

[00:00:00] **Dr Mike T Nelson:**

[00:00:00] 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 size, performance, and better body composition, all done in a flexible approach without destroying your health. Today on the podcast we've got Brian Borstein and we're talking all about his very cool experiment he did with only training one arm for a long period of time.

[00:00:28] He did strength measurements, he did circumference, even got a DEXA scan pre and post. So super fascinating results. We also talk about cardiovascular development. When, if your goal is only let's say hypertrophy or adding muscle size, should you still do cardio?

[00:00:54] What type of cardio should you do? Is zone two cardio going to be enough? Do you need to do zone two cardio forever? How long should you do it? And then I give him my recommendation for cardiovascular training and what to look at. Kent, you want to make sure you're always measuring performance, even if you are more on the physique side of goals.

[00:01:18] And like most podcasts, we just get dropped into the beginning of this as we're talking about how much of a small world the fitness space is. This was recorded back in May actually, and we just got back from a trip to Texas visiting a wedding where we got to see some great friends, meet some new people.

[00:01:39] And also as of this recording I mentioned I'm working for. The guy's over at Rapid Health, which has been amazing. And as of last week, I'm doing Anders training now which is super fun. He had some more cardiovascular goals and some strength goals we're working on with him. So I will keep you updated on the end results of that and how that goes too.

[00:02:01] So if you enjoy this podcast and you want more information from me, go to miketnelson.com. You'll be able to sign up to the newsletter for free. Got lots of great stuff coming out to the newsletter. Like I said, most of what I put out for content wise goes exclusively to the newsletter. Some of it does show up on social media and different parts here and there, but sometimes it's delayed quite a bit.

[00:02:26] So if you want the latest and greatest, join the Fitness Insiders over [@miketnelson.com](https://miketnelson.com) and enjoy this podcast with Brian Borstein.

[00:02:38]

[00:02:39] **Dr Mike T Nelson:** How was the wedding? It was amazing. It was super awesome. We were so happy that we got to go to it. So as I mentioned in my newsletter, our good friends Dr.

[00:02:47] D and Rick got married out in Colorado, so we left for another wedding down in Tarpley, Texas. So my friend's Ryan and Caitlin, that was April 1st, which we were laughing. We're like, that would be like the worst April fools joke to have everyone show up in one location. I was like, oh, no, no wedding.

[00:03:05] We're just kidding. So we were down in Texas for that. We went to South Padre for almost a month and then came back up through Denver and got to go to their wedding. And I was talking to Aaron there, who ironically I saw him at the wedding, like you see people and you're like, that guy looks familiar.

[00:03:22] Ah, I can't place it. Ah, whatever. And so I started, we went out the next day, talked to him. He flew over from Bali and turns out he knows my friend Jackson, who also works over there. We started talking to him. He is oh yeah, I know Brian. I said, oh, I'm gonna interview him on the podcast.

[00:03:40] I was like, where is he? He is oh, he is in Boulder. We're gonna go visit him. And so it sounds like you got to hang out with him for a while, correct?

[00:03:47] **Bryan Boorstein:** Yeah yesterday we connected for the first time. He's only in Denver for, 10 days or whatever. But yeah. We connected yesterday up at the gym at Prospect, which is this super well outfitted gym has the best prime equipment and land sweet equipment.

[00:04:02] Really great setup there. So we did a super legit session of hamstrings and and back lats and had a good group there. So the owner of the gym, Dan he trained with us and so did my one of my business partners. So we had a good group of four kind of rolling through. It was awesome.

[00:04:17] **Dr Mike T Nelson:**

[00:04:18] Oh, fun. Yeah, that's, I like doing that on occasion. Generally, like 99% of the time I train by myself. So when I started doing some of the retreats, like with Dr. Ben House in Costa Rica or travel, do seminars, all that kinda

stuff, it was weird for me to lift with other people, which I know sounds bizarre, but if you find like the right group of people, it's, I actually like it now.

[00:04:41] Where it took me kind of a couple years to get used to it. But on the flip side, if you've ever had any partners that, I had a guy in college, he's a good dude, but way stronger than me, but I felt like I was just trying to motivate him the whole time and he would just like slack off and not do half of this shit anyway and would always be stronger than me, which just annoyed the piss out of me even more.

[00:05:02] Yeah.

[00:05:03] **Bryan Boorstein:** Yeah. I'm a dungeon dweller by nature. I have a really solid home gym that I began putting together right before Covid and I, I can relate to that story too. I guess my training partner in college we were much more similar. So I think you've actually been on his podcast, Anders Varner

[00:05:18] **Dr Mike T Nelson:** from Barbell shr.

[00:05:19] Yeah. I'm sorry to hear that.

[00:05:22] **Bryan Boorstein:** Yeah, that was my college roommate.

[00:05:24] **Dr Mike T Nelson:** So we did all of the Oh, I didn't know that.

[00:05:26] **Bryan Boorstein:** Debauch, you were business partners in college. Yeah. We were business partners up until 2017, and then we sold our gym together and went our own separate ways. And now I podcast with Aaron and my business is with a couple ladies, Lori, Christine King and Laura Savino.

[00:05:42] We run a company called Paragon Training Methods.

[00:05:45] **Dr Mike T Nelson:** Awesome. It's so funny how it's such a small world, because I was talking to Aaron, he was like, oh, Anders, right? I was like, yeah. He's Brian was his business partner. 'cause Aaron had always mentioned, or talked to Anders and he said, the gym that he had before.

[00:05:56] And I never made the connection that, oh, the business partner was you. Yeah.

[00:06:01] **Bryan Boorstein:** Small world for sure, man. Very small world in this Yeah. Fitness

[00:06:05] **Dr Mike T Nelson:** industry here. Yeah. Now I work part-time for Rapid Health, actually helping Andy and Dan, Oh, cool. With some invisible assessments and helping those guys out and Doug and everybody there.

[00:06:15] And yeah, I started there in November and yeah, it's been awesome. Super fun. Obviously there's, things with growing companies that there's always gonna be things that you're working on. Small little fires to put out, but it's, yeah, it's been great and it's been super fun. And I've known Doug since 2015 and then I met Anders right when he took over the Barbell Shrugged podcast.

[00:06:37] I've known him for a few years now too.

