
**Episode 43 Transcript** **Release Date: Monday, May 14, 2018**

***Deep-diving Sports Nutrition and Cognition with Dr. Douglas Kalman***

**Nick Collias:** Good afternoon, everyone, welcome! Welcome to *The Bodybuilding.com Podcast*. I'm Nick Collias. She's Heather Eastman, we're both editors at this Bodybuilding.com establishment.

If you noticed, we've been having a lot of Ph.D.s on—the sort of rugged, strong-necked Ph.D.s—on the podcast recently. It's because we've been lucky enough to have five of them in a single day for a little mini conference from The International Society of Sports Nutrition (ISSN). And today we have with us Dr. Douglas Kalman who is the co-founder of that society, along with Dr. Jose Antonio, who was on another episode recently.

Dr. Kalman is a professor at Nova Southeastern University. Works for a clinical research company as well, and is co-author of a bunch of interesting papers. Some of them are the ISSN's position papers which have been really cool the last few years. Sort of establishing baselines of research just to move forward from like, alright, here's what everybody's saying in a totally condensed form.

**Dr. Douglas Kalman:** Essentially, a lot of the ISSN position papers are meant to give a thorough overview and review of a topic. But then, because we know that we're a society that likes Cliff Notes, there's bullet points you can just take home.

**Nick:** Sure. I look at some of them, and I'm like alright, sort of like the writing is on the wall. The writing's on the wall about creatine. The writing's on the wall about protein. Like, they're good things.

**Dr. Douglas Kalman:** Right?

**Heather Eastman:** Right. Right.

**Dr. Douglas Kalman:** You know, I find it troublesome that after, let's see, creatine's been on the market at least 23, 24 years? That we still have to have discussions with people about either the safety or the efficacy.

**Heather:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** Of creatine. And you know, I just bring it up because most people normally get about one to two grams of creatine in their diet daily, unless you're a vegan. Then you get very little, 'cause it's mostly in meat and fish. So, we're getting something. Supplementing with creatine is no different, analogous, same too as supplementing with a carbohydrate. There is no Gator tree, but there's Gatorade. So sugar water and salt, so there's Gator, right? But that's a carbohydrate supplement in reality, or a carbohydrate/electrolyte supplement in reality. And it's meant to help augment somebody's carb stores for a long endurance event or a hard exercise. Just like creatine is meant to help augment your creatine stores for high energy output.

**Heather:** Right.

**Nick:** And the Egg McMuffin is what sort of supplement for me? [Laughter.] The McSupplement.

**Heather:** So what do you think that is? That even though there are, like you said, 20 years of research to back these supplements. Like why do think people hold on to these misconceptions and myths, if you will?

**Dr. Douglas Kalman:** That's a good question. Because you know, creatine actually has been used medically for close to a hundred years.

**Heather:** Really?

**Dr. Douglas Kalman:** Yes. Because there are certain inborn eras of metabolism that … where your body will produce very little or not produce or not be able to utilize creatine. And creatine, for those of you that don't know, is a substrate for making energy. Something known as ATP. And creatine in the body is known as phosphocreatine. And creatine's used to make ATP, especially when you're using energy.

So why? I think it sort of becomes from ... You know, this might sound funny, but it sort of comes from ... For almost any dietary supplement, there's still a belief in some of the older crowd, if you will, of well, supplements are just snake oil. And they're just selling a dream. And they're just selling what was ever sold in the late 1800s/early 1900s kind of thing. And what we know is now is reality, is that supplements are meant to be used in addition to what you eat. In addition to diet. Supplement doesn't mean "instead of", otherwise it would be called "instead of" supplements.

**Heather:** Right.

**Dr. Douglas Kalman:** They're called supplements.

**Heather:** There's a good brand right there.

**Dr. Douglas Kalman:** Yeah.

**Heather:** The instead of brand.

**Dr. Douglas Kalman:** Somebody will come up with that and trademark it by tomorrow and have a website. And so therefore, supplements mean "in addition to". So of course, we want you to always eat the foods that are most correct for your goals. But in reality, most people don't.

You know, for example, if we just think about the mineral potassium, it's about 67 to 70 percent of us do not get 4,700 milligrams of the recommended, or 4700 milligrams of the recommended potassium daily. So if you have almost 70 percent of society that doesn't get it through their diet, and that's where we're supposed to, where else do you get it? Uh, through a supplement. You know, to help fill that gap. Some of them are nutritional gaps. In medicine, they call them nutritional shortfalls. And you know, these are very real items, that in today's society, is respected and taken that much more serious than let's say, in the 1960s and early 70s and before that.

**Nick:** Sure. We were talking about this with Dr. Antonio a little bit the other day. That one other reason that maybe that people are resistant to something like protein, of which he's a huge advocate-

**Dr. Douglas Kalman:** Yes.

**Nick:** Is that it's ... In their mind it's just tied to the bodybuilder, a little bit, as well. And this person who feels like they're kind of doing it for a selfish undertaking ... It's not necessarily like, oh, you're doing this for health. You're doing it for your own selfish reasons.

**Dr. Douglas Kalman:** Well, the history of protein supplements really came from first ... Well, there's two different classes of people that would utilize protein supplements. Athletes and those in medical need. So as a registered dietician when I used to work in a hospital, sometimes we would prescribe protein supplements for that patient that wasn't eating enough, or their wounds weren't healing fast enough. So you give them some extra protein and extra vitamin A and D and a few other things. Zinc or whatever it might be.

And so historically, yes, protein's always been thought more of the bodybuilding supplement. And then it's also been thought wrongly, and I may say this word wrong, promulgated in an incorrect manner by many different physicians and even nutritionists say, "Oh, too much protein's going to kill your kidneys". No, matter of fact, if you get extra protein, studies actually show it helps with bone density. Studies show that it helps with losing fat mass. But if you're healthy, no, it doesn't harm your kidneys. It's a micronutrient …

**Nick:** "It gives you cancer, too", that is one I've heard recently.

**Dr. Douglas Kalman:** Yeah, yeah. There's always been talk about meat intake and cancer. And that's actually more related to the cooking methods and the meat, rather than the meat itself. So like when you charboil, charbroil rather, when you charbroil-

**Nick:** Charboil does not sound very tasty, whatever that ...

**Dr. Douglas Kalman:** It sounds like caffeine fatigue, I'm sorry everybody. So when somebody

charbroils or they blacken something ... And when you see those really dark residues that are either stuck to the meat or stuck to your grill, those are compounds that are called heterocyclic amines. And what happens is those can be potentially carcinogenic. And so those become the concern. But in general, listen, we're born with teeth and we're born to use teeth for a reason. And it's not just to take an apple off of the tree. It's also to eat that cow or to eat whatever it is, which includes protein foods.

