

[00:00:00] **Dr Mike T Nelson:** Hey, what's going on? It's Dr. Mike T. Nelson here back once again on the Flex Diet Podcast, where we talk about all things to increase muscle performance, improve your body composition, all done in a flexible approach without destroying your health. In the process today on the program, a good buddy who I've known for a long time was registered.

[00:00:28] Dietician, Mr. Sean Casey. He is from the neighboring state here behind the cheddar curtain we call Wisconsin. And today we're talking all about elite level performance. A little bit more on the nutrition side. Sean trains one of the top badminton athletes in the world. And you may not be super familiar with badminton athletes, or you may not even train many badminton athletes yourself, but.

[00:00:56] A lot of the principles that we talk about can be applied to yourself, even if you're not an elite level athlete or if you're training high level athletes or any athletes really of that point. Because even with high level athletics, a lot of times it's just getting really good at some of the more basic items, and then you can get fancier from there.

[00:01:19] So in this podcast here with Sean, we talk all about everything from electrolytes to making sure you've got the basics of performance covered what that would look like, what to do the week of or the day of a competition. And then we do a little bit deeper dive into different types of supplements.

[00:01:39] Everything from coq 10, magnesium, what type of magnesium is best? How do you know how much magnesium to take? Because there's different types which kind of complicates the issue. And a whole lot more. So a lot of deep dive into performance, nutrition, even touching on electrolytes and a lot more. And if you are doing pretty good with your nutrition and exercise and sleep and you're curious about what would be the next level to take your performance or Body com two check out the physiologic flexibility certification.

[00:02:17] It will open again September 18th, 2023. It'll be open for one week until September 25th, 2023. Go to physiologicflexibility.com for all of the information there. And in the certification I cover physiologic flexibility, which you can think of as metabolic flexibility. The Flex Diet Cert is the level one.

[00:02:45] That's where we cover nutrition and sleep and a little bit of exercise. And in the physical exert, we expand that to the top four regulators that your body has to hold constant in how to train them. So we're talking about changes

in temperature, pH, and expanded version of metabolic flexibility for fuels and air, c O two and oxygen.

[00:03:10] This is everything from cold water immersion to the effects of sauna. A true high intensity interval training all the way to zone two different breathing techniques. Everything from a long exhale breath holds super ventricular methods such as the Wim Hof method and a lot more. Now, the cool part is it's all done in a complete system for you.

[00:03:34] So you'll understand that the big concepts, you'll learn all the details based on actual research, and then we give you five specific action items so you'll always know exactly how to apply all of the information. So this is the level two, the Phys Flex certification. It opens September 18th, 2023. So go to physiologicflexibility.com for all the information.

[00:04:01] And enjoy this podcast with Sean Casey.

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[00:04:12] **Dr Mike T Nelson:** . Welcome back to the Flex Diet. I'm Dr. Mike T. Nelson here today with my longtime good friend Sean Casey, who's also a registered dietician and trainer to the badminton superstars of the world.

[00:04:26] Correct?

[00:04:28] **Sean Casey, RD:** That would be correct. I've had some good opportunities working with pretty high

[00:04:32] **Dr Mike T Nelson:** level badminton. If anyone, that was actually the first time you told me that. I was like, badminton, eh, and then I went and watched like one of the matches. I was like, holy crap. That's, I couldn't even see the little birdie thing moving around.

[00:04:45] I'm like, that was crazy.

[00:04:48] **Sean Casey, RD:** It's actually really fascinating 'cause I had the same reaction. One of my main clients I work with, his name is Victor Axelsson. He's a two-time world champion Olympic gold medalist. And I remember when he first reached out to me, this would've been back, I don't

know, 2014, it was similar because I think about Badm, it's kinda like the backyard barbecue sport.

[00:05:04] And then similar to yourself, I started watching, I'm like, holy cow, this is extreme intensity and here's something that's interesting. So he's about six four or 195 pounds when we're in our intense training. If we're not getting in at least five to 6,000 calories a day, he can't maintain his body weight.

[00:05:21] **Dr Mike T Nelson:** Wow. That's gotta be like, that's higher than some high level CrossFit athletes I've worked with.

[00:05:30] **Sean Casey, RD:** No, it it's pretty crazy. And I think when people, especially in men's, so it. Yeah, it's so interesting. You have doubles and singles in badminton. So in doubles it's just almost like pure re obviously they burn through a lot of energy, but it's a lot of just pure re reflux.

[00:05:43] Reflexes, how quick can you move? Where in singles you're covering a pretty large court, so there's a lot of jumping, a lot of, fast motions. The one thing that actually really surprised me about this, or two things surprised me about the sport is the number of all out vertical max jumps that they do in a given period is probably the highest I've seen out of any sport, like per time unit.

[00:06:07] Just with the smashes the other kind of actually, 'cause every sport has something unique about it. Be it American football, international football, basketball, whatever the sport is. The unique thing about badman is the birdie is so light, you're talking mere ounces.

[00:06:22] And so I. As they're flying around, like smashing and the birdie and everything is, they have to take into account what the drift is in the stadium. So if people are walking more in one direction versus the other way, or if there's an air condition on if those, if there's no drift in the stadium, you hit the birdie, it lands, three three inches inside the boundary line.

[00:06:43] If there's a high drift, that same shot is now landing three feet outside of the bound line. So it's like this continuous slow adjustment going on. So yeah, so very unique sport. I've had some fun

[00:06:53] **Dr Mike T Nelson:** experiences with it. Did they go out there and hang up little tiny flag to see where the like movement air is?

[00:07:00] Or do they like walk around with their hands up, like trying to figure it out ahead of time or what do they

[00:07:05] **Sean Casey, RD:** do? You'll see a lot of it. What they'll do is, Basically when they're on the court they'll for lack of better words, hit the birdie straight up in the air. And then just watch for the drift.

[00:07:16] Yeah, watch for the drift on it. And that's the other thing is they'll see the drift. And that's then what's always unique is you have to think about is okay, so it's best of three. So each set, you're flipping the sides. Yeah. So your first set, you may be, three feet out of bounds with a hit.

[00:07:34] The next set, it's complete opposite direction that you're playing against. Kinda those unique things you don't really realize until you start watching and following sport a little bit

[00:07:41] **Dr Mike T Nelson:** more closely. Yeah. Last question on badminton, but do they play around with different birdies at different weights in terms of training, or does that take away from all the years they've hoed in or on.

[00:07:56] Got their fine motor skill to just that one specific thing. So I would imagine like golf and baseball, like the, the size and how they're formed is all highly regulated.

[00:08:07] **Sean Casey, RD:** Yeah. So similar with badminton, they're using the the same birdie weight the entire

[00:08:11] **Dr Mike T Nelson:** time period. But for practice, they don't play with like ones that are more weighted or lighter weighted or

[00:08:17] **Sean Casey, RD:** anything like that.

[00:08:18] Oh, yep. No. I see your question. No, it's they use the same one for the entire practice sessions. They really try to zero in on the exact, weight

[00:08:26] **Dr Mike T Nelson:** for consistency. Yeah. Nice. Oh, that's super interesting. So now people know more about badminton. So in my head I have this little I don't know if it's a hierarchy, but it's like tennis, badminton, pickleball in terms of the amount of movement you do.

[00:08:42] But maybe badminton will be a little bit higher up on the list now.

[00:08:46] **Sean Casey, RD:** Yeah, it's moving up. It's so fascinating because Badminton versus tennis. So badminton is a much faster sport in terms of, there's not as much breaks in between movement. Or between rallies. Between, yeah.

[00:08:59] Just, rest periods. It's just it's a very fast, okay, let's get after, let's go. Where a long badminton match, I would say is gonna be, longer than an hour, say maybe an hour to an hour 15, where a tennis match can go extremely long duration. Sure. So it's always interesting kind of comparing physical demands of different sports.