[00:06:39] **Bryan Boorstein:** Yep. Very cool. Yeah. Great. Great group of guys. That's awesome that you're working with Rapid as well. I I've talked to Anders over the last year, a few times about it. And so it seems like it's it's really

[00:06:48] **Dr Mike T Nelson:** filling a need. Yeah, definitely. And it's nice that they do a very systemic, like whole view of everything too.

[00:06:56] Which kind of leads into what we're talking about for training today also, is you did a very interesting experiment of trying to for lack of a better word, rebalance a muscle group. And I purposely didn't read any of your follow-up or anything you had on Instagram. I saw you were doing it and I sent you a note.

[00:07:13] I was like, oh, let's just talk about this on the podcast. Because I think it's a very interesting topic. Even if your goal is only sport performance or you wanna lift more, or you wanna, aesthetically look better, I think it's definitely related to all of those topics.

[00:07:28] **Bryan Boorstein:** Yeah, for sure. That's actually very interesting that you haven't looked at any of the content I posted about it.

[00:07:32] 'cause I did a, I did an initial post before the experiment started back in October, and then I did a three month update and then a six month culmination post. It was the beginning, middle of April, I think April 9th, officially when the experiment ended. So we're about a month out from that right now.

[00:07:50] And The way you phrase that as rebalancing a muscle group is a, is an interesting way of putting it. 'cause the premise was in fact that yes, my left arm has always been a bit smaller and less developed than my right. Not significantly so though, like even in the initial measurements. So I had a dexta done a month prior to the experiment beginning and at that point it had my left arm with 0.5 pounds less muscle mass than my right.

[00:08:21] So it was 12.2 and 11.7. Which seems, I think some natural disparity based on just right hand dominance throughout 40 years of living. Sure. But it also it felt less coordinated. I've spent many years playing basketball. That was my main sport growing up. And my basketball coach always told me from seven years old.

[00:08:40] It was always, learn to do everything with your left, brush your teeth with your left hand dial the phone with your left hand back when you had to dial phones.

[00:08:47] **Dr Mike T Nelson:** Like that's only for us old people here.

[00:08:49] **Bryan Boorstein:** Exactly. But basically I started doing everything with my left hand.

[00:08:52] And even over the years I tried to even carry groceries with my left hand. If I'm moving weights from one stack to another to put them on the leg press, I would carry it with my left hand. I was crazy about this, like completely neurotic. And still, despite all of that, my left arm seemed to lag behind.

[00:09:11] And so this experiment was born out of kind of those experiences and my hypothesis, going into it was, That nothing would change. My theory being that I've been training now about 25 years with at least 18 or 20 of those years being pretty dedicated to either hypertrophy, strength or CrossFit or some mix of them.

[00:09:35] And so I just figured that nothing was gonna happen. I went through many years of training CrossFit, where I never trained arms directly, it was a bunch of like pull-ups and dips and pushups and all that stuff. And I didn't notice any, at least visual significant change. And so yeah, that was how the experiment

[00:09:49] **Dr Mike T Nelson:** was born.

[00:09:51] And so just for listeners, you're actually just comparing the size of your left upper arm to the size of your right upper arm. So is, was it upper arm only or was it upper arm and lower arm? So I know you had a dexa, which. Obviously was looking at the

[00:10:04] **Bryan Boorstein:** entire arm. Yeah. I didn't actually measure or look at the forearm specifically.

[00:10:09] Okay. So it was upper arm and I did it via pictures, dexa and tape measure

[00:10:15] **Dr Mike T Nelson:** measurements. Nice. And then what did you do to try to quote unquote fix it?

[00:10:21] **Bryan Boorstein:** I basically was training only my left arm with direct elbow flexion or elbow extension. So any curls or tricep extensions or anything like that would be performed with only my left arm and there would be zero direct work for the right arm.

[00:10:35] And then I would continue to do all of the compound movements, like all of my back work, shoulder work, chest work would be performed bilaterally with both arms, or if I did unilateral movements, they would be performed equally on both sides. And I did have a hypothesis that the left arm would increase in strength and coordination.

[00:10:54] I just didn't expect any increase in muscular size per se.

[00:10:58] **Dr Mike T Nelson:** And what did you not expect any increase in muscular size if you're doing more direct work on that side? Because there are people listening, they're probably like of course it would get bigger.

[00:11:06] **Bryan Boorstein:** Yeah. So my, my hypothesis was based primarily on the fact that I've been training for so long.

[00:11:11] I figured I was a close to my genetic potential. And I just haven't seen a lot of things move the needle recently significantly, at least. Over the last few years, I've done a lot of work with Cassem Hanssen over at N one. Yep. And so I've taken on a lot of the kind of philosophy that he has around training back, and, being able to, in some ways target different portions of the lats and upper back and rear delts and stuff like that with some biased movements.

[00:11:39] And I do feel via pictures primarily, but I do feel like over the last three years there's been pretty decent progress in my back. But the back is an interesting muscle group because it's never exposed to training at long muscle lengths or to very biased movements like it's always been for me, it's been like, Hey, do a horizontal pole or do a vertical pole, and that pretty much covers your back training.

[00:12:02] And so I think there was something to at least training for three years with these more specific movements that seem to create change. But I didn't expect the same with my arms. Mostly because I have been training them for so long. I went through periods of time where I didn't train them and nothing seemed to change.

[00:12:19] And then just being close to my genetic potential in general.

[00:12:23] **Dr Mike T Nelson:** And so for the last several years, you've done primarily competitive natural bodybuilding. Correct. In terms of your main focus, if you were to pick one, I know you've done a whole bunch of

[00:12:32] **Bryan Boorstein:** stuff. Yeah, I I haven't competed. Okay. I competed once in bodybuilding in 2015 when I was still in CrossFit.

[00:12:40] So that was more of just like an experimental thing to. See what happens. I've been training CrossFit, let's just see if I can compete, and that was, that's a whole different tangent. I hired a coach that was enhanced coach, and the whole peaking process did not go well. But but yeah if you wanna talk about the philosophy of training that I've had since leaving CrossFit in 2017, it's been purely muscular hypertrophy.

[00:13:03] **Dr Mike T Nelson:** And do you know over that period of time, like how much difference you've seen in both arms over that period of

[00:13:09] **Bryan Boorstein:** time? Yeah. None, to be honest. Okay. Yeah. Yeah. It, I just I literally feel like during the years of CrossFit where I never trained arms directly, they were visually very similar to what they are now.

