

Inside the World of Sports Supplements with Dr Vince

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Welcome back to the flex diet podcast, where we focus on all things to increase muscle mass, aka for the geeks hypertrophy, better body composition and performance, all without destroying your health and using a flexible approach. I'm your host, Dr. Mike T. Nelson, and today of God and insider conversation with my buddy, Dr. Vince, all about the world of sports supplementation. Dr. Vince was the main PhD guy behind the scenes that honored for many years. And he is off doing his own thing right now. This podcast is brought to you by the Flexa diet certification by myself, I'm one who put it together, and it will open again in January of 2022. The best way to find out more information Mr. Get on the waitlist, go to flex diet.com flxdiet.com. And you will be the first to be notified. Once it is open, I'd normally have a bonus that usually is just for newsletter subscribers only. So go to flex diet.com. If you want to learn more about eight different interventions to maximize recovery, primarily using nutrition. And this is set up as a complete system to use for yourself. Or if you're a coach or trainer for your clients. So go to flex diet.com. As I mentioned today in the podcast, and good buddy, Dr. Vince may go inside the world of sports supplementation, you can be a fly on the wall as we have a discussion about different types of sports supplements, which ones work, which ones don't. Some of these are kind of the old classic standby. So pick his brain on some of the newer ones that might be coming out, especially in the realm of stimulants. And we also talk about the formulation process. What goes into it as a consumer? How do you determine what company should you look at? What products reading the label, and we jumped into the conversation pretty much full on. So you'll notice that it feels like you just got dropped in there as we start talking about a project he's working on with liposomal delivery. So enjoy this conversation, like good buddy, Dr. Vince. And be sure to go to flex diet.com to get on the waitlist and enjoy the podcast. Hello, my man. How are you? Sir? I'm good. How you doing? Cool. Thank you for doing this. I appreciate it. No, absolutely. We're looking at particle sizes. There's a new technology called liposomal. And we're trying to get it on the front end of it instead of the reactionary and have it learning day by day on how to look at them, measure them and all these other ideas. Very cool. Yeah, and I know liposomal delivery has been around for a while. But it's kind of it's one of those things I always thought would be bigger than what it is. But it still seems to be kind of a fringe thing. I mean, the main problem with it is is that basically like it's really splashed in the farm farm sector, because you can, you know, you can definitely like put your particles together like a given size, and then everything kind of lines up appropriately. But in nutraceuticals, that there's a whole lot of variance and particle size, compound configuration, so on and so forth. And I think that really screws with the ability to do the lysosome thing. And it's like each compound needs a different, you know, different formula, almost, there's no like, if

A then B kind of operation. And then third, it's stupid expensive right now. Like it drives on average right? Shot costs somewhere between, you know, nine to 20 cents. Well, normally liposomal technology adds 30 cents on top of it automatically. Yeah, that makes sense to me, because I've only really seen it with obviously live on labs as a bunch of stuff. That's liposomal. You know, there's other companies you can find beautify on that's liposomal but it seems to be more on compounds that is the pharmacokinetics change with administration or like glutathione that's debatable if it even makes it past the gut without adding something to it. But when I said the cost is always significantly higher than two Mm hmm. And I still gotta make money. But no matter how bad you want to help people,



yes, make \$1 Yeah, I've always wondered if some of the liposomal it's like, how would you know if it's done in a legit way or not? Because, you know, you've been around the supplement industry for quite a while. Yeah, we, what prevents people from just putting liposomal on the label and being like, yeah, we use lysosomes. Yeah, no, I'm actually we're really finding that right. Our Luckily, our, our, the car manufacturer I worked for really, you know, trying to do a right and ethically, there's a, there's a really good, a lot of good research out of UMass influenced by a guy named David McClements, we've actually talked to him multiple times. Because we're like, what the hell? I don't get it. He's like, No, that's, that's it. Like that's, that's the route you're going. He has a lot of white papers. And one of the main telltale signs is if there's not a phospho lipid in it. And if you look at a lot of these, a lot of these formulas, right, you go down the ingredients list, and there's nowhere where there's the fossil lipid, you're like, How can this be? There's no way they could create the structure then? Correct? Exactly. So without the structure, you can't, but that was huge. It's like trying to build a house without brick and mortar. Right? You can't, if you don't have the building blocks can't make the house. So it's, it's a fun game that we're slowly like, learning how hard it is to navigate. And but when people ask for, we're like, yeah, we can do it, but it's gonna, it's gonna cost you something. And the encapsulation rate of actually getting the compound within the actual lysosome itself can be staggering, as well. It can be anywhere from, you know, 25%, if you're extremely lucky with an extremely small particle all the way down to like 5%, but it still counts to 5%. Because it's a thing within a thing, you know, so, yeah, that's the other thing. I wonder, too, both on the manufacturing side of what's your loss rate of trying to get it into liposomal, and then two, with how lose some of the regulations are in the supplement world, hopefully, that the parent company would care. But if they don't, they could be like, yeah, it's liposomal delivery. And it's like, we just tried to push a bunch of Roz into stuff. And it's like, 2%, you know? So I mean, you know, that 2% and 2% counts, does it actually make a difference? Not right, but not really, you know, for purposes of you and me. I mean, I wouldn't like count liposomal technology, but if someone wants to go for it, luckily, you don't lose a lot. Because you know, it's, well, at least the way we manufacture it, it's kind of like, take the pot, throw everything in there, it's stirred up, and what gets encapsulated, is great, and what doesn't, you know, still there. So like, for example, with vitamin C, we have like a 10% 15% encapsulation, right? You've got your A capsulated, vitamin C, and then you've got your 90% of just free floating vitamin C, in the product as well. You know, hopefully yet you still have a strong vitamin C dose by the time you get to, you know, purchasing and shelf life and conduct and consumption. Yeah. And that gets confusing to for the consumer, because your assumption would be if it's 1000 milligrams of vitamin C, and it's liposomal delivery. I think most people would assume that 1000 micrograms of vitamin C Exactly. Yeah, totally. No, I totally get it. I'm about to make a talk called Trust Me, I'm Lying to you. That's perfect. And that you would like to think that some of the stuff we're talking about here is an exception, but I don't know. I don't know if it is anymore. I know things

have gotten better to some degree. And I know some things have gotten unfortunately, worse to a degree. Numen commenting on you know, some areas you think the supplement industry has moved in the right direction and then maybe some areas where it still has plenty of room for improvement. Absolutely. So like big players do it. Right. You know, you talk about groups like on it you talk about groups like diamond ties, talk about groups like Optimum Nutrition, Muscle Tech ghosts so on and so forth. I think ghost is actually owned by someone bigger see for which is a lot of these groups really tried to do it. Right. They have you know, they've got third party testing beyond