[00:09:18] Which energy systems are gonna be more predominant, which ones are you gonna try to prioritize, similar to what you do with, the different athletes and clients that you work with trying to match the training, the nutrition, et cetera, relative to the demands

[00:09:30] **Dr Mike T Nelson:** of the sport.

[00:09:31] And as a segue into what we're gonna talk about today is kinda supplement nutritional drug interactions. I would imagine there's a very high cognitive demand in badminton, especially as matches go on, especially with something that's very more reflexive from a supplement or nutritional standpoint.

[00:09:51] Do you do anything that you can reveal to the public that would be helpful for that demands of the sport?

[00:09:58] **Sean Casey, RD:** I think a lot of it in terms of the mental demands I'm really focused on is similar to, athletes from other sports. I think often people forget about, like they have daily life stresses just like everyone else does.

[00:10:11] And so I'm looking at okay just general vitamins, minerals, the basics. I find those type of things are missed across the board. I'm also a fan of doing, some of the different ones that help with, brain health, be it, choline sources. Everything from c choline or CDP choline.

[00:10:28] Yeah, I think Alpha G P C, has benefits there. I'm also just a fan of things like creatine. I'm a fan of the brain health benefits of creatine. I know there's one study, and again, this was now looked at in high level athletes, but just the ability of creatin and improve that ability to think quick, like on spot repetitively.

[00:10:48] Now, in that study, they were using like a serial sevens test, so trying to invoke that stress, that accuracy, things of that nature. But I was thinking like a sporting world, okay, if you have things happening really fast, how can you potentially, have a positive impact? And so I would say like specific to Badman, there's not really a specific thing that I use for say that sport versus say if I'm working with the basketball or volleyball or one of those others.

[00:11:13] But again, just trying to target the entire brain function. And again, I find one of the major things missing is just basic vitamins and minerals. I always tell people if that's off, you know what? Whatever you're trying to throw on top of that is gonna cause a lot of, you're gonna get half out of it.

[00:11:28] **Dr Mike T Nelson:** Yeah, totally agree. And we've had Dr. Scott Forbes on here. People wanna listen to more about creatine and Dr. Eric Rolson. We talked all about creatine in the brain too. I could, a good buddy of mine was a high level worked with a lot of tennis pros in the past, and so he would watch to see who their potential opponents would be on tv.

[00:11:49] And his main determining factor was if it was gonna be a quote, easy or hard match, was if they were just consuming water or if they were using any type of electrolyte solution. 'cause the tennis matches that they were playing were generally in very hot humid outdoor settings. And he was telling me he is these other people have like high level coaches and these matches are going on for hours on end and they're only consuming water.

[00:12:16] And he is like, all we did was just give them more electrolyte mix sometimes, whatever you can legally do. But he is like most of the time, That was enough. And we knew that as the match got longer, it was to his athlete's benefit and he would just mop the floor with all these other people who skill level wise were probably above where his athlete was.

[00:12:35] But he just knew that he would, he's I get so excited if they come in and they just had water. He is yes, he's gonna be great.

[00:12:43] I know. And these are like pro level people. These are like people that are on national tv.

[00:12:48] **Sean Casey, RD:** Uhhuh it's always fascinating when you dive into, there is, like you said, the electrolytes, the so simple potassium, sodium, like very basic things. And that's what we do all the time because badminton there, there's two big areas in the world for badminton.

[00:13:05] It's Europe as well as Asia, specifically Southeast Asia. So you're Malaysia, Indonesia, China, Japan. And so when we're in those countries, it's the same exact thing as we're loading up on those, those things because. It always goes back to everyone wants to have that big flashy, even just, you think about it in the gym too, right?

[00:13:24] The big flashy, pre-workout that is like pow wow. Like lights, bells, whistles. And it's okay, like if that has a 2% increase in performance awesome. I don't know if that's, if that's important for the gym, bro, then great. I totally understand. I love a good caffeine kick as much as anyone.

[00:13:40] Yeah. But, going back to the performances, if you just have those basics in place, that's probably gonna have a far greater impact on your performance than whatever the next big thing being marketed

[00:13:52] **Dr Mike T Nelson:** out there. Yeah. And that, I'm, I've even guilty of that probably five years ago. I was pretty good, especially with myself and athletes in warmer and humid environments and looking at what the environmental conditions were, but I think I drastically, I.

[00:14:09] Underestimated sodium amounts in people that had a pretty, pretty good diet, right? So a lot of, some of the higher level CrossFit people we did pretty good on their competition stuff was good, but I think I could have gotten a little bit more performance by bumping up their sodium during training times.

[00:14:26] I went back and looked at some of it, again, it's a self-report a lot of times, some people were on the low end of two grams, and I've noticed like two to eight grams I was talking to and gel the other day about this too, is two to eight grams total per day. Seems to be the range.

[00:14:39] And I've noticed that you've probably seen this too, is that is just a huge range from one person to the next for God knows whatever reason. And so once I just started being like, okay, your blood pressure's fine. You're eating Whole Foods, you're not salting your food. Okay, let's just salt your food.

[00:14:55] Let's use a, electrolyte supplement. Granted I use Element, so I'm affiliate for them, but there's other ones you can use. And let's just keep going up and see how you feel and perform and then we'll just figure out where your max is. And it was crazy how sometimes as simple as just like doubling their sodium intake, they're like, oh yeah, my training's much better.

[00:15:15] Like I can do more volume. And you look at whether it's speed, H R V, whatever, like their consistency was a lot better and that was not in an extreme environment that was just in their local gym that they've been training at. I was like, oh shit. How did I miss that?

[00:15:31] **Sean Casey, RD:** No, I think everyone is guilty of it as well.

[00:15:33] Obviously you're familiar with, but for people listening, I'm a registered dietician. That was one of my degrees was in dietetics, my degree in exercise physiology. And In dietetic school, it's always 'cause they're always thinking about, and obviously there's been more research on this since I was back in school, 2006, seven.

[00:15:49] But okay, it's oh, low sodium, et cetera, et cetera. So it's, when I started, same issue when I first came into the field, it wasn't like I was telling people don't use sodium, right? But I was emphasizing, hey, making sure that we're using a variety of minimally processed foods like that health diet, which actually is gonna be super low in sodium more often than not.

[00:16:07] And same kind of career tr learning experience that you had is wow, like this was really simple. Yeah, enjoy salting, whatever you're having. Or someone you mentioned L M T I've had really good success with L M T. I'm not affiliated with them in any way. So this is me just being honest with, experiences.

[00:16:24] I, using things like that, other electrolytes has been really beneficial for a lot of clients I work with as well.

[00:16:30] **Dr Mike T Nelson:** Yeah. And now it's even crazy. Like I have what do I got here? I dunno if people can see it on video. Hopefully I don't unplug my mic. But Nick's sensor, I don't know if you've played with those at all.

[00:16:40] I just started playing with them and I haven't done too much of it yet because it hasn't been hot here in Minnesota, but we'll be in Costa Rica again in June. It is starting to warm up here now. I don't have Asana yet, so I don't really sweat a whole lot. So I'm excited to play with that more just to get an idea of measuring different electrolyte amounts.

[00:16:59] So I do some assessments with Rapid Health, and so they've been doing that with some of their athletes too. So it's pretty cool with technology now, we don't have to guess or do the old school titrate up, titrate down, which

still works. You don't need technology. But more and more technology, it's becoming easier to measure specific things and get an idea of what's going on.

[00:17:20] **Sean Casey, RD:** That is neat. Whenever I think of salt, the one thing I always encourage people to do with salt, and this popped of my mind, we're talking about titrating up, titrating down, is the importance of playing around with salt, how it impacts your body, et cetera, during your practice sessions, during your training sessions.

