

# Dr. Dwayne Jackson

[00:00:00] **Dr Mike T Nelson:** Welcome back to the Flex A Diet podcast. I'm your host, Dr. Mike T. Nelson. On this podcast, we talk all about things to increase lean body mass performance and improve body composition, all without destroying your health in a flexible framework. Today in the podcast, we've got a topic that is kind of related to that.

[00:00:22] It's the topic of neuroprotection. And we've got my good friend, Dr. Dwayne Jackson on here. And we compare notes about things that can help neuroprotection. For this one, we stayed more on the nutrition and supplement side. And we purposely didn't compare any notes before the podcast. And so I was curious to see if we kind of agree on the same compounds and methods.

[00:00:50] So we've got a good chat on that. Make sure to check out all his wonderful stuff. His Instagram and his... website and certification. We'll put all that information into the show notes. So you'll be able to get to it. And if you enjoyed this podcast, make sure to go to [MikeTNelson.com](http://MikeTNelson.com) forward slash podcast.

[00:01:13] And there you can get all the latest podcasts I've been on, guest episodes, and also onto the newsletter. The newsletter is where I send out probably 90 percent of the content and it's completely free to sign up. I work to try to make them educational and yet entertaining at the same time. So go to [MikeTNelson.com/](http://MikeTNelson.com/) Forward slash podcast and enjoy the podcast today on neuroprotection with my buddy, Dr. Dwayne Jackson.

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[00:01:48] **Dr Dwayne Jackson:** So like fighting sports, hockey contact sports in general, mountain biking, downhill mountain biking motocross like sports that I've basically been involved in. Yeah. There you go. A lot of times we don't think about the state of our body before we go into the sport.

[00:02:07] And so I really try to promote this nutritional helmet. Because the whole idea I mean, concussion it's a complicated progression into CTE chronic traumatic encephalopathy, encephalopathy, but it's actually pretty, it's pretty simple when you actually look at the data on inflammation and the impact of said inflammation on the progression of concussion.

[00:02:30] Because when you look at people who've had concussive injury, there's a whole array of outcomes. So I've had 13 clinical concussions, like ones that have been documented with my memories of the broken bones that I had. That's crazy. Yeah. And now there may be people that argue, but my brain feels like it's working pretty good.

[00:02:51] And I actually never ever experienced any of this any of the post concussive symptoms that a lot of people experience these days. And so I, I really dug into it. My wife used to say it's cause I have a thick skull. There's like this thick skull theory. It's

[00:03:04] **Dr Mike T Nelson:** protective.

[00:03:05] **Dr Dwayne Jackson:** Oh, it's another helmet, right?

[00:03:06] Yeah. But so I've kind of gone down the route of, inflammatory, gut health issues and inflammatory issues are becoming more and more prevalent in younger and younger people nowadays, likely due to, a number of different impacts on, our inflammatory system through poor gut health, different medications.

[00:03:25] Lack of exercise, lack of just being a kid and being outside, lack of eating proper foods, a lot of macronutrient dense foods that aren't micronutrient dense. And what you find when you look at the literature is that it's the the inflammatory issues that exist after a concussion.

[00:03:45] That actually will drive from just a, a regular run of the mill concussive injury with a contusion through to brain damage, if you will. And it's the, it's that whole microglia and macrophage transitions from M2 to M1 that seem to drive the progression of A normal, like I said, run of the mill, get knocked out, you wake up in 10 seconds and say Oh, where am I through to, post traumatic or sorry, post concussive big issues down the road where we're dealing with, personality disorders and motivation disorders, depressive symptoms, all these kinds of things.

[00:04:21] So my focus has really been on, when you're going into the game, make sure you're going to the game in the least inflammatory state you can be in. And there are a lot of data showing that, on the the first impact of a concussion followed by if there's a secondary impact within, a small period of time that really drives that progression.

[00:04:42] **Dr Mike T Nelson:** Yeah. The secondary impact can be, appear to be extremely minor too, which is what I don't think people

[00:04:47] **Dr Dwayne Jackson:** realize. And it's a hundred percent. Yeah. And and I know people this has happened to, and I thought I had my head banged around all the time. These people can't even work anymore.

[00:04:55] **Dr Mike T Nelson:** Oh yeah. It can be extremely debilitating.

[00:04:58] **Dr Dwayne Jackson:** Yeah. And so one of the neat things that there's a cool paper and it's in the journal of Alzheimer's disorders. It's a, it's an inflammation and traumatic brain injury paper. It's a review. And one of the things they talk about, which is really neat because I didn't know anybody else was kind of thinking this way, was that the second hit doesn't have to be a concussion or a brain hit.

[00:05:20] Yeah. It can be allergy sensitization. It can be so anything that increases the inflammatory response, an acute infection or chronic infection. Autoimmune disorders, all those things can actually result in the second hit kind of effect where we go from having, just banging our head. Get woke up and they ask you, where you're at, what's your birthday, what day is it through to actually, chronic symptoms that are fully debilitating.

[00:05:48] So my, my the main thing I've been really trying to promote is, if we're going to go into these sports that we know it's inevitable that we're going to get our bell rung, then it's really important to go into those supplementation.

[00:06:02] And try to control, everything from neuroinflammation, keep it as low as you possibly can to brain blood flow. We want to keep that up. And also we want to make sure that we're promoting neuro neuronal growth throughout our life. So there's a whole bunch of ways that we can do that through obviously nutrition and some really cool supplementation.

[00:06:20] That's, and I think that's where, things like CBD, which you've talked about before. CBD for, it's effects on decreasing immunity as immunosuppressant works really well for keeping inflammation level

[00:06:31] **Dr Mike T Nelson:** pretty high doses though.

[00:06:33] **Dr Dwayne Jackson:** 100%. That's where the cost prohibitive effect CBD.

[00:06:37] Yeah. And I found, I've used a number of those different, I've used I've used psilocybin as a microdosing supplement, I guess you could call it these days for my concussive symptoms. I have a few concussive symptoms post concussive symptoms where I, if I walk on a treadmill and close my eyes, it feels like I'm if I if I do those, those laser these laser tracing things that you do, you can do it.