[00:13:20] And so maybe one of the big drawbacks of this experiment in general is that it was done on somebody with this much training experience. I'm pretty sure you would've done this experiment on somebody with five years training experience, and the results probably would've been much more

[00:13:34] **Dr Mike T Nelson:** profound. Yeah.

[00:13:36] So how much direct arm work did you do for the left side only? What were you doing for sets and reps and, just overall length of time?

[00:13:43] **Bryan Boorstein:** Yep. So I, I prefer to train off of a calendar week. I just don't really like being set in this is your seven day calendar and you must train on these days.

[00:13:51] I find it very stressful. So I purposefully train on either eight or nine day cycles. Microcycles. And so over the course of my nine day Microcycle, I was training biceps directly with 10 working sets and triceps directly with nine working sets. And I had three or four different movements.

[00:14:13] There were four different movements for biceps. Two of them more short overloaded, two of them more lengthened, overloaded. And then for triceps, I had three movements. One of them was short overloaded, and two were lengthened,

[00:14:25] **Dr Mike T Nelson:** overloaded. I. So explain for the listeners the short and kinda long position for people that are listening.

[00:14:31] So for biceps, maybe you're doing something like a incline dumbbell curl versus a preacher curl. Do you wanna just explain kind of the differences and the hypothesis of one versus the other for hypertrophy?

[00:14:44] **Bryan Boorstein:** For sure. Yeah. So there seems to be a lot of research recently coming out since maybe 2019, 2020.

[00:14:50] It started with the. Study from Mao and colleagues where they did seated leg curls compared to lying leg curls. And they basically found that training in the seated leg curl where you begin with your body and hip flexion. For the listener, you can think of it a sit and reach test that maybe you did in middle school where you would just reach for your toes and feel that stretch in your hamstrings.

[00:15:08] So they they compared a seated leg curl where you're in that pre-stretch position to a lying leg curl where you're not with the theory being that you would potentially, I think the hypothesis was even that you would get more muscle growth from the seated leg curl because of the pre-stretch that took place.

[00:15:22] And You're training that hamstringing in a longer muscle length with the seated leg curl. But that doesn't necessarily mean that the overload for the

muscle is taking place at a longer muscle length. So just because you're doing a seated leg curl, it could still be hardest at the point where your heels get closer to your butt which tends to be the case with the lying leg curl as well.

[00:15:44] And then that study did prove the hypothesis. They did gain more muscle in the hamstringing with the seated leg curl. But the most interesting part of that study was that the sartorius muscle, which is actually lengthened more in a lying leg curl than in a seated leg curl, it actually grew more in the lying leg curl.

[00:16:04] So it was almost like a double proof of concept here, where it was like three of the hamstringing muscles grew more in the seated leg curl, as you would expect, but the one weird muscle that kind of lengthens in a lying leg curl grew more in the lying leg curl. That was really cool. And then since then, there've been another eight or nine studies comparing muscle length or muscle overload.

[00:16:24] And so that is a little bit nuanced because the lengthened overload is going to require an exercise to be hardest at the point where the muscle is lengthened. Whereas just training at long muscle length just means you have to train through a. The length of that muscle. And a good analogy here or a description might be you mentioned the incline dumbbell curl.

[00:16:46] And so the incline dumbbell curl is great because it does in fact train your bicep at a longer muscle length because you're putting your body into shoulder extension. Your elbow is starting behind your body, so your bicep is stretched. Unfortunately the incline dumbbell curl is not lengthened, overloaded.

[00:17:02] So just because it's stretching your bicep significantly at the back of that movement, the part where the movement is hardest is still going to be as the dumbbell crosses gravity, which is going to be much closer to the short position of that

[00:17:17] **Dr Mike T Nelson:** movement or the, so the top position, right? The ender the top position, yeah.

[00:17:20] Finishing of the movement,

[00:17:21] **Bryan Boorstein:** so to speak. Yeah. Yeah. So short would be when your muscle contracts, so if you're thinking about strictly like a bicep curl, lengthened would be as your arm is extended and the bicep is lengthened, right?

And then the short position would be as the muscle kind of balls up into a contraction as you would if you were like, flexing your arm to show somebody how much arm size you have.

[00:17:41] And so the movements that I chose for this programming were primarily skewed toward either being long muscle lengths and or overloaded in the lengthened position. Not to dismiss the short position, 'cause I think there is utility there in, in some cases, but like I said, two of my four bicep movements were lengthened.

[00:18:04] One of them was an incline dumbbell curl, which I actually consider a mid or short movement. So you could say two and a half of my movements were lengthened for biceps. And then for triceps, I did two movements that specifically were hardest at the position where the tricep is stretched. So as the elbow is bent, you could think of a overhead cable curl or a overhead dumbbell curl where the most resistance is gonna be as the arm is behind the head.

[00:18:29] And then as you extend up, the resistance falls off a little bit. So two of my three tricep movements

[00:18:34] **Dr Mike T Nelson:** Were like that. So the last one would be like, that would be a tricep movement. So you're doing like a dumbbell French plus, but using a cable instead or something like that?

[00:18:44] **Bryan Boorstein:** Yeah. So the three tricep movements one of them was a cross body push down, so that would be more of like a short overload the way that I set it up. So with cables, it's cool because you can actually change where the movement is hardest based on how you orientate your torso in relation to the cable.

[00:19:00] And so in a in the cross cable push down, if I walk my body further back, it's gonna get harder at the short position as the tricep contracts. And then if I were to walk my body closer to the cable setup then it would be a little bit harder in the lengthened position. So that movement specifically, I tried to do more shortened overload.

[00:19:20] So I would step back a little bit. And then my second movement was a lateral tricep movement. So it would come across the neck. The cable, and then you would press out from there. And so the hardest point of that movement was gonna be right when that elbow was when basically the bicep was smashed into the forearm, so the tricep would be stretched out.

[00:19:40] And then I also did a cable overhead extension like we just

[00:19:43] **Dr Mike T Nelson:** talked about. Got it. And for listeners, cables, You're not necessarily working against gravity per se. So just imagine like you're just standing to an old school straight arm barbell bicep curl. So at the top position, because you're working against gravity, there's very low load.