[00:17:38] Instead of this, I don't know if you ever run into this with clients you're working with, with different athletes I work with is they'll try something new, they'll get a bug in their ear or say the night before a big event they'll jump on everyone's favorite doctor Google and find what performance thing it'll be.

[00:17:54] And so one thing I always tell people is, Hey, make sure whatever you're gonna be doing on your match day or whatever you're trying out in the practice sessions leading up to make sure your body, properly responds to it. And the one story, and this was almost like my own self stupidity, and this was when when I was still in organized sports, I remember, and this gosh would've been, 15 years ago, no, because I was in high school.

[00:18:14] And I remember hearing my physiology 101 class oh, like you're gonna, if you're sweating a lot, you're losing sodium, hydration. So I got the brilliant idea of taking two ta two tablespoons of salt and like a huge amount of water two hours before my high school football game.

[00:18:31] Which led to me sprinting and peeing in the cornfield for 45 minutes during the entire warmup period before working on the field. So that was my, whenever I think about sodium and sports, I always go back to that important lesson that I had learned as a 17 year old in high school sports that have been trying to carry with me.

[00:18:49] So for those listening, that's one, one piece of advice that I can share with you as you're playing with the electrolytes, is make sure you're testing them during your practice sessions, during whatever. That way you know how your body's gonna respond to it before just locking and loading on a competition day.

[00:19:02] **Dr Mike T Nelson:** Yeah. That's anything like what I tell people, and I'm sure you've had the exact same experiences with highly high level athletes, like the week of, and especially the night before competition. Like to

me, like if everything is good, let's just not change anything. Even with like physique competitors, everybody wants this magical peak week thing.

[00:19:20] It's dude, you're either lean enough or you're not. And those five days before isn't gonna make a huge difference, but you could definitely do stuff to really mess it up. And even, strongman competitors, CrossFit competitors, power lifting, whatever. I just spend most of my time just talking them out of the craziest thing that comes up.

[00:19:38] And I get it because I would, I'm guilty of that. It took me years to beat that outta myself too. It's like you, I competed in power lifting, just local stuff. Like I never really ranked or anything like that. I just did it to get the experience. And even just that knowing I'm not gonna place at all, period.

[00:19:55] I was erect like the week before, and I was like the person going, oh, what else should I try? I said, maybe I should try loading more creatine. And I'm like, what am I doing? I'm doing the same thing I tell people not to do.

[00:20:07] **Sean Casey, RD:** That's where it's always nice to always tell people it's nice to have be a coach or, something that you're working with where if you are getting nervous, like the before an event, like always reach out to whoever you're working with.

[00:20:19] 'cause yeah, sometimes it's there's so much emotions, there's so much psychology that goes into that week before, and it's you want it to be so routine where you're not having to think about it. And sometimes you can get nervous oh crap, should I be doing this? Or maybe here's another competitor talking about oh, this works really well for me.

[00:20:33] And so then you're thinking like, man, should I be doing this? And it's that whole. Conundrum, what I always tell people, again, this is like literally echoing what you said is, trying something new the week of an event, the night before event, the day of the event is I was really back to being a basketball player.

[00:20:50] If you've been shooting free throws for your entire life with your right hand, you're not all sudden on the night before a game or on game day gonna be like, you know what? I think I'm gonna shoot my free throws left-handed because this other person shoots them left-handed. They shoot 95%.

[00:21:03] **Dr Mike T Nelson:** Yeah. It's, and I think over time as you get enough practice, that can actually be a benefit because to other. Competitors,

and I've seen this at different events who are very nervous. The person who's not nervous, paradoxically makes them more nervous. You know what I mean? Yep. The funniest story was, this is my good buddy, Adam Glass, who we have a grip product and I've done an how many competitions with him?

[00:21:30] This one was down in Texas, and then his wife was telling me the story. I wasn't there. And he is, they were doing a medley of I think, like 10 different events, right? So for grip stuff, they have all these different stations set up. Your goal is to complete the event and move on to the next one. Who can ever get through this, 10 set up medley in the shortest time wins.

[00:21:48] Then most of the events they have set up in it are relatively difficult. The two funniest things about it was his wife's telling me this story. They're like, all these other competitors were just like super nervous, and they're like, Hey, where's Adam? It's his time to go. He's oh, he is out back smoking a cigarette.

[00:22:05] So they go up, they're like, Adam, you have one minute to start the medley. He is okay. Called me, walks up, puts out his cigarette as he is walking up to the thing goes through, does all of the 10 events and like record time and then just like walks away. And he said the look on other competitors' faces was just like, oh, and previous to this thing the other thing that was so funny, this is the first time his wife had ever seen him compete.

[00:22:32] And so Adam one of the top people in the world, definitely the US especially for body weight. And she comes up to him afterwards and she's when are the other people gonna start trying? And he is they are trying, they just can't do it as well. She's oh.

[00:22:53] Oh, that's classic. Yeah, classic stuff. Very funny. So what are some of your top, I would say interactions for, we'll stay with pharmaceuticals, for example. The one I think that's most commonly known is if someone is on a statin, they should probably ask their doctor about coq 10, right? Because the statin is gonna pair the, it's an H M G co-enzyme reductase pathway.

[00:23:19] I think it's basically the same pathway is gonna screw up their body's production of coq 10 that're on a high dose of statin ards. Are, they might be low on coq 10. What are some other interactions? Just as a personal trainer, someone who's not even an RD should consider, and obviously this isn't medical advice, but just for, f y i to send 'em back to their doctor to be like, Hey, X drug is known to deplete y.

[00:23:46] If there's not much of a risk, maybe we should supplement more with this, or at least ask your physician what you should do.

[00:23:53] **Sean Casey, RD:** No, and this is a really good point great segue as we're talking about just the importance of having those baseline nutrients within the body. And it's something that I find when working with a lot of trainers on the nutrition side or even, some of the athletes, master athletes or whatever it is.

[00:24:07] So the coq 10 is one that comes off that pathway. The other one that comes off that same pathway that others are not familiar with is vitamin K two.

[00:24:16] **Dr Mike T Nelson:** Oh yeah, that's right. I forgot about

[00:24:17] **Sean Casey, RD:** that one. Yeah. So vitamin K two is jumping off. And so there actually, there was an interesting study that came out, I think it was in 2021, where they looked at a couple different cohorts.

[00:24:29] They had a group with advanced cardiovascular disease, ones with more of that early stage cardiovascular disease. And what they actually found was in both groups, the ones that were on the statins that higher calcification scores. And they also found that they had lower production of vitamin K.

[00:24:47] Wow. Again, this was just, this was not like a randomized controlled trial. It was just like, Hey, here's a snapshot in time. And so what they actually saw in this study was higher levels of calcification. And it makes sense for, and for those who are not familiar, one of the main functions of vitamin K two is to drive calcium into your bones.

[00:25:05] That way it's not lining your soft soft tissue. And so that is one there. You mentioned the coq 10, the one that, this is really interesting. So along with working with a lot of athletes, I also work with, a lot of independent pharmacies. And often when I'm talking with people, they're like, oh yeah, I just don't have the energy I used to.

[00:25:24] I'm getting older, whatever. And then I always have to explain to 'em like, no it's not necessary. 'cause you're getting older. That may contribute to it, but your body cannot literally produce coq 10, which is essential for energy production. And so those are two main ones that come off that pathway.

[00:25:39] Another one that's really interesting. And this is even looking at, say younger athletes most aren't familiar with this, but a lot of your oral contraceptives will deplete your body of essential nutrients as well. So this can

be like your B vitamins. And think about, in terms of how B vitamins contribute to the energy production pathways for athletes.

[00:25:59] How do, again, going back to just mental health and wellness, how do B vitamins contribute to the production of a lot of your neurotransmitters? And so that is one that I always find pretty fascinating. The other one with the oral contraceptives that I'm always talking about is, one second, your antioxidants particularly your vitamin E, vitamin C, there's been some research showing that to deplete those levels due to the fact that it can ramp up oxidation within the body.