[00:06:58] Some of these places, these concussive places where things, I definitely have some left brain, right brain dissociation and but I never, ever, I never ever noticed these things. And I think it's literally because I'm constantly focused on, neuro inflammation and trying to keep it down as possible, as much as

[00:07:11] **Dr Mike T Nelson:** possible.

[00:07:12] Yeah. I agree with that. So down the route of neuroinflammation, like we mentioned CBD, so we can dig into that a little bit more, but what kind of doses are you thinking and would you need to do it for longer periods of time before, and then before we get to that, I guess the better question is for better nutrition, which could be very widely, what would some things you'd be looking at in the nutrition realm before we get into supplements, because people hear better nutrition and that could be Oh, I had one less Twinkie today or, Oh man I'm never, touching anything that's ultra processed, it's a one extreme to the next.

[00:07:50] **Dr Dwayne Jackson:** Yeah. I read through to a, a full meat carnivore diet or, yeah, totally. The best. Yeah. Yeah. So a low inflammation diet. So I'm a big promoter of, the Mediterranean diet, with A little more protein in it than what they recommend, in that diet, but the constituents of, a Mediterranean side style diet with, high levels of polyunsaturated monounsaturated fats relatively low saturated fat intake and moderate protein intake, which you can vary with your needs with whatever sport it is that you're involved in or whatever.

[00:08:19] And then high fiber intake and high vegetable intake to support that fiber intake. So not so much fiber supplements, but rather getting, all those phytonutritional benefits from eating a really high quality vegetable diet. That's, got something on the order of 40 grams of fiber per day with quite a bit of soluble fiber, maybe a three to one ratio of soluble to insoluble fiber, mainly because then we can protect that gut health.

[00:08:43] Cause I believe in, in, in my practice that the canary in the coal mine really for where someone sits with inflammatory status is where does their gut health sit? There's very few people that walk around hyper inflamed all the time that can profess that they have excellent digestion and excellent gut health.

[00:09:01] So it's. I think really, we're only getting into the very, very infantile years of understanding gut health and its impact and all these things, but we do know that we can lower inflammation quite well by following a diet that's, balanced and has, a good level of those, poly and monounsaturated fatty acids with a complement of high quality fibers.

[00:09:23] And then obviously some bacterial components that we can, keep the, keep those microbiota happy in the large intestine. To me, that's the baseline. That's that that's the very, very fundamental of inflammation to me is keeping it, under control with the diet. There's a number of diets that people enjoy because of other benefits, maybe the benefits of aesthetics on, eating, a carnivore diet, for example the benefits of high protein on muscle building, that's obvious.

[00:09:51] But the problem and I guess the benefits of, ketogenic diet for regulating blood glucose and these kinds of things, but at the end of the day, when we are, when we start eliminating the different components of the diet, we really start eliminating the variety in our diet, which then eliminates, or at least reduces the variety of the bacterial species and the density of those bacterial species in the large intestine.

[00:10:13] And then we can't take advantage of all those great effects that we get from, having a really healthy poop shoot, if you will.

[00:10:20] **Dr Mike T Nelson:** Do you look at one of the things I do is just roughly analysis I've done in the flex diet search is if you don't have any fancy software and you're old enough like I am, or you probably had to pay for the CD ROM that was like 1, 800 to do old school, like dietary analysis.

[00:10:36] And I sound like I'm some dinosaur now, but. Yeah, so luckily I only had to pay for it once when I wasn't in college, but now you can put them in a chronometer or whatever, but any thoughts about one thing I've done is just look at the colors of vegetables and fruits, and so I'm trying to look for yeah, you should have some reds and purples and that kind of group of berries and anthocyanides.

[00:11:00] And then you should have some, kind of yellows and, kind of your orange and. Greens for magnesium, so I usually just tell people just kind of look at how many colors do you have and don't count the, colored M& M's or skittles or whatever and you've got a pretty good variety.

[00:11:17] I would say you're probably pretty decent on micronutrition. Obviously, you can go super far down that rabbit hole in more detail, but

[00:11:26] **Dr Dwayne Jackson:** you're bang on buddy. And that's exactly we don't really need to track our micronutrition. If we're eating an abundance of colors, and that's really those polyphenolic compounds you're talking about that require so the different polyphenols have different colors and what's really cool is those thin skin berries and thin skinned fruits that grow because their leaves have to take up that sun for photosynthesis.

[00:11:51] Those suckers are sitting in the sun too. And so they're very high quality antioxidants that stop from all that reactive oxygen species and whatever the sun's going to do to that berries or fruit or vegetable. So the color thing is really neat because that's been promoted, like my mom promoted the SEVs and I might've mentioned this in our last talk, but really, I just get people to eat like my mom made me in my younger years. And my concussive symptoms are very minimal for what I've had. And if my hypothesis stands correct, and it's funny. Yeah. Because that's the main thing I go through people's diets. Cause there's a lot of green, a lot of people eat green, but very few people balance it out with some red and some orange, some yellow.

[00:12:31] And, or purples or any of those kinds of things. And so it's, honestly, that's the two fundamentals that I could give to anybody that if you don't want to, track or do anything else is eat whole foods and eat a variety of them. And by a variety, if you're wondering what a variety means, it should be a lot of colors.

[00:12:50] And that's, yeah that's probably that's probably the biggest thing that I do in my job is add color and and variety to people's

[00:12:56] **Dr Mike T Nelson:** diets. Yeah, I've even got this. I think I might have got this from my buddy Adam Glass. We call it the grocery store field trip, where I go to the grocery store.

[00:13:05] This is for people who like really just hate variety. They're like, Ah, I've eaten these same 12 foods for my whole life. Or, like you've been around

the bodybuilding scene. You have to have tilapia and broccoli and that's like the best thing and all this crazy stuff. I'm like, just go to the store.

[00:13:19] Stay on the outside of the aisles, and your goal is to buy at least one or two things that you have not had within one to two years, ideally ever. I'm like, oh, what do I get? I'm like, I don't care. You can try kombucha, you can try a new vegetable, you can try a new fruit, nuts even, don't care. Just, for God's sake, get some variety.

