that formula, it's kind of a simple three-step process.

Step one is you actually look at what is the composition of amino acids as they exist in our human muscle? So in muscle, what's the proportion of them? You take that, but then you actually increase the amount of a few of the amino acids. There's four that you increase. You increase leucine, to become 40% of the total formula, you increase the other two branched-chain amino acids, valine, and isoleucine to be in the same proportion to leucine that they originally were at. And you increase the lysine content because lysine more slowly moves into the muscle tissue. All the amino acids are different, they move into the muscle tissue at different speeds.

And when you increase those, then suddenly you have an ideal formula. That works out to, it's about 40% of leucine, and then about 16%, 17% lysine, and around 10% to 11%, isoleucine, and valine, and then the others, I won't go into detail without boring you guys. But at those proportions, you're getting an ideal essential amino acid formula that will maximize muscle protein synthesis. And if you take that formula, depending on your age, and your current level of health, it will have anywhere to two to three times the impact of the same amount of grams of protein taken as a complete protein source.

So if you're a pretty healthy, younger male, taking 10 grams of essential amino acids, in this formula that I'm describing, will equate to about 20 grams of a whey protein isolate, which is a very high-quality protein source. If you're older, if you're female, it could be up to the equivalent of 30 grams of a whey protein isolate or chicken. And that's because of different body types, and especially as we age, and women as well, specifically, the ability to break down that protein and absorb the essential amino acids becomes more difficult.

So the question of bioavailability, it's not, like, it's always this much more bioavailable, it's really relative to how well your body can break down protein. So as you age, if you're female, the difficulty of breaking down the protein becomes even that much more challenging, and thus, the benefits of supplementing with an essential amino acid complex becomes that much more valuable to you.

Katie: I love it. Some of these terms, it's a flashback to high school biology and words that I haven't heard in a while. I didn't realize it was that much of a difference, you said two to three times the impact of just protein from maybe, like, a meat source?

Angelo: Mm-hmm.

Katie: Wow. Okay, so let's talk specifics then on what would be kind of the minimum effective dose that someone would wanna get in amino acids from a formula like this per day, kind of then maybe moving on to what does optimal looks like? And then also, is there an upper limit, or at what point is it too much?

Angelo: Absolutely. So I think overall, I would definitely advise everyone to eat whole food meals. So you start with whole food meals and you start with whole food meals that do contain ideally like 25% to 30% of the calories is protein. And one kind of overall another way of thinking about your daily protein intake, and I'll back into this how you can complement with essential amino acids, is to think you wanna have anywhere about one gram of protein for every pound of body weight, or at least 75% of your body weight. That's, like, about the right range. If you can hit that 75%, you're in a great spot. As you'll see, though, to hit that 75%, that can still be, like, a lot, it can still be a lot of protein. Even if you only weigh 100 pounds, it's, like, 75 grams of protein a day. And I choose 100 pounds because it's the easiest number to think about it through.

So if you're trying to complement that, really, what you need is, and you could kind of back this out, if you're thinking I need, let's just say I'm trying to get 100 grams of protein a day, that basically means I need 50 grams of essential amino acids in a day. And I'm not saying go and eat 50 grams of essential amino acid supplements in a day if that's where you're trying to get to. So one way to help complement that is if you think, wow, if you eat three meals a day, and your three meals a day each have about 20 grams of protein in them or 25 grams of protein in them, let's just say 25 grams of protein, that would give me 75 grams of protein in a day. And I'm trying to make up for that last 25 grams. But already, if you think 25 grams of protein in a meal, like, that's already kind of a lot for people and I think especially for women. So let's just say it's 20 grams of protein.

So 20 grams of protein three times in a day is 60 grams of protein, if you eat three meals each with that amount, then you're lacking about 40 grams of what you ideally would really get. If you could supplement with 10 grams of amino acids, essential amino acids twice a day in between your meals, but evenly spaced in between your meals, not only would you hit your daily protein, the equivalent of your daily protein requirements in terms of essential amino acids. And that's assuming that it's about twice as effective. It could be actually, like, three times effective, but that's assuming about twice as effective. Not only would you be hitting your daily protein requirement needs in terms of essential amino acids, but also you'd be optimizing muscle protein synthesis spikes.