you know, beyond just standard regulatory is there arsenic in here, you know, yeah. Metal really killing you. Will this scrape kill, you know, fantastic. So we have groups like this that are really trying to do it right. A lot of CO manufacturers right now have to follow GMP which is good manufacture and practices, and then they can further get certified in different areas. I know a lot of the third party testing groups LGC, which is the parent company of informed sport informed choice, and NSF both do a site check. So they will come and they will audit the spot, the CO manufacturing spot, where are the things are being made. And like, for example, the place I work has like nine, its innovative labs, by the way, it's a co manufacturer, okay, cool. And we can talk about how we play into the whole game in a little bit, if you want. But ultimately, we have people that come and audit us to make sure that you know, there's, there's not bacteria growing on everything, there's, you know, good cleanup practices, everything from like how your brooms are stored to like how far away your trash cans are from the wall, those little details are allergens stored above or below or even close to non allergens, for example, it'd be really bad if you know you had your, your fish collagen above, you know, a normal, like branched chain amino acids, and then all of a sudden that bag breaks. Yeah, you know, there goes two lines of ingredients instead of one. So there, there are a whole bunch of rules that now are, are really starting to be enforced. And the FDA, they try, and they really worked hard to make sure that, you know, claims that are being made are strictly for the supplement world. They don't want to see words like inflammation and cancer and diabetes even. And even some fringe words into that. So as a supplement, you know, the main idea is or what, you know, the FDA and FTC which the Federal Trade Commission, I believe, really, really, you know, Hawk out for, you know, certain types of claims. Like we can't, supplements do not share problems, even though in the literature, it may be suggested that they can drugs cure problems, especially chronic diseases, and stuff like that. So they're really tight on what she can actually say. You may remember back in the very, very beginning of COVID, my favorite example, there was a preacher, I believe it was out of Alabama, Arkansas, put together some silver supplement real quick, like throw it together kind of idea. And it started telling people that it would kill COVID Oh, oh, FDA got ahold of him pretty quick. And they and like, had infomercials on it and everything like we like didn't even try to fly under the radar. Like if you're not already in it, like you don't have like a regulatory group that you trust or like it really put together like definitely fly closer to the ground than to the sun, you know? Yeah. Just one full rocketship. Yeah. It's great to see I thought he was going to the moon. And it turns out he went to the sun burned up. Didn't make it. And luckily, right. I mean, for better for worse, our regulators out there that,



you know, we do or don't like, class action lawsuits happen quite often. There was a big thing back in the early 2000s, about amino spiking for protein. Yeah. So what that is for people

listening? Yes. So that is, let's go back even further. So protein is measured on purity. And that purity is called P. Cass, I believe. And so that measurement basically takes the protein and measures the amount of nitrogen that comes through the basic technique. And all amino acids produce this nitrogen, no matter if it's leucine, which I would consider one of the more important amino acids, right, you have nine essential amino acids, all the way down to some of the you know, the ones that play, definitely supporting roles, but not a whole, full lean and benefit role. The nine essential amino acids when it comes to ingredient costing cost more if you're going to take them apart and use them individually. And so individuals will, in turn to like get their pee cast score up, which I believe you're going for a score of one, you can donate in extra, the cheaper amino acids and then they'll they'll go through the test and register nitrogen, and it will come up to have a higher PKS score. So in turn, if your product is not the absolute best, you can put some of these in there for a cheaper cost and actually get a better TKS score on the back. So there are groups that will will do stuff like that there are other groups that will, you know, they'll say that there are zero calories. The calorie game is pretty important. So there are a few groups that are have claimed zero calories, especially in the pre workout sector. And then a class action lawsuit got ahold of it ran it through basically a cow rheumaty balm, and called it out as calories because Because ultimately, that's considered an unfair advantage in the market. If you are especially looking at people who are body composition minded, and you are claiming zero calories when the group, like, literally right next to you on the shelf right below you, and Amazon has somewhere between 50 and 100 calories, they're automatically going to click on yours. Well, what happens is if you go through those, you have again, amino acids, for example, citrulline has a calorie count to it. And if you don't count that on your label, right, because people argue that it's not a complete protein. So they're actually have an entire calorie to it. Well, actually, in the Calvin shoe bomb it does. And so because of that, you have to count it on your label. There are those regulatory bodies, and then the French people are far and few between and with all of the markings and, you know, tests and other you know, washable groups, if you can follow those groups, like you're going to be in a pretty good spot, like you really will, which really comes forward in the quality of what supplements have become what supplements used to be, it was kind of like, trust us, this is good for you. And then you know, take it. And then it turned out later that you're taking Jack 3d The original version, the you know, everyone, everyone sells geranium oil, right, Doc, what geranium oil in there, there was a mess in there wasn't there? Well, that was the whole thing with remember the high tech, or I think they got busted for actually falsifying the raw was imported from China. Or they actually told them to put geranium extract on it. And it was just the compound that was synthetically made over there. And you're trying to get around the law. And I think they got sued for I don't know how many millions of dollars. So I mean, as as they should have 100% Totally. But yeah, I mean, like I said, it's really pushing forward, and the people that want to do it, right, really go heads and shoulders to do it right. Now, unfortunately, there are groups that, you know, if you stay low enough, under the radar, the FDA is a government, you know, entity, and you know, we joke about, you know, close enough for government work well, this is a government working government entity, so they can't catch all the things through the net, you know, and neither can class action lawsuits. So



there are some fringe people that will ultimately have the ability to, you know, make some more out their claims, make some more, you know, potentially questionable products. But luckily, I would like to at least think and I believe this is true, but ultimately, it seems like those groups don't last very long. The groups that really are staying in the mainstream are the ones that are really going forward as they as they evolve. And it's fantastic to be asked me, it's

unfortunate to know that there are still people out there that do take advantage of people who are looking for, you know, different health benefits, different performance benefits with these different supplements, you know, ultimately aren't necessarily getting the best quality. But again, those who are who are really in the mainstream and really, really locked into the game are doing it right in it's really raised the quality in the requirements of really succeeding in the supplement industry. I always think of just basic economics and one on one, right, if you're a major supplement, in fact, Burr one, you have income in order to afford screw ups, right. So that keeps me up at night is and this has happened before. Like you get a compound from you know, China or overseas, right? And a lot of income from there. Right? And you're doing the good thing, right? You're doing your own QC. Right? So you're quality controlling it, you're gonna send it out to an independent lab or your in house lab, you're going to test it to make sure it is what it says it is. Because it's you know, they could falsify the label. Yeah. And you find out, it's not. And you just bought, let's say 200 pounds, whatever it is, and it's supposed to be at 95%. It's at like 90%. If you're kind of a fly by night company, and that represents a massive amount of your income. One, you now have an economic incentive, unfortunately, in the wrong way to just be like, Oh, it's close enough. No one will ever know. We can't really afford to not use it. And that's the thing that kind of keeps me up at night where if you're a bigger company, hopefully you have better quality control, you have better volumes, you've got better relationships, etc. So it's less likely to happen. And if something does happen, as a percentage, it's it's pretty minor, like you can not use it, and it's not gonna be the end of the world. So you don't have as much of that financial pressure. Plus you have all of the incentives kind of going the other direction of you have a reputation, you actually have a lot of things to lose if you screw things up. Yeah, well, actually, there, there is a check and balance to that to that. So every product or at least, again, the people that are really minding their P's and Q's, especially with your quality department have spec sheets for each one of their ingredients. Yep, those spec sheets are basically the blueprint of what a of what an ingredient can be. Obviously, you'll have less than detectable of your heavy metals and stuff like that. And then let's say, say you're trying to, you know, have a tea leaf extract is 98% caffeine, right? And that's where your caffeine claims coming from. You get it in your lab, and you run the test. And it's we'll say it's 89%, or something along that line, you can, you can actually, you know, point to your spec sheet and then point to your testing and be like you got screwed this up. Yep, you're taking it back, you're gonna eat this cost, which is, again, another nice checks and balances. And then right, you can take it to a third party lab, if they dispute it. And then hopefully, your analytics are correct. And then or hopefully, I mean, you know, either way, you want to cut it, right? Either your Linux work correct. And that, you know, that's back that up, or then come back and say, No, this is 90%, caffeine, and then you go, Okay, now we need a third party testing. Ultimately, right, you have a sheet that basically tells you exactly what these should look like. And if they don't, you're justified in trying to, you know, get that money back, get the thing created, appropriately. Now, for those, you know, who are feeling the squeeze of, you know, nothing's moving right now, like lead times are extremely extensive for these ingredients. So if it's an individual who's a little more shaky in their ethics, and you know, well, you know, 95% 98% the same thing. Yes. So, we're in the 90s. Yeah. So, so yeah, so I again, yeah, you know, you got to kind of go back and forth on that. And that's why again,



I strongly whenever I talk to people about supplements, I work with my, my clientele, it's always make sure you get to third party tested ingredients on at a high high level for especially if you're purity, and then for efficacy as well. And if you're doing Volume Two, and something is bad, and you catch it, you can hold that volume potentially over whoever sent it to you to write

because if they screw up, they're like, Well, screw you guys. We're gonna go with somebody else. And they're going to be out, you know, potentially a massive amount of business. Yes, it's a fly by night thing. And it was a one off order. It's like, yeah, what do we lose? Yeah. Yeah, let's put it in a hooby. Fine. Yeah, yeah, we were mixing stuff in their bathtub anyway. So I don't even think they have an analytical lab. Oh, yeah, that's the thing. It's like you. And this is thinking that they actually are testing stuff, you know? Who knows? Just trust the sheet knows, I don't know, just put it in there and put it in there. Nothing's tested at the end. You



know, I don't know, I think it's crazy. And go ahead and put it in there. And unfortunately, some of those things do happen, which is very sad.