[00:26:31] **Dr Mike T Nelson:** Very cool. And on the coq 10, do you recommend coq 10? There's like the two forms. There's the ubiquinone and ubiquinol. I've gone back and forth on that over the years, and now I'm just like, I just take the normal coq 10. Yeah. Like I don't know. I've gone back and forth five times.

[00:26:52] **Sean Casey, RD:** Yeah. That, I do, I've spent a lot of research time researching those two reading reviews.

[00:26:58] And my takeaway from the literature is the difference between the two is not gonna have a huge effect. I think where the biggest difference is coming is, are you taking co coq 10, which has been solubilized? Because that's the thing with Garcia, to your form of coq 10, it's harder to absorb.

[00:27:13] It's kinda like magnesium oxide, in a dry powder, magnesium ox, eh, in terms of the absorption if you have Coke U 10, if it's not in a solubilized form, again, dry powder tends not to be absorbed as well. Unless it's on if it's attached to a Cyclodextrin ring, you'll be absorbed at a higher level.

[00:27:30] But there. And the other thing I was thinking about too is okay, ubiquinol, ubiquinone, the one just has, an extra hydrogen attached to it is when it's going through the stomach, it's going to get, have the acid exposure to it. I haven't seen any good research to indicate that when it's a, the form that's actually absorbed in by the time it crosses, crosses like gut lumen into the body, right?

[00:27:55] I think it's, I think it's already in the ubiquinone form as is, and then once it gets in the body, it's gonna be converted into what it needs. And so that's my takeaway on it. I know I've seen some head-to-head studies. I thought there's some confounding variables in them. I did find one study that showed that,

again, what I was mentioning where the actual form was not as relevant as much as, Hey, has this been fully solubilized?

[00:28:19] And the liquid medium is gonna be absorbed into.

[00:28:22] **Dr Mike T Nelson:** What are some forms that you like them? So for people listening what should they look for on the label, or can you suggest any brands or types or anything in that area?

[00:28:32] **Sean Casey, RD:** The ones that I like in terms of specifics again, I'm usually tell people if I have to make a generalization if you're having in a gel cap, if you're in like a powder form, if it's attached, if you see in the other ingredients, they'll talk, they'll say like cyclodextrin or something of that nature to indicate that, hey, it's attached to, a carbohydrate or something that's gonna enhance absorption.

[00:28:55] Different brands out there. We use a lot of healthcare brands. So either designs for health or through molecular one of the companies I work for is Evolve Wellness, so we use a form that's higher absorb, so full disclosure, I do have, financial interest with them.

[00:29:10] Yeah. But those are the main things that I'm looking for. One thing I've had different people, in the industry. Tell me, and again, this might be more marketing than actual science, but let's say if you open up the gel cap and like sediments in it.

[00:29:24] What's probably forms forms that's shown. It's been for lack of better words, it's precipitated out. There's a couple different forms. These are no trademarked forms, but it's coq salt. That's one that I've looked at which just is a solubilized form. There's some different research showing it to enhance absorption versus, more of a powder form.

[00:29:43] And so those that, when I'm looking at coq 10, those are usually the main things that I'm looking at. Again, if it's ubiquinol versus ubiquinol, and. I think is immaterial. I'm looking at more of, okay, is the form that they're used in forms that have be trademarked forms that have been shown in, scientific literature to enhance absorption.

[00:30:01] Again looking at okay, is it a dry powder form? If it is in a dry powder form, is there that special molecule attached to it to enhanced

[00:30:08] **Dr Mike T Nelson:** absorption? And would it be useful to take it with a meal to have some fat in the meal also? Would that help absorption?

[00:30:18] **Sean Casey, RD:** From a theoretical standpoint, I think it will help 'cause it this solubility factor enhances it.

[00:30:23] That being said, this is always one of those things where I think man, I feel like there should be a lot of studies that have

[00:30:28] **Dr Mike T Nelson:** directly this. I can't find a study on it. That's why I'm asking

[00:30:31] **Sean Casey, RD:** that. That's where I'm at too, is it's man, like this should be an awesome study. Yeah. But I can't find anything on it.

[00:30:37] And at least intuitively on my mind from a theoretical standpoint, it, you should have enhanced absorption with it. But so that's one of those things that I think it's a great theoretical discussion around a good meal while having it at this time though, I cannot point any scientific literature that says yes or no on it.

[00:30:54] **Dr Mike T Nelson:** Yeah. And really last question on coq 10, do you think it would enhance aerobic performance? Or does it depend if I, you were low and then how do we know if you were low? And that gets into all that testing and a whole bunch of other things down the rabbit hole.

[00:31:10] **Sean Casey, RD:** I think it's down the rabbit hole. It's one of those things that, especially if you look at more higher level athletes I'm sure you run into the same issue is not too many athletes are look worth are really say oh, let's do a muscle biopsy.

[00:31:20] Let's, jam that into our thigh, pull something out to measure our pre and post coq 10 levels on everything. There was I'm slightly fuzzy on the details, but I remember looking back at the ubiquinol form and I think it was a study that was done in, an Olympic prep, kinda like junior level athletes looking at the use of ubiquinol.

[00:31:40] It was a European study. If I'm not mistaken, they actually found with the ubiquinol in, I think it was in doses, maybe like 200 milligrams, where it actually enhanced, VO₂, some of those performance outcomes. So again, I think it, has, benefit, if I'm looking at straight supplementation for athletes is probably lower on my, hierarchy of supplements that I work with.

[00:32:03] But if somebody has the funds and they're like, Hey, I'm looking for that one to 2%, potential increase in performance, then, I think there is a theoretical argument that could be made in its favor.

[00:32:15] **Dr Mike T Nelson:** Yeah. I have a aerobic protocol I haven't disclosed anywhere yet, but I use that and a bunch of other stuff, and I'll use it specifically once, all their normal bases are covered, they're getting enough calories, their sleep is good, their recovery is good.

[00:32:29] They're only taking a multivitamin just for cheap insurance. Magnesium's fine, blah, blah, blah. And again, like I can't find a super hardcore, like randomized controlled trial of this group got a placebo and this group got only 200 milligrams. We measured VO two before and after, like stuff you think that would be rather simple, right?

[00:32:48] So if anyone's looking for a master's project, please do this. But there was enough other data, mechanistic data and some other stuff where I'm like, it's probably worth it. So I put it all together and I just tried it on a bunch of clients or lab rats and I don't know, they all seem to get better, but again, you can't take that individual.

[00:33:07] And then I. Have 'em do it without the supplements either, because they're all at different, time points. Could it be placebo? Yeah, I don't know. But it's also eh, cost was not, not stupid expensive. There's not really any downsides. So I'm like, eh, you know it, I've done it myself and with some other people, especially post COVID and I don't know, it seems to really help.

[00:33:28] So who knows?

[00:33:29] **Sean Casey, RD:** And that's the thing I think with a lot of supplements. 'cause I always tell people I think you and I have discussed before in the past, it's kinda like research leads to research. Yeah. It's at the end of the day, everyone's gonna have their own, be it lifestyle, genetic differences, et cetera, which is going to be influencing things.

[00:33:45] And so it's like the research is kinda like the compass that pointing the general direction. Okay. A, is there either randomized control trials, is there that theoretical high potential for it, et cetera? And then the ME search is like that g p s, that really zeroes it in. And for a lot of these things like coq 10, it's okay is there, I always, I don't, you probably do similar.

[00:34:04] It's okay, first off, is there a theoretical potential for it? Yes or no? Yep. Okay. If there is that theoretical potential for it is there any downside to it? Okay. If there's no downside, it could help. And if this is the difference with how you feel performance outcomes, especially if, if you have money writing on the line, then it's why not do it?