[00:20:04] 'cause most of that's going into the skeletal type structure. Most of your load's gonna be, if your arm is, basically straight across, so 90 degrees. But when you use a cable, you can get a higher amount of that load, so to speak, at the top, because the resistance is not necessarily, I'm gonna do my air quotes here, fully dependent upon gravity.

[00:20:24] Yeah. It's a And anyone who's done those movements, you can just tell that it just feels different. It just feels like that force curve is a little bit different just by using a dumbbell or a freeway versus a, like a cable

[00:20:37] **Bryan Boorstein:** machine. Yeah, for sure. Any bicep movement you do with free weights, you could basically assume that there's very little or no tension at the bottom of that movement as your muscle is lengthened because it's just hanging with gravity.

[00:20:49] So like the, my primary bicep movement that I used was the cable face away curl. So the arms were behind me, much like they would be in an incline dumbbell curl, except instead of there being no resistance at the bottom as there is in the incline dumbbell curl the cable was pulling my arm back.

[00:21:06] And so it was stretching the bicep at that end range.

[00:21:10] **Dr Mike T Nelson:** Yeah, I've actually programmed that for a fair amount of clients over the last couple of years because I was just dicking around in the gym on a Monday where they have a cable machine, and I kept having just like weird slight pains in my left shoulder.

[00:21:26] And so I would, just palpate on it. And my long head, and my bicep was always just like r just like super angry. My shoulders rolled and pulled forward. I realized like if I, grab like a low cable, extend my arm behind me and then walk forward, it's gonna drag my arm back behind me.

[00:21:45] And so then I would actually try to rotate the other direction and just started doing curls in that position. And I was like, oh, after a couple weeks, like my shoulder felt better and my bicep wasn't nearly as angry. And it's oh. So I

started doing that with a few clients and most of 'em so far reported the same thing.

[00:22:03] And then you think about what most people are doing all day, they're myself included. They're in front of a keyboard, their upper arm. Their humerus is normally in front of 'em. So rarely do they ever get their upper arm behind them. And when I went back and looked at some of my program, and I realized a couple years before that for most clients, I would have 'em do some type of rowing.

[00:22:22] Every day they went to the gym. And when I first started that experiment, my thought was, eh, most people need more back work. And then I realized that. Over time, most of 'em reported less pain, less issues because their arm, their upper arm is always in front of 'em. And the interesting part you're talking about back is very a complicated kind of muscle group.

[00:22:41] They didn't stagnate on progress. Like they didn't, they got a little bit sore for a couple weeks, but it was interesting how some muscles or maybe movements, I think can be overloaded more than what we probably think. And maybe that's just 'cause they haven't been used a whole lot. But anyway, that's my long tangent about different movement patterns people should test out.

[00:23:00] **Bryan Boorstein:** Yeah, for sure. No I'm a huge fan of of basically pulling things back in general. Yep. And so that's, that the using row primarily or more so than upper body pressing is probably a prudent move in general. And I've even heard. Recently, Dr. Scott Stevenson proposed the idea that because people are always internally rotated, on their phones and on their keyboards and stuff like that, that the PECS may be predisposed to respond better, to stretch mediated hypertrophy, just because we don't often get our bodies into those kind of more stretch positions for the pec.

[00:23:33] I think there's a number of different avenues by which we might see more gains training at long muscle lengths or lengthened overload, or any of those things.

[00:23:43] **Dr Mike T Nelson:** Yeah. Until, tell Dr. Scott I said hi. Hopefully I'll see him in Florida again in a couple weeks. Cool. Yeah, and people also forget that we're like geeking out on biomechanics here but the lat is actually an internal rotator of the arm, because the insertion is quote unquote almost in the front of the body. So people always think of the lat as this back muscle. And I think in embryology it actually starts as a front muscle and then it moves around

to the back. But the origin and insertion stay at the same place, if I remember right.

[00:24:11] So if you see people who do a lot of lat work, which again, you could divide that up into different areas, what movement you're doing, blah, blah, blah, all that kind of stuff. But, the classic is the old school kind of bench press people you would see who did train a lot of back just to get their lads to get their bench better.

[00:24:27] And they did a lot of, pectoralis work. And they're almost always like very internally rotated in the front too.

[00:24:33] **Bryan Boorstein:** Yeah, for sure. Internal rotation is a key to biasing lats, I believe. Yep. I, when I was training yesterday, we were doing some lat work and, remaining in that slight flexion position instead of getting into thoracic extension really helps bias as the humorous depresses.

[00:24:48] And yeah, hopefully we're not too far over people's heads but yeah, I agree.

[00:24:53] **Dr Mike T Nelson:** Yeah, that's also another one I've done too with so I just have a simple cable stack here at home and I've taken, I dunno if you've ever seen like Eagle Loops, they look like little loops you run through your fingers.

[00:25:02] So I'll put them on there and I'll usually attach 'em across the knuckles of my finger. And then if I've been sitting, especially on car trips and stuff where I'm too long, just completely in that position, I'll either at home I have to kneel or sit and, or you can stand if the position's high enough.

[00:25:20] And then similar to what you were saying, I'll think about what is the orientation of the lat. Then I'll go all the way to that end range of motion and then I'll move and rotate and bring my hip back and rotate my arm until I can feel that kind of stretch on the muscle. And then I'll just basically try to bring my arm closer in.

[00:25:38] And even just doing that a few times, I've noticed judging I've been traveling or bugged up from sitting on a plane or a car, like it seems to help free everything up quite a bit. And again, I don't know if that's just because I'm getting more movement, more blood flow, maybe mechanically I'm doing something that was the opposite of sitting.

[00:25:55] But anyway, I do think there is some, definitely benefits to playing around what maybe you would see me doing that at a gym. You'd look at it and what the hell is that guy doing? He's not following any rules at all. He is got his hip all the way back, his arm over his head. He is got some weird contraption on the end of his arm.

[00:26:09] Like it looks batshit crazy, but it normally feels pretty good.

[00:26:14] **Bryan Boorstein:** Yeah, no, I've become a huge fan of kind of using torso rotation and hip rotation to. Further accentuate that lengthening of the lat by a deducting the arm across the body a bit and stretching around the ribcage.

[00:26:27] **Dr Mike T Nelson:** Yeah. And I also noticed by the Eagle loops too, it, you can, because you're not using your grip, you can feel like just this huge stretch through your hand and everything else because your hand is in this weird kind of, almost semi-open, but not closed position too.