But no, it's it is still a stain on the industry. It still comes out every now and then. But I believe it is far further further few between every every year that we progress. And do you think that's mostly because consumers are more aware? Or do you think it's regulatory? Or what do you think is kind of driving that main change? I think it's kind of both. According to a lot of the trends. A lot of people are really interested in like the clean they call it the clean label look, which is not to be confused, clean label project, which is kind of like a third party testing group, but some of their ethics if you asked me or suspects but that's between them. And sure, whoever's questioning that but the consumer really likes to claim like the proprietary blend is on its way out. Or you know, you better have a study that backs up your claims that are actually on the label. Because you know, people because people don't want to see, you know, the focus blend, and it's like five grams, but most of it's caffeine, so, and then everything else is kind of like, yeah, a little bit of this. Yeah. So the consumer is, you know, more more aware, and, you know, the rating system exists, right? And we have five stars on Amazon, you know, God help you if you have for, like, I don't, I don't know what happens to a for less. So, you know, people will in turn rate and do their research, does this product deliver on? You know, do I feel it? Do I not? Do I, you know, all these other great things. So the consumer is getting much, much more aware, because they know that there are health benefits out there, but they also know that there are some of the shady situations, so they want to want to make sure that everything is kosher. And then again, yeah, regulatory is going up like is GMP on the packaging is, you know, is where they're holding a GMP warehouse is where they make it into GNC co manufacture like the GMP at bare bare minimum. But then most people, again, ramp up their certifications to look better both on their label. And if you're a warehouse or a co manufacturer, you look better towards people who are wanting to run their product with you. Oh, that's great. Do you think the next level is having more transparency on the label? So so two companies I do some stuff with? So Charlotte's Web has a thing, I think it's still on their products now where you can scan a QR QR code, and it'll pull up the CLA right certificate of analysis of the entire product, all the testing everything that's done for that actually, particular lot number and that particular batch, yes, is great. My buddies been escrow runs elemental formulations. I'm on their advisory team as a disclosure, but they have a thing where it's similar. You can scan the code, and it will tell you basically traceability of everything that's in there and what was actually tested. And according to him, their use of that feature was actually quite low, which I was a little bit surprised by. But I think it would be great if more companies would do that. But then the catch 22 is they're probably only going to do that if consumers start demanding sort of

that level of transparency. And a lot of it right now I think is more. I'm 100% guilty of this myself, just brand recognition and yeah, from everyone I've talked to I think they're doing a good job and Okay, cool. I haven't seen anything bad happened.



Yeah, yeah, I haven't tested positive for cocaine yet. So Right. Oh, but I've never tested Oh, whatever. I believe that, you know, especially with products like CBD, and this was kinda like the game. Not even two years ago, a



lot of people were worried that you know, where the CBD compound and the CEAP derived CBD is active compound found in Him. What Everyone was worried about was where that CBD was coming from. Was it coming from hemp? Or was it coming from marijuana, which is a type of hemp, right? Okay, and we all know that our good friend Mary Jane has a few other little fun, fun factoids with her as well. And so people were really worried that with CBD would come THC. So and especially individuals who are you know, servicemen and women, government employees or those who work for you know, a company with a strict testing policy right the the benefits of CBD were very, very exciting. And especially right it's, you know, CBD, you know, maybe we shouldn't be using this, but we're going to use it anyway. Then there was that kind of little fun thing that came with it, but ultimately, they're worried about the THC factor. And so a lot of groups were trying to show that there wasn't detectable THC in their CBD products. Even now, right so CBD it used to be a real murky, how do we get through this situation? Now it's become a little more mainstream people have accepted a little bit better. And there are two testing bodies that actually now test for the purity of the hemp that come through, I know that I think that they call it informed hemp from LGC. And that will actually pull up the test for or maybe I just, you know, chose a program that doesn't exist yet. But basically, they're they're trying to basically groups you're trying to put together you know, ways to test for the CBD content, the THC content and then the terpene content because if you look at the water restrictions, right, CBD is fine. For the most part, THC is a problem and then there are other terpenes that are So show up is a problem. Yeah, they don't know what to do with them yet. So is that just because water put them on the list? Or is it because they screw up with detection and think you're hiding something with THC, potentially. So right, so remember, the water list has both maskers and metabolites, correct. Different products or different ingredients for specifically, you know, performance enhancing drugs. That's one of the things that a lot of people will forget. So necessarily doesn't aroma taste blocker? You know, do anything for you, arguably, maybe a little bit, but most people that are taking aromatase blockers are taking testosterone. Right. So it's kind of like, well, why would you be taking an aromatase blocker? If you're not if you're not taking testosterone? So you're out that actually I think that's what isn't that what busted Jim Jones back in 2000. Teens from us, UFC, am I correct? And that could be? Yeah, I think somebody I remember that. Yeah, I think it was an accessory agent. And they started doing more further testing, I'd have to go back and double check. But it's pretty common, because he, like some of the advice that people get to get around drug tests is not always, not always the best advice either. Oh, it's like do this, and this will change your ratio. Oh, yeah. Oops, I forgot to tell you they test for that too. Oops, sorry. Oh, I just got the most recent one to see they Sorry. Yeah. Well, it's good to know about CBD. Because yeah, you can find all their literature showing that a lot of the testing, I mean, the THC amount, like they weren't off by a little bit. It was off by a lot. Yeah. And understandably, so that even if you're a

company from a pure, not only a customer, we'll leave it at satisfaction. But legality wise, if you go over the point 3%, I think is regulated in the Department of Ag has happened over that is, you know, basically breaking federal law. It's like, you may want to pay attention to that. Absolutely. Here's the crazy thing, we and I've had multiple debates with this with different testing groups, like, we're not going to get worse at testing compounds. And for compounds. So all of a sudden, you know, you go in for your drug screening test, and you take CBD and that doesn't have, it didn't have Chase small amounts of THC back in, you know, 2018.



