

[00:00:00] **Dr Mike T Nelson:** Welcome back to the Flex Diet Podcast. I'm your host, Dr. Mike T. Nelson, and on this podcast, we talk about all things to increase muscle performance, improve your body composition, and do all of it without destroying your health in a flexible framework. Today on the podcast, we have Another Dr. Mike. We have Dr.

[00:00:25] Mike Lane. The fitness world now is way too full of Dr. Mikes, which I blame Dr. Mike Israetel for that, which we also talk about in this podcast. In this podcast, we're talking also about progressive overload. What are different things you can do for performance in the gym, possibly your sport, or if you just want to look better in the mirror, add some muscle, what are some of the principles you should focus on as you do that?

[00:00:58] So that's the topic today. So Dr. Mike Lane is an associate professor in the Department of Exercise and Sports Science. He is over at ECU. I also work with him at Rapid Health Optimization. We recently had a, this kind of team meeting, got to see Dr. Andy Galpin and Dan Garner's talk given down in Dallas, Texas.

[00:01:26] Got to see where Andy Galpin is going to be at now, which is awesome. And this Dr. Mike was my roommate there for a weekend. So we got to hang out with him, got to do a lot of meathead talk and thought, Hey, we should. Have you on the podcast and we can just do an extension of our conversation, meathead academic type stuff.

[00:01:48] So I think you'll really enjoy this podcast. Also, if you are looking for ketones, but you don't want to necessarily do a ketogenic diet, check out my friends over at Tecton. They make a beverage that has exogenous ketones in it. So you can consume these ketones and they show up in your bloodstream. And there's some very interesting data there that they may help with cognitive function.

[00:02:16] Possibly exercise performance depending upon what area you're looking at. Unfortunately, they don't seem to help a lot with speed and power. I've noticed some very interesting things with CNS intensive stuff or even grip intensive stuff at about a 20 gram dose. Not sure why that is, but definitely seems to help in training sessions where even after I'm warmed up and I get into the session I'm still dragging like 10 or 20 grams of these ketones and I feel pretty good, but not in a Stimulatory way like I took a bunch of caffeine.

[00:02:52] What I also find is if I'm training later in the evening They work great for that. Also, we're doing some heavy cognitive work Because they're

providing your brain, your muscle, your cardiac system with an alternative fuel, which is ketones. They're not stimulatory like caffeine, which of course, I love black coffee and caffeine, but Having it later in the day is definitely not good for your sleep.

[00:03:18] So check them out. We'll have a link down below. Full disclosure, I am a scientific advisor to them and also an affiliate. Make sure to use the code to save yourself some money there. And now enjoy this conversation with Dr. Mike Lane.

[00:03:38]

[00:03:39] **Dr Mike T Nelson:** \ \welcome back to the Flex Diet Podcast. I'm your host, Dr. Mike T. Nelson. And we're here today with another dr. Mike Lane, and the fitness industry is getting too crowded with Dr. Mike.

[00:03:49] So we got to do something about this. There used to only be a couple and now I feel like it's flooded. And I completely blame Dr. Mike Israel for all of it. So

[00:03:59] **Dr Mike Lane:** I agree. I think really what we need to do is just simply go by our last names. Cause I think, well, there's already a lane with Lane Norton.

[00:04:05] So I guess I still would have something with that problem, but I don't know any of the other Dr. Nelson's out there in the fitness space.

[00:04:13] **Dr Mike T Nelson:** Yeah, that's true. We'll just have to all go by our last names now and we fixed all the problems. Cool. Today we're talking a little bit about progressive overload.

[00:04:24] And how about you give a definition of what you think progressive overload is, and the reason we're talking about this and why it's important is most people want to make more progress in the gym. This could be hypertrophy. This could be strength training for a specific skill. And as we know, there's certain principles that, shocker have worked for hundreds, probably thousands of years.

[00:04:45] But yet when I go to said commercial gym, it feels principles just evaporated, and you've got six foot four eel shaped rake people hanging out at the cable machine, like, all day doing God knows what, convinced that for more hypertrophy, they don't need to use handles, and I don't really know what they're

doing, but it just seems and again, this is maybe just my small perception, that Even for people trying to gain hypertrophy, just old school, progressive overload on compound lifts is a dinosaur and no one wants to talk about it ah, stuff can possibly work.

[00:05:23] **Dr Mike Lane:** It doesn't do us any favors when the fact of, the non periodized studies out there, people really just work out really hard. They still make progress.

[00:05:30] **Dr Mike T Nelson:** Sure.

[00:05:31] **Dr Mike Lane:** Suboptimal. And so hence with your progressive overload, just, all we're doing is we are progressively. Increasing the demands.

[00:05:40] Now, obviously, the easy way is we add weight to the bar, but we keep the reps stationary. Now, of course, we can keep the reps, sorry, the weight stationary and increase the reps. We can keep the reps the same, keep the weight the same, and add another work set. And, heck, we can even decrease work sorry, your rest periods, which personally, Not a big fan of, cause that sounds dangerously close to being cardio.

[00:06:01] So, the key thing is we're just doing something that we are now giving our body a larger demand than previous, which in turn is giving us a greater stimuli to cause our body physiologically to get better. And there's nothing wrong with training for maintenance. There's nothing wrong with people that, they go in there, they do their.

[00:06:19] 50 pushups and they're out like, okay, congratulations. You're not going to really progress cause you're not giving your body any reason to. And at the same time, if you're happy with your fitness, wouldn't it be just awesome if you just I'm done. I'm as strong as I want to be. I never need to get any stronger.

[00:06:34] God bless those people. Yeah. I

[00:06:37] **Dr Mike T Nelson:** wish at some point in my life I would get to that, especially now when I think about how much time I spend training, but it's because I want to, and I know that After 30 years, it's not going to be as simple as doing a couple, grip sets or push ups or whatever.

[00:06:50] And I'm going to make progress. But yeah, every time I've had to constrain it down to maintenance has been an external schedule thing because of that thing called life.

[00:07:01] **Dr Mike Lane:** Yep. And that comes at you. And I like to think of it in kind of percentage of your game. And I know we made a reference to Israel and Renaissance periodization organization, and I think they do a really good job when they have their Wonderful pyramid of success.

[00:07:17] Whenever it comes to dietary changes in body weight and really body composition, which the crux of it is, are you getting enough calories? And if we're thinking about that on the progressive overload, the crux is, are you just training consistent? You're training consistently. You'll probably make some progress, but then, okay.

[00:07:33] Are you training consistently and intensely? Are you training consistently, intensely? And then do you have a good periodized model? And it still matters because a 10 percent change is far beyond the difference between a gold and a silver in the Olympics. But we still need those big blocks there in the first place.

[00:07:51] And hence, I think why some people can like who cares about their different model, as long as you're in there working hard, that especially for someone that's rank beginner, that's why and I don't mean to ever demean traditional CrossFit. When we think about people that just do the true like workout of the day it's always different. They'll make pretty good progress initially on those programs because they're simply training hard, but at a certain point they don't really make much more progress and that's when they end up finding their way back to periodization because it turns out again we need to find a way to consistently challenge the body in things that it's efficient at.

[00:08:29] That's the reason why we do these skills is you get neurologically more efficient so then we can really stimulate the muscle. Now if there's anything wrong with stimulating the nervous system. Lord knows I need to do a better job of stimulating the nervous system than the students I teach.

[00:08:42] **Dr Mike T Nelson:** Yeah, and the, it was so funny, especially when I did more teaching for CrossFit audiences, which I loved because like they were one of the rare audiences, and this is probably still true to the day, where they would pay the money, they would put their butt in a seat, they would actually show up, they actually asked good questions, they were interested in the results, it was awesome.

[00:09:00] But it was, Interesting how lower level people who are new to CrossFit were shocked that the game's competitors use a periodized program. Like they weren't going to work out of the day. Like they actually to get to that

elite level, even in that model, all the ones that I knew over and were friends with or knew their trainers, knew their coaches.

[00:09:21] I can't think of an exception to that on the rare case they were trying to hold that position for a while. Yeah. They may do more, workouts of the day, but even then. Those were custom designed for them. They weren't pulling them off the website. So even at that level, back to periodization once again.

[00:09:40] **Dr Mike Lane:** Yep. And it's like anything else, how are we setting up what our goal is? And of course now your periodization models. Okay. What are we trying to optimize here? I think that's a good conversation worth having. And I do, I, when you made the comment about how you don't need the three by 10 good old PCM god, and the same thing when we think about genetics and we think about training, history and performance, that's the reason why certain people became, and you and I know what I'm talking about, I might have to give more context.

[00:10:09] And what referred to as Hit Jedi.