**Nick:** Now I want to talk to you a little bit about cognition and treating the brain as a muscle, which is a phrase you used in a lecture you gave earlier today. But I also think it's fascinating that you have this dual interest in cognition and the brain, but you're also a boxer. You're a ... For a long-time boxer. You know, where we live in this age now we're basic ... Oh, no, you gotta protect ... You gotta protect your head. What about CTE? You can't get hit in the head. How do you balance those two? And how did you get into boxing as a sport?

**Dr. Douglas Kalman:** Well, I was a wrestler always. Grew up a wrestler, wrestled in college, wrestled a little bit after college in one of the club teams in New York. And then when I decided I was done with it, you know, I have to do something to stay active. I've always done weightlifting. I've always done running. But I wanted a different type of challenge. So I actually in the early 90's I competed in bodybuilding. I just wanted to see what that was like. If I'm coach somebody nutritionally, let me also see what it's like to go through.

**Heather:** Right.

**Nick:** Sure.

**Dr. Douglas Kalman:** Right? And also as a sports nutritionist, and somebody with an academic background and understanding what the body goes through, I thought it worthwhile to know what it is it phys ... Excuse me, what does it physically feel like. So, boxing interested me cause I just wanted something else to conquer, something else to do. Conquer might be the wrong word, but something ... Another challenge. And it was borne out of having so many surgeries that said, okay, my marathon running career is over unless I want a hip replacement. What else can I do? Oh, kickboxing or boxing would be a challenge. Let me take that up.

So moving into ... Well, if you're in a contact sport, whether it's soccer, or American football, or some kind of combat sport, should you be worried about getting hit on the noggin? Getting hit on the head? I say it this way, yes, but not if that worry paralyzes you. If you are paralyzed by fear, then you have other issues to deal with, 'kay? And if you're taught right in boxing, and in combat sports, you learn to move enough to minimize those things. And yes, you're gonna get hit, you're gonna get knocked. And then you realize whether the sport is for you or not. I personally am not ... I'll take it this way. My teenage sons, somebody asked me how can you let them play football? I said, "Why wouldn't I let them play football?" Let them have that experience. No, I'm not worried ... I'm not even worried if the kid gets cracked in the head and is knocked out. Yes, that happens. But it's what you do and how you treat the person after.

You know, we know nutritionally ... You brought up cognitive sports nutrition and training the brain or treating the brain like you would treat a muscle. We know that there are certain nutritional aids that help reduce brain inflammation. Or help improve brain recovery. For example, creatine monohydrate is one such ingredient that reduces inflammation and has been shown to enhance brain energy output and brain cognition even with hypoxia. So even with taking oxygen away from a person. So

there are nutritional things that you can do to help minimize what I call facts of life. Things that are just gonna happen from playing sport.

You can trip walking down your driveway with the gifts that you just bought for your family and hurt your head. So, I don't like to live in a world of "what if" or a world of feat. So that's just me personally.

**Nick:** I've heard that creatine as well has been shown to have some neuro-protective effect for people who do get hit in the head-

**Dr. Douglas Kalman:** Exactly.

**Nick:** But you have to have taken it beforehand, right? You can't take it like aspirin afterwards?

**Dr. Douglas Kalman:** Well, yes, it's not like one dose and done with an aspirin, per se. But yes, taking low dose ... I think it's actually for lifelong health, what you call life cycle health. Especially ... Let's say you get past the age of being ... What's the right word? Where you're invincible, when you're in your late teens and early 20's, you feel invincible?

**Nick:** We're "vincible".

**Dr. Douglas Kalman:** Right. And then suddenly you wake up one day and this aches and that aches?

**Nick:** Right.

**Dr. Douglas Kalman:** You know, life cycle nutrition tells me I believe that all of us should be taking low dose, meaning one to three grams, a half a teaspoon, of creatine as just for general. If you look at it, creatine helps you gain and maintain muscle mass. So if you're now talking about your parents or your grandparents and we are worried about sarcopenia, loss of muscle as you age, and loss of muscle function as you age, taking something that helps preserve that muscle and preserves strength, might help decrease risks that they have that's associated with aging. Not only cognitive risks, but you know, older if you break a hip, you're done, you know? So these things that are very real.

**Nick:** Sure. Sure. Now, creatine at this point, and people who've listened to this podcast, we've done several episodes on it, it's one of those that's very easy to fit for a certain person under the health umbrella. Kind of like fish oil, to a certain class of person. A certain other class of person, no, they'll never view it that way. But yeah, there's a case for it from a health perspective.

**Nick:** Talking about other cognitive-enhancing supplements, it can be easy for somebody who says, "Oh yeah, sure. I take protein, fish oil, even creatine. Those other ones, though, those feel more like drugs" … if you're thinking of something that actually affects the way that you think, or your motivation, or ... Yeah, how do you conceptualize those? And what's the benefit of those sorts of supplements?

**Dr. Douglas Kalman:** Well, I like to take a view of cognitive sports nutrition or ... cognitive supplements–nootropics, some people call them, and break 'em into different classes. So, ones that might help you with neuro-protection, keeping your brain healthy over a lifetime or helping you

recover from an injury, which is like the creatine or omega-3 fatty acids and even DHA, high-dose DHA. Then I also like to classify those that will help you with focus as well as performance. So, now we know for this next one ingredient that I'll give as an example, the dose could be something that helps you, or too high of a dose could be one that hurts you. And I'm not sure what's in your cup, but …

**Heather:** Oh, it's coffee.

**Dr. Douglas Kalman:** Yeah, so coffee …

**Nick:** I brought her that coffee, cause she's doing like four podcasts today …

**Heather:** He brought it to me this morning …

**Nick:** She needs some nootropics …

**Heather:** I'm still working on it. It's been a rough day.

**Dr. Douglas Kalman:** So, you're a slow coffee drinker? You know, but let's talk about caffeine, cause caffeine and coffee are not synonymous in the sense that, when you have coffee, there's other caffeic acids, other compounds that naturally occur in coffee that do its magic. Where when you isolate caffeine alone, which is found in a lot of pre-workouts as anhydrous caffeine or caffeine extracted from guarana bean or whatever it might be. They have other effects. So where the doses can help you with reaction time, can help with mental focus, can help with reducing the amount of distraction. That becomes something that is in the now. That becomes sport performance. Cause we already know that caffeine raises your pain threshold, and we also know that caffeine can help increase your reaction time, right?