But you know, it's 2025 now, and they got the newest, greatest latest that goes down to parts per 100 billion. And now all of a sudden, you fail because you have THC in your system. It's like, oh, that's rough. So it's gonna be a weird game where, you know, testing capabilities go up. And so what does that mean for regulatory rights on the other side? Yeah. And at what point can you argue that it's just in the environment, and your testing is so hyper specific now that the physiologic area, it just doesn't matter? You know what I mean? Like, I told you guys, so you were at one part for Brazilian for THC. Obviously, you're not sitting around like smoking for joint today. Right? I know. You think you could argue that that was in the environment or something else? Right. But surely, I don't know. But yeah, but that's not the answer. Companies want to hear, right? They want like a hard line in the sand of the zero tolerance or whatever crazy things are going on. But at some point, you just, you can't do it. Like I think they are they try to look for like PCB testing. They were trying to find what was the norm, I think when they're looking at testing, and they couldn't find any norms, like they had a test blood before. PCBs, I think were even invented. But it becomes so everywhere in the environment, if you test down to a small enough level that everybody had it, you know, yeah, so yeah, super interesting. On the CBD area, do you think other cannabinoids will be come more popular? So my bias is in this area? A couple of years ago, I was working with just a few companies. And I'm like, Well, right now THC is the only cannabinoid that is illegal, right? All the other ones are fair game. All the other ones don't have any psychoactive qualities unless you get super crazy high doses for one or two, the other ones, right, but manufacturing of them to isolate them was just stupid, expensive. Yeah, right. So it was just really that feasible. But I'm like at some point, kind of like you're saying what testing, you are going to manufacturing will advance to a point where it's going to be cost effective to get CBG CBN, which we're starting See all these other compounds? Yeah, show up on the market. Now, do you think that's kind of the next CBD sort of trend, I actually had seen a few at some of the conferences and stuff that I've been to that really so the CBG and CBN. Obviously, the more bigger compounds with CBD in the front of it are, I think, are of the most interest that doesn't fly in the face of the fact that there are potentials for the terpenes themselves that come with them. And, you know, I don't I hate the term entourage effect, I really do. What else has given me a better word. So I do kind of believe that I'm more of a holistic person when it comes to these kinds of, you know, these types of interventions. So I believe that there are some benefits to taking the entirety of, of the plant the broader spectrum. But I would like to see, see, the problem with that is, you know, we have research that, you know, already says that the Seabees, I'm going to call them CBD CBG CBN, have some sort of benefit. And I haven't seen too much research. Now granted, I've been kind of out of the CBD cannabinoid research for a minute. So this may have come out. And if someone out there knows about it, please let me know. But like, I've never seen like terpene mix plus CBD versus CBD alone versus terpene mix. And what those potentials could be for, you know, stress, sleep, inflammation, even though you're not supposed to say inflammation, you know, things like that, it's, I think it's kind of an ingredient that hasn't really had, it's, it sounds weird, but like, really hasn't had its day in the sun yet. Because, you know, people got

so excited about CBD, and it seems like they totally just, you know, hopped on that train and didn't even want to investigate the rest of the potential benefits of all these other compounds that are found in this plant. And I feel like there's definitely more to flesh out there than what, you know, the market has shown and what the research has shown at the current song. No, I mean, I would agree with that. I mean, the first time I heard entourage effect was at some, I don't know, some shop in Oregon.



I don't remember. I was gonna say that I'm like Oregon. This sounds like a made up term, I don't know. And so I looked at the research on it in surprisingly, the research does actually kind of support it. I mean, Rousseau has published a fair amount of stuff on that, I've kind of changed my mind. And I would agree with you that the interactions of all the other compounds are what seem to provide a lot of the benefits. I mean, obviously, THC is the main one you can feel if it's legal in your state. No, we're just now getting an accurate like keema var profile of what's even in there. Yeah, and what you, you find out is that, you know, it's an indica strain, and, you know, all the kind of words that just get thrown around, don't really mean anything anymore. Right? All the strains have been so cross bred that everything is a hybrid, you know, gas chromatography spec of it. Well, you have to compare it to unknown thing that's 100% of the thing you're comparing it to, yeah. And you just can't get 100% indica, for example, it just doesn't, it just doesn't exist. So you go a level deeper and you're like, Oh, well, maybe it's the chemo VARs that are providing these different effects. And it seems like some of these chemo VARs that are more you know, relaxing, have sedation effects, do tend to kind of show up in more indica strains, for example, there is some little bit of truth to it, but the whole thing is just been kind of blown out of proportion because it is an easy sell. Right? If you want something that's more you know, energetic, you know, do this or you want a hybrid do this or you want you know, to be more relaxed than you have to do this indica strain and yeah, I mean, to kind of come full circle, that's that's kind of how I know a lot of these herbals were being, you know, pointed to now in like, if you get more into mainstream supplements, again, like, no, like, you really have to start to pay attention to the active compounds in it like Huperzia Serrata is a fat is a fantastic plant. Again, I think it's under researched, I like to use a lot my formulation. Like you have to know that the active compound that does the thing is called Huperzine A, you know how much of that is in the actual, you know, farming of the plant because to your point, you can breed these plants to produce these like to lean more towards these type of compounds or X type of compounds. Yep. And, like you don't want just, you know, elderberry you want to anthocyanins in the polyphenols in it, that are actually going to help you you know, Do the thing. So right people talk about looking at, you know, people say like organic apples versus, you know, GMO apples or something like that. And like, one's got like a nice full red color to it. And then the other one's kinda like looks a little sickly, you don't want sickly one, right, it's lost some of its some of its. So it's the same idea with anything that grew in the ground has the potential to be, you know, pushed one way or the other depending on the generations of, of cultivation, and you want to make sure that you're getting best in your products. Yeah, I think was a David Sinclair talks about that as a, I could be bastardizing the term but like a Zeno hormetic response, where we can sense stress in the environment, the the poly phenols that are incorporated into the food that we eat. Oh, which I thought was interesting, because if you think about, if you have, let's say, just the same plant species are the same plant, right? You look at, you know, cannabis, coffee, you know, grapes to make wine, the exact literally same strand, but exposed to different stressors in terms of, you know, water, or, you know, too much hydration or nutrients, like changes what is actually produced in it, which to me is just fascinating. And his argument, I don't know, if it's from him is that most of

those changes are due to stressors in the environment, right? So like grapes, they don't want to over water him too much. They want Him to be dry for a period of time, because it produces different compounds it's gonna incorporate in the wine. And that in humans, it's a way of determining Are you in kind of maybe more of a stressful environment? Or not? Or maybe those compounds serve to make people more resilient to different stressors and stuff. So it's, yeah, go down the rabbit hole, it gets kind of fascinating.



That sounds like a pretty deep one. Yeah. I thought about that, too, of like, why do we crave in nature, like certain things, right, we do tend to go towards things that are more complex and complicated, right? The wines that people would agree, are more complex tend to be more extreme areas and have more compounds in them. Right, and the extraction process, and how do you make it and even just like, was it coffee has like 300, and some different poly phenols in it? And yeah, it's just the human thing. Also just didn't want to tweek with all that stuff, too. Oh, yeah, no, totally. I get better. Well, should we? Right? Could we should we? Right. And you had mentioned, the Huperzine, which has been around for quite a while. And I mean, my bias on it was, initially I wasn't, I don't know, I wasn't really, it made me nervous. But it's been used for so long. And in so many products that I don't think there's probably as much concern, as what I probably thought there was initially. Right. So if you want to explain what it is, I believe it's acetylcholine esterase inhibitor, and how it works and kind of why it's in a fair amount of products. But it's one of those things not many people talk about, right. So so basically, what it does is it helps stop the thing that stops acetylcholine. So basically, yeah, I mean, that's, it's the brakes of the brake, if you will. So right, it's not necessarily a gas pedal. So we're not like pushing more acetylcholine down. And acetylcholine is the messenger in the nervous system for, you know, just to make sure everyone's on the same playing field. So ultimately, we want something in our body to basically turn that off sooner or later because we want to relax, like it's good to have, you know, stimulation of certain pathways, but we also need to be able to turn them off in our body to or we're not going to be, you know, successful humans at all. So this basically is the compound that will help slow down the breaking of the messenger between neurons. And you do find it and in a lot of products, but everyone leans on the caffeine because I think well, right, caffeine cures everything. Right, it can make you feel better, it can make you work harder, it can make you focus more intently, like it's one of the necessities right everyone knows that there's no question about it. It's like oh, you did a caffeine say why'd you do a caffeine study? But yeah, we know all the things it seems like but then I say that and then some papers is gonna come out tomorrow that proves me wrong. I'm just getting flashbacks to help a diocese and position stand on caffeine says one of the main authors on it and oh, yeah. Three and a half years of my life, like trying to sort out just you know. And we had so many references. We actually had to start cutting references out I was gonna say That's like one of those words just like you're buried, though. It was insane. So ultimately, yes, so a lot of people like to pair the two together. Huperzine A is an extremely low low dose, micrograms. Right, yeah, micrograms. So I think like, which works out to be 1% of hoopers Huperzia Serrata. So you'll normally you'll either see Huperzia Serrata, and like 40, or 20. And sometimes in parentheses, you'll see Huperzine A 1%. So then you do the calculation. So it works out to be about 400 to 200 micrograms. And that's, that's about the sweet spot like there's no way I would suggest anything above 400 micrograms represent a Ark. Yeah. Huperzine. A, yeah, it just seems like one of those that's like, it's really easy to like overtip real quick, you know. And so I'd rather play conservative with that ingredients, and then extremely, you know, loose like you can with some of the other ones. And I think in alpha brain that was one of the main active ingredients in it, correct? Yes. So when Avi put that together, he did a lot of really hard work,