[00:13:42] And they're always like what do I get? I'm like, just walk around the store and look and go I think that's good and spend the money and buy it. Worst case scenario, you find you didn't like it, okay, go back and try something else next. Just to try it. And it's funny, every time people do this, they're like, Oh, there's all sorts of stuff at the grocery store I've never eaten before.

[00:14:02] I'm like... Yeah.

[00:14:05] **Dr Dwayne Jackson:** It's brilliant. It's brilliant. It's, that's a great approach. Yeah, I usually tell people like, go around the outsides of the aisles and, pick these things and here's some replacements, but that's a really nice approach to tell them like, yeah, grab some stuff that you haven't had in a while.

[00:14:16] Maybe you've never had it. And it's funny because I do a little bit different way, but and kind of an implicit way of doing that is I tell people, if you have a CSA, have one of these these boxes of local sourced foods that you get usually in the summer, ours go here from like May to October, and they send you the vegetable box and you can order other stuff on those sites and it's usually relatively organic and, local dairy and that kind of thing.

[00:14:39] But the boxes are really neat because they're seasonal and you end up getting stuff that

[00:14:46] **Dr Mike T Nelson:** you don't even know what it is. Oh yeah.

[00:14:46] **Dr Dwayne Jackson:** Like fennel and all these things. And because you bought the box. You tend to actually get creative and work with it. And even in my and I'm, I've always been big on nutrition.

[00:14:57] I've always, I just love food, right? So I love variety, but I've noticed and I said to my wife this year, I said, it's funny. First of all, it's actually more budget conscious to actually eat these good foods when you get them from these local things, because most of them are kind of almost not for profit y.

[00:15:11] People think they're gonna get expensive, but they actually aren't. We're looking at 49 bucks a week for a massive box of vegetables for our family. Yeah. That's not bad. It's pretty darn good. And the cool thing about it is it gives you varieties of fruits and vegetables and things that like.

[00:15:25] A lot of people would say, Oh, I can't eat that. I shouldn't be eating these fruits. Oh, peaches are horrible and

[00:15:31] **Dr Mike T Nelson:** it's so weird. That's your problem. You ate too many damn peaches. Has that ever been an issue? If you go on, if

[00:15:37] **Dr Dwayne Jackson:** you go on Instagram and whatnot, people saying that fruit's the reason why we have a diabetes problem in the world.

[00:15:43] Yeah. And I would say actually it's a lie. It's probably a lack of fruit. Yeah. But it's neat because you end up like, I wouldn't normally go out and buy like peaches, plums, grapes. Right now we have raspberries, blackberries that grow around our property all the time. So I get those all the time.

[00:15:59] I wouldn't normally buy that variety of those things, but because I have them cherries, I have all these things in my fridge. I've been eating these like for the whole summer. And I'll tell you right now, my body composition has changed for the better by just by, and I, and we consider ourselves experts in this area, but this is a forced variety.

[00:16:18] Thank you. And with that variety comes, like you said, the variety of the different phytonutrients that are going to help us with inflammation. They're going to help us with, gut health. They're going to give us fiber. We're going to have antioxidants. All those things are encompassed into one thing.

[00:16:34] And that's what I love about whole foods and their effects on, talking about concussion, the all these things is that when we eat a variety of diet, we have good digestion and we're eating whole foods. A lot of times you don't have to worry about inflammation and whatnot. And so many people come to me because all the supplement stuff that I do and say to me, listen, I, I've, I know I have really bad inflammation, so is there any chance you could point me in the direction of a supplement?

[00:17:01] And a lot of times I'll say, can you just throw me your diet real quick? Yeah. And it's



[00:17:06] **Dr Mike T Nelson:** whoa, no wonder. So yeah, that was one of the, I think it was a Paul check quote. He's supplements, think of them. If you're building a boat are kind of like the gold nails. And if you've got really shitty wood, which is your baseline nutrition, they're not going to help you at all.

[00:17:23] I thought that was a good analogy.

[00:17:25] **Dr Dwayne Jackson:** Absolutely. Yeah. And then that's about how it works. Is that, Supplementation fills in holes and in a lot of times, even with a diet we may not see the high enough levels of say iron or high enough levels of B12 even in my case, this is one so I needed, I need to take a betaine supplement so that I can Basically activate intrinsic factor and whatnot to get B12 to to absorb and and that's because of the medication I'm on for my kidney transplant.

[00:17:51] Oh, sure. No clue. Cause I mean, most people with B12 just from the meat eating alone are like 3000%. Yeah. Yeah. Daily needs are. There's some great some great stuff that you can do with supplements, but really if you don't have the, if you don't have the, like you said, the the good wood and those gold nails aren't going to do

[00:18:08] **Dr Mike T Nelson:** shit for you.

[00:18:10] Yeah. The other one I heard those things from my buddy Craig Keaton years ago, and it was pretty good. He's if you look at the analysis of just the average person who's kind of into, training and buy supplements, he's for the most part, they would do better of exchanging at least. 80 percent of the money they spend on supplements and just buy better quality food or more food.

[00:18:31] Cause you look at all the crazy stuff people spend money on that there's almost like no data on. And again, you're probably similar to me, I'm like, I'm fine with people doing that as long as you know what the downside is. We're not really sure what the upside is, your baseline nutrition, everything else is in place.

[00:18:44] Eh, you wanna try something new and crazy? Cool. Go for it. But it just seems like people are expecting that's the basic and they're missing out on all the basics and they're just trying to get too fancy too soon.

[00:18:59] **Dr Dwayne Jackson:** Absolutely. And it's funny because I'm partially guilty for perpetuating that, my younger years cause with being a bodybuilder, it was kind of the name of the game, right?

[00:19:07] Pills and powders were what you thought were the thing, but you know, funny enough. I didn't use a supplement for like only supplement ever uses a protein supplement, but I couldn't really afford them back in the nineties. Yeah. My parents paid for my food, but they wouldn't pay for my my supplements.

[00:19:23] Ah. And my biggest years of growth and health and success in pro sport and everything else were in those years of whole food diets. And it wasn't until actually I was, on my own, finished my PhD and everything else. And I started buying supplements and the only supplement rate now that I would say if you don't have a, if you haven't focused a hundred percent on getting the best food for your diet, only supplement, I would say that you could benefit really well from if you can't afford good meat is a good whey protein supplement, just because, it's a little cheaper per pound, pound for pound compared to meat.