[00:10:11] **Dr Mike T Nelson:** Oh sure, yeah. The Hightest Meer and Arthur Jones and

[00:10:15] **Dr Mike Lane:** one set to failure. And if you don't get better from it, it's 'cause I guess you suck. And if you're just a great type two athlete with incredible adaptive capacities, one set to failure might be all you need. And I wish that was true for me because that would be so much less time in the gym and so much less fatigue and everything else you have to accumulate to get better.

[00:10:38] But that's why the three by 10 is a great starting point.

[00:10:42] **Dr Mike T Nelson:** Oh, definitely.

[00:10:43] **Dr Mike Lane:** It's not enough stimulus. They're not getting sore from it. And they're also not progressing from it. And that's where, high level training programs. These folks can be doing four or five beyond number of legitimate work sets of a given exercise in order.

[00:10:58] So they can increase that muscle mass so they can increase strength. And that's still why we optimize to the individual, because you could do three sets of 10 and they got to take the elevator, the second floor, because they can't move. I give three sets of 10 to a cross country athlete. They're going to do all

three sets with about 10 seconds rest between each and be like, what are we doing next?

[00:11:22] Well, I need to figure something out because their work capacity is so high. They obviously are pretty much legs with lungs and they're just nothing but a type one muscle fiber. So the amount of work you have to get them to do to really give them some type of overload can be pretty monumental compared to some folks.

[00:11:38] And hence your progressive progression model. Should have some form of auto regulation to address those issues of, okay, how do we give someone an adequate stimulus that their body has to effectively grow? I guess we've got to get better at this or die. Which one would we prefer? And from there, that's the results we're all looking for in the first place.

[00:12:00] **Dr Mike T Nelson:** Yeah, and even on the one set to failure I'm a re menstruator stuff probably Back in the late 90s. I think was probably the first time I did and I'm around early 2000s. I think I spent about a year doing that approach. And at first it was amazing. It's Oh my God, this is like actually working.

[00:12:19] I'm like, I'm making progress. I'm getting stronger. And then I just hit a wall and nothing happened. And you read a stuff. You're like, Oh, you're training too much. And so I'm like, Oh, I must be training too much. So I started training less and then I got even worse. And then I thought, oh, well, maybe I'm not going intense enough, so I'm going to bump it up a little bit more and go even more intense and go beyond failure and whatever else and shocker, I didn't personally get any better and I got blinding joint pain around, around the same time.

[00:12:51] I really messed myself up for probably three to four months, which again, not necessarily his fault. It was my being an idiot doing it, but even within those models, people will say, well, Dorian Yates, he became, The one of the top bodybuilding competitors in the day, which I would agree with, and he was, one of Mike Menzer students, but then if you watch like blood and guts and you watch what the training Dorian did, that he did a lot of work sets leading up to maybe one or two top end sets.

[00:13:19] But he did a lot of exercises too. And when you're that strong, he's doing fricking bent over rows of four Oh five as a warmup set. You're telling me that's not providing some stimulus also? So even within those camps, I find it interesting how there's all these different, flavors and varieties of it, too.

[00:13:38] **Dr Mike Lane:** And, more to your point is the simple reality of we have to be wary of those availability heuristics. Oh, sure. Because someone like Dorian Yates, irregardless of the drug use that comes with that level of bodybuilding, He's probably someone that is just gifted with gaining muscle mass compared to your average person.

[00:13:57] **Dr Mike T Nelson:** Oh, sure. You have to be to hit that level. And again, it doesn't mean they don't work hard, but you have to have some genetic gifts to reach, I would say, almost the elite level of any sport.

[00:14:08] **Dr Mike Lane:** Absolutely. And when you watch those same videos, he's using a big range of motion.

[00:14:13] **Dr Mike T Nelson:** Yep.

[00:14:13] **Dr Mike Lane:** He's obviously using a large load in the first place.

[00:14:17] He's got a lot of those other big rocks there. Could he have maybe gotten a little bit better if he had used a bit more volume? Could he maybe have not torn some muscles if he would have?

[00:14:28] **Dr Mike T Nelson:** Yeah, I think reduced injuries.

[00:14:30] **Dr Mike Lane:** Exactly. And that's, but that's, armchair quarterbacking. And I think, cause I also, I read Mike minsters.

[00:14:37] I've got the book like right over there. I ran that for gosh, six months and all I did was get smaller and weaker. And. Then I went back to more traditional quasi bodybuilding with the power lifting emphasis. And then later I was introduced to Westside Barbell, which obviously has its pros and its cons when it comes to progressive overload.

[00:14:58] And, that natural organic, you experiment, you figure out what works for you. So, on occasion, I've got folks that want to come work out with me because they want to do one thing or another. And I just straight up tell them like, I've been doing this a long time. I'm used to a lot of volume.

[00:15:14] You're not. So whenever I do, four or five work sets of this don't,

[00:15:19] You're just, if you want to be able to wash your hair tonight, if you want to be able to, climb the stairs, just know you get that one good stimulating

set and then you move forward from there. And that's, what's great is initially one set to failure is awesome.

[00:15:32] Crushing, freeing as fast as you can is going to give you a really good stimulus. But then once you get to a certain point of that strength, that conditioning, if you want to push it further, you've got to do more work deliberately in that area to improve it. And it's definitely not as much fun.

[00:15:50] But again, progressive overload, we do want to avoid monotony. We can talk about different models, people using undulating. I'm a big fan of, obviously type of waving non linear. Linear is great when you're first starting off, especially like nothing, an old school starting strength, no wonder this program works.

[00:16:08] Cause all we're doing is just adding a little bit of weight to the bar. Everything else we keep for the same. So our progression is sheer tonnage in that at some point. Is going to max out for just about everybody some people it takes a couple months some folks They might be able to do that for a full year, which is impressive

[00:16:26] **Dr Mike T Nelson:** Yeah, and do you think it her individual might be different depending upon their training history?

[00:16:32] So in my example I realized that Why do I get like knee pain snowboarding and kiteboarding and yeah it's probably from doing idiotic stuff and trying to you know land jumps that I had no business landing because I was coming in way, way too hot and I should have just aborted. But outside of that, I thought this is the last time I really did like quad specific stuff, cause most of what I would do would be squat and deadlift and maybe some RDLs here and there and lunges. And I realized I'm like, I've never done a air quote, bodybuilder type. Quad program. I'm like, maybe I should try that. So I remember going into the gym. It's almost a year ago now doing belt squats But trying to go with my butt all the way out my heels and then just jamming my knee as far forward as I could I tried doing the same thing on the hack squat

[00:17:20] and

[00:17:21] **Dr Mike T Nelson:** I realized I'm like, oh my god, I am pathetically weak In that position, but even like on a belt squat if you allow me to go with the vertical shin and go back I'm Like I could use way more alone, but again, I was training the thing had already been training.

[00:17:36] And so what I realized was one, I was really weak and then I'm like, well, I don't really need to be aggressive here because I haven't done a lot of these movements in probably forever. So I did a. The Dorian type approach where I would do more work sets and I would try to hit One top end set where I try to get a little bit more intensity a little bit more volume And then I would add a fair amount of exercises So I ran that through probably six or seven exercises And I haven't really changed that for almost a year Now it will auto regulate itself.

[00:18:08] Like sometimes I'm just too maxed out to do certain lifts or I'll hit my top two lifts and it'll change a little bit week to week. But if I compare that to grip training, which I've been doing actually for 12 years, if I'm really trying to improve my double overhand axle, I've worked up to 12 or 15 sets before of, doubles and triples.

[00:18:27] Just because I've have so much history of doing that. And I know I have to push volume to see any. increase in it. So my point with all this, I think my belief and correct me if I'm wrong, is that it may be different per even individual depending upon the training history that they've done. Not necessarily, Oh, you always do high volume for this, or you always do low volume for that.

[00:18:51] I think it's even more specific to that based on your training history.

[00:18:56] **Dr Mike Lane:** No, I believe you're absolutely correct because we've got two things that I think is worth diving into there. First of which being exactly that training history. So my joke is you take the average bro at the rec and he could do, five sets of 10 on the bench press and have a little bit of soreness.

[00:19:12] But if you had him do two parallel or below real squats and he'll be jacked up because the training body is four or five years. I was just as guilty of it when I was a younger guy. Compared to his lower body, which is still relatively naive. So hence the stimulus you need for progression is so different.

[00:19:32] And then also, I think another thing worth addressing, or at least bringing up is the simple reality of fiber type. So hence. Your forum musculature is meant to be very tight one. So the amount of volume you've got to do, the amount of work that can just simply recover from is going to be greater than you could do doing heavy singles in the bench press or heavy singles when it comes to systemic fatigue in something heck like the deadlift.