did a phenomenal job, in his research, working with different, you know, resources, all kinds of input got put into that product, and really, really landed on Huperzine A, really had a lot of belief in it, they really played out for him on the back end, again, Alpha Brain is a, you know, multi ingredient, cognitive performance supplement. So there are a lot of different things playing in concert with one another. But I believe that Huperzine A is one of the main actors of that supplement. Phenomenal stuff. If you haven't tried it, hop on disclaimer, I used to work from don't anymore. So yeah,



yeah, that was the first product I saw that use a pretty hefty dose of Huperzine. A and not super heavy on the caffeine, especially when you consider the time period of when it came out where, you know, the more hardcore stimulant you could make, like, that was just assumed to be better. And in fact, is actually in Alpha Brain and regular Alpha Brain, the OG there is no, to my recollection, there's no caffeine, and I don't think so. Yeah, it is a caffeine free, no tropic. I mean, I recommend it to people. So, yeah, that's what was the time for it. So just so everyone knows that as well, that's always shocking to me, too, especially, you know, obviously can look at a couple of studies that were done, but just in terms of sales, right, because we know, consumers who are buying that type of product are just not going to buy it again, if they don't see some effect from it. And there wasn't like Beta Alanine mean, in there to make him feel twitchy, or, you know, anything like that. So, I've just always found that very interesting. At the end of the day sales don't lie. You know, if, if the thing works, especially in the in the consumer age, everything's one click away. If not, like, Oh, you thought it and all of a sudden, it's in your Amazon cart somehow. Like, if the things don't work, like I said, they don't, they don't live very long. So the fact that that product in particular has not only made enough ways to, you know, continue to produce and no sell for on it, but it was probably one of the things that pulled Unilever towards them. Because they saw a shitload of alpha range. Oh, it's like no joke. I'm pretty sure it's a shit ton. Yeah, literally. Yeah, and that was also I think the, you know, I'm good friends with John Wolfe, and some of the guys there to have just a perfect merging of products and price point. And being new and innovative with perfect timing. And just this image of being one of the cool kids, you got the people that sponsored, you know, like, people who bought into the company early on and Brogan and everything else, it was just like this, this sort of perfect storm of all these things coming together at the same time. Mm hmm. Yeah. Super cool. What do you think the future for supplements are, especially if you look at, I'll say, pre workout areas, and then just in general, the reason I have pre workout separate is because I'm curious what your thoughts are on. The general trend has been, we need more hardcore stimulants. But when we do that, oops, the FDA kind of puts the kibosh on that. So like, how much longer do you play the whack a mole game in that direction? Or do you try to do you know, kind of like what Ana did and kind of steer in a little bit different direction than the main game. Now, I haven't seen anything about this, but there's a company called bucked out and I think a company bucked bucked up Their main thing is deer antler. Actually Oh, no, that's back again. Well, it's in their pre workout. Oh, no, that's what I said. But, you know, it's not for me to judge. They're the ones making it. They also have a whole other line of different different things. But ultimately, yes, they they leaned into the deer antler idea. But ultimately, that pre workout that they have is, I believe it's called woke AAS. And I think it's like 400 milligrams, 450 milligrams of caffeine. Oh, I would like to hope that you know, people start paying attention a little bit more to the research, and more caffeine is not better, especially depending on how you know, you cafe's yourself through the earlier parts of the day, especially now and by body size and what you're doing and everything else. Exactly. Right. So according to body size, right, isn't it? Three milligrams per kilogram? Yeah. For strength and power, right? Your range is going to be

from the literature three to six. Meg's per kg. Yep. Yep. So for the average guy, I would like to think that that 300 milligram is kind of the sweet spot, especially if you're like a hardcore lifter. Obviously, as you get smaller that goes down. As you get bigger, that goes up a little bit. But you know, it's still kind of that game and then put in all the other cool things. Another group that looks into it is redcon. I think they're another to kind of blend redcon one, I think they're a little closer to because that's actually what I use at the current moment, mostly because I've got great deals. Amazon most of the time, they're about in that 303 50 range, I believe. I'd really like to see, bright a lot more with, you know,



I've got nothing against caffeine. Like I said, it's blood of all production, it seems like it's like the perfect ingredient. Yeah, if you think about it, it's like easy to work with, easy to dose. Everybody knows what it is. Yeah, dirt fucking cheap. The only problem is, is that it's bitter. And if you're very bitter, you can just hide and actually it's in a taste test. Caffeine is the baseline, like, for bitter, like, it's the thing that gets tested against actually, but people have almost been skewed even towards bitter things with energy drinks, and how they've been flavored and stuff too. And because it's easier to hide the caffeine, exactly. What you're gonna put in spring break 2020 instead of you know, yeah. Yeah, I would like to see a lot more use of, I'm a big herbals guy. I'm also a big fan of, you know, cardiovascular support through citrulline, and arginine in concert with one another. I'm not a big fan of leaning on one or the other. Personally, when I look for ingredients, I like to find ingredients to support the entirety of the system. So for example, if you want to talk about neural communication, I'd like to see building block for acetylcholine, the thing that pushes acetylcholine and then like, like we talked about Huperzine, a, something that kind of breaks, stops the break on acetylcholine messaging, instead of just the same idea with the combination of arginine and citrulline. For those who don't know anything about nitrogen generation, which is the basal dilator. Right. That's a nitrogen. Now, yeah,



you're talking about nitric oxide, right? Yeah. I was wanting to pause for a minute. I'm like, where's he going with this?



Interesting, let's go, oh, sorry, I kind of got on a roll. But ultimately, you want to see, they play together very nicely. One pathway supports the next pathway, which supports the next pathway. And if you can stimulate or add to both of those pathways, you're going to get a nice, much better in my opinion, you know, response, then just fine. We're just going to put in 12 grams of citrulline. And hope this plays out. Would you add nitrates to that than to? I would definitely so right. So get all three. The problem is if you go back to version actually, no, it's legal right now. It's very hard to put together nitrates with amino acids and stuff like that due to a really? Yes. Oh, yeah. I was wondering about that. Because I kept seeing them separate. And I'm like, I know I'm not doing no I'm not who thought of this. This was like peanut butter and jelly water. Right, right. Why is no one doing this? Oh, one person did it in somehow way back when I don't even know how the patent is. But basically was like yeah, why would you patent amino acids and nitrates? And no one loves like that's that's an obvious, you know,