[00:19:57] But you're right. There's a lot of people that come to me with. Like laundry list of supplements you're taking currently, and you start looking at the crossover between them and you're like, man, you're taking like, 150 milligrams of zinc a day.

[00:20:11] **Dr Mike T Nelson:** Oh yeah. You guys are notorious for

[00:20:13] **Dr Dwayne Jackson:** that.

[00:20:14] It's terrible. Even companies within, like within companies, ones that I've been associated with recently. They. They don't even think about when they're formulating, a sleep

[00:20:22] **Dr Mike T Nelson:** schedule. No, they formulate them all as singular. Exactly.

[00:20:24] **Dr Dwayne Jackson:** What the hell is this, right? Really, you can muck yourself up.

[00:20:28] And the other thing is herbs, and I'm sure you've seen this. You get these people that are like, I am like, They come to you with like blood work, MRI scans, colonoscopy, endoscopies, all this stuff and then they give you a laundry list of their their supplements, a lot of herbs and then you look at their liver enzymes and their liver enzymes are all mucked up.

[00:20:51] They'll say, I don't know what's going on with my liver. I don't drink. And then you're like. You're taxing this crap out of that thing with all those

herbs that is trying to deal with that change enzymatic control, it changed everything in your, in, in how your liver processes stuff.

[00:21:08] So you know, at the end of the day, it's that whole food background is the, it is the fundamental and it gives us a job because it's really what people don't follow.

[00:21:19] **Dr Mike T Nelson:** Yeah, and herbals, unfortunately, as are notorious for very poor quality control and I've known when usually the testosterone boosting herbals became popular, like it circles and I remember one of them, that was a fat loss one, it's about eight, 10 years ago, it got super popular, didn't have much data on it.

[00:21:39] And. I knew the raw material suppliers, and I knew that they were literally out, like to get legit material, you could not find it because it was a rare herb, it got real popular, supply didn't meet demand for many years, blah, blah, blah. But there was companies who were selling these things for years after, and I knew they were selling significant volumes, I saw some of their numbers, and I'm like thinking, What the hell are you putting in there?

[00:22:05] Like, where are you getting this from? Unless you had some secret supply you stocked up on or something. I don't know. It's just...

[00:22:12] **Dr Dwayne Jackson:** Absolutely. Yeah, and that happens common. That's very common. Yeah. Yeah. So it's... Yeah, so I mean, and it's funny too because when we're talking about, going back to concussion, in a lot of cases and I've seen this more and more lately when parents come to me with, children ages 12 to 18 they're usually asking me for what supplements can I get my son to perform better or to, reduce the chances that they're going to get a concussion or reduce this and that.

[00:22:42] And it's funny because if you look at the diets of these kids, especially like in. And no offense to the hockey realm, but hockey has, still has that kind of old school, beer and pizza thing going on. Yeah. Yeah. And it's funny because the diet, the diets that, a lot of these, a lot of these hockey players that suffered cause of severe CTE, like the John Cortex and all these kinds of guys the old enforcers these guys were beer drinking, bar brawlers.

[00:23:09] And their life, their lifestyle was like that. They just happened to be, okay or decent at hockey, really good at fighting on a pair of blades. And and when you look at that and you look at other people that have had concussive

injury that don't end up in a, a state where they're actually, fighting the police in an unconscious, rage from concussion.

[00:23:29] It's pretty interesting because you, if you start digging into it, the lifestyle factors play a big role. And I really think that, as soon as your lifestyle goes sideways, inflammation goes up. It's just, yeah, just the natural consequence of a lack of sleep, poor diet, and whatever other substances that are going through your body that are doing these problems.

[00:23:46] Yeah,

[00:23:47] **Dr Mike T Nelson:** totally. On the supplement side, you had mentioned CBD. Any thoughts about, do you need to take it probably like weeks beforehand? Could you take a single dose before and what kind of dosage are you looking at? Because I actually agree with CBD. There's some pretty good data on it. Again, you can always argue data on concussion in humans is always going to be limited.

[00:24:09] We're not going to have a randomized controlled trial like they do with the mouse studies where you whack the humans on the head and give half of them a concussion. The other half you don't like that's just never going to be approved for good reason. But what I've seen is pretty high doses and in terms of neuroinflammation, at least what I've seen mechanistically and animal data and some limited human data, it's pretty effective compared to other supplements,

[00:24:35] **Dr Dwayne Jackson:** I would say.

[00:24:36] So my firsthand experience. So in terms of dosing I don't notice anything less than 60 milligrams a day.

[00:24:43] **Dr Mike T Nelson:** Yeah. And I would say that's low. I would say. I don't know. I

[00:24:46] **Dr Dwayne Jackson:** don't notice anything less than that. But most people though are taking much less than that just because, Oh, totally. I agree.

[00:24:53] 10 milligrams. So I don't notice anything from 16. The reason why I say I don't notice is because I actually have data on myself but it's not on any inflammatory factors because my inflammation is generally low. I keep my HSCRIP nice and, 0.3, 0.1. Nice. Keep it zero as much as possible. But I have data from the effects on it's immunosuppressive suppressive

[00:25:15] **Dr Mike T Nelson:** effects.

[00:25:15] Oh yeah. Yeah.

[00:25:17] **Dr Dwayne Jackson:** Because I'm on immunosuppressants. When I first had my transplant, they asked me if I use cannabis products and I told them, yes, I do for blood pressure regulation and I use CBD for inflammation. And they said, okay, great. They said they said let's keep an eye on your drug levels because we have, you have to keep the CBD stable because if you don't, your drug levels are going to float all over the place.

[00:25:40] And I thought there's gotta be no way this stuff is that potent as a present to make my immunosuppressant levels to go up when I'm taking this stuff. Funny enough I quit taking CBD for 10 months, okay? My tacrolimus levels which tacrolimus is one of the drugs that they use for immunosuppression in most transplant patients.

[00:26:06] And that's the thing, they keep it fixed really well. They try to really, they monitor it every month because it can fluctuate. My Tacrolimus levels were steady at seven, we'll call it seven for two and a half years. And then when I moved out here at West, I stopped using CBD just mainly because my access to it was just a little bit lower.