[00:19:59] Cause if I let you strap up, you weren't doing that axle deadlift. That's easily going to be a couple hundred pounds. You could probably throw on there.

[00:20:06] Oh, yeah,

[00:20:07] **Dr Mike Lane:** you're eating up your spinal erectors You're definitely putting a real stimulus on your glutes and your hamstrings. Whereas most people the hands are the limiting factor Yeah so if I

[00:20:17] **Dr Mike T Nelson:** go to a straight bar because you it sounds weird to say but the axle sticks out further because the Diameter and you pull that in even an inch or two inches makes a huge difference but Yeah.

[00:20:27] I totally agree. Cause then you're going more weight and you've got a higher percentage or your one root max you're training that more musculature.

[00:20:35] **Dr Mike Lane:** Absolutely. So again, it's learning their body. And I think whenever he's starting off three sets of 10 is a great place to start or, five by five, a simple paradigm, and then have a real conversation about what your soreness is like, what type of stimulus did you get from that workout or did the only stimulus you get is joint pain.

[00:20:52] Then well, orthopedically, we've got a bad exercise or for that individual. Yeah. Cool. And then moving forward, it's okay, you didn't get sore at all from three by 10, watch and see what it looks like, making sure they're using the full range and okay, well, let's add in a work set or two and see how that goes.

[00:21:11] And if we're doing five sets of 10, I'm like, oh yeah, like the next day I've got the good soreness where I want it, like that might be the amount of work they need in order to disrupt. And then at the same time, when we think about rep ranges, some folks. They, I wish I was one of those few genetically blessed with large calves.

[00:21:28] **Dr Mike T Nelson:** Yeah. I'm definitely not.

[00:21:30] **Dr Mike Lane:** Exactly.

[00:21:31] **Dr Mike T Nelson:** And

[00:21:32] **Dr Mike Lane:** I wish it was something other than a whole lot of work and a whole lot of high rep, slow cadence work gave me a good training effect with them. Cause if it was just, have watermelon calves and all I have to do is just walk, bring it on. But unfortunately, I guess I wish my parents would have picked somebody who was a little bit more jacked in the lower body, but here I am.

[00:21:52] **Dr Mike T Nelson:** Yeah, the only exception I've seen to that is, I haven't seen an extremely large mammal with small calves. I've seen the inverse. I've seen even some women just with huge calves, and you talk, I'm one of those people, it's hey, what do you do for your calves? And I swear, it's 90 percent of the time this applies to guys too.

[00:22:12] I don't know, nothing, it's really? The best I ever did with my calf training was, just, I'm like, okay, so if there's really large human beings that always have large calves, how would I stimulate that? So I did just a shit ton of farmer's walks in vibrams for probably four months. I couldn't really do it much after that because of the seasons here in Minnesota and did some calf raises, actually did some more direct training.

[00:22:35] So it was not just that only, but I think I added almost like three quarters or an inch to my calves in like a short period of time. But. You could argue that's just specialization. And if I would have, put that much amount of effort into them in the gym, doing other exercises, maybe it would have been as effective.

[00:22:51] I don't know.

[00:22:53] **Dr Mike Lane:** And at the same time, the gym at the end, we're just mimicking work. That's all we're

[00:22:58] **Dr Mike T Nelson:** doing.

[00:22:58] **Dr Mike Lane:** Yeah. So like I'm willing to bet, your average electrician plumber could be pretty decent at a lot of grip skills in a short period of time. Just from the old school mechanics,

[00:23:09] **Dr Mike T Nelson:** forearms.

[00:23:10] before they had air tools. Most of those guys, farmers, plumbers, like with rare exception, I haven't seen one with super twiggy forearms and then

their fingers are like sausages, right? Even their, they have like hypertrophy in their hands also, which is wild.

[00:23:28] **Dr Mike Lane:** Absolutely. And again, now you think about progressive overload, it turns out they're not necessarily really thinking about it, but they went from being a normie to a professional.

[00:23:39] That had to do the for X number of hours a day. The first couple, weeks or months on the job, they're just like, it's like I'm permanently sore, but they got through the far end of it and their body now shows it, it's, that's all we're looking to do is now, of course we can go faster with progression in the gym because we can quantify things to such a better degree than here is an ax go take down that tree and drag it, one of them looks really cool in a training montage from Rocky four.

[00:24:06] But has a lot more chaos. The other is a lot cleaner, because we can just be like, okay. Here's the eight sets and reps we had Mike do this is how he responded we progress things where we want to go from there

[00:24:20] **Dr Mike T Nelson:** Do you think that's an argument for frequency? I mean my bias if all things are being equal I will push frequency and volume.

[00:24:27] Those are probably the two levers I use the most again Assuming there's no other constraints or movement issues or pain or time or just like a perfect world type scenario I Waterbury's had whole programs and stuff written about that too, but I think it does mimic real life also. If you go and you scale up to the elite level.

[00:24:46] I don't know many legitimate elite level competitors that don't train a fair amount, right? I don't know many that can get by in a half hour a day, right? It's, at some point that has deleterious effects. You're not doing enough high quality work and you can, bury yourself into the ground and that type of thing too.

[00:25:04] But what are your thoughts about frequency as one of the metrics that's possibly underused by people?

[00:25:12] **Dr Mike Lane:** I couldn't agree with you more. I think, there's nuance here. Oh, of course. I joked with one of my, actually it was one of my students recently. I'm like, I could do literally my entire weeks of training in one day.

[00:25:25] Now, of course, I'm probably going to have to use some white powders that are not caffeine and hydrous to get me through that workout. And I'll be cripplingly sore, the days thereafter, but I've gotten the same amount of stimulus. I just concentrated, and if I didn't get hurt from it, it probably would work, and that it's the volumes equating.

[00:25:44] And so the natural reality is, as somebody progresses, you're going to either extend the individual session, or you're going to have to add additional sessions, so that way you're increasing the amount of stimulus being applied. And frequency. This is all random things. I was a college cheerleader. And at that point I was a normal college student and I've met a lot of the cheerleaders in the gym and talked me into it and I ended up going out and doing it.

[00:26:10] And I was at that point bro, spill it. Like we only do, we got, we got shoulder day and I was like, how am I going to recover from this? I'm like throwing girls overhead three, four times a day. Like my shoulders are going to get destroyed. I'm going to go backwards. Nope. That's where I went from having a mint overhead press to where okay, like I'm actually able to put some weight.

[00:26:29] Cause it turns out my frequency was higher, my intensity. Obviously you're not, unless you're watching the movie dodgeball, you're not really max effort trying to put a girl over, all of those extra reps added with the recovery, I had nutrition and everything to where I was able to make more progression.

[00:26:46] So hence specialization, if you can recover from it. The higher frequency you're going to go, the better you're going to be. It's the equivalent of thinking we're working with a pitcher and they're only going to practice throwing once a week. You're not going to make near as much progress as if we can get you to throw hard two, three, maybe four times based upon how well that athlete recovers.

[00:27:09] And then we're just getting into just tissue regeneration conversations. Like your grip training, I'm sure quite frequently the limitation, and connective tissue is some, but. You and I both know it's that skin that can be the damn issue, which is if you don't chalk up, the students are like, why are you talking up?

[00:27:25] Because I got to use these things in two days. And if I can't grip a bar, I'm not going to be able to get that stimulus because things are blown out. But again, I'm only going to practice my Chinese once a week, not going to

make anywhere near the progress. But when we think about mental skills, we can practice them every single day.

[00:27:44] You and I can go. To arrange and practice archery seven days a week. It's not very fatiguing on the body, but a maximal back squat, clean and jerk. Well, yes, we can talk about the Bulgarian method. Yes, you can do that, but you need a lot of other things in line in order to optimize that, which is a very gentle way of saying it.

[00:28:03] **Dr Mike T Nelson:** Plus some true freaks.

[00:28:04] **Dr Mike Lane:** Yeah, and some mutants that can survive it. Absolutely. You throw enough meat at the machine, eventually you get a survivor. You just focus on the survivor, not the broken bodies in the background.

[00:28:13] **Dr Mike T Nelson:** Yeah. That's why, that method will work for everyone in the U. S.

[00:28:20] I heard a funny story about that too, that I think this is true. I don't know if it is or not, but one of the reasons that the Bulgarians had evening sessions was that the guys would go out to the bars in the evenings and their next training sessions the next day would be, and so the reason they had a evening session was basically just to prevent them from going out to the bar.

[00:28:42] It had nothing to do with increasing volume or frequency of training because when they did that, they'd be too tired and they wouldn't go out to the bar and their training quality overall actually improved. So. Again, who knows if that's true or not, but it makes some sense.

[00:28:55] **Dr Mike Lane:** Have you heard the the story of the effects?