combination. Why does this get a patent? Like a cornering of like the market and like some super special way that's supposed to be novel and there's a whole attorneys yell at me about all the time. Yeah, this is supposed to be new by fall. So yeah, so it was really like, yeah, that's obvious. And I'm guessing the either the licensing fee is really high or yeah, we'll see. Pursue your ass if you do anything with this. Oh, yeah. There's actually on on YouTube. I have seen some YouTube footage of dude serving people at conferences, think I know who we're talking about, but we'll leave his name out. We're going and I guaranteed that's exactly who it is. Nope. Yeah, cuz I had a similar idea for I won't name the ingredient. But we'll say it had a nitrate attached to it. And yeah, I asked a buddy of mine. And he's like, oh, yeah, I was like, Oh, shit. It's that guy. He's like, yep. And funny enough, like, six months after that, I was doing some. I was supposed to be doing some consulting with this guy was starting a supplement company. I said, Okay, fine. Like, just send me your list of what you're doing. I'll look it over. And, you know, looks like we can help each other than, you know, here's my contract, etc. And I look at it and you know, said ingredient is in there. I'm like, Are you sure you want to use this sec? Oh, yeah, there's that. And I'm like, Do you know anything about the history of this ingredient? Have you gotten a licensing agreement to pay to use it? We looks at me and goes, Nah, fuck that. We just put it in there. Yeah. And I'm like, Okay, that would be probably at least the 10 to \$100,000 mistake. He looks at me and I'm like, go look it up. It's not hard to find. Trust me. It's really not hard to find. Yeah. I wish I was lying to you. Yeah. And I thought at this point, he'd be like, Oh, wow, this guy knows what's going on. And he's like, Oh, whatever. And then he got mad at me. I never got a contract. Yes, yeah. That normally when you tell people that you're wrong. Yeah. I mean, I wouldn't. But I mean. Oh, God, a little bit side note for Colleen, do you like like CDP? Silkolene or Alpha GPC? Or do you have any preference of even like older school versions? I'm a big fan. Acetylcholine. Yeah, me too. There's actually a patented or a name brand, if you will called Cognizant again, I don't think for them. But I'm a huge fan of their brand. They have a lot of good clinical data. And Renshaw has done most of that work. And it's actually impressive. It's like, Whoa, this is actually really good. Yeah. And it's not like a monstrous dose somehow to GPC. I think you got to get closer to a gram. Yeah. Especially for performance, I think. But if you're just trying to lock in, mentally, the Cognizant is very good. And that's how I do a lot of my formulation. And recommendation is how much literature is on blank. Yeah, you know, I want to make sure that, like, if I'm going to invest in this money, I want to really hedge my bets with, you know, a good stack of papers that say, send it instead of like one off shot from, you know, some back lab that, you know, I don't know how I feel about this journal in general.



Yeah. And, again, nice, people will leave their names out. But there's other labs that are known for just supplement research. And again, it doesn't mean that it's all bad. But you have to look and see, you know, who paid for the research? How is the study done. And it's the, the old catch 22 of, hey, if you're manufacturing a supplement, technically, you don't have to do a single damn study. There's no requirement that says you have to do a study on your finished product. So on one hand, and like, I give them kudos for spending the money to do the study, because they're not cheap. Yeah. On the other hand, ah, you can look at the history of different places, and how many things just come out positive all the time. Yeah, I'm like, Ah, maybe it's true. Maybe it's not, but I those are the ones I go over with a very fine tooth comb. Oh, yeah. I mean, that's where our like training and expertise really gives us a leg up. Unfortunately, you know, for the masses, they see the one white paper, a lot of branded ingredients will come into different brands. So branded ingredient, if you look on the back of your supplement facts panel, it'll say like, for example, we're talking about communism, it'll say Cetyl choline, and then in

parentheses, it'll say communism, and then they'll probably have like, its little logo ads or something somewhere on the bottle. KSM Ashwagandha is another big one that a lot of people will see that stuff everywhere. But basically, they'll come in with their white paper, and they'll be like, Oh, look, you know, our study showed blank, and then I'm like, okay, but then to your point, yes, I have a little higher thought and go Again, look at the lab, you know, again, I'm not gonna question grade up question someone's ethics. That's, you know, that's almost unethical in my book. Unless you know, there's true reason the question, yeah. You don't know their ethics. Do you notice patterns over time that makes you go? Hmm, what's going on here? We look closer. Yeah. And that's when you have to go like, Okay, what is this? Like? Is this a multi ingredient performance supplement? If it is like, what are some of the buzz words? You know, like, what are some of the ingredients, look up those ingredients to those ingredients have similar, right, they're not they have the exact same, but similar recordings back towards the claims that they're looking at, and stuff like that. It's also important to know, like, you can read a supplement facts panel, very similar to how you would read a nutrition facts panel, especially for like other ingredients. So like, even in the proprietary blend, the first thing mentioned, has the most of it, right? So if you're it's by weight or something, isn't it or by amount? Yes, by weight, you're absolutely correct, which is also kind of placing, you know, percentage of the formula itself, but ultimately, right, you'd look at it and say, Okay, so this thing has, you know, 300 milligrams of this focus, blend, and the first thing is caffeine, I know that you need, at least, you know, 200 milligrams for performance claim, a physical performance claim of, of caffeine, so there's a good shot, there's 200 milligrams of caffeine in here, at least go look at the research. So suggest is that kind of thing. But know that like, if it's in milligrams, and creatine in that performance blend, you're not going to get That's great to know. So, those kind of ideas, any thoughts on like, some of the newer, I guess, stimulants that are on the market, like tea green, Dinah lean. And I saw that they're doing some work now on pero para Xanthine. Right, so the second downstream metabolite to caffeine, which once I heard that I was running around screaming going, Why did I think of that? I didn't think you could even do this. I thought it had been done and didn't pan out. But I never bothered to ask the question. And so I'm left out. So always ask props to them for doing it.



I'm interested. So right. So the thing that everyone kind of rags on, caffeine about right is the crash, everyone talks about the crash, and how normally like it's a really high peak. And then good luck, depending on how much to write. I do believe in TF train. I believe in it in a different way than a lot of people look at it to train when I put something together, I use it more as a safety net to my caffeine dosing. So basically, between the two, right, we talked about the peak of caffeine we just did. Tia Green has a much lower peak, but has a much longer, you know, sustainability of basically activeness, if you will, so basically how it's absorbed and how it's metabolized in the body is slightly different than caffeine. So it in turn has a slightly different pharmacokinetic response and physiological response to that pharmacological response. If you looked at the literature, so I use it more as like okay, you're going to come down off your caffeine somewhere between you know, depending on again depending on how much you took large Asterix there you know, somewhere in that like three hour you're gonna start to slow down a lot. Like you'll feel it again, right? Because isn't foreign kinetics of caffeine like 30 minutes to an hour? Yeah, peak is 45 minutes and then after that, it's depends on who you fast or slow metabolizer and but right yeah, 234 ish hours, if you want to just ballpark it on average, I would say real scientists on this podcast are just kind of from just 90% Bro, you're good. You're good. Yeah. Anyways, so long outline. So as in theory, as caffeine comes down to Korean is starting to build itself in the body. So I use a little lower dose Now that's not to say that it

doesn't have an efficacious dose that's much higher, I just use it as more of a catch at the bottom for people so they don't get thrown through the ground. And all of a sudden, six o'clock rolls around and they you know, can't make it to bed without another cup of coffee, you know? Yeah. I'm very interested in to screen to screen is slightly older than dynamiq. So both of those are patented ingredients that come from a group called compound solutions. Compound Solutions has a lot of great A lot of great ingredients they do again, I don't get paid by this group either. And they actually tried to do research on their, and said ingredients that if you go to their website, you can actually find a lot of their, you know, scientific methodologies. dynamiq is extremely young when it comes to this type of research. And I believe main one that they got posted so far. Is dining mean, in concert with tea cream and caffeine together. Yeah, that's correct. If I remember right, yeah, I think I just looked at it yesterday. I think it's 125. Meg's of caffeine. And then 75 Meg's of datamine and 50. Grant Meg's of tea cream, I believe. But ultimately, if you'd like he put all those together, that should be a much lower dose than the 300. That's lower than the normal 300 dose that I was talking about earlier. So I believe that study showed some significant improvements with gamers. And I think it was an EDM or study if I remember, right, yeah. Yeah. And so how they cognitively focused and perform better in some, some realm or the other. I'm interested. Kathleen's gonna become like, I don't know, it's too easily accessible. Like you said, It's dirt cheap. You drink like coffee, right? Yeah. He's very, extremely easily accessible. So like those two, I like them. I like him as a novel ingredient. I want to see some more physical performance, you know, research on the, I'd like to see some more like, I'm a big fan of like, how much do you actually need? You know, I don't, I hate two things. I hate groups that overdose. And when I say overdose, I mean, either do something astronomical, like one and a half times the clinical dose of whatever ingredient just to make sure that it really bangs, no pun intended with bank by the way. And, or they just throw anything and everything that has some sort of like claim. So for example, there's a couple groups that will I call it the kitchen sink, kitchen sink, yeah, just every ingredient that could possibly insert blank, or put it in these pills. Oh, side note, he has to take nine pills.