[00:26:26] And so I just, there's no dispensaries around here. I have to drive far to get it and all that kind of stuff. And I just kind of forgot and stopped taking it and my Tacrolimus levels actually started elevating in the last two months. And we could not figure it out for the life of us because they're like, they've been steady at the same dose for all these years.

[00:26:42] What have you changed? I'm going through things. And then the other day I'm like, ah, so we'd lowered my Tacrolimus dose and I thought I'm going to so it was it was about a month ago I said, I'm going to, I'm going to try taking CBD this month and see how fast it actually messes up these Tacrolimus levels.

[00:26:59] And honest to God, within like my month's blood work, my Tacrolimus went way up. Yeah. So I'm off it now. I'll get my bloods done at the end of the month and it'll be back down again. So it's good. So in terms of its impact and that, sorry, and that was at 150 milligrams a day.

[00:27:16] **Dr Mike T Nelson:** Okay. Got it.

[00:27:17] I think sure.

[00:27:17] **Dr Dwayne Jackson:** Yeah. Yeah. And yeah, so it's just an oil, just like a, just a full oil and and it's pretty cool because that's kind of the best indirect direct way I've been able to measure the effect of CBD. And it's, like I said, it's been in and out two or three times and that's the factor that changes.

[00:27:35] As an immunosuppressant, which we know will decrease inflammation then we know then that, that's it's a very it's a very important one. Now whether or not it's, acting on neurons in the brain or acting in the periphery or whatever it's doing, I'm sure it's ubiquitous, right?

[00:27:49] But but that remains to be, acknowledged, but I do find that, CBD does help a lot with neurological symptoms like a lot of brain fog, like a lot of that kind of stuff. It could be just age, but I do find that, when I'm on a steady dose of CBD that I don't notice those effects quite as much.

[00:28:06] **Dr Mike T Nelson:** Very interesting. And I think there's some mice data showing that CBD, it was helping potentially protect the blood brain barrier because one of the issues when you get whacked in the head is. The blood brain barrier can open up, which is normally trying to keep out a whole bunch of stuff from your brain.

[00:28:22] So not only do you have inflammation going up, the blood brain barrier starts to open up or becomes permeable. Now you've got a whole bunch of other foreign things that can, float into your brain and start exacerbating a ton of inflammation too, which is interesting.

[00:28:36] **Dr Dwayne Jackson:** A hundred percent. Yeah. And it's cool actually.

[00:28:38] There's a, and also I increases there's some data showing that it increases brain blood flow I believe to the prefrontal cortex, which is the area that gets buggered up when we have CTE a lot of times with decision making, executive, executive function, that kind of stuff. And and so overall CBD kind of hits a couple of targets, right?

[00:28:58] Because there's the whole inflammatory target, like I talked about earlier. That's one thing that we had to move on a target where we're thinking about a concussion. and brain blood flow, which is another one. And I don't know if there's, have you read any data on neurogenesis or anything like that?

[00:29:12] CBD?

[00:29:12] **Dr Mike T Nelson:** I haven't seen anything with CBD to be honest. Yeah I haven't seen anything on that.

[00:29:17] **Dr Dwayne Jackson:** Yeah. And that's why I, that's why I microdose with psilocybin because there's some decent animal data. Showing, increases in neurogenesis and whatnot with with psilocybin, serotonin, analogs, these kinds of things.

[00:29:27] **Dr Mike T Nelson:** And do you think you can get that from a micro dose just because of the accumulated dose over time, or do you think you need a macro dose? I've talked to some researchers and they appear to be very split on this idea, I guess.

[00:29:42] **Dr Dwayne Jackson:** You want it to need is micro dosing is so micro dose is kind of a funny thing.

[00:29:47] So I've been doing it. Yeah. For a long time over a decade. Oh, wow. All before anybody was doing it. And it's neat because when it came into the kind of like into the scene, this it was like kind of a hundred milligrams or whatever, of of mushroom

[00:30:02] **Dr Mike T Nelson:** of material.

[00:30:03] **Dr Dwayne Jackson:** That's right.

[00:30:04] Yeah. Material. But the papers were a hundred milligrams of psilocybin. So a lot of people, so it got broken telephone from the actual dosing. I believe into this anecdotal dosing that they were like, Oh, no, it's back. It's a hundred milligrams of psilocybin. Actually it's probably more five or six milligrams or something but at the end of the day it's kind of cool because to answer your question, microdosing for people that are mushroom users, let's call it that, is generally about a gram and they call it that cause it's kind of, it, you do feel it.

[00:30:38] But it's, more of a energetic positive feeling than it is, sitting down and just laughing your ass off and falling on the ground,

[00:30:45] **Dr Mike T Nelson:** the clock on the wall is not melting yet. That's right. Exactly. That's exactly what I'm talking about.

[00:30:50] **Dr Dwayne Jackson:** The trails aren't there yet. Yeah. Now there will be for some people, right?

[00:30:54] Cause it depends on body weight, depends on exposure and you do obviously become really acclimatized. pretty quick with mushrooms. Within a couple of those, like one gram doses, you can easily take two grams, feel the same thing. So it's so to answer your question, really, what is a micro dose?

[00:31:10] To me personally, I get the greatest effect from doing small doses over a. Long, but acute period of time works really well but not as well as taking a, what people would consider a macro dose gram and a half in one exposure over the course of a month. There's a really nice kind of it's not a hangover, but we'll call it a hangover effect.

[00:31:33] There's a afterglow that lasts for, a week or so afterward. And they noticed this in studies where they look at, the psychological profile of people these things. So yeah, so it's it's really one of those trial and error things, I think for most people right now it's illegal, right?

[00:31:47] So it is a, it is a classified substance here in British Columbia and then where I live in British Columbia. It's not really there's no, it's just having berries on your counter. So it's it's kind of a neat, this is a kind of a neat place to be able to experiment with that on the concussive side for sure.

[00:32:02] **Dr Mike T Nelson:** Yeah, no, that's awesome. And unfortunately in the U. S. it's still scheduled one federal drug, even though your state legislation may not enforce certain rules or not, which depends upon city and state and all this other stuff. But.