[00:28:58] And it's the same thing, it might be conjecture. of Tinder on NBA Athlete Sleep.

[00:29:03] **Dr Mike T Nelson:** Yes, but tell it anyway.

[00:29:05] **Dr Mike Lane:** Ha. Yup. So, hey, it turns out if you are not having gentlemen being young gentlemen and they're getting extra sleep, progress will improve. Just different methods of making that happen.

[00:29:20] **Dr Mike T Nelson:** Yeah, definitely. Ha. When you talked about moving all of your training into one day, it's. At what point does quality of work factor into that? Because I agree, from a volume standpoint, maybe given enough, exogenous substances you may be able to make it through, maybe your quality might be good enough.

[00:29:38] But I think one of the issues is that, depending upon your work capacity, which is the follow up question, your quality of work is going to, deteriorate over the course of that session. So yes, you're still getting in work, but it's not the same quality. One of the principles I always think of was from Zdziorski of, the goal is to train as often as possible while staying as fresh as possible, right?

[00:30:00] Which is these two opposing viewpoints. But even when I'm writing programs, I always come back to that thought of, Okay, how can I do this if I have the time to move stuff out? How do I get the highest quality work but try to, limit fatigue? Let's say in the case of just, all out performance.

[00:30:19] **Dr Mike Lane:** So obviously there's folks that will argue that you can only do so many quality work sets per session, right? Yeah, exactly. At what point are we just slopping through the workout? Are we just yeah, I did another set of 10, but there was no control in the cadence. It was just. Just Malcolm X by any means necessary.

[00:30:37] Get that bar on. And so now we're practicing bad technique. Now we're practicing survival. We're not really honing technique. We're not really getting that stimulus we're looking for. And so hence why I was like, mind you, I've been at parties where people did cocaine, but I've never done it myself.

[00:30:54] I just imagine if I could get

[00:30:57] on it, I'd be able

[00:30:58] **Dr Mike Lane:** to focus and maybe train a little bit harder. However, That's the simple reality of dividing those sessions up. And it seems when it comes to like hard physical training, most humans have a cap of like real deliberate, high effort that lasts barely over an hour.

[00:31:16] Like you're not going to get many humans. They can be, I was in the gym for three hours, but if you actually humanly looked at how many work sets you did, the intensity you brought. I don't know how you would, well, I guess

that'd be an interesting little research study in general, which is like at what point, cause you saw some of the high volume stuff that's coming out.

[00:31:35] Yeah, they did 50 sets, but like how many of those sets were like, you were laying it on the line because if that was something like a deadlift, that's central fatigue that you're getting from really, I don't know, going back to childhood trauma that you will refuse to go to a psychologist, have that energy to do it.

[00:31:55] Like I've only got two or three hard sets of heavy deadlifts in me per a session. And then after that, it's got to be something lighter. It's got to be something single joint. Because at least that's just how my nervous system works. And then there's other folks that maybe they really can give it that effort.

[00:32:13] But even, I guess I also think of it like when we think about throwers, so like shot putters, discus throwers, they're not doing hundreds of reps in that workout. Like you're still talking about, yeah, it's more than a handful. But you're probably talking about 20 or so legitimate attempts or less with real emphasis, not that they're not going to do skill work, not that they're not going to do other types of just timing, but they're not going to be, you can only redline yourself and get that type of effort out of yourself.

[00:32:40] And that's actually something, cause it's all related. I teach with my students, which is okay, how long can you really study for? Before you're just staring at words on the page, emphasizing anything like we can all, like I can stare at any book for two hours and get nothing out of it. So at what point is your neurological system, it's fatigued.

[00:33:03] You just need to take, that's why people take the study breaks, we can talk about obviously different ways you're going to prove it. But the same thing, when it comes to physical training, you can only go and have that maximal effort for so long. focus is going to start to meander a little bit and you're not getting then this high quality of work.

[00:33:21] **Dr Mike T Nelson:** One of the things I teach and I'll come back to the work capacity question after this is trying to modulate intensity. I've talked about this a fair amount more on the podcast recently is that even if I'm doing more volume, I still probably only have a few, what I would consider top end sets where, okay, this is really what's going to be driving my performance.

[00:33:43] I may do more warmups, especially the first set or. For me, I do want any more warmups on a deadlift or a squat or a bench press or things like that.

Preacher curls, who cares, and then regulating the intensity to where, okay, if it's one of those top end sets, my RPE may be, around nine, somewhere in there.

[00:34:01] But making sure that I'm, sympathetically on for those sets, but the second it's done, I'm actually trying to get back to baseline as soon as possible, right? So some of the stuff I teach online clients is Okay, when you put the weight down, try then to switch to nasal breathing, get up, walk around, increase optic flow, try to get a wide view of the room, walk around, relax, try not to hold any tension.

[00:34:25] And then when you get ready to do, let's say, set two, same thing. How do you up regulate to get to that? You can focus on one thing, you can play with breathing, you can increase respiratory rate so that you're oscillating this kind of up and down. And I think if you're able to do that, you can get more high quality work out per session as compared to the people like, let me see the handful of these people in gyms where they're, they got their weight belt on and they've drank, their eight cups of coffee or snorting pre workout off of the bench before they go.

[00:34:57] And, They're just on the whole time. And I would imagine they would do so much better if they could modulate that. Because you don't need to be on during your rest period, right? You're trying to rest. You're actually doing the opposite of what you want to do.

[00:35:11] **Dr Mike Lane:** And, I cannot agree. Like the same guys that are just like constantly getting psyched listening to metal when they're just sitting in traffic.

[00:35:17] **Dr Mike T Nelson:** Yeah, that is me sometimes.

[00:35:20] **Dr Mike Lane:** But I agree with you and that's something that I've organically came to because, I was younger, especially the Westside thing of let's get psycho, let's go as hard as we can, which I think of it along the lines of and you seem to have such a kind and nice demeanor that I have a hard time seeing you like just spitting fiery mad.

[00:35:36] Not that I don't think you've got a capacity, but I do like, when's like, how long can you really just be just pissed off? Oh yeah, seeing red angry and it's It only goes so long. So hence, if I know I only got so much in that tank in the first place, and that's more of a young man and you're naturally higher testosterone, everything gets you fired up and excited, Yeah you can get away with that, but when you get to be, in our age group and otherwise it's no, I'm

going to be calm through my warmups, just focusing on making sure I'm warm, my techniques where I want it to be.

[00:36:07] And then when I start to get to those heavier sets, yes, that's when I'll start to use those arousal techniques. But yeah, as soon as I let go of that bar, as soon as I rack it back up, it is just bring it back down, hang out, have a joke, chat and then focus yourself back up when it's time to go.

[00:36:24] But you just trying to hold that vigor the entire time. Like Man, that is, you're wasting your energy being psyched up. That isn't actually helping you lift said object. And it's also now, when you think about RPE, like if I say, you and I, we've got to do something RP 10 or zero reps in reserve, that's a big compound movement, you and I both know that is going to be psychologically taxing. But when you're new, you're not that neurologically efficient, you're not that well trained as far as your own genetic ceilings. Yeah, you can just, piss in vinegar, go fucking ham on some bicep curls.

[00:37:04] Yeah, maybe she'll love you if you had slightly bigger muscles. Cool, man, whatever you gotta do. But at this point, I like, RP can be good. And for my own programming. And obviously I'm a bit more advanced in training age than a lot of people I work with. What I do instead is things like my rep match.

[00:37:21] It's I only really got to focus this first set. I just got to put a good number up there that I feel like I got close to failure. And then I got a match of the following sets, which is physically more demanding just because we're having that type of rest pause training. However, psychologically to me, it's easy.

[00:37:38] Cause it's like, all right, I did 18. If I get 12, take, three breaths and I get six. Cool. I just got to get 18 again. And I'm not worried about getting myself psyched up, but I'm doing that with mostly single joint exercise or machine based. So there's no danger. It's I'm not doing rest pause with squats or deadlifts.

[00:37:58] Oh, no, not worth it. So, but again, more to your point, how do we focus when it's time to focus and understanding that we can only really focus for so long and that's where with most of my athletes, I'd rather start off with more of an under training model. So, did you get sore? Were you tired? Were you tight?

[00:38:19] How are we feeling today? And then we can slowly titrate up that volume as part of the progression until we find that sweet spot where it's okay, four work sets. That's where it seems to be at. That's when you're really getting something out of it, but you can still do your sport practice or you still are fully recovered by the time we do our next session.

[00:38:38] That's our goal is to get better. Anybody can get sore. If you want to do that, just, hold a 10 pound plate over your head until you can't hold it anymore. You're not going to get Jack doing that. And if you do, let me train you. You've won the,

[00:38:51] **Dr Mike T Nelson:** let me do before and after photos of my training with you.