I'm gonna nerd out with you a little bit here, but it's very interesting. So your body basically, if you get the ideal dose of essential amino acids, either in the form of a dietary supplement or in the form of protein, it will create a maximal muscle protein synthesis spike that means your body goes into the maximum amount of muscle protein synthesis it can create, that will last about three hours. So if you start that process, and then you eat protein, again, within you know, an hour and a half, you're really not supporting muscle protein synthesis anymore. Your body's actually likely gonna try to use that protein instead to convert it into glycogen to use as an energy source or do other things with it within the body.

Now, that's not necessarily a bad thing. Many people try to eat lots of protein as well because it's very satiating, because it actually takes your body more energy to break down that protein to turn it into glycogen. So if you're kind of on a weight loss journey, it's very helpful for that as well. But if you can basically time your essential amino acid and protein intake, three hours apart, then you will maximize the amount of times that your body in a day starts to build muscle. So really, an ideal way of using it would be like that. You eat three meals throughout the day and if they're about, you know, five to six hours apart in terms of the meals, ideally six hours apart, then in between them, you could take 10 grams of essential amino acids. That would be specifically if your goal is to really only use these aminos as a dietary supplement, specifically around muscle building, and you're not training.

If you're training, so if you're lifting weights, then an ideal way to use these is to take just a simple five-gram dose which is, like, what a scoop of Kion Aminos is, before you work out, about 20 to 30 minutes before you work out, and then to take another five-gram dose right after your workout. And the reason for that is because when you do actually any kind of training, I was gonna say resistance training, but cardio training as well, you break down your muscle tissue. And it's especially important at that time to give it what it needs to rebuild the muscle. And so necessarily when you do resistance training, you actually are breaking down the muscle, and then it's allowing itself to rebuild and get stronger, but if it doesn't have the essential amino acids that it needs to rebuild itself, then it's a much slower process and can actually be really hard on your body.

So, again, very simple if you're training and working out, it's great to take five grams before and five grams after. If you're trying to kind of supplement in between meals, a 10-gram dose in between, you know, meals every three hours is a great way to re-stimulate muscle protein synthesis.

Katie: And that's an important caveat I just wanna highlight is so you actually don't wanna take this with meals, you wanna isolate in between meals unless you are doing strength training, and then that's an easier metric.

Angelo: You can take this with meals, actually, there's no...You can absolutely take Kion Aminos, or another complete essential amino acid complex with meals, but if you're eating a really good meal, I don't know that it's necessary, or helpful in that way. Like, if you're, let's say, if you're having lunch, and you're having salad and a really great complete protein with it, then the benefit of taking these essential amino acids may not be there.

Katie: Gotcha. And then it's helpful that you kind of explained it well, but I'd love to get a little bit more nuanced with it with tracking this. Because I've been trying to keep track of protein and I'm in that range of needing to eat 130-ish plus grams of protein a day, which I never thought I'd be in a place where like, "Oh, I have to eat so much food, this is so hard." So if I'm tracking it, I know, like, most apps don't understand how much more usable it is in the body, so how would you track that if you're trying to, like, track toward your protein goals? Obviously, it's not gonna be almost any calories, it's very low calorie, right? So how would I track that?

Angelo: So a couple things. So in terms of calories, this is a tricky subject, because we're dealing not just with science, we're dealing with, like, FDA guidelines and all these other weird rules about how things can be labeled or can't be labeled, etc. So lots of people don't realize this, but the FDA has, like, bizarre guidelines where if something's over this amount of content, then you must label it this way, if it's under, you must label that way. So it's not just like super clear cut in that way.

Amino acids themselves are not a complete protein, they're not a macronutrient as defined by the FDA, thus, if we strictly follow the rules of labeling content, caloric content, and protein content based off what's officially, you know, designated by the FDA, then there's no calories that would be listed relative to the amino acids.