[00:34:21] Yeah. If there's no downside, there's only potential upside. I'm very if you wanna say liberal is the right word, but I'm very like, Hey let's throw everything at the wall. Let's see what works, what doesn't work. Let's test it. Yes. No indifferent. Okay. Then move on from there.

[00:34:36] **Dr Mike T Nelson:** Yeah. Last question on this category, and we'll move on to the next category.

[00:34:39] Do you find P Q is helpful because that's Build as like the next greatest coq 10, even though they're not necessarily the same

[00:34:47] **Sean Casey, RD:** thing. I have seen some of the research on it. I have not used P Q enough with a large group of people to say, oh, yes or no strong one way or the other on it.

[00:34:59] I've had some people who have used it, they're like, oh, I think, it felt like it benefited other people said, eh, it didn't do anything for me on there. So I don't have a strong opinion on that one. How about on your

[00:35:08] **Dr Mike T Nelson:** side with that? I did include it in the protocol at a higher dose, like 20 migs, and again, seems to help, right?

[00:35:16] Again, there's no huge, high level athlete's randomized controlled trial on these things, right? So I, this is a very similar approach to what you do. Is there any reason this should be beneficial? If there is, what is the downside? Okay. Downside shows, eh, So money may fly outta your pocketbook.

[00:35:34] I make \$2 million a year. I could give a two shits less. Oh, okay. And it's generally safe. Tested all that stuff. You're not gonna get in trouble for it. Yeah. Eh, potential upside, who knows, you're probably not gonna get worse from doing, I can't find any data showing that it's detrimental. So yeah, give it a shot, and yeah, again, you're always playing with these sort of the map is always fuzzy. But I think on top of when you're doing everything else, I found that it was beneficial. But how much to what degree,

[00:36:06] **Sean Casey, RD:** who knows? Yeah. And here's always the thing too, and you've probably experienced this with athletes that you're working with, is again, it's not like either of us gonna recommend something that like, has no theoretical base.

[00:36:20] It's just like off the wall, I don't know, whatever extract for more boron or mouse suit. Yeah, exactly. More and boron. On there. But if you're working with athletes, 'cause I think with anything that you're taking there's always gonna be that combination of, the psychology with the placebo effect.

[00:36:36] You're gonna have the actual physiological effect. And this can sound really weird, I don't know if I'm saying it but it's like there's synergy with placebo plus physiology that can work there. And if I'm working with one, again, we're not that we're either of us gonna recommend something that's fly by the seat.

[00:36:51] Their pants has no theoretical basis. But if you're working with someone who feels like they have the mental edge because they're taking something that their competition is not taking, then that has benefit, at a high level. Yeah. And I, so if you're able to take advantage of both those things, then why not?

[00:37:08] **Dr Mike T Nelson:** Yeah. And I think a lot of times higher level athletes, especially the ones that are very dedicated, that's the reason they're hiring you, right? Yeah. They want, even if you tell 'em like, Hey man I've done this in the past, it's been very beneficial for the people I've worked with. It's tested, blah, blah, blah, blah.

[00:37:23] Can I tell you exactly how much more your VO two max is gonna increase by doing this? No, but I think it's worth it. They're like, cool, I'll do it. Yeah. And for me to try to prevent the kitchen sink mentality all the time, because like you've seen intake forms from some people and it's 117 different supplements and it's okay, like bro, you're eating 80 grams of carbs a day.

[00:37:47] Please go have two sweet potatoes. So you can definitely go the other extreme. So I like to do stuff in more of a phased approach and try to match things in. Okay, so your VO two max is very low for your sport or whatever you're doing, or just general life? Let's take eight to 12 weeks. Let's work on that.

[00:38:04] Let's measure it before, let's measure it after. Yeah, if we want to throw the kitchen sink of some, supplements, some other stuff in at that point,

great. But then once we taper off that and we've shown that there's an increase, I'll actually remove those things from 'em. And then, okay, what's the next thing and what are the things that may help that particular thing?

[00:38:21] To try to prevent them from oh, I'm on like 77 supplements a day, and I don't know what the hell's going on.

[00:38:27] **Sean Casey, RD:** That's the nice thing that I love working with athletes on, or people who are like actually tracking data because at the end of the day it's okay, did this work?

[00:38:36] Did this not work? Here's objective numbers. Yeah. This is when we started X whatever it is. That you're trying, okay, here's, like I said, be it something acute. Here's what we saw. Or Okay, over time with X relative to not having X, this is objective numbers of where you ended up at. And then you can make informed decisions.

[00:38:56] And I think when you're using data that really helps prevent the kitchen sink, type of approach. And with everything. 'cause I see that similar as you is cl clients come and they have a laundry list of, they're spending 10 times more on their supplements than what they are on their actual food supply.

[00:39:12] Yeah. Which usually a red flag that we always have a discussion on. Yeah. With things. But I always tell people like, Hey if you wanna say, Hey, what's my personal kitchen sink of things that I'll start a lot of people on, it's okay vitamin D most people are gonna be alone. Especially you live in Minnesota, I live in Wisconsin.

[00:39:28] I feel very confident. Here's something that's fascinating though. So I was in Dubai Working with a client back in April and with one of the clients I was with over there just looking at vitamin D levels. And so you're thinking about Dubai, your middle of the summer, like this person, I

[00:39:42] **Dr Mike T Nelson:** bet they're low because I've seen people

[00:39:44] **Sean Casey, RD:** from that area low.

[00:39:45] Yeah, exactly. Yeah. This individual is low. And we'll see that too. So here's something that's fascinating. This is segueing into a little bit more of, this wasn't an athlete group, but I worked with a lot of school districts. One of the school districts that I worked with United Education with them about, points of vitamin D doing testing.

[00:40:02] So their entire staff did vitamin D testing. It was like roughly August 28th of this past summer, end of summer, people were supplementing any guess what the average score for this group. And there was like 70 people. Any guess what their vitamin D score was? On average?

[00:40:20] **Dr Mike T Nelson:** I bet in US units it was 25.

[00:40:24] **Sean Casey, RD:** 23.

[00:40:25] Ah, 23

[00:40:26] **Dr Mike T Nelson:** gram. That was where I went. That was close.

[00:40:29] **Sean Casey, RD:** Everyone was below that 30. On average, the highest anybody was a 38. Oh, Jesus. Yeah. It was like really surprising and so that, that's why I get came back to philosophy like, Hey, that's why we test. We don't guess because you know everyone on the board.

[00:40:44] Heck, I was no better. I had mine measured last July and I was taking 5,000 of IUs a day. My levels were only a 37. Interesting. Which was interesting in a lot of levels. So again, so I kind of segue, going back to the thing in my, if I'm saying, Hey, here's a kitchen sink of things I do like the using a general multivitamin.

[00:41:05] I think again, like I said, it's that insurance. Ideally we're getting everything for our diets. We know that's really tough most places. Magnesium is something that works, can be really well for people. I always tell people if you have trouble sleeping headaches, restless legs, anxiety, there's a good chance your magnesium deficient, which I think the last study that I saw was like 70% of the adult population.

[00:41:28] I do think like a fish oil is a good, a catchall. And then creatine, I'm a huge fan of creatin and a huge fan of touring. Those are usually if I'm gonna say, Hey, here's my kitchen sink to start off with. I like to work with those right off the bat.

[00:41:41] **Dr Mike T Nelson:** Awesome. Have you played around with like high dose magnesium for people that are low?

[00:41:47] What are your thoughts on that? Of running a supplement of magnesium at a pretty high dose for a short period of time?

[00:41:56] **Sean Casey, RD:** I'm a fan of it. I've seen, I've had really good look working magnesium with people. Everything for migraines I find with migraines that is usually one of the first thing that I turn to migraines really effective for from a sleep standpoint.