[00:38:55] **Dr Mike Lane:** Good old isometrics, man. Good old Charles Atlas strength and health stuff.

[00:38:59] **Dr Mike T Nelson:** Yeah. And that's a good point about, I think of it as one is just an overall intensity knob that you're, I get to the gym, okay, I'm going to slowly turn the volume up on it. Maybe hit my top end set. Okay. Now I'm going to start, oscillating the volume.

[00:39:16] And once I get through my main, work set, okay, then it's, if I'm doing chest day or whatever, it's oh, it's more machine single based stuff. Like for me mentally, it still may look harder, but mentally, unless it's lower body stuff, I don't know why that is, but upper body stuff, it just, Doesn't feel as bad and then figuring out where you're going to pick your battles.

[00:39:37] And if something goes wrong, are you going to be okay? Right. So if I have a second thought about doing another rep with, dumbbell bench press with 95 pound dumbbells above my head at that point, I've learned enough that. 80 percent of the time I'm probably just going to put the dumbbells down and rack it and do another set.

[00:39:54] Right? Cause it, yeah, I could ditch them and it just freaks me out a little bit. As opposed to, the other day I was doing hack squats and I still wanted to hit 8 reps. And I got to rep 5 and I'm like, okay, I'm at the top. Ah, I got this. And your brain's oh, I don't know. I'm like, ah, no, I got it.

[00:40:13] I got it. And you go all the way down to the bottom real slow. I went up like 3 inches. This is cool. It was just nothing. So I got squashed, at the bottom of it. But, no big deal. I walk out of the machine there's no damage. I

wouldn't have made that decision with, heavy dumbbells or maybe even a deadlift or a squat.

[00:40:32] So I think there's nuances within that too. And then deciding ahead of time, okay, where, if you're right on the edge, where are you going to push it and where are you just going to back down to live another day to lift?

[00:40:46] **Dr Mike Lane:** Yeah. And two different things. One, I think for a new trainee, after they gotten their basic technique down, now that they're refined and they know what they're doing, it's worth having them do some of those true, to failures like this feels like this is what a 20 RM feels like.

[00:41:03] They're very different. And they're still stressful, but like the metabolic stress of the 20 gram. Exactly. I, so I teach exercise physiology classes and one of them, we have them just look at the number of reps you get relative to percentages of your max on the machines, single joint stuff, super safe. And I tell them.

[00:41:22] If on your really low percentage, cause I'll have him go to failure on 40 percent of your max, which is cardio. If you finish on a round number, sorry, a number that's divisible by 10, I don't respect you.

[00:41:33] If you get 50 reps in the leg extension, I know you could

[00:41:36] **Dr Mike T Nelson:** Yep.

[00:41:37] **Dr Mike Lane:** The person that finishes at 49, like damn, like They went in that pain cave and that's as far as they made it.

[00:41:43] Cause you know, if you're that closely,

[00:41:44] come on.

[00:41:45] **Dr Mike Lane:** And so when we're working with those younger folks, you got to figure out where the level of the balance is at. And you and I have trained long enough that we know what failure feels like. We know what the approach to it feels like. And that extra rep you maybe could have just brute force through is probably not giving you that much greater of a stimuli than if you just racked it.

[00:42:10] And did another high quality set, much less called it on that one in general, because you've already fatigued a lot of those fibers and yeah, you

maybe missed a couple, but you're already really good at utilizing all the fibers and those muscles. And whatever exercise you're doing. So not that you should just like RP three, like you barely tried racket, but the difference between RP nine and 10, when it comes to positive training.

[00:42:36] Yeah, exactly. Neurologically it's massive, but physiologically changes as far as actual performance, it's pretty negligible. But the difference between, RP six and eight, that's a pretty decent divide as far as are we really tapping into and in turn training. Yeah. All of those fibers were wanting to give them that good stimulus.

[00:42:58] So, depending on who you're working with, younger folks, I can see the utility of, you gotta know what hard training feels like, because I cannot tell you how many students, and you've seen this as well, like first time lifting weights, they're giggling when they miss their weight Oh, ha, it didn't happen.

[00:43:14] No, the only reason I'm laughing because I missed a weight is I'm full blown dissociated and

[00:43:20] like

[00:43:21] **Dr Mike Lane:** probably need a grippy socks. Because when you miss, like you're either pissed off or you're like, am I okay? Is everything all right? Right. Is that stressful? And, I guess the only time I've laughed is because the clip failed and the plates fell off on one side and you're like, just let it go, but that's not something that's we should pursue as a training stimulus, but yeah, does that kind of.

[00:43:48] Give you yeah,

[00:43:48] **Dr Mike T Nelson:** and I like your point about the mental side and also the physical side and about how Deep and on a deep a trench you're gonna dig into your recovery So, for example if I'm doing something like like the rower, which I like to use as an anchor for high RPE stuff because it feels frickin miserable.

[00:44:09] But it's relatively safe. I used to have people do car pushes, sled drags, concentric only stuff. Things where you could go really hard. But mechanically, you're generally going to be in a pretty safe position. There's not much damage that's going to happen. We're not doing a lot of eccentric load.

[00:44:23] We're not doing a ton of volume. You're not going to be able to walk up, two stairs the next day and call it quits. Your chance of rabbit all that stuff is minimal. But it even having someone do a 2000 meter on a rower and I've noticed for myself, like even going to a nine, that's hard.

[00:44:38] I don't look forward to it. I don't want to do it. But if I go to a nine, I'm probably semi okay. The next day. If I go to a nine and a half I'm probably lying in the fetal position for a good five to 10 minutes. Not so good for maybe 48 hours. If I go to a true light, my nutsack on fire, like a true 10 out of 10, or if you held a gun to my head, I'm not doing any better, I'm pretty much worthless.

[00:45:06] The rest of that day. And for probably three days after, like you said, the difference in my time is probably only a couple seconds. Now you could argue if that's a PR, that's a couple of seconds. You've been training for a while. That's probably a big deal. But it's just. It's crazy to me how that becomes very exponential at that little thing.

[00:45:24] Cause if you look at it on paper, you're like, man, nine to nine and a half or nine and a half to a 10, not that much, but I've noticed this with other people too, that are a little bit more well trained that it's an exponential thing, like Ed Cohen used to talk about you've only got so many true 10, like max lifts in your lifetime that, a true all out max is a very rare thing.

[00:45:44] And it's going to take you a long time to recover from that.

[00:45:48] **Dr Mike Lane:** It's just, you think about how difficult it is neurologically to get your body, to give it its maximum. There's so many different governors that we've got, and I'm not trying to get into central governor theater,

[00:46:00] **Dr Mike T Nelson:** but our

[00:46:02] **Dr Mike Lane:** body doesn't want us to go to max.

[00:46:04] Like it never, exactly. That's where things. Break. That's where things tear off. That's why, our sympathetic nervous system, if all of a sudden a lion jumps through the window, you're going to see me run faster than I have in quite some time and the chance that a hamstring might pop, meh, but better than being something's meal.

[00:46:21] **Dr Mike T Nelson:** Yep.

[00:46:21] **Dr Mike Lane:** So, in order to get that level of delivery from your nervous system, you've got to go and stress those. And that's the thing about a car, those tachometers, like the first 7, 000 RPMs on a car, it's yeah, you're cool. But as soon as you go over 7, 000, it's Hey, hold on this engine isn't meant to do this very often.

[00:46:40] And or never. So please don't redline it because that's when you'll throw a rod. That's when you'll blow something out because we're asking our tissues to deal with greater forces, greater metabolic demands. Gosh, it was years ago. I was doing a strong man competition and it was a duck walk with a two upper two stone.

[00:47:00] No stone. It's better. Set it on a sled and then drag the sled back. Coordinator. Good dude. Awesome guy. Eric Todd, he's out of Casey et. And he realized that no one could make the 60 second cap. So he let everybody go 90

[00:47:17] **Dr Mike T Nelson:** to

[00:47:20] **Dr Mike Lane:** go, full bore 60 seconds. And of course it took me more than 60 seconds.

[00:47:26] And I remember finishing it. And just letting go of the implement and laying on my back and thinking like, if I die right now, it makes sense.

[00:47:33] I feel so awful that if this is my last conscious moments on this planet, you know what? I accept this because again, physiologically putting yourself into that high of an output, there's a reason why the, again, there's a lot of things going on to tell you like please don't just stop.

[00:47:52] And because you're applying such a massive stressor. And you and I can talk about the limits of the cardiovascular system, the limits of the metabolic byproduct accumulation you can get, which then, trick your brain and thinking you're poisoned. And next thing you know, you're doing is you're vomiting.

[00:48:06] Thank God I didn't do that. I just laid on my back and wished for the sweet release of death for a minute before I could get up.