Right. So it's just like, for more, it's like a protein 25 grams scoop that goes into the ship that for the whatever, because it's so many different ingredients, and they got a flavor. And on top of that, I'm staunchly against it. So ultimately, I would like to see what these two ingredients again, very exciting pulmonary research. But I would like to see like how much do you actually need is there, you know, a relative amount that we could really start to point to for both of these two ingredients. But right now, I mean, a new ingredients, new ingredient, right? So you can just leave, there's not enough research on it. Well, it could be pretty novel, in general. So that's where I like to hash my bets. And where a lot of groups, a lot of smart groups hash their bets. So they may have, for example, Dinah mean in there, but they may also with their claim had the claim supported by, you know, caffeine or something along that line. Yeah. So in turn, when Dynein turns out to be like, the new, latest, greatest thing, that group can turn around and say, you know, hey, we were using this first. You know, trust us, we're the dime, we're the we're the dynamiq group, you know, or something along that line. So, when I formulate for groups, I will, you know, I'm very open to novel research, I'm very open to new research, I think it's one of the most important, you know, characteristics of scientists, if something shows totally cool, like, I'm totally down, I need a little more research to really like support that. So I'm going to give another ingredient to support that new and upcoming ingredient for my new product that I'm putting out. So like, like I said, Dinah mean would definitely pair with caffeine as it's been shown to in that clinical study that they ran. I like the Kaiser compound solutions. So I've done some stuff with them in the past, they've always been super good and just

companies that are doing new and novel, like raw ingredients, it's just a hard place to begin. I don't think people understand how expensive it is to get just a new raw material to the market and have you know, research supporting it, etc. I agree. I got a bunch of samples of tea a cream early from them and from some of the guys to help develop it and I don't know I took a shit ton and nothing happened. But that could just be me. And that's just a complete and of one. So I think like you mentioned in combination to me makes a lot more sense a little bit I know about it, and then as you mentioned to from a formulating step endpoints, you're stuck between this rock and a hard place of your incentive is to have something new to have something novel makes you different from everybody else, which everyone is trying to do. But yet it still has to work at the same time, you've got to back up the claims that you have, you're kind of always going to ride in this edge of like, I think that's the art. Right? Yeah, just the right mix of all of those because other people will go batshit crazy and everything that's brand new with like, no support, zero support, I wouldn't do that. And the other thing too, especially as you as right, it's always the race of you know, the newest, latest and greatest. The other part that a lot of people don't think about is you have to educate your consumer. Yes. On what that ingredient is what it does. I mean, especially in the supplement world, it's it's been a pretty hard uphill battle for simpleness ever since I would argue that the 90s, right. A lot of bad actors in the front. Oh, yeah. And then all of a sudden, you know, supplements are bad. You know, you got the snake oil salesmen from all the way back in the seven, seven hundreds, just the federal being illegal, I think, kind of tarnished a lot of the supplement industry, I think and Yeah, that wasn't even necessarily a supplement industry. And, you know, as you know, if you look at a lot of the research on it, I mean, shit. The one study I think, was sponsored author, I think his name was boozer sponsored by NIH, show that ephedra within normal amounts over think eight to 12 Weeks was actually pretty safe. Yeah, but, you know, none of that mattered. It was just like, oh, this happened. Oh, we're gonna pull this now. Oh, look at all those evil supplement companies. How dare they write for public opinions? always the hardest? Right? Matter? What, that's the answer. Yeah, that's definitely one that really sparked sparked the big, you know, questions like, How can you even suggest supplements and I'm like, well, the same way that you guys suggest pharmaceuticals, but that's,



you know, how they're made, you know, crazy person, God. So we have to educate our consumer, and that takes time that takes money that takes marketing dollars. So it's a game where you kind of got to be like, well, trust us, you know, do you trust insert, you know, known ingredient. But look, you know, look over here, you know, this brand new, nuanced ingredient, we believe that this is how it's going to support this system that we put together. And, you know, try it, give it a try. And hopefully it works out for everybody and it may flop. There's the potential, right? You put too many stimulants together. And it's a curve in psychology, but stands pretty strong across the entirety of physiology. It's that stimulation curve. So basically, as you psych yourself up, there's arousal. Yeah, the arousal, that's it. Yeah. So as you have more arousal, you have an increase in performance. And then ultimately, there's a breaking point where too much arousal will ultimately diminish your returns and actually hurt your performance. And that's, again, that's shown in that caffeine curve, that's out. But we came to the conclusion of that. Three to six. Meg's of caffeine per kilogram. That's another question. So how do you make a claim on with, you know, this multi ingredient, blank supplement, when you don't know if you overdid it? Now, all of a sudden, I like this thing that work, but it's worse, like it makes it worse. You know, those are the weird, know, kind of nuances of new, but you don't want to be the last person on while there's like 85 Now there's 85 papers that show that, you know, X supplement works, but yeah, we all knew that a long time ago. Why? Why are you just

now creating a blank supplement? So you use your hemming HCl or yohimbine, like both or the HCl version at all? I have had prescribed it for a few individuals I know. And pretty I'm pretty cautious with it. To be honest. I've kind of fallen out of favor. It seems to have I think it's because a lot of people just have like a weird response to it. Like yeah, a lot of sweats a lot of people that have really talked to them like look, here's some research I'm going to dose you based on this research, but you know, just be hyper aware that as you take this, like what's going on in your body, you know, obviously I'm a much bigger fan of you know, diet intervention and those types of more oldie but goodie routes, but sure. Now, there's always someone you know, who's like, just give me the fat burner. And I'm like, Yeah, all right. I don't think you like yes, I know. It says fat burner on it, but it doesn't do it the way you think it does. Yeah. And to like, if you feel it, you're gonna feel it like there's no Like, small dose where you just you know, all of a sudden you're happy go lucky and your fat cells are just slowly melting away. It's, it's a full body attacks that you're gonna feel 100% out. Yeah, I have this theory that I can't prove and I have zero data of it that the herbs might have been bad or not produced correctly and that there's an alkaloid in there that was responsible for more of the side effects, the more pure HCL version. Again, this is completely anecdotal, doesn't seem to have all the weirdos side effects that people were reporting for quite a while. And it appears to be a pretty strong stimulant. And I've talked to some other guys about this too, that when you've added it in with a little bit of caffeine, that aggression tends to go up a little bit. But this theory of if you could get passed and do more testing with that, and caffeine and you know, like an Alpha GPC or CVP. And particularly, only we're marketing it to like, aggressive weightlifters like that would be interesting to see what the results were. Or maybe it backfires, like you said, and everybody has weird nasty side effects is a horrible idea. I will do a rat study first. Do those rats find each other right? New weightlifting rat study first. The weightlifting rat study,