[00:32:18] **Dr Dwayne Jackson:** Candidates were way looser, right? Because our actual the leader of British Columbia, the premier or whatever the hell he is.

[00:32:24] He decided a couple of years ago, he said that there will be no we already have we're decriminalizing all drugs now but in terms of psilocybin, it was yeah, we're not going to even touch that. So it's yeah, they sell it everywhere.

[00:32:35] **Dr Mike T Nelson:** Yeah. In terms of things that may be legal in the mushroom area.



[00:32:41] Do you, your thoughts on lion's mane? There's some very interesting data about potentially increasing BDNF and related to concussion. Do you think that may have any benefits?

[00:32:54] **Dr Dwayne Jackson:** So in terms of, yeah, so in terms of the, their the neurogenesis aspect, absolutely. So long as the data are transferable from cell culture and animal models to the humans.

[00:33:02] And the anecdotes are there quality lines mean people, it's one of those supplements that people are I can't do without it when they start using it. Yeah, as long as you're getting a product that's got high enough levels of arenas scenes and Harrison owns, which are the things that increase NGF and, and BDNF and all those things.

[00:33:20] Then absolutely. And I mean, obviously I put a plug in here that's why I created Vibe Mushrooms because I noticed that I love, it was mainly for lion's mane and cordyceps, but then we, but it was because when you look at it in the mushroom world, the functional mushroom world where we're allowed to buy them legally It's so variable in, in the quality of the products.

[00:33:41] And that shows up when people take an extract and one's, light brown lion's mane, the other one's dark brown and the other one's red. It's like, where is the, where's the quality control on this? And so that's why I really focused on making sure that all the mushroom offerings that we have.

[00:33:57] Have the components tested that are unique to that mushroom? Because a lot of times people say Oh yeah, this has 50 percent beta glucans. You're like, so does fricking oatmeal. Like you don't even like the beta glucans are nice and it's good for the guts and they have lots of benefits. But that's ubiquitous across anything with, polysaccharides.

[00:34:17] Yeah. So when it comes to mushrooms, you just, if you're choosing a brand, you got to make sure that if you're liking your lion's mane and it's working for you, great. But if they show the level of, at least rhinocenes. Because herosinones are hard to get measured, they're both really tough to get measured by companies.

[00:34:33] But if you know the company is at least focused on concentrating those things, that's where you're going to get the magic with, these products for sure.

[00:34:42] **Dr Mike T Nelson:** Yeah. And I've noticed that we've talked about this before too, that there's a lot of unfortunately really horrible mushroom supplements out there, which, and there's lots of papers you can refer to.

[00:34:52] It's not just our opinion here, but. Yeah, and I think that's why the results are always so varied, like anything, sometimes they're underdosed, who knows how much is in there, how much of the active compound is it, you get into, is it the fruiting body portion, or my little air quotes here, the root portion of the mushroom, and how is it grown, is it in the U.

[00:35:12] S., do they have to get it from other places, and yeah, I'd just say, Do your homework, go with a reputable source, because it's extremely variable.

[00:35:21] **Dr Dwayne Jackson:** Highly variable and you're right and then there's a whole bunch of opinions in there. Oh yeah. That like Reddit is so full of mushroom opinions, it's there's a pile of opinions. And the problem is like, for example you mentioned taking it from the mycelium, the roots,

[00:35:35] **Dr Mike T Nelson:** mycelia or the fruiting body.

[00:35:38] **Dr Dwayne Jackson:** And there's all kinds of ways to grow mycelium. And so it's so for example, like we use cultured mycelium fermented cultured mycelium in our lion's mate.

[00:35:48] And that's because we tested a fruiting or fruiting bodies and our mycelium. And we were able to get the highest level of erythema erythema, erythemasin from. The mycelium, but it's not mycelium grown on grain.

[00:36:02] **Dr Mike T Nelson:** Yeah, that's my, that was my next question. Ah, yeah.

[00:36:07] **Dr Dwayne Jackson:** Okay. Pure mycelium. And so as soon as people see mycelium, generally speaking, because of, the weekend warriors on Reddit, they end up thinking that it's mycelium grown on grain.

[00:36:20] And when that's the case, absolutely. What you end up having is a case of a really or a highly possible. Contaminated or adulterated mycelium because you've got this rice grain or whatever grain they grew it on. And they usually just grind it all up. They grind it all up. Yeah. Yeah. They have this log of it and they just grind it up.

[00:36:37] Yeah. And then you have on the other side of the coin, it's really expensive to do liquid culture. As you can imagine. And so fermented liquid culture is a completely different monster, but so many companies don't use it because they can just call it mycelium when they grow it on grain.

[00:36:51] Yeah. Yeah, so it's really a tough one. And then the fruiting body obviously has a whole bunch of huge benefits too. And then it's okay, so now are you going to alcohol or water extract it? Yeah. And you can do a dual extraction, you can do, single extraction. So we choose like in our brand, like we choose like dual extractions when we need it, we'll do water extractions when we want to just get the water soluble components.

[00:37:12] And the idea really at the end of the day is that mushrooms as a whole in in, as a species have components that are common to all of them. Beta glucans is one of them. And that seems to be the acid test for people to see quality. But the problem is that if you only look at beta glucans, then you're only looking at the most common denominator of all the mushrooms, and you might as well, if that's your acid test, they're all the same.

[00:37:43] And so really it's those, like we were talking about those individual components like cordycepin in cordyceps, that's what you should be looking at, right? In Reishi, we should be looking at these ganoderic acids, looking at adenosine and these kinds of things. And when we start doing that's as soon as companies start standardizing their products so they can show these and we get studies.

[00:38:06] basically just take that extracted component and study it instead of studying this like mishmash of stuff from your body. That's when we're going to actually see the real benefits of these functional mushrooms, I believe.

[00:38:17] **Dr Mike T Nelson:** Yeah. Oh that's super cool. Related to concussion too. What are your thoughts about the use of ketones?

[00:38:25] My thought is that ketones are kind of interesting, especially using ketone esters and ketone salts. Obviously I'm biased because I do scientific consulting for Tekton, which does ketone esters. So take that with whatever. Grain assault or whatever, I guess, but they seem to have anti inflammatory effects on their own.