[00:42:10] So again working with athletes is how quick can you recover? You think about all the stresses, Abe, just normal life, and then b, add on top that the physical demands of it. So I find magnesium helps significantly with sleep, and if you're sleeping better, that literally opens up everything to improve your immune health, your daily stresses, your performance.

[00:42:31] So I've had really good success with magnesium. Again, what I always recommend when I'm talking with people is, Hey, make sure you're just staying away from magnesium oxide. Unless they have a colonoscopy the next morning which case take your high dose magnesium oxide, but if you don't have a colonoscopy, maybe grab a citrate or glycinate or, malate

[00:42:48] **Dr Mike T Nelson:** form.

[00:42:48] Even high dose citrate can do that too. Obviously there's liquid forms of magnesium citrate that they used to use and still use sometimes to clean you out. Yeah.

[00:42:58] **Sean Casey, RD:** Yeah. That is definitely the poi, the poisonous and the dose. I would say if I have to one of my favorite forms of magnesium, I do really like magnesium malate.

[00:43:07] So again you're getting the opposite of magnesium and then you have malate, which. On a theoretical basis, going back to the Krebs cycle, that is one of the intermediates on it, right? So again, I've never seen like a randomized controlled trial on it, but could that potentially have a positive benefit?

[00:43:25] Theoretically, yes. And I'm not sure if you've seen this, but there's also you, if you're kinda looking more at the brain health benefits there is some research showing, good effects with magnesium. Three eight yeah, three eight form the study. The study that I would love to see though, and still waiting for it is 'cause we know something like, magnesium oxide or form that can't be absorbed as well.

[00:43:47] That's obviously not gonna have a big effect. What I would love to see is a randomized control trial looking at, say, magnesium mal malate or glycinate. So one of those other amino acid chelate forms versus the magnesium

three eight to see okay, yes. How much of an effect does the three eight actually have?

[00:44:07] If you're using a, if you're comparing it to a form that's actually absorbed.

[00:44:09] **Dr Mike T Nelson:** Yeah, because I went through all that data about a year ago and it's interesting, there's enough data to be like, yeah, I think it's worth a shot. I'm not saying, don't take it, but from how everyone had been hyping it up for so many years, I was under impressed by the data.

[00:44:28] Yeah. So again, it's not good or bad. I, some of the trial designs I wish were a little bit different. And again, I don't think it is negative. I don't think it's bad. And I've had, I've used it, I've had some people have really good results, but in general, I'll tell people if I'm using it for sleep, I'm like, take a pretty high dose for two, three weeks and if you feel better, cool.

[00:44:49] Keep taking it. We'll, titrate your dose down if you didn't feel anything after three weeks. I usually just have people cycle off and use it a cheaper form, to be honest.

[00:44:57] **Sean Casey, RD:** Yeah. And that's the issue with The mag, the three eight form is, the cost is significantly

[00:45:02] **Dr Mike T Nelson:** higher. Yeah. It's patent and they enforce the patent too.

[00:45:04] **Sean Casey, RD:** So e exactly. And the other thing with the magnesium three and eight is again, going back, so I've played around with the magnesium three eight just because okay, is there any benefit? I can't say that I personally, no. Any difference with that versus the other forms. But what I always go back to is it, we know that magnesium is still crossing the brain even in the different forms.

[00:45:26] Like I said, the number of people who we've seen with migraines who respond extremely well to other forms of magnesium there, so I go back to there. The other thing you have to be aware with the magnesium three and eight is that is only at i wanna say an 8% concentration of magnesium.

[00:45:42] Yeah. It's real low. So versus Yeah, versus something like magnesium malate, you're at a 20% concentration. So I. You have to take double. If you're trying to really get the magnesium aspect, you're gonna

probably have to take higher doses. And I always go back to pill fatigue, everyone has, I, I don't know about you, but I always find people have, I always find four to five pills is like the cutoff barrier.

[00:46:03] If you're gonna have the people where it's okay, if they're gonna willing to take five pills, they'll probably take 35 pills. Yeah. They don't care. They don't care where Yeah. They could care less. So that's always the thing too, is it's like the cost benefit analysis. Okay, are you noticing a huge difference, yes or no?

[00:46:19] Two, do you like taking handful of pills, yes or no? What's your adherence to it? So those are all factors when I'm looking at supplements that always come in mind as it relates to per performance, health and wellness

[00:46:31] **Dr Mike T Nelson:** on things. I think there's some data, I'd have to look that magnesium, ABIs glycinate will cross a blood-brain barrier.

[00:46:40] I'd have to double check on that again. I don't remember if that was an animal study and you think about pill fatigue. I bought a powdered form of that, so I was gonna play around with that as an alternative for, migraines and some other stuff, and, That shit tastes nasty, horrible. Oh it's wickedly bad tasting that

[00:46:59] **Sean Casey, RD:** is.

[00:47:00] And, I've tasted a lot of awful raws. I love,

[00:47:03] **Dr Mike T Nelson:** That's one of them pretty bad that's up there with Acetylcarnitine raw.

[00:47:06] **Sean Casey, RD:** Yeah. Acetylcarnitine has such a, I don't even know if

[00:47:10] **Dr Mike T Nelson:** sour is the right word for it, but it's like a stringent aftertaste that just doesn't go away. Yeah.

[00:47:16] **Sean Casey, RD:** That is so rough.

[00:47:18] I actually think magnesium bis glycinate is worse though. That is, there's once I've had oh, that's really bitter. Especially your herbs. A lot of those herbs are really bitter. Yeah. In raw form. But Magnesium Visine was the only one that I had, which I'm like, I wanna vomit right now.

[00:47:32] Yeah. Which is weird because have you ever played around with raw just glycine?

[00:47:37] **Dr Mike T Nelson:** Oh, that's great. It's almost like a sweetener. Yeah, I was just about say it's a, you got that from Peter Rouse years ago. Yeah.

[00:47:43] **Sean Casey, RD:** Yeah. Uhhuh, I love pure glycine and he, here's a little thing that I'll use. And this a, it helps, the health benefits of glycine, I think are well established, but one of the things I like about is it's p impact on blood sugar levels.

[00:47:56] Yeah. Very minimal. V very minimal on blood sugars. And there's actually some research showing glycine to be beneficial both acutely as well as on a one C levels, in diabetics. Interesting. And so I've used with okay, if I'm working with somebody, who has high blood sugars or whatever, then it's okay add some glycine to actually sweeten whatever you're doing.

[00:48:16] And so you're kinda getting two for one. You're not gonna be negatively, jacking up, blood sugar levels that, and it may have potential benefit on the backside in terms of blood

[00:48:26] **Dr Mike T Nelson:** sugar regulation. Very cool. So I'm blanking on who's the guy that wrote cracking the Metabolic Code?

[00:48:34] Do you remember?

[00:48:36] **Sean Casey, RD:** I couldn't tell you. I recognize the book name, but I couldn't tell you who was the author

[00:48:40] **Dr Mike T Nelson:** on that. I'll think of it. It was bugging me, I can't think of it, but that was kinda one of his big deals as he would just hyper load people on magnesium. And he claims he got some pretty good results.

[00:48:50] I had some strength coach buddies that did some private work with him and they've tried it and gotten pretty good results too. So I've done it a few times on clients, and again, it seems to be beneficial, but it, like we talked about what form, how often, there's only so much citrate they can do and now you're starting to.

[00:49:10] Split it up over multiple forms per day and just compliance, definitely can be an issue at that

[00:49:15] **Sean Casey, RD:** point. Outta curiosity what are the

[00:49:16] **Dr Mike T Nelson:** doses? James Val, that was his name. Sorry. No worries.

[00:49:22] **Sean Casey, RD:** The light bulb off.

[00:49:25] **Dr Mike T Nelson:** You remember what I interrupted? Doses were,

[00:49:28] **Sean Casey, RD:** geez, doctor Mike. No.