[00:48:12] And I was like, is this how people feel after CrossFit workouts all the time? Why do they do that?

[00:48:19] **Dr Mike T Nelson:** Yeah, I had sometimes I'll have people come over for a weekend and we'll do a bunch of metabolic testing, do some lectures and living room and it's pretty fun.

[00:48:28] One day the neighbor called me and she's is everything okay over there? I saw a blonde girl run out of your garage and she's puking in my flowers. And I said, Oh, we're just doing more testing this week. And I had some, clients and some people coming in for the weekend. She's Oh, okay.

[00:48:43] That makes sense.

[00:48:48] **Dr Mike Lane:** Oh

[00:48:49] **Dr Mike T Nelson:** man, I just had a few friends who did a max 2k when they were here and my one friend she's I'm never doing that again, that was the most horrible thing I've ever done in my life. I'm like, yeah, it's not fun, but you live, right? She's ah, it's horrible, I hate you.

[00:49:04] **Dr Mike Lane:** And it's not that we're looking for folks to have those types of negative outcomes like real hardcore physiological, whenever you have somebody do a windgate.

[00:49:12] That's the other one. And you get off that bike by golly, that was fun guys. Like you're either such an aerobic monster in like long distance running that we just can't hurt you with lactate or we know you sandbags, like if you finish it and you're like, I feel lightheaded yep, that's hypoglycemia.

[00:49:30] That's cool. You got to stay moving or that lactate is going to hit you. It like, hence, I tell my students if you pass out or vomit after Wingate Respect, because I know you actually gave it what for if you walk off like nothing ever happened And it's safe to say she definitely she took a visit to pukey.

[00:49:49] So she definitely pushed herself on that 2k

[00:49:52] **Dr Mike T Nelson:** Yeah, when I was in the lab, we used to have windgate day So we'd make the students all do windgates and the guy from cal's lab and other people would come down and watch And we would have a little secret bet about how many people would puke And I remember the one that was am session and everyone was just like This is stupid.

[00:50:10] I don't want to do this. Half of them are like hungover and stuff. And one of them's well, this is so unfair that you're the instructor and you don't have to do this. And so I'm like, so idiot me is like, Oh, I'm like, well, I'm going to do it. You guys all have to beat my number. And that was like, That was not, that's not what I seemed to do, that was really stupid.

[00:50:31] But only one of them beat me, so I was happy with that. Hell yeah, man.

[00:50:36] **Dr Mike Lane:** So, in the same sharing of stupid decisions we made, all of our XFizLabs were online, so I videoed them, and I videoed myself doing the Wingate.

[00:50:45] I forgot to hit record. Oh no! So I got to do two Wingates, and with a three minute rest in between, and yeah.

[00:50:55] It's, you looked at staircases and it just zoomed back and it's getting bigger. I'm like, Oh man, I got to go home. This is rough.

[00:51:05] **Dr Mike T Nelson:** Yeah. Last question as we wrap up. I appreciate all your time. Do you think if we increase the aerobic system that will increase our ability to do more kind of conditioning or work capacity, which would then lead us to do more higher quality volume over time?

[00:51:24] **Dr Mike Lane:** So yes and no. If we're increasing the cardiovascular system, our ability potentially to do a greater amount of volume absolutely is a possibility, but I think it's always worth thinking about the specificity aspect of it. So if we're going to be doing something like swimming for our aerobic base, absolutely fine.

[00:51:42] But we might not really gain that much in our work capacity volume tolerance for the lower body as much as obviously the upper extremity, whereas if we have somebody doing something like cycling or long distance running, their ability to tolerate more volume with that lower body likely is going to increase simply because we're not just getting that global, increased stroke volume, improvement in heart morphology, as well as changes in our blood, As far as greater volume and then that not just plasma increase, but eventually that increase in our red blood cell count, but we're also getting a capitalization to those muscles to help address an improvement of both oxygen and nutrient delivery and metabolic byproduct removal.

[00:52:20] So in turn, they're going to be able to tolerate more work. And I think that's a big consideration when you start thinking about I'm working with this athlete. So, for you person comes in and they've been a career cyclist and they want to get into doing some resistance training. Well, lower body, a, they're not used to eccentric loading.

[00:52:37] So we want to be careful there, but they probably have got pretty good work capacity there, but upper body that is rank beginner probably has not really good recovery capacity because of, again, that not as optimized capitalization and blood flow to it. So you probably don't need as much volume, but that's again, full circle back to, we talked about in the beginning, which is when we think about how well trained, not just are they globally, but then locally and whatever parts of the body we're going to challenge.

[00:53:04] And then figure that's going to at least give us a good baseline of how much they're going to be able to tolerate. And, same thing. We have that same cyclist. They've been living in spinal flexion for most of their life. So, having them hold extension and hyperextension as loads is, they're going to get more training in their low back and upper back than they're going to get from their legs in the first however many weeks of squatting.

[00:53:26] So, hence, you see the utility of something like leg press or other type of isolation exercise. Thanks. But anything else, the better condition you are, the more work you're typically gonna be able to tolerate. But with the idea of it, like the type of conditioning we're doing matters. And that's where, are you familiar with Mark McLaughlin's work?

[00:53:45] **Dr Mike T Nelson:** Yeah. I love Mark. I haven't talked to him for years.

[00:53:48] **Dr Mike Lane:** I love his stuff. And so for myself, I love doing that super high resistance cycling in order to talk

[00:53:55] **Dr Mike T Nelson:** about that too.

[00:53:56] **Dr Mike Lane:** Exactly. So we're building that aerobic base in those. Muscles and also tapping into those bigger fibers so that when you go over and you start doing your next squat cycle, deadlift cycle, like, all right, we can clear that metabolic byproduct a lot better and we can tolerate a bit more low or a little bit more work.

[00:54:12] Hence, you talked about the heavy sled, pushing, pulling and car pushing like. You're going to have such global good work capacity if you do something like that. Turns out it's going to help enhance how much you can do, and if you can do more, typically you're going to make more progress.

[00:54:28] As long as you can recover from it.

[00:54:29] **Dr Mike T Nelson:** Yeah, and even I think Westside Model they did a ton of GPP, even though their goal is powerlifting of just, squad bench and dead and 1RM. But Louis being smart, figured out, Oh, wow. At some point they may be limited by work capacity. So we're going to have them do just a shit ton of, GPP, even though their goal is to literally do a max one around, which I thought it was just super interesting.

[00:54:52] **Dr Mike Lane:** That's the obviously Matt wedding with his warm wedding warmups. And you obviously worked the West side for a number of years under Louis. And you can see how, yeah, you have a certain amount of overall work capacity in order to improve. Much less than where the perform. If you don't have a good aerobic base, as much as it hurts me to say it, but that is one of those

[00:55:14] **Dr Mike T Nelson:** realities,

[00:55:16] **Dr Mike Lane:** But mind you, a lot of sports already have a pretty good aerobic component, if you've got a soccer player coming in with you,

[00:55:22] **Dr Mike T Nelson:** it's five miles a game or something crazy,

[00:55:24] **Dr Mike Lane:** so we can focus on the resistance side and then, I know you and I are both a fan of the basic constraints.

[00:55:30] So what's really holding back that athlete, for you and I, for her to. If we could go back in time and go talk to Louie right now, we're both too skinny. Oh God.

[00:55:39] **Dr Mike T Nelson:** Yeah. You'd be like, well,

[00:55:41] **Dr Mike Lane:** you need to eat

[00:55:42] **Dr Mike T Nelson:** more. I don't know

[00:55:43] **Dr Mike Lane:** what's wrong

[00:55:44] **Dr Mike T Nelson:** with you. It's my worst Louie impression ever, but

[00:55:47] **Dr Mike Lane:** Oh yeah.

[00:55:47] First time I went and saw him, I was probably walking around at two hundreds two less than two 10, but definitely more than 200 and he's yeah, you need to be at least two 42. It's you're too skinny. And I was like, well, thank you. I never share that. And mind you, I go hang out with the cross country team and it looks like I've eaten one of them, they're all my height or taller, but they're all like 70 pounds lighter.

[00:56:06] Cause it turns out form and function. So yeah.

[00:56:12] **Dr Mike T Nelson:** Yeah. Louie was notorious. All the stories I've heard of lifters go in there. A buddy of mine was, it was almost as tall as me. He's six, two, six, three. Walks in and he was telling Louie he wants to be a highly competitive power lifter. And Louie looks at him and he goes, you need a lot of more.

[00:56:27] You're going to be at least three 23 is super heavyweight. And the guy weighed two 20 at the time. And Louie's just like shaking his head, losing his mind.

[00:56:36] **Dr Mike Lane:** Honestly, like I got to train with him a number of times.