That said, if you do a spec analysis directly on a unique amino acid, there is some caloric content and it's similar to the caloric content of proteins. So companies that, you know, state caloric content that's different than that. Like, it's a very messy kind of thing but it's really just because of regulation and bureaucracy. So I would assume that amino acids do have some calories in them and it's kind of similar to protein. But if your real focus is on tracking protein requirements, I would generally say, and again, this is not official, this is not, like, what the FDA would allow you to say because it doesn't follow the rules, but if you understand that the point of consuming the protein is, and especially at these much higher levels and you're not replacing all your daily intake with essential amino acids, then you can basically assume that a gram of essential amino acids is equal to two grams of protein. In terms of essential amino acids, which are the thing that stimulates muscle protein synthesis, the other half of the protein you're eating does not.

It can have other good things in it. Like, if you're eating steak, it could have creatine in it, which is a non-essential amino acid. It's great for strength training, it can support you in other ways, but it's not gonna stimulate muscle protein synthesis. So, again, if you can kind of reframe your daily protein intake ideas around essential amino acids, it's equal about twice as much as...it is equal twice as much essential amino acids as a normal gram of protein.

Katie: That's a helpful metric. And I'm glad you mentioned creatine, I would love to hear any guidelines about how, you mentioned that it's a non-essential amino acid, but lots of people do like to also take creatine for muscle growth, how can these work together? And are there any guidelines about how they should or shouldn't interact?

Angelo: I mean, quite simply, they work wonderfully together. Creatine, as I described earlier, there's essential amino acids which are aminos that you must consume through your food. Creatine is not one of those. Your body actually can create creatine, but as is normal with people that are aging, your body does not as efficiently create some of these or synthesize some of these amino acids within your body, and thus, it can be very helpful to get them from outside food sources. If you're on a plant-based diet, there is no creatine that

you eat. Creatine does not exist in plants, it only comes through meat sources, it's higher in things like beef. So if you eat a lot of beef, you're getting quite a bit of creatine.

That said, you can supplement with additional creatine in the form of a dietary supplement. And it is especially good specifically for strength. And the way that creatine works, is that it works directly in the process of the conversion of ATP and ADP, which is actually how your body generates energy. And what it does is it gives you immediate energy sources. So that you can actually push harder when you're doing strength training and get in one more rep, for example, or two, three more reps and by doing that, you necessarily generate more muscle. It also has really good cognitive benefits, it has great benefits on sleep as well.

And so, there's no contraindications for using creatine and essential amino acids, they work wonderfully together. And if you're doing strength training of any kind, I would highly recommend that you consider using creatine because it will support you that much more, and particularly if you're over 40 years old, then it's that much more challenging for your body to synthesize it. And if you're plant-based, even if you're not doing strength training, I would definitely recommend taking supplementary creatine.

Katie: And so personally, I've been doing creatine and essential aminos before and after a workout, is that, in general, a good way to do it?

Angelo: Yeah, that's great. That's great. The one thing I would say is, in terms of your dosage of the creatine, you probably only need to take, like, half the dose. If it's a five-gram dose of creatine, take two and a half grams before and two and a half after. You're also fine to just take the whole dose of creatine before, you don't have to split it up. I think some of the science around splitting it up is not as strong as it used to be.

Katie: Okay. And then when it comes to timing, I know there's so much research out there in different directions and, of course, with the caveat that we're all individual, so I think it's very much experiment and find out what's best for you. But there's data, for instance, on consuming protein first thing in the morning, and how that can have a positive effect on protein synthesis and lean muscle throughout the day. There are a lot of people who have tried various forms of time-restricted feeding and intermittent fasting and stopping early or waiting till noon to eat.

So the questions I can see coming are gonna be, do aminos break a fast because they are so low in calorie? And then as far as, like, timing them, would you wanna do a dose before breakfast, for instance, to kind of get that protein in your body before? Or how do you suggest people handle that in the morning?

Angelo: That's a great question. And I do think it's important to start by saying everybody's body is different and I think people's goals are different, so it really comes down to what is your goal. If your goal around

fasting is truly autophagy for long-term longevity, then aminos will disrupt that process. My sense, though, is most people, that's not really why they're doing it, it's, like, one more thing that you add on top, right? Their goal may be that they wanna remain in ketosis. If that's the case, then aminos will not disrupt that.