[00:49:30] **Dr Mike T Nelson:** Do you remember the doses?

[00:49:31] Like I've used so many different forms. What I ended up, I had this whole spreadsheet at one point of oh, here's the elemental magnesium form and here's what it's bonded to and here's the amount and uhhuh. It just got to be like such a freaking nightmare that I just said, okay, here's the deal.

[00:49:46] At night take 100% of the r d a recommendation, usually citrate to keep costs down, or three eight. If they had monkey mind had a hard time sleeping, and then I would usually go with just glycinate or b glycinate and caps during the day. And so I would tell 'em with breakfast, take another a hundred percent of the r d A with lunch, take another a hundred percent of the r d a, so that way if they got different brands or Oh God, I bought by glycinate instead of glycinat, and they could look at the label and what I told them to do, it would still work.

[00:50:18] Or before I was having these long email exchanges about why bought this other form and what version is that? And it was just, it's a nightmare. So I just did three times the r d a.

[00:50:27] **Sean Casey, RD:** Yeah, that is good. That's probably the highest dose is, it's so fascinating too. With the Gly name because I think it, if you get high enough doses Yeah.

[00:50:36] And you always go back, if you really wanna play with okay, we'll just ramp it up to the point where you have loose stools and then, yeah. Back it off a little bit. That's what I always tell people. I'm like, if you really wanna test the upper limits, that's always a fun one.

[00:50:48] And it's really interesting we're talking about, some of the, how different medications can deplete the body of nutrients. Yeah. Magnesium is

one of those two that there's different ones and the ones that always fascinate with me is medications that deplete something that naturally regulates it.

[00:51:04] So if you look at some of your diuretic medications that actually deplete magnesium along with like potassium. And it's fascinating 'cause both magnesium and potassium are required to naturally regulate blood pressure levels. So by taking the blood pressure medication, you're actually depleting your body of the two nutrients that are essential for Maintaining it naturally.

[00:51:24] **Dr Mike T Nelson:** So those are always, you just need another drug then, for to counteract the side effects of the other drugs.

[00:51:30] **Sean Casey, RD:** Exactly. It was so funny I literally was reading a research paper and they were talking about, diuretics. I was looking, we actually started really diving into it is okay, you think about you see this abused all the time.

[00:51:42] And be it physique competitors when they're trying to lean out before stepping on stage or, say weight sport, athlete where they start to play around with stuff there, just trying to dry themselves out. And that's where I really started diving more into the diuretics and be like, oh, your muscle, the reason you may be muscle cramping on the stage is 'cause you just.

[00:52:01] Washed out a lot of potassium in your body or going back to the electrolytes we were talking about earlier for the performance. And that was the one thing that always caught me, off guard. And it's really fascinating 'cause that's what in the pharmacy world, right?

[00:52:12] You get on a medication, you start having side effects, you get on another medication has side effects, and all of a sudden you're on this escalated pyramid of medications. And so I was thinking like, okay, maybe you have to be on medication X for whatever reason. If you just take a few nutrients to support whatever that's depleting, then you're good to go.

[00:52:28] And so that's one of the things that we do a lot. I do a lot of work with people on is, hey, if you're on medication, make sure that you're not depleting your body. Be essential nutrients. If so, trying to get them higher levels, either through diet or through

[00:52:39] **Dr Mike T Nelson:** supplementation. Got it. And there's a guy of course, doing the lawn outside my window right now, but what are some other ones that you would look for potential

[00:52:49] **Sean Casey, RD:** interactions?

[00:52:51] Other common interactions that I'll see is. If you're doing high dose aspirin, right? I wouldn't say high dose, but if you're in like the 800, a thousand grams per day aspirin that'll actually burn through a lot of vitamin C just because of its and then what they're looking at is that the gut lining just 'cause it's so hard on the gut lining, you're basically burning through a lot of vitamin C to minimize the damage there.

[00:53:14] So that's a common one that I'll see with clients I'm working with. The other big one, especially in athletes is if they're on an antibiotic for something either a, they got cut on the field so they're on high dose of antibiotics, try to minimize infections, or they had a surgery or, whatever it is.

[00:53:32] They had a virus and, or not a virus, but a bacterial strain. And I think most people forget that. A lot of your antibiotics are not like, okay, this antibiotic is only gonna touch this strain of potential bacteria pathogens. I always tell people an antibiotic is more like an atom balm as opposed to a sniper.

[00:53:51] It's gonna wipe out a lot of things. So I find that if anyone's on antibiotic, if we can get various probiotics and then be it spore based probiotics or your lactobacillus, whatever it is they tend to have a lot less diarrhea. And then just feel better as they're going through

[00:54:06] the

[00:54:07] **Dr Mike T Nelson:** process.

[00:54:09] What are your thoughts about I know there's some research on antibiotics like levoquin causing crazy achilles ruptures and all sorts of interesting dental soft tissue damage. At the same time,

[00:54:23] **Sean Casey, RD:** I have not looked in depth on super, in depth on that research. So I would curious on your thoughts on it.

[00:54:28] I haven't seen enough to give an intelligent

[00:54:30] **Dr Mike T Nelson:** response. Yeah, most of it right now is just case reports and there's some mechanistic stuff. But that's something I wish I would've known about earlier. So I, if I know an athlete's gonna go in and they're probably gonna get an antibiotic, I'll tell them ahead of time Hey, talk to

your doc and see, if you can get other alternatives to this, if this is the only thing that you need for your particular case, that's up to your doc.

[00:54:53] A lot of times there's other things they can try first, if that's the thing that you absolutely 100% have to be on. Yeah. Then it's harder because it's God, I don't wanna, I don't wanna freak 'em out. So then I'm like, okay, is the in season or off season? If it's off season, okay, let's just pull back your training.

[00:55:11] Let's just be more conservative until this kind of runs its course, et cetera. If it's in season, I don't know, I always have a hard time with that. I generally will say, Hey, there's an increased risk here, just so you know. You can do like some stuff with Keith Barr's work of collagen before exercise training.

[00:55:29] I do that with a lot of athletes. But you don't wanna completely freak them out and have them be so worried about that they can't perform. But at the same point, I want to let 'em know that there is a risk of it, because I don't want them also coming back at me and being like, Hey, you didn't tell me about this and I blew my Achilles heel.

[00:55:47] And again, it's so hard when there's, case reports and it's obviously, it's not a hundred percent guarantee that it's gonna happen. Some of these could be people that were just not necessarily trained beforehand. It could just be they happen to be on that antibiotic, so it's those things, there's a lot more gray

[00:56:02] **Sean Casey, RD:** area in it.

[00:56:04] Do, what's the theoretical proposed mechanism? Do you recall

[00:56:07] **Dr Mike T Nelson:** what that was? I think it has to do with, I think the classes, like the, was it fluoro? Quinns, I think they Okay. Believe, have a side effect of messing up some of the collagen formation and that appears, makes, appears to show up in bigger tendons that all of a sudden get loaded.

[00:56:23] But again, like Achilles seal stuff, there's all sorts of crazy literature on there with just wacky case reports of even, I even know people who are like, everything was fine. All of a sudden I walked across the street and I blew my Achilles heel. So it's, you're dealing with literature that's still very, all sorts of different theories on that from, that the tendon doesn't remodel as fast as it should to, maybe they just weren't prepared for that.

[00:56:49] That the tendons as you become older, become hyper specialized, and a lot of times it'll be like a high load thing of, I went to fall and I stopped my, cell from falling and I blew my Achilles heel, or I went to Sprint across the street and then it went, and yeah. It's a mixed bag of stuff.

[00:57:05] **Sean Casey, RD:** No, that, that is fascinating. That's worth I'll to dive into that. Because that's, they, yeah it's crazy how everything affects. And, here's the weird thing. I literally feel we have, I say experts in gut microbiome and I say experts 'cause they're, they are experts for what is known.