If I'm in a sport, reaction time matters. Let's say that we're playing the sport of dodgeball. Your reaction time of getting out of the way of that ball matters.

So even if it's a tenth of a second less, that's a tenth of a second less. In a boxing fight or a UFC MMA fight, having a quicker reaction time can mean the whole difference in what you do. Another example that I'll give that improves reaction time, and it's been proven in healthy, physically-active people, meaning athletes, as well as in older adults, is a special form of arginine known as Nitrosigine. Which is an arginine and inositol bonded together, if you will. So Nitrosigine. Nitrosigine has been found to increase reaction time. It's been found to increase mental flexibility.

So, if we're talking about mental flexibility and we're talking about sport performance, it's basically the ability to do and or think about more than two things at the same time. That is a definite real world application, whether you're playing chess, right? Or whether you're playing human chess. Boxing to me is human chess with a physical exclamation point. Okay? Because every move or step you take is to either make your opponent move one way or the other, or in reaction to what he or she is doing. So that's chess. And then even with where you're punching, how you're punching, all of that.

So, to me, if I'm able to think two or three steps ahead and do it faster than the next person, that is cognitive sports nutrition that has an impact on actual play, or actual outcome. And there's more than just Nitrosigine or caffeine that have these beneficial effects.

**Nick:** I heard you talking about phosphatidylserine?

**Dr. Douglas Kalman:** Phosphatidylserine is one ... Phosphatidylserine is an interesting type of fatty acid, if you will, that seems to have better effects on longer term memory in older adults and is still being evaluated for the potentiation of sport use. However, other compounds in the same family, or downstream family of phosphatidylserine such as citicoline, which is commercially known as Cognizin is one of the brands. Along with alpha glycerylphosphorylcholine, known popularly as Alpha GPC. Alphasize I think is the branded version of that ingredient that's on the market. Those are two other ingredients that have definitive use for the same type of mental flexibility that I mentioned. And a few other things related to cognition.

**Dr. Douglas Kalman:** And so, when we talk about cognitive sports nutrition, why would somebody only want to train their body without training ... It's called, you know, the mind-muscle connection, if you will. Why wouldn't you want to have it all in tune?

**Nick:** Right.

**Dr. Douglas Kalman:** And to me, if I'm tuning up my car, I'm not only putting in the best gas, I'm making sure the oil is good, and all the spark plugs are new, and there's no gunk and however cars work in the flow of things.

**Nick:** Sure.

**Dr. Douglas Kalman:** So same thing for sports. Now do I put every athlete or recommend every athlete to take all of these different things? No. And it's not because I don't have a belief system. Again, nutrition is science, belief system is called religion.

**Nick:** Right.

**Dr. Douglas Kalman:** Two totally different things. But you have to work with the athlete with A, what fits in their wheelhouse; B, what fits in their financial abilities; C, what's gonna give that person the most bang for their buck; and then D, their lifestyle.

So I have some athletes that are always on the go. I have one heavyweight champion boxer that I do their nutrition. They hardly ... Most of the week, they eat out. They're not eating at home. So even though they have a beautiful wife that is willing to make all of their meals, they just can't. Because they have to go here for a press conference. They have to go here for training. Now they're filming a movie over here. Now they're back at the boxing gym.

**Dr. Douglas Kalman:** So, it's not always easy. So portable nutrition comes into the role. And to me dietary supplements are part of portable nutrition. Whether you're having a protein-based bar, or a carbohydrate bar ... You know, Power Bar, the original one, which is mostly carbohydrate or one of these protein bars that have 20, 25 grams of protein? That's portable nutrition. And these things also ... Because remember, the type of fuel that your brain prefers ... Now preference doesn't mean best, but the type of fuel that brain prefers is glucose, carbohydrate. So if your brain prefers it, why do you want to irritate your brain and not give it? Give it at least a little, you know?

It's like your pet at home. You know that when you come home, your dog's gonna jump all over you.

But if you give it five minutes of attention, it's happy and it will leave you alone for a little bit so you can unwind. So the same thing with your body. You gotta feed ... You gotta fuel your body to achieve the goals that you want.

**Nick:** So now do you find that you periodize cognitive supplements for people? Like fighters as well? Is it in the training? What's just part of an everyday lifestyle? And what do you start to cycle? And I know some people like powerlifters will periodize their caffeine consumption before an event or something like that.

**Dr. Douglas Kalman:** Sure, and I agree with them. One of the things that we do with combat athletes ... For a combat athlete that has a scheduled fight, generally those you sign for a fight, if you're lucky and you know way in advance, it might be 10 or 12 weeks ahead.

**Nick:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** Right? But most of them are six or eight weeks. So to me, I always like to start off giving them a health base. Then since I know and work with I should say and ask the strength and conditioning coach, along with the head striking coach and their wrestling coach and their Zumba coach or whoever else is ... Like, okay, what's your progressions going to be like? So you know, I'm trying to get to the point where when they're at their hardest level of training camp, is when I will typically will introduce the cognitive. Because some of these cognitive nutrition supplements have been proven to have an effect within 15 minutes of ingestion, right? Or within the first three or four days.

So, I like to bring it in ... When you're at your hardest camp, that is also typically ... You don't have much camp left, and then it's fight week. So in the beginning, it's about making sure you got a health maintenance.