If your goal is simply you kind of, like, the feeling of fasting and it's one other way that you're able to contain daily caloric intake, which honestly, is why I do it. I'm not on any kind of strict ketogenic diet, I don't eat carbs during the day, I typically eat them at night, because they're really great at night, they're helpful for sleep, etc., but I try not to eat them during the day. But just kind of, like, I feel great when I fast through the morning, and I'm not digesting things or kind of, like, sluggish, etc., and they absolutely do not break that kind of mental state of a fast and they don't disrupt ketosis. So in that way, they don't break a fast, if your goal is really autophagy, then they do.

That said, I would challenge the notions of trying to stimulate autophagy, which is this kind of cell renewal, on a daily basis in that way, because I think if that's your goal, you're pretty fundamentally opposed, in some ways, to this whole notion of muscle that we're talking about. Because automatically when you consume lots of protein and try to build all this muscle, you're stimulating the mTOR pathway, which is kind of directly opposed to this whole notion of people that are pursuing this autophagy goal daily. And you're looking more to, probably in old age, where you have much less muscle, you're very, very, you know, more kind of, like, frail and thin. You may live for a long time, but you're not gonna be, like, robust and strong and vibrant in that way.

So I think it's really about finding a balance. And if your goal is autophagy, then perhaps choose fasting periods, you know, quarterly for three days or seven days where you can go through that process. But you can still throughout the rest of the year really be maintaining and building muscle. Because if you do it on a daily basis, you're really sacrificing muscle, which again, as we described earlier has one of the biggest impacts not only on longevity, but also on health span and the quality of your life.

In terms of when you take the aminos in the morning, there are different ways of doing it. As I said earlier, if your main goal is to stimulate muscle and to really try to grow muscle as quickly as possible and lean muscle. Again, this is not, like, big, bulky, getting strong, this is, like, nice, beautiful, thin lean muscle. It would be beneficial to, you could take it as soon as you wake up in the morning, take that kind of 10-gram dose, and immediately you're gonna stimulate muscle protein synthesis. What I would say then is don't eat breakfast for, like, three hours later, or don't take another dose of the aminos again for three hours later.

You could also beneficially, like, if your typical practice is to lift weights in the morning or to do some type of training, you could take that 10-gram dose, which is automatically gonna stimulate muscle protein synthesis, then do some type of strenuous resistance exercise. And then it could make sense to take another dose of aminos and then wait probably three hours until you eat again, and at that time, ideally, eat a protein-rich meal. I personally wake up in the morning, take a dose of aminos, do strength training, take another dose of aminos, and then wait until lunchtime to eat.

Katie: Yeah, and I've been experimenting with cycling as well. I agree with what you say that if your goal is autophagy, it seems more beneficial to do a longer three to five-day fast less often and get the higher autophagy during that time, but you still protect muscle in a relative sense, because it's a shorter amount. And it is actually I've had experts on here that talk about it's actually difficult to get that autophagy to benefit every single day, because we think we're fasting in a given window but there's still food in our stomach for, say, four to five hours after that. So you're actually not getting as long of a window as you think you are and it's much harder to track.

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This episode is brought to you by Just Thrive Health, one of my top sources for supplements. I've seen first hand how incredible their products are and today I'm sharing the three I use most. The first is their spore-based probiotic. Unlike many probiotics, this one is shelf stable, doesn't have to be refrigerated, and survives all the way through the digestive system so it gets exactly where it needs to go. Because they are heat stable, I can also add these to smoothies, soups and even baked goods for my younger kids and these are the only probiotics I've seen a noticeable difference from using. They also have a product called IGG that helps calm the immune system and that was very helpful to me personally when I was working on recovering from my autoimmune conditions. Lastly, their new Just Calm product has been great when I'm going through some stressful times lately. It contains a proprietary "psychobiotic" strain known as BL 1714™. Psychobiotics are a new class of products with beneficial bacteria that can support your mood, cognition, and emotional health. Check out these and all of their products at [justthrivehealth.com/wellnessmama](http://justthrivehealth.com/wellnessmama) and use the code `wellnessmama15` to save 15%

But on that note, one thing I've been experimenting with is eating earlier in the morning, so it's still an hour or so after I wake up and then stopping calories earlier even, like, midafternoon, late afternoon instead of after dinner, and I've noticed a benefit to my deep sleep. But it makes me curious if I, for instance, did a dose of aminos three hours after my last meal to kind of give that spacing. How long is that digestively active in my body before sleep? So if I wanna have, like, a two to a three-hour window, where my digestion is at rest before sleep, when would I need to cut off aminos?