[00:26:41] So that's been interesting. I'll

[00:26:43] **Bryan Boorstein:** have to look at the Eagle Loops.

[00:26:44] **Dr Mike T Nelson:** I've never heard of 'em before. Yeah. I use 'em a lot with like climbers and people like myself who do a lot of grip sport stuff because in grip, like at least in crushing grip, your hand's always closed. And so how do you get the opposite in a open hand?

[00:26:57] How do you get overload? You can do some pinch stuff like a Saxon bar, so your hand's kind of semi-open then, but you can close the last part of the knuckles. You can use things like Eagle Loops where you can get just a huge amount of. Tension through that area. And I've noticed some people who have tendinosis tendonitis from just overuse stuff.

[00:27:15] It seems to help with that. Yeah, you can do finger extension, all that kinda stuff, but the amount of load you can get with that, with people who lift, I don't think it's gonna make a huge difference. I'm a bigger fan of, what kind of overload can you get in a semi lengthened position. Also finger spread pushups in that kind of position or even have people just start on a wall or start on their knees. Like that finger extended position with load is useful. Cool. Yeah. And actually your bicep experiment, so you didn't really see any change even with that amount of volume over time? Only working on the, was the left arm, correct?

[00:27:50] Yeah,

[00:27:50] **Bryan Boorstein:** correct. Yeah. Not only was there no change there was actually, according to the dexa at the end lost muscle in my left arm. So the craziest part of this whole thing is that. I actually gained muscle across my entire body according to the dexa. I gained 0.8 pounds of muscle across my entire body.

[00:28:10] 0.1 here, 0.1 there whatever. But my left arm lost 0.3 pounds of muscle. So the honestly Chris Barakat commented on my post and was basically like, Hey, you can't exactly trust the precision of these, that could be measurement error. Yeah. And so it just was so weird and just odd that the whole body gained muscle.

[00:28:33] But the one area that I was really trying to focus on to, to gain muscle, actually lost muscle when no other part of my body lost muscle. And so I don't know whether I attribute that to dexa error or whether possibly it could just be that doing all that work for my left arm in some manner, overtrained it a little bit.

[00:28:55] **Dr Mike T Nelson:** Was there a difference in circumference, like old school measures or

[00:28:58] **Bryan Boorstein:** pictures? Nah, I did the pictures and it seemed to be insignificant and then I did measurements and at the three month mark, both arms had grown a quarter inch according to the measurements. So when I started, it was 17 inches on the right and 16.75 on the left.

[00:29:17] And then at the three month mark was 17 on the left and 17.25 on the right. And then at the very end it seemed like those were the same measurements as the three month mark. So it was 17 and 17.25. But the one thing the Dexa did show is that I gained fat on my left arm. So it said that I lost 0.3 pounds of muscle on my left arm, but that I gained 0.4 pounds of fat on my left arm.

[00:29:41] If that is accurate. That could account at least partially for the left arm increasing in size. It just, it's just really odd and confusing to see lost muscle and gain fat in an area that was literally specialized on.

[00:29:55] **Dr Mike T Nelson:** Yeah. And is that the same dexa, same location?

[00:29:59] **Bryan Boorstein:** Yeah. It's literally exact same scenario.

[00:30:00] I did the exact same thing prior. I worked out, I had a protein drink, but no other food. Or consumption. And yeah, it was the same time of day, same exact DEXA unit, same exact Dexa tech mission that did the test. It's just, it blows my mind, man.

[00:30:16] **Dr Mike T Nelson:** Yeah. It'd be interesting to know someone like Grant Tinsley or Jordan Moons did a bunch of work on DEXAs and stuff to see, because I get conflicting data, even like whole body, you can vary by a couple percentage of body fat.

[00:30:29] Pretty easy on Dexa, right? So for people listening, you could be 16%, you could easily be 18 or 14%. That's not. Out of the question at all. But when you start getting into appendicular, mass or only one arm, I don't really know what the range is on that. But yeah, it'd be interesting to see what their thoughts are on that, which I know is a very tightly debated area because you've got different DEXAs, different operators, even like the DEXA was originally designed for bone, not necessarily muscle versus lean tissue, but it's been reappropriated for that.

[00:31:04] And you talk to guys like Jordan Boone and he is you could have some more variability even day-to-day on the same machine just because of how it's interpreting that x-ray going through the structure, because, if you do a dissection, you look at, bone soft, tissue muscle, yeah, they all have different densities, bone is probably the most significantly different from the rest.

[00:31:23] But yeah, anyway, I could see how that might be an error. Who knows?

[00:31:28] **Bryan Boorstein:** Yeah, everything else seemed to be like appropriate, I guess would be the way to say that. I gained about a little less than three pounds of body weight between the two dexa. And it seemingly accurately calculated it as 2.2 or 2.2 0.1 pounds of fat and 0.8 pounds of muscle.

[00:31:47] And then my body fat percentage went up in accordance with that. So it was from 14.9% to 16.0%. So like all those numbers worked out, just the one kind of discrepancy in the left arm. That seems weird.

[00:32:02] **Dr Mike T Nelson:** Yeah. Was there, when you went back and trained your right arm, did it feel weaker? Did it feel any different?

[00:32:11] **Bryan Boorstein:** Yeah, it felt super uncoordinated. That was, so I did some some strength testing at the end of this as well, just to compare

unilateral movements right to left. And so one of my hypotheses going into the experiment was that even if I wasn't going to see muscular change as a result of the experiment, I expected that my left arm would increase in strength and in increasing coordination.

[00:32:35] And so upon the initial strength tests that I performed, my left arm had now equaled itself to the right. So in the past it would always be like, my right arm would be one rep ahead of my left, so I'd be at one r i r for my right, but it would be zero r i r reps from failure for my left. And then when I did the final strength testing, they were basically even rep for rep, same nine reps set to failure, or eight reps set or whatever it was across all the different movements.

[00:33:01] Tricep, bicep, it didn't matter. They were pretty equal. But now I'm a month out. I'm haphazardly training arms at this point. I think we can talk about my takeaways from the experiment at the end, but when I do train arms now, my right arm has already gone back to where it was and my left arm is back to where it was.

[00:33:20] So I'm now back to being a rep stronger on my right arm than I was on my left. And so it just took, one or two sessions of doing the right arm again before it got the coordination back and it felt like my good old right arm has always been.