[00:56:39] **Dr Mike T Nelson:** He's

[00:56:42] **Dr Mike Lane:** such, he was such a nice fricking guy.

[00:56:45] **Dr Mike T Nelson:** Oh yeah. I heard like just amazing stories all the time.

[00:56:48] **Dr Mike Lane:** Oh yeah. Yeah. And. If okay, one, one of the times I went out to Westside barbell, worked out with him, this had been like somewhere in the late aughts. And so he, and I just get done, training is Hey, we'll go over to where we store all of our like shirts and stuff like that. Cause I just wanted to ask him about training and talk.

[00:57:08] He's yeah, we'll come on over to the shop. So he's hop in your car and we'll drive on over. Now, did you ever get a chance to go train at Westside?

[00:57:14] **Dr Mike T Nelson:** I never did. Unfortunately, that was one of my regrets is I never, it was always on the list of things to do, and I had a couple of invites to go and I just never made it happen.

[00:57:22] And I actually really regret that.

[00:57:25] **Dr Mike Lane:** Hey, so. It's was two, when I went there, it was two different sides of this little commercial area. Like it was small, but there was the side with the monoliths and all the heavy gear. And then the other side where you've got the bench presses. Other side is where you've got the reverse hypers belt squad, all that jazz.

[00:57:41] So he gets in his Escalade. I get in like my Honda Civic and I'm following him. He literally just drives and then parks a hundred yards down the road. And he was like, he just gets out. And I'm just like, I get out of my car and he's just laughing. He's like, all right, here's the shop. I'm like, cool. And he and I are sitting there chatting and the head, he was a big fan of animals, so he had a kitten inside of like the shop area, just wandering around.

[00:58:09] And here I am, talking to arguably the most hardcore powerlifting coach of all time as he's nuzzling a kitten talking to me about training. And I'm like, this man contains multitudes. I. Okay. You don't, he's not just the obviously get psyched and go crazy, but there's a lot more layers to him.

[00:58:28] And like I said, just super nice guy. Yeah, always had to always was talking on the phone. Obviously we talk to you in person, like truly passionate about the sport and everything. And again, you starting to figure out like you can only survive so many thousand pounds squats, like your human physiology does have some limits.

[00:58:49] So we need to figure out ways that we can backdoor it, it's like MMA athletes, you can't go live MMA every single day as a way to improve your condition for it. Exactly. So hence we got to find other ways to do it. You can do up soccer, basketball, but certain things are just, the act is so damn stressful.

[00:59:08] We need to do something adjacent to build our fitness for it so that we're not, Having CTE or something else because it's just too stressful on the body.

[00:59:18] **Dr Mike T Nelson:** Yeah. My last point is, I think that's what people miss a little bit. I know about Westside and that system is that it was all designed to create the elite of the elite power lifters.

[00:59:29] That's what the system was designed for. That's what it was geared towards. That's all Louie really gave a crap about. Granted he did trade MMA. He did, was very good at training other people. But his passion was powerlifting. And so I think, yeah, you can take some of those principles and you can adapt them to different areas.

[00:59:44] But I get annoyed when people are like, oh, but this didn't work for my soccer guys. It's what did you, expect? It's a good thing to try. Sure. Go try it. But if it didn't work, I wouldn't be shocked.

[00:59:57] **Dr Mike Lane:** And it, and more to your point is not just being specific with it, but it wasn't just powerlifters, but it was elite

[01:00:03] **Dr Mike T Nelson:** powerlifters.

[01:00:04] **Dr Mike Lane:** So you're talking about, you're talking about squad suits, you're talking about benchments and that's going to change up. And I think Dave Tate and Jim Wendler and elite FTS, they did a really good job of kind of showing the application of the model to different areas. Not that obviously Louie didn't apply it, obviously different athletics, but it's an advanced technique, which, and I'm not here to besmirch what they obviously found success in.

[01:00:28] And there's also the culture that he created, the types of recruited, there's so many other variables.

[01:00:35] **Dr Mike T Nelson:** Which is very open about it's not like it was a secret

[01:00:38] **Dr Mike Lane:** and it's one of those things like, do we really think high level powerlifting is clean outside? Come on.

[01:00:43] Yeah,

[01:00:43] **Dr Mike Lane:** exactly. So I think at the end of the day, it's one of those things that you should start with something simple like that starting strength, like that three sets of 10.

[01:00:52] You don't have to get fancy, but at a certain point, like I found Westside barbell through the first collegiate strength conditioning coach I worked with. And what would have been 2004, 2005, and that's when I actually went to Westside for the first time in December of 06. And but like dynamic effort, max effort, like I made great progress, even though I've been training for years using that bodybuilding bro split.

[01:01:19] And now go figure when you start training your lower body with intensity twice a week, because Yeah. Yeah. Your legs can train more than once a week and you start making a lot better progress. And over time, I realized that, running Westside as prescribed was for equipped lifters. And me as a raw power lifter, I had to make some changes to it.

[01:01:39] And it's a fun way to train. It's a great way to train. Is it an optimal way of train? No, but there's no such thing as the optimal way. The key thing is you have to experiment and figure out what your body responds well to. We can talk about Cohen. Cohen's a guy that seemed like he just lived and died by essentially linear periodization.

[01:01:58] It worked great for him and that's awesome. And, but we have to be careful. It's cause yeah, if you met Cohen in person, you've met me, not a tall guy. Internet, I'm 5'10 in shoes, which means I'm like 5'9 and some change. So Cohen is maybe 5'6, 5'5, but his hand is at least an inch thicker than mine. I've seen

[01:02:21] **Dr Mike T Nelson:** pictures.

[01:02:22] It doesn't look real.

[01:02:23] **Dr Mike Lane:** I shook his hand. I'm like, like the only other humans that I've ever shook hands with that were that much bigger than mine were like college forward basketball players, guys that are upper over six foot six, which is like my hand disappears into the bunch of bananas. And I'm like.

[01:02:39] Yeah, if I was gonna design a skeleton to be a powerlifter, I'd give you Ed Cohen, like just Oh yeah. Broad. Everything's thick. Barrel chest. Yeah. Long arms, but, short legs, good length tank torso. Just oh man.

[01:02:54] **Dr Mike T Nelson:** He, and the, for metrics on him for if you were gonna design a power lifter it, it would look like Ed Cohen

[01:03:02] **Dr Mike Lane:** Yep. Which is again, learning what we can from other people and then understanding that you're not them. So. What are those key differences of what do I need to take care of physiologically and anthropometrically based upon your, no offense. I don't got to worry about getting on an airplane and bending over, to try to walk down and not hit my head on the ceiling.

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

[01:03:23] **Dr Mike Lane:** You've got some, you've got a lot more range on everything. So I'm sure it's hard to find sometimes machines and equipment that's appropriate for your body size. You're not just like sizing outta if you machines.

[01:03:36] **Dr Mike T Nelson:** Machines are weird. Like one of my favorite machines I don't have access to is the the old school hammer where it's got the huge lever on the front with the weight on the back.

[01:03:45] You can do pull downs on. . But I have to literally grab the top part of the frame and a weird modified like pinch grip like this, like a rafter pull up type thing.

[01:03:53] **Dr Mike Lane:** Yeah.

[01:03:53] **Dr Mike T Nelson:** Because the handles like, I'll get to about like there, yeah. You take a

[01:03:57] **Dr Mike Lane:** be full extension.

[01:03:58] **Dr Mike T Nelson:** Yeah. And some of the machines.

[01:04:00] Feel good, but like when I travel I just play the game of get out a machine do a few light reps Okay. This feels like trash. Okay. Go to the next machine. Like you try to find those few machines that feel really well. Even hack squats are like that too. I've noticed now, like some of them feel good, but some of them are just does all I get is knee pain, and I could lift a lot more on them too, which is ironic, but it just, doesn't feel good. Where in the past I would've been like, ah, it's fine. Nope. No, I'm just like, I'm just going to do something else. It's okay.

[01:04:30] **Dr Mike Lane:** Exactly. And that's the nice thing. If you're truly. If you're really worrying about your strength, you're probably doing something that is a barbell

[01:04:36] **Dr Mike T Nelson:** that

[01:04:37] **Dr Mike Lane:** is going to be standardized, but when we're talking about accessory movements, the same thing when you're programming for people that do travel and have to deal with that, it's I just want you to do three sets close to failure on something wrong, could be dumbbell row, could be chest supported row, could be cable row, just three hard sets.

[01:04:54] And then, or four hard sets, wherever we're at in their program with the amount of volume they tolerate with understanding that like still better than nothing, and. At least we're maintaining our performance, if not slightly increasing it, as opposed to yes, we can only work on a, what an Atlantis chest supported row.