[00:38:45] They do cross the blood brain barrier. And they also appear after a concussion, like post, to provide an energy source to the brain because glucose metabolism a lot of times gets just really screwed up for lack of a better word in

simple terms. So they seem to provide anti inflammatory and energy effects in the brain because it has kind of this massive energy crisis because the glucose metabolism that it normally uses is all kind of screwed up.

[00:39:13] **Dr Dwayne Jackson:** A hundred percent BHB is like a, I think it's probably a, for post concussive. Yeah. Absolutely important. And I think it's, I think the innovation of having these ketone supplements is huge for the concussive industry. And I have no association at all with any companies except for, I want to try out the stuff that you're getting.

[00:39:34] **Dr Mike T Nelson:** Yeah. Let me know if you didn't get it, but we'll talk about that. Okay. Yeah. We'll get you

[00:39:38] **Dr Dwayne Jackson:** some. The point is, it's you're right, like glucose metabolisms go sideways and that's actually one of the big issues post concussive. And we, a lot of the data that came from BHB supplementation came from ketogenic diets working really well in people with concussive symptoms.

[00:39:56] And the problem with ketogenic diet is it's very low variety, very low, all the things that we just talked about,

[00:40:03] **Dr Mike T Nelson:** You end up with

[00:40:06] **Dr Dwayne Jackson:** like very little plant material, not going to stuff in it. My thing was always, man, you're treating the concussion to get the, these, endogenous ketones going.

[00:40:16] But in the meantime, we're creating, what I would consider, not a great digestive health situation if this is a chronic diet for, life just to try and get our body to produce these things. And so now that we have these supplements is wonderful because we can actually cross the blood brain barrier.

[00:40:31] You can include them in your diet and you can still have, all of the important components of the diet in there. while augmenting the, the blood levels of ketones. And that's a, I think that's a great thing. And the data are there. There's years of data. In fact, I think ketogenic diet was one of the first things to kind of be utilized as, concussive support

[00:40:52] **Dr Mike T Nelson:** agent.

[00:40:52] Yeah. There's, if you want more, I'll link to, I did a whole program for the Kerrigan Institute on the use of ketones, ketogenic diet for concussion, TBI, and that kind of stuff. Do you think they may have a prophylactic use to be used potentially beforehand? One of the things I put up on Facebook, God, probably six or seven years ago now, right when the keto and esters kind of showed up was maybe in the future, they'll have I think of the NFL, right?

[00:41:17] I mean, you've got, freaky athletes running full speed into each other. All the time, right? I'm a fan of the NFL. I like watching it. Maybe they'll have the blue container is your ketone esters. And then the red container is like your. Glucose and maybe you have some players would use ketones during the game or after or if they have symptoms or any thoughts on that in terms of a prophylactic like consuming it beforehand, especially if you know you're going to be competing, let's say on Sunday at noon for, a couple hours.

[00:41:52] **Dr Dwayne Jackson:** Yeah, in terms of the for the the impact on neuro inflammation. Absolutely. I guess, I guess the assumption would be that if these guys are going in into their, into this, game or whatever without having concussive injury already mounted on top of it they should be regulating, glucose and everything perfectly fine in there.

[00:42:10] So for, in terms of the anti inflammatory effects, a hundred percent especially in guys though that, the guys that are, they're taking the hits the most. Yeah. So that's where you choose, like you're choosing the blue container or the red container kind of thing. And a hundred percent, but I think the biggest problem, the toughest issue in any of these sports is being able to get these guys like, so supplements great, right?

[00:42:32] They go into it, the sports good, but what are they doing before that game? Oh, sure. Dietary, right? And and that, that's the one that like, so for me, like one of the best prophylactics that the data I think would really support is, a high quality blood brain barrier crossing magnesium, like magnesium three and eight.

[00:42:54] And the reason why is because if you look at data on concussion, if you look at it in in animals and look at magnesium levels in the brain, they dropped by 70 percent within the first minutes. That's pretty fast. Dramatory insult. Keeping magnesium high would be a really good one in my eyes.

[00:43:07] BHBs I think would be a really nice one to have on board. In those, in, in the linebackers and those dudes that are going to be like, nailing guys. Constantly, consistently throughout the game but mainly for the, for, and I don't,

we can debate this one by the way, cause I'm like really not versed enough in it, but in terms of prophylaxis, I would say, I don't know, but in terms of if the guy's going to get concussed 100 percent awesome because it keeps the energy homeostasis there in that concussive insult.

[00:43:40] Yeah. Yeah. But I do know that magnesium is one of those ones that, is under, underestimated and it drops like mad immediately after concussive insult.

[00:43:49] **Dr Mike T Nelson:** And I think, does magnesium, I think bisglycinate also crosses a blood brain barrier, is that correct?

[00:43:54] **Dr Dwayne Jackson:** It does and to tell you the truth, I mean...

[00:43:57] Tastes like shit,

[00:43:57] **Dr Mike T Nelson:** but...

[00:43:58] **Dr Dwayne Jackson:** Most magnesium will cross, depending on what chelated to. At some relative level magnesium three and eight supposed to be the one based on the data when they measured, against the magnesium gluconate and milk and these kinds of things it's supposed to cross like the fastest and with the most robustness by measuring CSF, they can measure magnesium levels coming in, elevating within minutes of taking it.

[00:44:24] **Dr Mike T Nelson:** Very cool. Anything else on your list there? My two thoughts I had were fish oil and creatine. That's the two I was going to just, yeah, we didn't compare notes beforehand. So we're, yeah.

[00:44:36] **Dr Dwayne Jackson:** Yeah. Omega is for the obvious reasons that, relatively good anti inflammatory effects. We know they have, brain protection, brain protective effects.

[00:44:43] Most people aren't getting enough omega 3. So I generally recommend the athletes take, three to six grams of DHA EPA combined on the day.

[00:44:52] **Dr Mike T Nelson:** That's pretty high. Do you find that they're pretty deficient? Is that kind of the main reason for the higher dose then?

[00:44:56] **Dr Dwayne Jackson:** Yeah. And that, and I do find that depending on how much other fats they're eating in their diet.