[00:33:33] **Dr Mike T Nelson:** Yeah, I always find that fascinating too because, you work with clients and I just had this 'cause I was down in, in sub padre and yeah, I trained down there.

[00:33:41] I didn't do much lower body stuff because I was just beating the crap outta myself, kiteboarding as much as I could. I just did more upper body stuff and just got back home the other day. And I know like the first two weeks just suck. Like they're just bad. And then, Intuitively, you think oh my God, I lost all this muscle mass, I'm so weak.

[00:34:01] But then a couple weeks later you're like, oh, I'm almost like back to where I was before. And what you realize is, unless you're a complete idiot and did low protein and just, was horrible to yourself, probably didn't really lose. And especially if you're active, you probably didn't really lose that much muscle, if anything, but you lost the coordination to do the strength because you haven't done those movements over a period of time.

[00:34:23] And to me, it's always fascinating how fast it goes away, but yet still comes back. You just don't do a particular movement for three or four weeks

and you do it again and you're like, oh this feels horrible. It just doesn't, you just don't feel strong doing it. You know what I mean? Yeah.

[00:34:39] And then you do it for a couple weeks and you're like, oh yeah, it's back to normal. I'm all good. Oh, maybe I didn't lose a bunch of muscle.

[00:34:44] **Bryan Boorstein:** Yeah, I got a P R P in my left knee back in September, and I. I couldn't train my left leg at all, for three or four weeks as the initial kind of process goes with that.

[00:34:57] And then as soon as I started training it again, it was weak, it was uncoordinated. It seemed like it had atrophied and two or three weeks later, like you said, it was just back to where it was. So yeah,

[00:35:06] **Dr Mike T Nelson:** all the same there. Yeah. And I think that's good for people to realize, especially people who've been lifting for quite a while.

[00:35:13] Like it, it took you years to decades to get to where you're at. Like you're not gonna lose it in a couple days nor a couple weeks. Like you're probably gonna see some acute changes unless you're older on a low protein diet doing like a bedrest stu, or we chuck you up and put you on the space station with no countermeasures.

[00:35:30] If you're on earth and you're like semi-active human, it's just not all gonna just fall off your body instantly either. Yep. Agreed. What are your thoughts about a cross-education effect where they've shown in studies, like for example, and again, these were generally untrained individuals, but.

[00:35:47] You train your right arm X amount and you only train your right arm. They test the left arm and the right arm at the beginning of the study. They only train their right arm, for example, and then shocker at the end of the study, like their left arm actually gained some strength, not to the same degree as their other arm, but it actually got stronger, which I think to people listening might be a surprise since they didn't really train it at all.

[00:36:10] Yeah,

[00:36:10] **Bryan Boorstein:** so that would be primarily neurological where Correct. You wouldn't exactly expect that muscle to have gotten bigger by not training it or by training the other arm. It would more just be the crossover effect neurologically. Yeah, I assume that's accurate. I don't, I can't. Say, I have like personal experience to validate that.

[00:36:29] And I think that even the strength increases in that are like sub 20% or something like that. Oh yeah.

[00:36:33] **Dr Mike T Nelson:** They're relatively minor. You're not getting huge doing it.

[00:36:36] **Bryan Boorstein:** Yeah, exactly. So I don't know that it's it would be significant enough to be like something you could feel on your own happening, but I'm sure it did at some level when I posted the final results for the DEXA thing and, or actually no, it was the mid one, the three month one, and we were talking about how my right arm had increased a quarter of an inch according to the measurements, even though I hadn't trained it at all.

[00:36:59] That was the theory of everybody weighing in was, oh, it's the crossover effect from these studies and blah, blah, blah. But again, like when we talk about it being neurological, I just don't see that training. My left arm is going to increase the size of my right arm. I'm not sure exactly what to make of it.

[00:37:15] Yeah.

[00:37:17] **Dr Mike T Nelson:** To me, I've always been fascinated why that cross education effect even exists. To me it points that the body is trying to make some semblance of balance. But then you look at, shanky has said this for years, that all super high level athletes are all asymmetric.

[00:37:32] And you look at people who play baseball, who do tennis or sports where they golf, where they tend to really favor one side. If you've ever worked with any of those athletes or done assessments on 'em, like by the standards on the table and everything else, they're like a disaster.

[00:37:48] But a lot of times those are extremely high functioning individuals, but yet you look at, data on injury rates from, let's say baseball people who are switch hitters compared to people who aren't. Generally switch hitters have, less rate of injury. So it seems like the body has to, can handle some asymmetry almost up to a point.

[00:38:06] And then it's oh, I'm no, no longer kind of human shape, so I'm gonna, my risk of injury and performance kind of gets cut off at that point too. I don't know what your thoughts

[00:38:14] **Bryan Boorstein:** are on that. Yeah, that's really interesting. I actually am curious if, about what's the way of saying this uncomfortable structural issues that may exist after these athletes retire?

[00:38:29] So like I, I just keep think of like Raphael Nadal and like his right forearm is just in incredibly massive or, and is left, is like this puny little thing. Or maybe it's vice versa. I think he might be a lefty, but but yeah, do you know anything about this like 10 years down the line after these athletes retire?

[00:38:44] **Dr Mike T Nelson:** No, that's where I'm fascinated by, because in my head my hypothesis would be, Once you remove the stimulus and the sport, do they stay asymmetric and does that cause issues later? Yeah, my guess would be yes, because you're not under load and you're not executing a task for that reason. Or does the opposite happen?

[00:39:09] You're like, Hey, you just remove this stimulus entirely. They just go back to more of a normal shaped human again. I don't. Or is it

[00:39:14] **Bryan Boorstein:** because it's your dominant arm that you were using anyway in that sport? Correct. And you continue to do life with your dominant arm. Yep. And we know maintenance volume is so low, does that arm just continue to be larger than the other arm?

[00:39:27] **Dr Mike T Nelson:** Yeah. Yeah. And then other things like certain movements like gait are obviously biased to just walking forward. I remember at a seminar years ago my buddy Adam Glass was doing it and someone asked them, they're like if we're only doing grip stuff, like with your right hand is more specialized in this one, crush grip and your left hand is more pin string.