Angelo: That's a great question. I think that 100% the science has shown this for many years and honestly, like, even spiritual traditions show this for, like, a long time, that eating dinner is probably, like, the least beneficial time to eat. Like, ideally, if we'd cut off calories earlier, I would, it's just, like, hard. Like, I love dinner. I just

love dinner, and I've got, like, family stuff around it. But I have so much respect for you being able to cut off the calories more, like, you know, late afternoon, I think it's ideal behavior. If you're going to add aminos after that, I wouldn't be worried about...I honestly wouldn't be that worried about it. The digestive stress is so low because they're so immediately bioavailable. Your body's not having to break down protein. It's basically just taking the amino acids and digesting them, I don't know, maybe half an hour. An hour. It's really not...I think it's a very minimal concern.

And the thing that would be great about that, and this is actually something that bodybuilders have done in the past, but they would do it with, like, chicken, and casein shakes and stuff like that. They actually do consume that type of protein right before bed, because it stimulates one more muscle protein synthesis spike. So it actually, again, supports your body in going back into an anabolic state, kind of while you're even sleeping.

Katie: That was my hope. That's good news is that... And my thought was maybe to have that in my body as I'm going into the repair states of sleep, would still have those building blocks available, but it's not, like you said, taking up active digestion. I'm also glad you brought up the word mTOR. Because this is I think the pushback I often hear when you talk about eating enough protein or supplementing with anything that is in these categories, is some people are like, "No, you don't want to stimulate mTOR, and that's dangerous." So can you explain for anybody who's not familiar, what mTOR is, and then maybe how to understand that in relation to essential amino acids?

Angelo: Sure. So I'll just admit from the very beginning, I am not a specialist in this specific field. I'm much more invested in and have researched much more deeply muscle protein synthesis and the benefits of aminos, not trying to, like, minimize mTOR. But in a very short sense, or kind of a gross oversimplification is that when you consume protein and when you consume amino acids and particularly, like, leucine, it basically stimulates growth. It makes things grow, it stimulates tissues to, like, to grow and to move. And so, necessarily if you overstimulate those types of activities in the body, those have long-term been associated with aging in the body. And also specifically with the development of growths.

So, for example, if...I hate to bring up the word cancer, but, like, it's been associated sometimes with the growth and development of cancer because it's basically, like, stimulating things to grow. Now, what I would say is, this is true for many good things in life. You know, many people have pursued things like stem cell therapy, stem cell injections, etc., which deliberately, you know, enhances growth and regeneration, etc. So there's always gonna be tradeoffs in life, I think, fundamentally. And it's about trying to choose healthy diets and healthy behaviors that help you balance and create what you most want from life, etc.

I think that the risk of consuming protein, and specifically essential amino acids and their stimulation of mTOR, is very different than say, someone who's eating tons of junk food, maybe eating a lot of protein, and it's stimulating mTOR but it's also part of eating lots of refined sugar, and lots of other junk foods and not moving and doing all these other things. Like, when you look at it within that scope, then, like, yeah, it could be not a

good thing. But when you look at within the focus of, hey, I'm waking up early every morning, I'm doing some type of resistance training, or maybe alternating with some cardio, I'm eating lots of protein, I'm building muscle in my body, then there's a whole host of benefits that specifically have proven that muscle mass is directly tied to reduced cardiac risk, reduced diabetes risk, and the list goes on and on and on and on.

So I think too much of any one thing, or really too much of too many bad behaviors at once is what creates these negative effects. But I think mTOR has gotten way too much of a bad rap, because of people kind of isolating around just, like, pure cellular health and longevity. And not having the perspective of like, "Yeah, but if you're, like, frail and don't have any muscles, then you're not gonna be able to, like, regulate insulin within your blood anyways."