**Nick & Heather:** Right.

**Dr. Douglas Kalman:** And then from that, it's specializing on what would be appropriate for that fighter. And let me just underscore, underline that the biggest thing for anybody, any nutrition coach that's working with any athlete. The number one thing that your job is to do is to help them stay healthy. If they don't stay healthy during a fight camp, or during football training, or during whatever, they're not gonna play. So what good are you? So the first base is let's get them healthy, let's keep them healthy. And that's on everybody's mind.

**Nick:** Sure.

**Heather:** And that kind of health baseline, is that something that you know, you're just talking elite athletes? Or is that something that anyone who wants to just kind of get into these supplements, that they can take advantage of?

**Dr. Douglas Kalman:** Well, I would say that anybody that has an active lifestyle or anybody that cares about longevity should have a base. So what do we use as a base? You and I know that we don't always eat perfectly. Have you had five to nine servings of fruits and vegetables today? Probably not yet.

**Nick:** I have half of an apple over there. Once I eat that, I'll get to nine …

**Dr. Douglas Kalman:** That other half is mine. You said that we have to split it to be Bodybuilding.com brothers.

**Nick:** I would fight you over it, but I think I know how that story would end.

**Dr. Douglas Kalman:** Watch out, I'm a leftie.

**Nick:** He's a meathead with fists is how he described himself.

**Heather:** Oh, a Southpaw.

**Dr. Douglas Kalman:** But you know, getting back to that, I think it's important for anybody that's physically active, as well as not physically active, but since we're at Bodybuilding.com, people that are listening or tuning in, watching, more active than that they're either trying to get a healthy active lifestyle, or they're already living it.

**Dr. Douglas Kalman:** So, I like to have a couple of things that help base items. I know that most people don't eat lots of fruits and vegetables, so they have nutrient shortfalls. Not getting adequate magnesium. Not getting adequate potassium. Not getting some adequate electrolytes. And some other vitamins and minerals. For example, if you're somebody that really restricts your fat intake and/or don't know how to eat healthier fats, where are you getting your Vitamin E from? You know, things like this.

**Dr. Douglas Kalman:** So, to me, a good general multivitamin, mineral product is a base. Now I will tell you honestly ... Well, I'll never tell you a lie unless you ask me to lie to you, but I'll tell you honestly for most people, thinking about men over woman, if you're recommending or discussing a multivitamin, I like it to be without iron.

**Nick:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** Right? Now, why in men? And then we'll get to women. About ten percent of the male population carry a gene for a condition that's known as hemochromatosis. And hemochromatosis is a condition where your liver stores iron, and then overstores it. And then this overstorage of iron causes damage to your liver, much like how alcoholism can cause damage to your liver. And that's in about ten percent of men. So-

**Nick:** Relatively high.

**Dr. Douglas Kalman:** Yeah, one out of ten.

**Nick:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** So, we don't know who you are, but I know if I don't recommend you iron, and you're just getting it through your diet, that should be fine. Then when it comes to women, we know that women, especially women that are pre-menopausal, right? If they have normal menstrual cycles, they're losing blood once a month, every month, could be for a couple of days, week, whatever it is. So while they are naturally undergoing this blood-loss process, they're also losing iron and other minerals. And they tend to have a higher insufficiency or deficiency rate of iron than

compared to males.

**Dr. Douglas Kalman:** So, a woman, I might recommend a multivitamin with iron, although the iron I like to limit at no more than the U.S. RDA. And the general reason for that is ... Well, there's two reasons. One is that iron can constipate people. It's one of the side effects of iron supplements.

**Nick:** Well known. Yeah.

**Dr. Douglas Kalman:** And the other reason is that iron can also act as a pro-oxidant. So you know that antioxidants, like beta carotene, vitamin C, vitamin E, they help protect your cells and your body and your brain and all sorts of things from what's known as free radical damage. Where unpaired electrons pinging throughout your body like ping pong balls being not held. You know, iron can act as a pro-oxidant and cause damage. Oxidative stress.

**Nick:** Looking a little rusty.

**Dr. Douglas Kalman:** Right.

**Heather:** Right.

**Nick:** So that's why those bodybuilders look like they're orange, because they have too much iron in their diet.

**Dr. Douglas Kalman:** Well, who knows why they look orange. I'm not sure if it's the tan stuff they rub on …

**Nick:** Oh, I'm pretty sure it is.

**Dr. Douglas Kalman:** Or …

**Nick:** Too much carrot juice.

**Heather:** Is that same recommendation hold true for dietary iron? Like red meats and ...

**Dr. Douglas Kalman:** Well, in terms of dietary iron, dietary iron won't constipate you, right? Where supplemental iron for some reason does. So dietary iron from a male's perspective ... Or a female's perspective, we encourage getting it through food.

**Heather:** Okay.

**Dr. Douglas Kalman:** Now I will bring this up because it's also related to cognitive sports nutrition. Let's say that you decide ... Heather decided today that she's going to become a strict vegan. She's joined PETA and …

**Nick:** This is truer than you know. She's just not a strict vegan.

**Dr. Douglas Kalman:** Okay.

**Nick:** She's a vegan who we can sneak eggs into her diet.

**Dr. Douglas Kalman:** And she'll stop wearing the leather boots that she does.

**Nick:** Yeah. Yeah.

**Dr. Douglas Kalman:** So …

**Nick:** Vegan leather boots.

**Dr. Douglas Kalman:** She pulls them up further. I think that was like an official screw you.

Now why do I bring up vegans? Not to pick on them, because for about eight years or so I was a vegetarian. But I was a vegetarian that ate fish and eggs. But I just never ate any meat, no chicken, no turkey, no red meat, no pork, right? For whatever my reasons were. Now going back to vegans, and even the more restrictive types of vegetarians, they are eliminating B-12 and iron out of their diets for the most part. And from a cognitive or a brain function standpoint, if you have ... Over time, not like a day or two, maybe three months, four months, five months, longer. If you have insufficient intake of B-12 and insufficient intake of iron, it actually affects the health of your nerves. It actually affects brain cognition.