[00:39:47] Aren't you worried about becoming asymmetric? He is one, I'm already asymmetric two, it's better for sport performance. Three at the end of the seminar, you don't see me getting out of here walking backwards to my car to try to be a more, symmetric human. Yeah. Yeah. That's hilarious. Which I thought was funny 'cause it the high level, it's like you almost have to be somewhat asymmetric, but then where do you run risks of that being an issue?

[00:40:11] But then other movements like g are a hundred percent biased. Everything in front of us or eyeballs in front of us. Like the whole body is just, wired to walk and run. Like only in one direction, not necessarily backwards.

[00:40:23] **Bryan Boorstein:** Yeah. No, that's very interesting. I don't know exactly what I think about all that.

[00:40:26] The nice thing I guess about resistance training, I. Is that in almost all cases you're trying to create symmetry? Yep. From side to side. And asymmetry is obviously inevitable as you see with my arms. But my goal of course is to even that out. And one of the kind of, negative side effects of this experiment that I did is that by doing all that extra volume on my left side, 19 sets a week, just with my left side I ended up with.

[00:40:56] Gross scapular issues along the left side. So it's like you think of elbow flexion and elbow extension as being isolated, but there's certain levels of bracing that just need to take place to do the movement. And you get a pump on one side and then you have minor doms on one side.

[00:41:15] And like literally, I still now seven months after beginning the experiment and a month after finishing it. And my left side of you could call it like my Terrys my lumbar lat region and then even up to the infra and my rear dealt, like that whole left side of my body is just constantly tighter than the right side now.

[00:41:36] And I've had work done, I've done needling and soft tissue work and stuff like that, but it just seems stuck now. Like I can't seem to get that left side to release. So I don't know how much of that was related to that extra work. I assume most of it.

[00:41:50] **Dr Mike T Nelson:** Does your scapula not move as well on the left side?

[00:41:53] The scapular dyskinesis, the left side versus right

[00:41:55] **Bryan Boorstein:** side? Yeah. It doesn't, it's not, I wouldn't say it's hugely significant and then it's confounded by the fact that I have a slap tear on my right side, not on my left. So my scapular mobility is restricted on the right for that reason, but restricted on the left for the other reasons.

[00:42:11] Yeah, tough to say.

[00:42:13] **Dr Mike T Nelson:** Interesting. Yeah. So in person, like one thing I would look at with that would be breathing. So usually I find if someone's really restricted in that left upper area, so then my goal for doing hands-on or whatever, is to get air all the way up into that upper load of the lung, because that's gonna cause the ribs to expand in the front and the back.

[00:42:32] So the scapula is a, they call sesamoid bone, right? It just floats around in the back. It's not really tied to anything. And if you have a little bit of movement between that all the time with breathing as a rib cage goes in and out of the back. I generally find the scapula moves pretty well, but if breathing, especially in the back, right?

[00:42:48] So the posterior rib cage doesn't move as well, then the scapula gets stuck to it because it doesn't have that slight movement every day. And then that kind of causes, issues down the chain potentially too.

[00:43:00] **Bryan Boorstein:** Yeah, that makes sense. It's a constant process for me. And breathing has been actually one of the things that I've been very focused on.

[00:43:06] I turned 40 in August. Oh, okay. And since turning 40, I've been super focused on breathing actually. 'cause it's been something I've always been pretty poor at across my life. It's my aerobic conditioning has always been the thing that held me back in competitive sports and basketball and CrossFit and pretty much everything.

[00:43:24] So that's been like a huge focus of mine. Both, mouth taping at night so that I breathe better throughout the sleep. And then also incorporating significantly more zone two aerobic work into my training. And interestingly, The DEXA was perfectly timed for that as well because up until maybe the last couple years, it seems like research on concurrent training was pretty negative.

[00:43:45] It would be leaning towards the idea that if you were doing a bunch of aerobic work, you're gonna sacrifice muscle mass or strength. There are all of this stuff. And so I had that DEXA back in August and then I, it literally was in August that I started hammering cardio super hard. And so I've been doing now between three and six cardio sessions a week, and everyone in the comments and dms and stuff was telling me, oh, you're, you're gonna confound this arm experiment because you're gonna lose muscle from all the cardio and like all this stuff.

[00:44:16] And then I have this dexa at the end of the one arm experiment and it shows, I actually gained 0.8 pounds of muscle for whatever that's worth. And so I think there was a kind of a cool. Enlightenment there of Hey, you can do all this cardio and as long as you're still eating sufficient food and you're still training with weights, it's like, where's the muscle gonna

[00:44:34] go?

[00:44:35] **Dr Mike T Nelson:** Yeah. And what type of cardio were you doing? Was it the like mouth taping, nasal breathing zone two type stuff? Or what were

[00:44:40] you

[00:44:40] **Bryan Boorstein:** doing? Yeah. So I'm pro, I'm still doing it. I'm, it's a huge focal point of my life right now trying to improve that 'cause I just, like I said, I've been poor at it.

[00:44:49] But yeah. It's been primarily nasal breathing, mostly zone two work. And then I've been, so it's been about four zone, two sessions a week for 45 to 60 minutes, and then one higher intensity, maybe zone five-ish type session where I really try to push the limit of my heart rate

[00:45:05] **Dr Mike T Nelson:** max. Cool.

[00:45:07] What have you noticed over that time period?

[00:45:10] **Bryan Boorstein:** My watts per kilo have gone up, so that's been encouraging. I haven't had an official VO two max test, but I use the VO two max estimator on my Apple Watch and it has not gone up much. It's actually been quite a disappointment for me 'cause I've literally been very committed to it and it's gone up a total of one and a half or two points over the course of seven months.

[00:45:31] But I'm encouraged by the Watts per kilo number. So when I first started this process, I was struggling to maintain 1.5 watts per kilo for the duration of the zone two work. And then, Just in the last couple weeks I've been able to push up to about two watts per kilo. Oh, nice. Which you weigh close to 90 kilos.

[00:45:51] That's a pretty significant pretty significant jump there. So I can see things happening there. I need to get a power meter for my bike 'cause the only time I'm able to use Watts or either, whether I'm at a commercial gym using their equipment or if I'm on the Peloton, which I despise with every part of my being.

[00:46:09] But yeah, that's been the main metric

[00:46:11] **Dr Mike T Nelson:** I've been using. And then do you have plans to change to more of an aerobic development type phase? So like a zone three, zone four, or what's the progression with it? I'm just curious.