[00:57:21] But I still feel like so much of the gut microbiome is eh, I think we know roughly the equivalent of, if I put a dot on a piece of paper, I'm like, I feel like that's what we know about the gut microbiome and what it's still to learn about the gut microbiome is like the size of, Chicago.

[00:57:35] Like I feel we're just scratching the surface to fully understand how all those things are interacting. The pathways, you throw a one thing off, how does it affect the others? And so yeah, the microbiome is so fascinating as it relates to health wellness on so many different levels.

[00:57:51] **Dr Mike T Nelson:** Yeah. As a practical tip I just send people to Dr.

[00:57:54] Michael CIO's office if they've got a lot of really heavy gut stuff. I think to your point, obviously he's super knowledgeable, his staff is great. I've known him for years. He is one of my training clients also, but I don't make any money. If you go see him tell, I said you tell him I said hi.

[00:58:09] But it, I think you're left in the area of what is the person's vast clinical experience because the research is I don't know, it's, for exercise, there's a good podcast we did with my friend Dr. Sarah Campbell. People come listen to, I feel like this same area with like peptides, it's yeah, I don't, I'm not up to date on that.

[00:58:27] I don't know enough about it. I don't have the time to do it. Even if I could read more of the research, there's just not as much. So you're left with what is that person's knowledge of the research and then their clinical experience. I just send them all to Dr. Ryan Green and he sorts 'em out, 'cause he's an expert in that area.

[00:58:44] And I don't know. No.

[00:58:48] **Sean Casey, RD:** That, that is I agree with you there. 'cause, 'cause the one, and I don't have any financial ties to them is microbiome lab. So I, looking at the different things, that's what you see too, is you'll have companies who are literally throwing like a kitchen sink approach at probiotics.

[00:59:03] And I always like things like, okay, do you have, with the strains you're using clinical endpoints of relevant. And then again, going back to, okay how are you working then with people who are gut health specialists? So I echo your thoughts on there. The other one, just so I don't forget to mention, is in terms of kind of drug nutrient interactions, and this is, you'll see all the time, how many people do you know who are on, be it antacids 'cause they have gut rot or Oh, yeah.

[00:59:29] PPIs, Omeprazole. That is one that I see across the board from everyone from, people in their twenties up to, master level athletes. I find that to be real prevalent. The one thing that I always tell people is PPIs, that type of stuff. They should only be used for about two weeks maximum.

[00:59:47] Yeah.

[00:59:47] **Dr Mike T Nelson:** I think that was their original f d a approval was two weeks, if I remember right.

[00:59:51] **Sean Casey, RD:** Yeah. Two weeks. And now most people are on them for years. Yeah. Or they're popping Tums on a daily basis. And I'm like, do you realize, and here's what's fascinating, I always share with people, I'm like, again, using easy analogy, I'm like, acid for a lot of things is lack of better.

[01:00:05] The saw that chops the nutrients off the food so you can chop them even further in the usable forms your body can absorb. Again, that's, close to what they do, but just kind as a good visual. But you always think about things about B 12 iron folates, phosphorus, all these different nutrients where again, either A, you help people to wean off p I use or you help them to wean off using Toms or whatever they're using to control that.

[01:00:29] And I usually find a significant increase in performance or if they have to be on it. Okay, let's try to at least get added doses of vitamins and minerals. And generally speaking, I see that to really improve performance a lot for a lot of clients. That's

[01:00:43] **Dr Mike T Nelson:** awesome. That's super helpful. Have you used the website?

[01:00:46] Might have been I think is what it is. I've played

[01:00:50] **Sean Casey, RD:** around a little bit with it. 'cause that's the one, if I'm not recall, you're able to put in the medication. Yes. And then it'll jump you over to, hey, here's the research studies. Either there's nothing on this, there isn't. I found that to be a nice resource.

[01:01:03] **Dr Mike T Nelson:** Yeah, it's super helpful. I got that from my buddy Dan Gardner. He was talking about that, and I was like, oh, why have I never known about this?

[01:01:12] Yeah. So real simple thing for client, for people to do of Hey, hey, the, and it'll grade it of what the literature is. It doesn't tell you yay or nay, but at least it's one step you can do to try to look to see what's going

[01:01:24] **Sean Casey, RD:** on. No, I think that's an important thing. And the other thing I always tell people too is this is something one of the group of pharmacy I work with is Hometown Pharmacy, where a group with 70 independent pharmacies in the state of Wisconsin.

[01:01:35] I work with a lot of independents on a national level too. And so I, a lot of pharmacists now they're experts in biochemistry. I always tell pe, whoever I'm working with, I'm like, Hey, here's what I know based off research. But I'm like, this is really important that you're asking your. Pharmacist, if the medi, whatever medication you're on, if it depletes any nutrients.

[01:01:56] Because that is what I always find is you have to ask the question. Now the phar, some pharmacists are, there's a lot of pharmacists still learning about this. Others are like, Hey, they've known it forever. But I always tell people, you make sure whatever medication you're taking specifically ask your pharmacist what potential nutrient interactions it has.

[01:02:15] And then like I said, a lot of, clients I have, they'll send me their medication. So I'm able to go through each one just to make sure there is no potential interaction. But that's the thing I was, like I said, just to reemphasize, is making sure you're asking, does this impact any nutrient levels?

[01:02:29] **Dr Mike T Nelson:** Awesome. Yeah, thank you so much for all the great info. Where can people find more about you if you want to be found or taking clients or product stuff? Give us the pitch.

[01:02:41] **Sean Casey, RD:** Okay. The pitch. You can find me my website is caseyperformance.com. I'm really active on Facebook.

[01:02:50] Just my name's Sean Casey and I can share that direct link to my Facebook page. That is probably the quickest way to get in contact with me or with through like I said, casey

[01:02:58] **Dr Mike T Nelson:** performance.com. Awesome. Thank you so much. I, that was a really good discussion. I know it was great to see you again.

[01:03:05] I know it's been a while. We've been trying to coordinate schedules with most of us traveling for a bit and you being off in completely different time zones and other parts of the world. So this was

[01:03:15] **Sean Casey, RD:** great. Hey, I appreciate it and I'm glad that neither of us had to pull like a 2:00 AM wake up just 'cause the other person's on the other half of the

[01:03:22] **Dr Mike T Nelson:** world.

[01:03:22] Yeah. Yeah.

[01:03:25] **Sean Casey, RD:** Thanks for your time

[01:03:26] **Dr Mike T Nelson:** and have a great day. Yeah, thank you so much.

[01:03:30]

[01:03:31] **Dr Mike T Nelson:** Thank you so much for listening to the podcast today. A huge thanks to Sean coming on here and sharing all of his great knowledge with all of us. Make sure to check out his website and everything he has going on. We'll put all of the links below. Now, Sean does a really great job of presenting information that is backed by research.

[01:03:49] But is also real world and practical from experience. So he does an excellent job of combining those both together. And if you want a combination of research and real world experience, especially on the more advanced side check out the level two, which is the Physiologic Flexibility Certification. It opens September 18th, 2023 for one week.

[01:04:13] Go to [physiologicflexibility.com](https://www.physiologicflexibility.com). For all of the information there. If you have any questions let me know. If you're listening outside of that time, you can still go there and get onto the wait list, which will put you onto the daily newsletter list, which is where most of my information and content goes out.

[01:04:34] So go to [a physiologic flexibility.com](https://www.physiologicflexibility.com). Thank you so much for listening to the podcast. I really appreciate it. If you have time to leave us, whatever stars you feel is appropriate. And a short review that goes a long way to helping us with the old algorithms and getting a better distribution of the podcast.

[01:04:54] Thank you so much and I will talk to you next week.

[01:04:58]