Katie: Yeah, and my way of kind of making sure that's not an issue personally, is that I lab test often. So I watch all my markers, but I do that longer three to five-day fast a few times a year, which is that bigger spike in autophagy. There's a lot of data that that might help do some cleanup for any of those areas that could be risky if you're stimulating mTOR. And then I'm still supporting muscle the rest of the time.

I know that we're also gonna get questions from people listening about who can supplement with essential amino acids? And I've done some student midwife training, for instance, and I know that there are some really positive studies with consuming enough protein during pregnancy and better birth outcomes. And then also parents going, "Well, at what age could my kids take this?" And I have a bunch of kids who are athletes. So what are the guidelines around those special states in life and who can and can't supplement?

Angelo: As with all dietary supplements, if you are pregnant, if you're a child or you have any unique medical condition, you should absolutely consult your primary physician, because they'll be able to give you guidance that's more nuanced to your specific case, and naturally, I don't know what your specific case is. So I just wanna make sure I name that from the beginning.

That said, if you're in a situation in which there is more stress on your body, either through intensive exercise, through growing a person inside of you, through being in the stage of high development as a child, then your needs for essential amino acids and proteins, and thus, essential amino acids, is higher than anyone else. So, again, that's why I go back to the example of, like, the, I don't know, 22-year-old guy who's not even an athlete, not doing anything, basically, versus most other people. If you're an aging adult, if you're pregnant, if you're a kid, then actually your needs of protein are higher, and I would encourage you to look more towards that one gram of protein per pound of body weight, because you have that many more needs for it and/or to be supplementing with essential amino acids.

I personally give my kids essential amino acids, they are seven or they're almost seven and nine now, girl and a boy, and I find them to be highly beneficial. They notice them. And I mean, this is a funny story. So I didn't just,

like, wind up, you know, founding a company based around aminos, aminos were, like, one of the key supplements that my parents gave me as a child. So my family was in the supplement business, the natural health and food business. They only took supplements. I didn't go to traditional doctors, etc. And I started taking essential amino acids when I was two and took them all through my childhood basically. They have an enormous positive effect if it's appropriate for your child based off of your doctor's guidance.

Katie: Awesome. And yeah, of course, the caveat, always check with your primary care provider. I do the same though, especially with my kids' pole vaulting and doing these intense explosive activities. And trying to really educate them around supporting recovery and supporting muscle mass when you have that much output. So helpful, helpful guidelines for sure. I know when it comes to any supplement, there's always the importance of making sure there's no junk in it. And it seems like a lot of protein supplements, or you mentioned the branched-chain amino acids, there tend to be a lot of nasty ingredients added to a lot of these. And I know, obviously, Kion is my go-to, but can you talk about what to watch for when you're choosing, like, a supplement in any of these categories.

Angelo: I think the number one thing to look for is, honestly, price, making sure it's not too cheap. Now, there are all kinds of products that could be a good value, but if something is, like, literally half the price of other types of generally, like, medium or premium level brands, that may not disclose actually what's on the ingredient label, but what that's telling you is that the raw ingredients that they're using must be dramatically cheaper than all the other brands. And there's simply no other way that they can do it, there's no other way you can sell unless they're just losing money. Because every business has, you know, basic profit margins of a few percent they must have, and they have to pay everyone to make it, etc.

So if a product is, like, half as expensive as all the others, just immediately do not consider it. And that's from looking at hundreds of spec sheets of raw amino acids that go into creating these products and seeing the quality, seeing the sourcing, etc. That said, you can't see that, like, you can't go and see the spec-sheets of the individual amino acids.

After that, you really wanna be looking at the additional ingredients. So as we discussed earlier, you can look at the actual exact milligram or gram amounts of the amino acids to make sure the formula is good. But then under additional ingredients, just make sure there's not a bunch of other big words and junk in there that doesn't make any sense. It should be pretty clear-cut what the other ingredients are and if they make sense or not.

Typically, for amino acids, you may need some type of basic flow agent, which could be, like, a bamboo shoot extract or even another amino acid. Sometimes amino acids themselves can be the thing that helps the machines, like, move all the amino acids through and into the capsules or into the powdered tub that they come in.