**Dr. Douglas Kalman:** So, some people that are vegan and acting foggy in their head, it's not because they're a little slow on the uptake, they're missing minerals and vitamins in their diet that are very important. So for people that listen to Bodybuilding.com and that have chosen to become vegans, and again, nothing wrong with being a vegan. You just want to be educated about how you eat and what supplements you might need to fill the gap. You know, iron and B-12 become very important. And as you mentioned earlier, amongst my jobs is being a sport nutritionist for a college. I have 18 teams. So these 18 teams every season, every year, I go through alright, who's a vegan? Who's a vegetarian? Who's a regular meat eater? So I know who needs a little bit extra attention about how to pick foods. Because if you're thinking about the college market and maybe some of the people watching, listening to this, maybe it's their first year of college. Or it's their first year of they've ever lived away from home, and now they're responsible or somewhat responsible for their own food intake, you know?

And so learning how to make these choices also matter. And anybody that's looking to become the best person they can, as a physically-active adult, teenager, and so forth, you want to eat to fuel for your goals, you know?

**Nick:** Sure. And we know that that student population and that younger population is one where nootropics are increasingly popular, as well.

**Dr. Douglas Kalman:** Sure.

**Nick:** Not only from the hey, I want to be the best student I can perspective, but from I'd like to enhance you know, video game experience. We know they're incredibly popular among gamers. But thinking of that person, of that student or that person who just you know, they have a job where they're trying to be as clear-minded and as focused as possible. Are there any nootropic supplements that they should be considering aside from just hitting the coffee pot over and over again?

**Dr. Douglas Kalman:** Well, yeah. Okay, we covered caffeine and we know that a lot of the ... It's kind of interesting and if you don't mind, I'll bring up a name-brand here of a drink. So there's a drink that's called Bawls. They're one of the sponsors of some of the biggest gaming competitions, you know? And why is that? Because these people ... They'll play for hours, and caffeine fuels them, maybe along with the sugar. So I like to try to get away from that model, because I do worry about overstimulation from too much caffeine. We know that some people are caffeine-sensitive, that so if they have coffee or tea or something with caffeine after four o'clock, it screws up their sleep for the night. And other people where ... Like for me, I can have a cup of coffee and go to sleep five minutes later. Doesn't affect me. That's genetics. I'm a fast metabolizer. You can actually have that tested by 23andMe or by a company called Nutrigenomix out of Canada.

**Nick:** I didn't know they could test that. Okay.

**Heather:** Cool.

**Dr. Douglas Kalman:** Yeah, they test your caffeine metabolizing gene, if you will. Nutrigenomix from Canada is great, as well as 23andMe. It's part of the panels that they do. I mentioned the Nutrigenomix company because they specifically do an athletes panel.

**Nick:** Oh, okay.

**Heather:** Ooh.

**Dr. Douglas Kalman:** A sport panel. So all of the different types of genes, if you will, genetics that have been at least determined to have an impact on what type of athlete you are, how good you are, your dietary style, and things like this.

Now going back, if you're a gamer, or even if not you're a gamer but let's do an analogy to gaming. Let's say that you're playing a sport that's gonna last longer than a half hour. It's gonna last an hour, it's gonna last an hour and a half. It's gonna last two hours. An NFL football game with these TV timeouts these days, average about three hours, right?

**Nick:** Easily.

**Dr. Douglas Kalman:** Right? Now they're not always playing for those three hours, but they're on the field. And sometimes you get hungry. Sometimes you get tired. Sometimes you get fatigued. Same thing with gaming. They may not be playing because it may not be their round, but they're still there.

**Nick:** Same thing with working at Bodybuilding.com.

**Dr. Douglas Kalman:** Sometimes ... Unfortunately, sometimes with working with any damn job, right?

So, there are some nootropics that have been found to have an immediate effect. It can help you now. It's not like you need to be taking it for a month in order to have a benefit. You know, one of the downfalls if you will of a famous nootropic, is of Ginkgo Biloba, right? Which definitely has ... Excuse me, some positive effects on memory. Is that's one that's with long-term use and over time. Whereas if you take Nitrosigine, this specialized form of Arginine, research shows within 10-15 minutes it's

already had an effect on your cognition.

You know, of course, with continued dosing, just once a day, it lasts ... Even the first dose effect can last up to the first three or four days. And then with continued dosing, it actually ... It enhances the effect. It doesn't diminish it. So two weeks after starting your first dose, you're actually better off than where you were in the first four days. But within the first four days, you're still better off than before you took anything.

**Nick:** Interesting.

**Dr. Douglas Kalman:** To me for gamers, I would be thinking about things like Nitrosigine. I would be thinking about low-dose caffeine. I would be thinking about Piracetam. I would be thinking about maybe Cognizant. But I would not decide ... Here's a saying that we have in sports, rather. Never do something new on the day of competition that you haven't done in practice. And the same thing happens for nutrition. If you're running a marathon, you don't want it to be the first day that you ever tried a GU or any of those kind of carbohydrate pouch supplements during your marathon. Why don't you want it to be the first time? Cause you don't know how your gut's going to react.

**Nick & Heather:** Right.

**Dr. Douglas Kalman:** You don't know whether it's going to give you dumping syndrome, meaning running to the bathroom as fast as you can before it dumps out, right? Or it's gonna cause you a bellyache. So same thing with nutritional supplements. If I'm a gamer or if I know I have this upcoming match coming up ... Like tennis, I work with a lot of tennis players, also. So some of the female tennis players, their match is over in an hour and sometimes it's longer. You know, the last U.S. Open, I was privileged to have three of the four people that made it to the semi-finals were females I worked with. So that was awesome to me, cause like "Oh, I know you, I know you, I know you, this is what we do. This what we do. This is what you do." And it turned out quite well.

So my point being some of them I would have wanted start because ... While I'm training, so I can know how I feel, right?

**Nick:** Right.

**Dr. Douglas Kalman:** Because how you feel on fight day, how you feel on marathon day, how you feel on your bodybuilding competition day, you wanna sort of know as much of that ahead of time so psychologically you can also control for that. Think about the first time you know, Heather stood on stage doing a bodybuilding contest. You know the feelings that you may have went through.

**Heather:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** The nervousness.

**Heather:** Yep.

**Dr. Douglas Kalman:** Whether it ... It doesn't matter whether it was bikini, figure, bodybuilding, all of that is not something you experience totally in a gym, even if you're posing in front of your coach. Or you're weightlifting with the team. But you need to try to get comfortable with the unknown. But one of the things that you don't want have an unknown is how your body's gonna react to what you eat

and what you put in it.