the D'Urville, that thing made me laugh too, was maybe eight years ago at ISSN. There was a company and I would actually tell you, everyone the name of it, but I can't even remember who they were to be honest, I think they went out of business. But their big claim to fame was I'm staying at their booth. And this is deer velvet. And this was for, I think testosterone and GH boosting at the time. And so I'm asking, I'm talking to the guy and I'm like, oh, go up. And listen, this guy spiel, who knows? Right? So sometimes, the wackiest should have ever seen as like, oh, some of that actually works like literature on it, you know? And so I said, Hey, you know, tell me about what this is. And he goes into this 20 minute story about how they raised the deer and where they have them and how the, they farm the antlers from them and all this stuff, and how it's amazing for growth hormone and everything else. And the guy was standing next to me was just kind of listening. We walk away from the booth. And the researcher guy goes, Yeah, we tested his stuff, like 10 times the dose in our lab. Didn't do Dick did like nothing. And I was like, really? I'm like, he's like, Yeah, I'm like, well, it's not really that surprising. Even crazier thing was, I'm flipping through the bodybuilding magazines a couple of months later, I see an ad for said deer antler velvet company with said researcher below it saying was tested in the lab by this guy, who told me in private that didn't do anything. Now the evidence say that he tested it and found a positive result. It just said it was tested. We tested it had derailer. I'm like, Oh, wow, that's crazy on so many levels. But I mean, you paid for the study. So you gotta use some sort of, right. And I think what happened was probably that the guy comes back goes, Hey, this didn't do anything. And, you know, maybe he illegally posted this photo. Who knows what the hell happened? I don't I never heard what happened. But yeah. Cool. Last question. As we wrap up. What are your thoughts about lactate as a supplement? Not lactic acid, right? Because we know lactate gets distributed into lactate plus hydrogen ions. Right. But

could you give lactate as an oral supplement to enhance performance? I actually just saw something. Someone was talking about it just recently, and I hadn't clicked on it, because I hadn't really thought about it. That in depth. So I hate to really drop you right, but I can't really speak to it that much. Okay, that's all right. At the moment, but yeah, I mean, again, it's something that has come across my desk, someone has no talent in some way, shape, or form. I just haven't gotten into it. Yet. People People are still starting, are starting to make that a thing. So you're not completely off base by asking. Good. This has been my thing for like five years now. So probably longer than that, like for a while was like, you know, people I just knew in private, I'm like, Hey, man, what do you think of this? And, you know, I kind of thought maybe there's some become a bit you know, do a product together, whatever. And they're all like, now, like, only three people didn't tell me I was batshit crazy. And I'm like, huh, everyone else like nah, it's crazy. I'm like, but you don't have the hydrogen ions like the lactate. We know. Brooks's work. All this stuff like gets burned as a high energy fuel. Yeah, appears to get across the guy. Now. Could you get a high enough dose to not have GI issues or does it actually pan out? I don't know. Like the handful of studies on it are pretty split and not super promising. But they did weird stuff like longer aerobics stuff and some of the stuff that just doesn't seem to match with the mechanism. I'm always curious because I'm, I'm starting to see a couple of products now with it in there. Yeah, because the dose they have is so tiny. It's like, I kudos for maybe putting it in there. But I made it a search term. You didn't make it an active ingredient, right. And I think the patent from cytosport is up on it, too. So I think as far as I can tell, again, I'm not a patent attorney are very good at these searches. They had a patent on it for quite a while. And it was in some of the early products like not in a high amount. But I think the patent on it has expired. So as a raw material, it's pretty inexpensive, like calcium lactate, you can get the lactate is a pretty high portion and not really that expensive. So at this point, I'm giving it out free to everyone just because I want to know, does it work or not? Yeah, just if I'm gonna do it, I don't even care. I would run the experiment. Like if it works great.



I want to use it. If it doesn't, you know, I'll count it. I'll put it all over. Right. All right. Well, thank you so much for all your time. I really appreciate it. And if you want to be found, you want to give out any information that people are running supplement companies or looking for formulas, or, I don't know if you do any side work now or go forth. I'll rewind I do. I'm terrible with the website is under construction, as as it always seems to be. But guess if someone wants to hit me up, my email is as easy as Vince at KTRC as in crappy research and consulting. K ARCA. google.com. So events dot k rc@google.com. But outside of that, I think I'm on Instagram. I haven't checked that either have been extremely busy with some other other endeavors. But yeah, no, I'm I love talking this stuff. Obviously, we could talk for hours on end about each individual ingredient. Oh, yeah. I love it. So I greatly appreciate this time. Dr. Mike is was so much fun. We definitely broke up my Friday. So thank you so much. Oh, thank you, Dr. Vince. I appreciate it. And I always like one selfish manner, like bringing all my hairball ideas, criss cross people who actually worked full time in the industry doing it, which is nice to get feedback and then to like, you know, for consumers, you know, what are things to look for? What are kind of the trends, because I think the more educated they are, is just going to help everyone. And my hope is that it'll just weed out all the really crappy companies, and they'll go away and start giving everyone else like a black eye from association of it. Because my pet peeve of teaching nutrition students is, and it never fails. Like it always comes up. Supplements are unregulated. They're horrible. They're evil, and, unfortunately, don't have to look too far to the past near future to find examples. And so like, I get why they come up with those reasons. And hopefully, we can kind of change that and it goes forward in a better fashion. I just

remember Blue Bell Ice Cream killed a good amount of people at 1.0. Really? Oh, I think it was like a food poisoning listeria thing. But, you know, people always do point to, you know, supplements and how evil they are and how they're not regulated and all this stuff. And I'm like, Well, okay, at first, that's not true. But also food examples. There's a couple right now. I do like Blue Bell Ice Cream. I do eat it stated like last week. But yeah, so unfortunately, bad things happen. Even in regulated areas, you know, people get hurt in some way, shape or form. So, yeah, don't just point to one, one example and call it the the rule. It's probably the exception. That doesn't Yeah. Well, that gets into a whole side discussion. Maybe we can have it another time over beer is what things are legal, what things are not legal, and over what rationale, right. I mean, Tylenol kills how many 1000s of people a year do liver failure, you know, and that's, that's an approved over the counter drug. I'm not saying we should make it illegal. But it's just fascinating how it's not always based on data. It's based on, you know, perception of what was actually going on. And if your supplements, let's say has a jaded history, it just sort of adds to that story that people already have in their heads. So it's Yeah, yep. I totally agree. It's just changing the narrative a little bit. Yeah. Awesome. Well, thank you so much for your time. I really appreciate it.



Thanks again. I hope someone learned something I know I always do. And I talked to you. So yeah, it was a lot of fun. Cool. Thank you very much. Absolutely. Thank you so much for listening to the podcast today. Really appreciate it. Huge thanks to Dr. Vince for coming on and being so open. With all his information, really enjoyed our conversation, I got to go super geeky and ask him all my questions and compare notes, which was awesome. So big thanks to him. If you're looking for any detailed sports supplement work, as we mentioned at the end, he is available for consults, so make sure to check him out. I still do some stuff in that realm, but it's usually only on a referral basis. So check him out. Flex diet CERT is going to be open once again, January 2022. Best place to get all the information is to get on the waitlist. So go to flex, diet calm, FL dx and di t.com You'll be the first to be notified and typically have a fast action bonus only for people through the newsletter. So check that out. Super excited to open it up. Again. This will allow you to get a head start on your or your clients body composition and performance goals for 2022. The way I have it set up is you can literally complete the first intervention, which will take you probably about three to five hours maybe if you include all the expert interviews, first intervention is protein. So I have a chat with Dr. Stu Phillips and Dr. Jose Antonio, I give you a rundown of the big picture of metabolic flexibility, and flexible dieting, I have about a one hour primer on all things that you need to know about protein, muscle protein synthesis amino acids, but we explained it all in terms you can understand. And then I have five detailed action items for you and tell you how to use them as a system. You can literally start with the first intervention, after about four to maybe five hours of work depending on how comfortable you are with the material. So set up in a way that you can work with clients or yourself as you go through it. There's no need to complete all 23 hours of content before you start. Again, some people may want to do that. And that's totally up to them. So go to flex diet.com for all the info. Thank you so much again for listening to the podcast. I would really help us out by hitting the subscribe button on whatever podcast player you're using. Leave us a review our many stars you feel as appropriate and any and all feedback again greatly appreciated. Thank you so much. Talk to you next week.