The other thing would just be when you're looking at flavors. So for example, we have a capsule form and then we also have a flavored form. On the flavors, definitely, be looking for natural flavors. It's typically difficult to find an organic flavor for amino acids. Natural are still very good, they get a really bad name sometimes like, "Oh, natural, what's in that?" But if you're going with a trusted brand, they typically can be very, very good.

Organic, though, are very difficult with flavoring amino acids, because amino acids, people don't realize this, actually are the component parts that create bitterness, sourness, umami, all these really strong flavors in foods. And so when you only take the amino acids and isolate them, they're very nasty tasting. So if you, like, break open a capsule or taste an unflavored one, you'd be like, "Whoa." So basically, organic flavors are very difficult to flavor these with. Natural flavors, though, are great, and they really are all-natural. And then just make sure it has an all-natural sweetener, stevia, or monk fruit. But many, many, many have sucralose or other types of artificial sweeteners that I would just stay clear of if you can. And if there's any other weird ingredients on there, like, they don't need to be on there.

Katie: And I know we've talked a lot about Kion and I'll make sure the link for that one is in the show notes for all of you guys listening, wellnessmama.fm, along with, we didn't even get to talk about all of your other products, but you have a lot of other support products as well. I take your Flex one after working out almost all the time. But as we get to the end of our time, are there any other things related to this topic or to your overall area of expertise that people either don't know or often misunderstand?

Angelo: I think really the biggest thing is just realizing how important protein is. That protein as essential amino acids, are the one macronutrient that you cannot survive without for an extended amount of time. So protein itself can be broken down and turned into glucose as a source of energy for your body if you don't have enough. But you can't, like, any type of carbs or fat cannot be turned into an amino acid within the body, and we must have these reserves of amino acids within our muscles to then fuel the amino acids in our blood that then literally support all of our tissues.

Like, I just feel like there's all this back and forth the last few years over ketogenic diets and, like, low fat, low carb diets, and should I be eating carbs or eating fat or not? Really, the most important thing is that you eat protein and that you get enough essential amino acids daily. I would just harp on that and harp on that. That that's the most important macronutrient to focus on.

Katie: And then I know I've asked you before, but if there's a book or a number of books that have had a profound impact on your life, and if so what they are and why?

Angelo: I can't remember what book I said last time, but it's swung back again, for me that Rainer Maria Rilke is a famous German poet from the late 19th, early 20th century. He wrote a book called "Letters to a Young Poet." It's actually a younger poet that wrote letters to him, and he was responding to them. And they

collected those poems, and they published them. And it's one of the most thoughtful, kind, deep, kind of compilations of advice from one person to another that I've ever read, and I just, I love going back to it and reading it.

Katie: And lastly, any parting advice for everybody listening today, could be related to everything we've talked about or entirely unrelated.

Angelo: Move. I think that in today's time, there is so much, like, fear, there's so much stress. People don't know what's going on. They feel confused. There's a lot of ambivalence. And the best advice I can give is to just move. I think the more that we just move our bodies, move our minds don't feel stuck, like, just make a decision and start moving. Put on your shoes, go for a run, pick up a weight, lift it. If you're, you know, stuck in a difficult kind of argument in a relationship, like, try something new, just, like, make a move. Make a move, you're not stuck.

Katie: I love it. Well, thank you for the time today, Angelo. This has been, for me personally, a very fun conversation. And I got to ask a lot of my specific questions related to this. And for you guys listening, I would encourage you to try Kion's aminos because they've become very much a regular part of my routine, and I recently was able to squat 345, which was a big, big jump for me.

Angelo: Awesome, Katie. Wow. That's great.

Katie: Yeah, so very grateful for the work that you guys are doing. And thanks for educating us about this today. I hope we hopefully encourage a lot of women to up their protein intake and lift some weights and move more. Grateful for your time. Thanks for being here.

Angelo: Thanks, Katie. Great to be here.

Katie: And thanks, as always, to all of you for listening and for sharing your most valuable resources, your time, your energy, and your attention with us today. We're both so grateful that you did and I hope that you will join me again on the next episode of "The Wellness Mama Podcast."

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