**Heather:** Right.

**Nick:** Sure. And yeah, nootropic supplements, yeah, you don't always know how you're going to feel the first time. How you're going to respond I imagine. And maybe how they interact with caffeine? Do they all play nicely with caffeine for people who are …

**Dr. Douglas Kalman:** You know, in general they play okay with caffeine. The type of nootropic ingredient that is also extracted from or found in, for example, green tea ... And I just really want everybody to understand, green tea, like the tea you get in sushi restaurants, Oolong tea, the tea that you get in Chinese restaurants, and black tea, the tea Americans mostly drink, are all from the same leaf. It's all from the same Camellia sinensis. It just has to do with the age of the leaf, if you will, that dictates the kind of tea that's produced. So, they all have the same family of compounds of polyphenols, you know? And ... I totally forgot where we're going, my cognition's off …

**Nick:** Oh, I think you …

**Heather:** How do they all play with each other.

**Nick:** Green tea, and caffeine, and possibly L-Theanine …

**Dr. Douglas Kalman:** So okay, now I was going … I'm sorry, thank you. Yeah, so now I was going back into two other ingredients that can come from teas. One known as L-Theanine, right? And that majorily [predominantly] comes from green tea and comes from some mushrooms. And another one that comes from a different type of tea, Kukicha tea, known as teacrine.

**Nick:** Unfortunately similar in naming.

**Dr. Douglas Kalman:** They're similar in naming but their different in effects. So caffeine and theanine have been shown to have synergy for helping a person to feel more relaxed and be less distracted while completing tasks. Whereas caffeine plus teacrine has been found to enhance exercise output, enhance cognition, increase the pain threshold, increase attentiveness, and increase mental flexibility. So a little bit different than theanine. Theanine helps you feel relaxed while you're more focused, while teacrine helps the intensity of the focus.

**Dr. Douglas Kalman:** So, they both can be used. If I'm a gamer, I would probably try both of them, but not all three.

**Nick:** Sure. Yeah. And those are two supplements that I've been seeing on more labels in the office. I just randomly pick up labels to see what people are putting in them these days. And I've seen those in a lot more pre-workouts I feel like recently.

**Dr. Douglas Kalman:** Yeah, teacrine often found with caffeine, has been becoming more popular in pre-workouts very much due to since 2014, they're started to be an uptick in the scientific interest in this compound. And so come 2014, 2016, 2017, there's been studies and studies in athletes. So for example, Dr. Shawn Arent out of Rutgers University did a study on the soccer team. Half of the soccer team getting theanine, teacrine rather, teacrine. And the other half getting a placebo. And under various conditions ... And we're basically able to show that teacrine had an effect on not only

mental focus and reduction of errors, but on prolonged focus, even an hour and a half after dosing. Which to me means an immediate effect, cause now I'm having this enhanced cognition for at least the next hour and a half after I take. Sometimes longer. So, to me that means I can use it today and have the effect today, versus creatine, let's say, a totally different substance. Which also has neuro-protective effects, is something that affects the body and impacts the body more over time than after a single dose.

**Heather:** Right.

**Nick:** Hmm. And L-theanine we've been hearing about it a lot, and about the synergy with caffeine. Is that something that continues over time if somebody is like, you know, I'm tired of just being caffeinated at work. I'd like …

**Dr. Douglas Kalman:** Sure.

**Nick:** … the idea of that synergy. Does it ... I think it was ginkgo or ginseng you said. Over time it becomes less effective. Can you just like pop an L-theanine with your coffee and benefit from it every day?

**Dr. Douglas Kalman:** The answer is yes, apparently from what we've seen in the clinical studies and the information that we're gathering. So one of the popular names of L-theanine from a brand name, sometimes you see this on the labels, is Suntheanine.

**Nick:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** And that's a branded version of L-theanine. What I want to share as important when it comes to L-theanine is that dosing matters. So we've seen studies that have used from anywhere from 50 to about 250 milligrams of theanine, and all of that having benefit. So if you see something that has 10 milligrams, and you say to yourself, this might be pixie dust, and more for marketing than it is for reality ... And again, one of the benefits of theacrine is ... Well, and if it's mixed with caffeine ... Caffeine stimulates you, but theanine reduces the negative effects of that stimulation. So that you're able to enhance your focus that much more. And that you're able to stay on task. You're on target that much more.

**Nick:** Sure. It's an ingredient that I've seen a lot of sort of sleepy nighttime blends, too, it's not just with caffeine …

**Dr. Douglas Kalman:** Well, the reason why ... Yes, and the reason why theanine is used in some of the sleep formulas or the relaxation formulas is that partially, one of the effects that it has is it increases alpha wave activity of the brain. And when you increase alpha wave activity of the brain, that induces the body to be more relaxed. So, when it was originally being developed, in part, Suntheanine as the branded ingredient that was first undergoing these studies was thought of ... Let's evaluate this as a sleep aid. Because I don't know about you, but there are some people that, you know, they say, "I did not get a good night's sleep last night. My mind was racing all night."

**Heather:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** Well, that's a type of person that needs to be a little bit more relaxed, you know? And L-theanine may have a benefit. Or somebody that says, you know, I have trouble staying

asleep while I'm sleeping. It's because they never got into some of the deeper sleep. They never got into deep REM sleep. They didn't go through all the sleep cycles. And you want to go through the first sleep cycle of relaxation in order to allow the brain to do all the rest.

So that's why it's also beneficial ... It's not one or the other. L-theanine can be in a sleep supplement, and it also can be in a sports supplement.

**Heather:** Interesting.

**Nick:** Hmm. So as you learn more and more about these things, do you find that you take more stuff or less stuff over time?

**Dr. Douglas Kalman:** I like to answer you this way. I find I buy more stuff.

**Nick:** Uh-huh.

**Dr. Douglas Kalman:** I have to be quite honest with everybody listening, watching, whatever it might be. I'm much like everybody else. I joke and say at this point in my life ... When I was younger, I was very regimented. Very, very regimented. More on the order of OCD regimented, right? I was college wrestler. I would only eat certain things. I would only do certain … whatever. And now I find myself, when it comes to dietary supplements, that I'm consistently inconsistent.