[00:45:01] So if they're a big guy eating a mass amount. Of, saturated fat and whatnot, it's really that Omega 3 balance, right? Sure. And so you just need more. Yeah. I tend to measure it, I usually get them to measure it and I usually measure it, you can usually tell by their, their triglycerides and their HDL and LDL, whether or not they're eating the right amount and right types of fats and balance.

[00:45:22] That's generally what I do, but yeah, I'm usually a high Omega 3 guy, like three, three grams is kind of my. My baseline, which is,

[00:45:28] **Dr Mike T Nelson:** I go with two to four, and I have them do like an omega three blood spot. So they'll prick their finger, put it on a little piece of paper, send it in, it'll run every lipid.

[00:45:37] And then I'll look at the red blood cell content also, so I can make sure that they're actually getting it from the blood actually into the cell membrane, which again, I say, I've been doing that for 10 years and I've probably only seen like a couple of people where that was an issue. But if that's really messed up, then I prefer them out.

[00:45:55] Cause I got some issues going on.

[00:45:59] **Dr Dwayne Jackson:** Yeah. And really, we've kind of overblown the the omega three, omega six thing a little bit, and we can talk about that another time because I know we, we have to get off this call but it's been a little overblown and I think omega threes are actually getting overprescribed now to tell you the truth.

[00:46:11] Cause I look at the balance of omega three to omega six in people's diets. Now it's usually pushing toward omega three pretty hard.

[00:46:16] **Dr Mike T Nelson:** Yeah, I used to be one of the extreme. I still see a lot of people that are extremely low. But I have seen more people the last couple of years that are like ridiculously high on omega 3s, and that might be a good podcast for another day of can you oversaturate on omega 3, there's essentially some immune suppressant issues or some other stuff but Yeah, I had myself and one other guy tried to basically hyperdose on omega 3, but we looked at the RBC score and it appears that you can only saturate that to a certain point.

[00:46:47] So there might be maybe a little bit of a safe, protective upper limit, potentially,

[00:46:51] **Dr Dwayne Jackson:** yeah, I mean, the only thing I ever see when people take too much is they have a lot of bruising they can,

[00:46:56] **Dr Mike T Nelson:** yeah. You get a lot of bruising, that's about it. Yeah. And as we wrap up here

[00:47:01] **Dr Dwayne Jackson:** for anything it's, I mean, it's been the best supplement ever made.

[00:47:05] And I mean, it just keeps proving itself to be better and better. Three to five grams a day. Take it every day. Good for the brain. Good for the body. Good for muscle mass overall. It's a great supplement. For

[00:47:17] **Dr Mike T Nelson:** neuro effects, would you go higher? If I have people who I know for sure are going to be in a contact sport, and they're generally healthy, I've had them go up to 10 to 20 grams, because we don't have very good data.

[00:47:29] You have to use MRS to look at, brain saturation levels. We know they're higher, but you talk to researchers like Eric Ralston and other guys, and it's we really don't know the best

[00:47:39] **Dr Dwayne Jackson:** dose yet. Yeah, we don't really know it and I'm basing it on, saturation and muscle. Yeah.

[00:47:45] **Dr Mike T Nelson:** It's just three to five

[00:47:45] **Dr Dwayne Jackson:** grams. And we can saturate muscle with three to five grams. No problem. So I tend to like but my big guys, like same with the guys that are going into the football players and the hockey players generally are 10 to 20 grams, 10, 15 grams a day. I usually get five, three times a day or something.

[00:48:00] Yeah.

[00:48:01] **Dr Mike T Nelson:** Perfect. Anything else you would add as we wrap up here? I love the list. It turns out we actually compared pretty close. The only one I had, which were two maybes, one was potentially astaxanthine as a supplement, although I haven't seen any direct data per se, just from talking to researchers and other people.

[00:48:19] But the inflammatory, the oxidative



[00:48:21] **Dr Dwayne Jackson:** and inflammatory effects are great, right? Yeah, same idea. Yeah. And it's all about if you can bring down inflammation, bring down that oxidative stress, at least normalize it so that when you go into a concussive insult, then at least, you have the substrates on board that can take care of the increase in all those issues that are going to occur when you've, banged your head.

[00:48:43] **Dr Mike T Nelson:** Awesome. Thank you so much for all the great information. I really appreciate it. I know you've been on here before. We'll link to the podcast if you were on here before. And where can people find more information about you? And I know you'll be at the Swiss conference. Unfortunately, I'm presenting at another conference literally that same weekend.

[00:48:58] Unfortunately, I won't be there. But let us know if there's any other conferences, anything else we should check out.

[00:49:03] **Dr Dwayne Jackson:** I'm gonna be I'm gonna be doing this strong New York thing in November, but you can reach out to me anytime at at DR DN Jackson on Instagram x , and

[00:49:13] And Facebook. Generally, Instagram's the best place to reach out to me 'cause that's the one I actually check them. And you can check out my website at [www.drdwaynejackson.com](http://www.drdwaynejackson.com).

[00:49:22] **Dr Mike T Nelson:** And then the mushrooms are at, is it vibe mushrooms.com?

[00:49:25] **Dr Dwayne Jackson:** Is that right? Mushroom vibe. mushrooms.ca.

[00:49:29] **Dr Mike T Nelson:** Cool. Awesome. Thanks again.

[00:49:30] We really appreciate all the data. That's awesome. Thanks doc.

[00:49:33] **Dr Dwayne Jackson:** I really appreciate you having me on. Yeah. Thank

[00:49:36] **Dr Mike T Nelson:** you. Take care, brother.

[00:49:38]

[00:49:39] **Dr Mike T Nelson:** Thank you so much for listening to the podcast. Huge thanks to Dr. Dwayne Jackson for coming on here once again make sure to check out the other episode we did with him. We'll put a link. Down there in the show notes, you can go to that directly make sure to check out all the wonderful stuff that he's got going on really great stuff and a huge thanks to him again for coming on the podcast and always fun to chat with them about what he views as useful and compare notes, which was great.

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[00:50:52] Really appreciate you listening and we look forward to chatting with all of you next week.

[00:50:59] Do you suppose they have any life on other planets? What do you care? You don't have any life on this one!

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