[01:05:12] You must find a gym supported row, and it must be the 45 degree chest with the handles on the neutral. Okay, cool. That's awesome. If they have that at home or that's the gym they always train at, but otherwise How do we make it work when we're on the road?

[01:05:29] **Dr Mike T Nelson:** And that could be an entire

[01:05:30] **Dr Mike Lane:** other conversation.

[01:05:31] **Dr Mike T Nelson:** Oh, I know that would be a good conversation at some point. Like the anthropometrics of how do you know what you should be doing and what you shouldn't be doing and how they change with certain people. Like for me to back squat, like I can, I have enough mobility now where I can back squat with pretty good depth, but I just don't train it because it just beats the shit out of me.

[01:05:50] And my femurs are so freaking long. I'm not a power lifter. That's not my main goal. So I've learned to be that it's okay. If that lift is a little bit less, I'll do safety squad. Maybe I'll do a searcher. Maybe I'll do front squat once in a while. They live in doing goblet squads with a hundred pound inch replica, which is just fucking brutal.

[01:06:08] But there's ways you can work around and you can still get the movement of doing it without feeling like you're just throwing your joints under the bus all the time.

[01:06:16] **Dr Mike Lane:** Exactly. It's, you don't want to be married to this is the only way that we do things, but to have that flexibility.

[01:06:23] Given again, back to our blue collar thing, it wasn't like mechanics. We're only doing, we're only tightening in this angle, different, like obviously there's a certain amount of variation in manual labor anyways. So we should have a certain amount of variation in our programs. Just, variation is it's one of those it's a bell curve.

[01:06:44] We want to have enough that we're getting something out of it but not so much that we're constantly doing something new that our body's not used to and hence we can't get a good enough stimulus out of it. But,

[01:06:54] **Dr Mike T Nelson:** yeah. Cool. Well, I'll have you back on. I think it'd be a good topic. And thank you so much for all your time.

[01:07:01] Really appreciate it. Where can people find more about you? I know you teach. Obviously, I know you through the work you're doing at Rapid Health Optimization. I'm also there too. So, yeah, give us the lowdown.

[01:07:13] **Dr Mike Lane:** Yeah, so effectively, if somebody's interested in reaching out I have a mediocre Instagram that I just put It's a little bit of like me on a grease board, talking through different things and exercise is on occasion.

[01:07:24] It's me lifting weights, but those numbers are not impressive. So I try not to share too much. And I think my Instagram is just Mike lane, PhD or something along those lines. And then, yeah, my university job, if anybody's got questions or otherwise, it's just michael. lane at ECU. edu. And then, yeah, exactly that.

[01:07:42] I. I'm not somebody that tries to live too out loud. So if you guys have questions and thank you so much for having me out, obviously I enjoyed getting to meet you in person, be humbled by how much taller than you are than me, but that's most people, obviously the opportunity to come here and talk with you today, cause this was fun.

[01:07:58] **Dr Mike T Nelson:** Yeah. Thank you so much. And do you take any graduate students? Are you looking for any students in that realm or what is the word on that?

[01:08:07] **Dr Mike Lane:** Yeah, we have an undergrad and a graduate program. And so our graduate program, we do have graduate assistantships. And so myself we've got Dr. Perry, he's more of a sleep specialist that works with us.

[01:08:17] And obviously a number of other faculty in the department. So, if you're interested in getting a master's degree in a, it's fitness, wellness, exercise, science, fitness, wellness. So it's definitely. Pointed more towards corporate jobs, but you would get the opportunity to work with myself on some of the load carriage research we're doing as well as things like coaching, different teams and programs that we're working with.

[01:08:41] And then, yeah, hopefully get you on to the next location from there, but same thing. Shoot me an email if you're interested. We have an undergraduate program, but if you're already listening to this podcast and you're, I don't think you're really going to worry about an undergrad program too much, but again, thank you very much for having me out today.

[01:08:59] Thank you.

[01:08:59] **Dr Mike T Nelson:** Yeah, thank you so much. And obviously Dr. Chris Perry has been on the program here. So we'll link to his podcast. And what's great about both of you guys is that you teach, you're doing research and you actually work with live human beings, which for coaching, which in my experience, that Any combination of those two is very rare, much less all three.

[01:09:20] But what's great is it. That's why I still have clients myself is it forces you into what is actually real application? Because I love research. It has its point, but you can be a little bit too far down that side and become unpractical. Obviously you can be hyper practical and be doing stuff for the craziest reasons known to man either.

[01:09:39] So having that nice balance to me is super cool. Cause that's where all the. Super interesting stuff is in my opinion.

[01:09:47] **Dr Mike Lane:** I've had to modify the statement over time. So it's not as problematic but effectively, I don't trust broke financial advisors, just like

I, I don't trust at least physically capable strength coaches, doesn't mean you have to be super strong.

[01:10:01] It doesn't mean you need to be in really good condition, but it means you, you gotta be able to at least apply your knowledge a little bit. And application is where most folks find themselves in trouble because. We can all read the studies. We can all look at the, at the studies, look at the data, but figuring out,

[01:10:16] **Dr Mike T Nelson:** yeah,

[01:10:17] **Dr Mike Lane:** how do you solve this problem when your athlete comes in?

[01:10:19] I'm over, how do you solve this problem when your athlete just went through a bad breakup? How do help coach your, parent of X number of children that's not sleeping. Cause they have an infant. We were not lab rats. Turns out they have a hundred percent adherence cause they can't go home.

[01:10:34] **Dr Mike T Nelson:** Yeah. Awesome. Well, thank you so much. I really appreciate it. Awesome.

[01:10:41] Thank you so much for listening to the podcast today. A huge thanks to Dr.

[01:10:47] Mike Lane for coming on the podcast and sharing all of his wonderful knowledge from someone who is both an academic, a researcher, and is also partially living in the real world, like working with actual clients, which I think the applied Knowledge is the area that is most useful to people. As I mentioned at the end of the podcast, yes, research is extremely useful and we definitely need it.

[01:11:15] And there's definitely a place for it. However, sometimes you can get too far down the research and the things that you would have somebody do are just not applicable. You can also go too far on the other end of the spectrum, have all sorts of stuff that's applicable, may or may not work, but isn't really based on anything.

[01:11:34] So I like this overlap where you're using research to lead you in the direction, but you're not necessarily held by what research says and doesn't say. entirely because there's so much stuff we don't know and research is very specific to the context of which it was conducted. So big thanks to Dr.

[01:11:55] Mike Lane for the conversation here. If you're looking for a different fuel that has research behind it, check out my friends over at Tekton for exogenous ketones. Right now in the canned product, they have 10 grams of a ketone that is the BHB molecule. which is one of the ketones itself, and is bonded to glycerol.

[01:12:20] This is a little bit different than a lot of the other ketone molecules that are on the market, and the nice part is it will increase your blood levels of ketones. Usually what we've seen in just anecdotal, like 1 to 2 millimolar off of about 10 grams. Some people get a little bit higher than that.

[01:12:36] And I am full disclosure, a scientific advisor over there and an affiliate. So check it out below. Use the code. Dr. Mike save some money. If you have any questions, hit me up. Thank you so much for listening to the podcast. Really appreciate it. If you enjoyed this episode, please forward it to someone you think they may also enjoy it.

[01:12:57] And if you can leave us any comments, whatever stars you feel is appropriate. Hit the like and subscribe button, depending on what platform you're on. It goes a long way to helping us with the podcast and getting more cool guests for you to listen to. Thank you so much. Really appreciate it. Talk to all of you next week.

[01:13:17]

[01:13:18] What do you suppose they call that? A novelty act? I don't know, but it wasn't too bad. Well, that's a novelty.

[01:13:28] This podcast is for informational purposes only. The podcast is not intended as a substitute for professional medical advice, diagnosis, or treatment. You should not use the information on the podcast for diagnosing or treating a health problem or disease or prescribing any medication or other treatment.

[01:13:44] Always seek the advice of your physician or other qualified health provider before taking any medication. Or nutritional supplement. And with any questions you may have regarding a medical condition, never disregard professional medical advice or delay in seeking it because of something you have heard on this or any other podcast reliance on the podcast is solely at your own risk information provided on the podcast does not create a doctor patient relationship between you and any of the health professionals affiliated with our podcast.

[01:14:10] Information and statements regarding dietary supplements are not intended to diagnose, treat, cure, or prevent any disease. Opinions of guests are their own, and this podcast does not endorse or accept responsibility for statements made by guests. This podcast does not make any representations or warranties about guest qualifications or credibility.

[01:14:28] Individuals on this podcast may have a direct or indirect financial interest in products or services referred to therein. If you think you have a medical problem, consult a licensed physician.