**Nick:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** Right?

**Nick:** Like many people around here I think.

**Heather:** Yeah, yeah, yeah.

**Dr. Douglas Kalman:** And I think that's kind of normal. But when I have a specific goal in mind, right? So if I have an upcoming boxing match, or I know my wife wants to do a photo shoot, so we have to get in great condition with the new baby or whatever it might be, then there's a specific goal and then I structure everything I do around that goal, including taking supplements.

So for like my last fight, I was very regimented about the amount of curcumin I was taking, or tumeric. About my multivitamins daily. About my fish oil. About my creatine. About beta-alanine. About Nitrosigine. And about MSM. I was using OptiMSM as well, cause I like it for joint health, you know.

So from that perspective, I was very regimented and knew exactly what times of the day I was gonna take it relative to what meal. And if I was on the road, bring my pills with me. You know, I set it up for every day. So like most people though, if you don't have a goal, it's hard to stay consistent.

**Nick:** Right. At least like six weeks out, you start to get that tight?

**Dr. Douglas Kalman:** Yep.

**Heather:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** Yep. Most definitely.

**Heather:** Well, for someone who doesn't have the benefit of being able to work with someone like you, they're just kind of experimenting at home, you know ... 'Cause we get questions all the time of "Oh, you know, I tried this but I didn't feel it. Or I felt it too much. Or, you know what …"

**Dr. Douglas Kalman:** Sure.

**Heather:** What's kind of some general guidelines to help these people who don't have a laboratory to go to and …

**Dr. Douglas Kalman:** You know, that's a good question. What I'd like to say to those people that are a little bit newer, or those people that are exploring both exercise and different kinds of dietary lifestyles, including nutritional supplements, is it's important to read. It's important to understand. It's kind of funny. Sort of off-topic but not.

Years ago before the company NBTY bought MET-Rx, I had a couple of friends that worked for MET-Rx then. And that was when Rexall Sundown owned MET-Rx. But nonetheless, I would ask Erica, and I would ask Dr. Antonio, and I would ask some of my friends, and then I would ask some of their call center people, what's the number one question that you get? And no matter what ... And I don't know what the consumer experience is here, meaning your call center experience ... "How do I use this product?"

**Nick:** Mm-hmm (affirmative).

**Heather:** Yep.

**Dr. Douglas Kalman:** And I would always ask a person that came to my office, "Why do you buy it if you don't know how to use it? Do you buy a car and then ask how do I drive it?" Right? No.

**Nick:** No, you spend the money. It's just like having a gym membership that you never use. As long as you spent the money, you're healthy, man.

**Heather:** As long as you have it on your shelf.

**Dr. Douglas Kalman:** So, first ... My first piece of advice is follow the label directions. Directions are on a label for a reason.

**Nick:** Right.

**Dr. Douglas Kalman:** So, if you're new to this, and you don't know who to trust or what information to trust, because let's be honest with each other here. On the Internet, anybody can publish anything. And it's not like when you were in high school or college that some teacher is vetting every different thing that's published on the Internet, every website. So you don't always know who to trust or what information. But we do know that Bodybuilding.com has solid information and shares from a scientific basis, as well as a consumer feedback basis of what the experiences are.

**Nick:** And many reviews. That's …

**Heather:** Yes. Yes.

**Nick:** That's one of the most popular parts of the website is that people leave reviews.

**Dr. Douglas Kalman:** To me, too.

**Nick:** Reviews.

**Dr. Douglas Kalman:** To me, too. Even when I wanted to try something new, a different flavor of a protein, let's say. I go look at the reviews. Oh, like, everybody likes Snickerdoodle. How come I don't like it? You know? Or whatever it might be. And yes, Snickerdoodle is a flavor.

**Nick:** Is it now?

**Dr. Douglas Kalman:** Yes.

**Nick:** And I'm never surprised by the number of flavors at this point. Yeah.

**Dr. Douglas Kalman:** No. But you know so …

**Heather:** It's all the fruity flavors that get me.

**Dr. Douglas Kalman:** Heather, you know, talking or addressing what you're saying, I would ask people to please use the resources. Use the websites like Bodybuilding.com. Use Examine.com. Go to TheISSN.org. And while you may not know where is legitimate information versus others, at least three sites that I just gave right now are legitimate.

**Nick:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** Not just cause I'm saying so, it's because they've been vetted. They've been peer-reviewed. They have information that knows that it's coming from not the marketing department but from the science department. Or regulatory.

**Nick:** And if nothing else, they can give you a place to start.

**Dr. Douglas Kalman:** Right. Right.

**Nick:** Like if you find alright, that's too much, too little. I don't like this, but I like that, at least you have a place to start.

**Dr. Douglas Kalman:** And you know, we're in another version of the Information Age. And there are great books that are out there that are written for the newbie, as well as more advanced, you know? So I would also take into consideration whether you're getting a little bit older book, like *Nutrient Timing*, that was done by Dr. Ivy and Portman, which is written for the consumer about how to eat relative to your exercise times. Or some of the other newer books, you know? These can be important tools.

**Nick:** Mm-hmm (affirmative). And everybody who wrote those books is usually online, and you can

pester them with questions or feedback, too.

**Dr. Douglas Kalman:** Sure.

**Heather:** And tell them to read.

**Nick:** And you're online as well. Tell us where we can …

**Heather:** Yes.

**Nick:** … find you. If people want to follow you in your progress.

**Dr. Douglas Kalman:** So, if you Google "Douglas Kalman" or "Doug Kalman", an easy way to find me would be on Twitter or Instagram, either as "DougKalmanPhDRD" one word. Or just "DougKalman" as one word. And you'll find me on Twitter and Instagram those ways. And one of the things that I try to do in those two platforms, plus the Facebook platform of Doug Kalman ... Or it might be "DouglasKalman", proper name I don't remember. I just log on.

**Nick:** Now we know what his face looks like is like. You can just find it.

**Dr. Douglas Kalman:** One of the things that I try to do on a daily basis is to share usable information that you can apply today. I'm not only putting pictures up of the latest whatever that my wife cooked or I made or something, but ... For example, the other day I shared a study publication that came out and the study publication ... It might be a boring topic to you, was on how accurate are the food labels on snack items.

**Nick:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** So, it was a study of I think about 24 or 26 popular snack items and looking at how accurate are the food labels for the calories and the macros. Because I don't know if you know this, by law under the Food and Drug Administration, food labels are allowed to be off by 20 percent. Or up to 20 percent. Which means if you have a hundred calorie item, that food could either be 80 calories or 125 calories. So 20 percent variance.

**Heather:** Those little hundred calorie packs that everyone's buying …

**Dr. Douglas Kalman:** They might be under or they might be over.

**Heather:** Okay.

**Dr. Douglas Kalman:** Right? Cause they're allowed to. So it's interesting this study that I shared on probably Instagram, Twitter, and Facebook, because one thing I like about Instagram, you can share it on all forms at once.

**Heather:** Oh, yeah.

**Dr. Douglas Kalman:** Found that of these 24, 26 popular snack items, they were only off by 6.8 percent. That's a very little, you know? Which is good, cause 20 percent's a lot larger. And if you're somebody that's really counting your calories …

**Heather:** It's a big difference.

**Dr. Douglas Kalman:** A 20 percent over a day's time could be bothersome. It could be the difference of a little bit. You know, of something. So, I share information like that, or if there's a new study about an ingredient, either food or dietary supplement or a beverage that has a unique application or something novel, not just repeating something from the past, I like to share it. Because you can apply it today.

So in the conference, we were talking earlier today about why is it that creatine monohydrate is considered still the best form of creatine? And so I'll share studies about how you actually get more creatine on a program basis with creatine monohydrate than any of the other creatines. So on a program and your per dollar basis, that makes a difference. And how nothing …

**Nick:** It's also happens to be the cheapest one.

**Dr. Douglas Kalman:** Right. Right. Exactly. And why is it the least expensive? Or the cheapest one? Because in 1993 when Anthony Almada and Ed Byrd first started selling creatine. They were the first ones in the United States to be selling creatine. And the company they had at the time before it later became EAS was once known as The California Body Club.

**Nick:** Mm-hmm (affirmative).

**Dr. Douglas Kalman:** And then later on they teamed up with Bill Phillips, who is an excellent marketer …

**Nick:** Sure, who we've had out here.

**Dr. Douglas Kalman:** And they started EAS. And then it grew. So, at that time, creatine was like $700 a kilo, you know? Now, it's so popular and it's twenty something years later, that it's pennies per kilo.

**Nick:** When this website first started in the 1990's it was Wholesale-Creatine.com.

**Dr. Douglas Kalman:** Wow.

**Heather:** Yep.

**Dr. Douglas Kalman:** I did not know that.

**Heather:** That's a true story.

**Nick:** There's a history of Bodybuilding.com video.

**Dr. Douglas Kalman:** Wow, I'll have to watch it.

**Nick:** Our founder was scooping it and loading it himself, and taking it to the post office in his Blazer.

**Dr. Douglas Kalman:** Wow.

**Nick:** Yeah.

**Dr. Douglas Kalman:** I don't know if that's FDA-compliant these days.

**Nick:** Uh, what's the statute of limitations on that?

**Dr. Douglas Kalman:** It passed, you're good.

**Heather:** Good one, Nick.

**Nick:** Anyway, thank you. The upshot there is following this guy and guys like him on Twitter is underrated. Because there are so many studies coming out all the time. Just following you guys in the recent weeks building up to your visiting here, I've been amazed at how much …

**Heather:** It's a rabbit hole of information.

**Nick:** … how much I've learned and how many good studies I've actually seen, where it's like, this is okay this is something I can get a takeaway from. Even with just a one set bit of commentary from.

**Dr. Douglas Kalman:** Something if you don't mind, I can also share on Instagram. If you look at the Instagram that's called The ISSN, which stands for the International Society of Sports and Nutrition, almost on a daily basis, there is a new gram or upload or whatever you call it ... New something that is shared that takes a study then explains to you what does it mean to you. And what were the findings and how does it apply to you. So you can find applied science every day just on The ISSN's Instagram.

**Nick:** Great.

**Dr. Douglas Kalman:** Which many of us contribute to. Dr. Antonio, Dr. Willoughby, myself, and others. So not only just mine, but another great resource. So recently one of them that was very interesting was a study that was looking at the metabolic effects of brown rice versus white rice. You know, cause we're told we should be having more brown rice cause it has more fiber, more bran, it's healthier, blah, blah, blah. But yet there was no real difference in blood glucose effect. No difference in metabolism between the two.

**Nick:** Uh-huh.

**Dr. Douglas Kalman:** You know, so while over a lifetime the whole grain brown rice might be healthier, might ...

**Nick:** Might.

**Dr. Douglas Kalman:** Might, might, might, in the short term, there's no metabolic difference whether you're having Jasmine, Thai, White rice or you know the …

**Nick:** Well, there's one difference, it's harder to chew. And this is something that I've heard from competitive bodybuilders. They say we go with white rice …

**Heather:** Go white rice, it's much easier to chew.

**Nick:** Because your jaw gets tired from all the damn brown rice.

**Heather:** I'm already chewing eight ounces of chicken with it, too.

**Dr. Douglas Kalman:** They might not be cooking it long enough.

**Nick:** That's entirely possible.

**Dr. Douglas Kalman:** And also for the listeners that are on here, if you want, if science interests you and you want to come to a conference that has both what we joke around, called a meathead application, meaning *applied*. As well as the more geeky science, meaning there's two tracks that run all day, TheISSN.org, the International Society of Sports Nutrition. We have regional conferences throughout the year, and an annual conference that's maybe two, three days long. So on the website it's always listed. The June is when we have the annual conference. So 2018 June we'll be in Clearwater, Florida at a hotel on the beach, you know. And I think 2019 is a hotel in Vegas. And then back to Florida. But nonetheless, there's also regional conferences. In April, we have one in Dallas that we're doing and so forth.

**Dr. Douglas Kalman:** So, people that are not only following Bodybuilding.com podcasts and other educational materials can also come interact with who they read from.

**Nick Collias:** Great. Alright. Well, thank you for so much for coming down and talking with us.

**Heather Eastman:** Yeah, thank you.

**Dr. Douglas Kalman:** My pleasure, thank you.