[00:46:23] **Bryan Boorstein:** So most of this information and implementation has come from delving deep into Peter Atias work.

[00:46:30] Yep. And he's huge on zone two. And then I've listened to hours and hours of his, I've re-listened to his episodes with a guy named Ingo San Milan. I don't know if you're familiar with him. Yep. He's actually out of Denver, so Yeah, he is right,

[00:46:45] **Dr Mike T Nelson:** In your neighborhood?

[00:46:45] **Bryan Boorstein:** I've tried to meet up with him, but he said he's a busy man now.

[00:46:49] See, you recently cut his funding for oh, for population testing, mitochondrial function,

[00:46:54] **Dr Mike T Nelson:** stuff like that. Oh. 'cause he used to be able to, I've sent several clients in the past to his lab because he is the only people looking at metabolic flexibility and all that stuff for years. So I had a bunch of clients in Colorado over the years, so I'm like, yeah, I just go to this guy's lab.

[00:47:06] **Bryan Boorstein:** Yeah, that's I contacted him three different ways and he finally got back to me and said that CU cut his funding so he can't do it anymore. That sucks. Which I'm like super bummed about because yeah. I feel like I might have some like mitochondrial issues just given the fact that it doesn't seem like things are improving.

[00:47:22] Like he's, he talks a lot about how you should see improvement pretty rapidly and that seems to be ubiquitous, cross aerobic training in general. But I just haven't seen a ton of it very quickly. It's been like a very slow slogging type process for me. So I really wanted to get some, like mitochondrial testing done with him and stuff.

[00:47:39] But I've been unable to, so essentially to answer your question, I've been mainly focusing on just honing in on zone two, staying in zone two as best I can, and then also hitting my zone five work once a week. I don't do a ton of stuff in zone three and zone four, just because I generally perceive that to be more performance-based zones, and I'm more looking at the mitochondrial function and VO two max aspects of things more so than trying to improve athletic performance per se.

[00:48:09] But yeah, I enjoy it. It's something like I, I feel like there've been a ton of benefits to the zone two work, even if I'm not seeing the direct increases in my aerobic capacity very quickly and stuff like that. Like it's helped mental state and sleep and general energy throughout the day and I've really begun to enjoy it.

[00:48:30] **Dr Mike T Nelson:** My bias is that I think there's a lot of benefits to zone two and especially poor people are more on the, semi competi bodybuilding that makes perfect sense of where to start. You go back to the history, like basically what bodybuilders were doing back in the day, but it was more for fat loss than anything else.

[00:48:46] Like very low intensity step mill treadmill, low intensity bike stuff. And I think that's good for a base and blood flow and some specific mitochondrial stuff. I'm not personally convinced that VO two max in people who are semi trained, even if they're not aerobically trained, will increase much with zone two work.

[00:49:09] So most of those benefits in some of the studies are in high level cyclists and they're doing a whole bunch of other shit. And in, if you've ever worked with high level cyclists they're about as nutty as bodybuilders are. Yeah. Like the only way to get 'em to stop doing stuff is to tell 'em to do zone two stuff.

[00:49:24] And then you put a heart rate strap on 'em to make sure they're actually doing zone two stuff, because they're like, I'm just gonna go ride. It's okay, let's try to, let's try to taper down your intensity. And then in the studies when they show that, oh, shocker. Like they actually got better now, was that getting better from the zone two work or was it getting better because you cut down some of that sort of junk mileage or whatever you pulled back their overall training volume?

[00:49:49] Generally what I see with clients is I'll do a lot of base zone two stuff, and then I'll shift them into more of an aerobic development. So higher stuff around four to six minutes. If you look at some of the old literature on VO two max, that's probably what you want to hit. And then just shorten down the duration.

[00:50:06] So they may only do one high intensity session a week, maybe one zone two, and then two kind of aerobic development zones or three, depending upon what they're trying to do. And usually I'll see a bump in their VO two max at that point.

[00:50:19] **Bryan Boorstein:** It's the start stop piece as opposed to the zone two being more steady state, the VO two max is gonna be more attributed to, like you were saying, four to six minutes than a few minutes of rest and repeat for four to six rounds or something along those lines.

[00:50:33] **Dr Mike T Nelson:** Yeah, because I think it's intensity based, right? So if you just real think, if you just step all the way back and think, okay, I'm gonna do a VO two max test, right? So depending matter what protocol you use, you're hooked up to a metabolic heart. You're gonna slowly stair step your way up, but you're literally gonna hit that volume, right?

[00:50:50] So VO O two max volume of oxygen, that's at a maximum level for two to three minutes. Meaning that if you do more work, you can't use more oxygen. And in general, that's a pretty high intensity even for kind of untrained people. So the zone, my biases, the zone two stuff has good based development, like developing the bottom part of the period pyramid, but it's not specific enough to see a big bump in VO two max until people actually train that.

[00:51:18] But what I have seen is if they don't have that base when they go to do any higher intensity stuff, like looking at their heart rate variability or other markers, they just torch themselves like. In depth, like super fast. So they can't accumulate any volume to get a high enough quality work, right? It'd be like someone who's lifting, who's just completely outta shape.

[00:51:38] It's like you probably at some point can't do any more volume because you just can't recover because you're just not, your aerobic system is just, complete trash, right? So it's kinda the same idea, so anyway, that was my bias.

[00:51:51] **Bryan Boorstein:** Yeah. Where do you feel like the health benefits are between the mitochondrial stuff that comes from zone two versus the VO two max stuff that comes from the higher zones?

[00:52:04] Like where, yeah. Obviously there's health benefits to both. Do you prioritize one over the other

[00:52:09] **Dr Mike T Nelson:** or? Yeah. I, to me the data is all based on VO two max for the most part. That's what I see too. The JAMA study, like all that stuff is based on VO two max. No. You could argue that may be because we have metabolic hearts and we've got labs is the easiest thing to measure, right?

[00:52:24] Trying to get a muscle biopsy to measure all these other things is quite difficult. Not every lab's gonna do it, it's a bit invasive, et cetera. So you could argue just the, the fact of what we can actually measure. But yeah, my bias is it's more VO two max related, which that's why I get a little annoyed at some of the zone two only sort of purists.

[00:52:44] Be, I think it's beneficial. I think it's useful, but I can almost guarantee what's gonna happen next is they're gonna re start REM measuring their VO two max and they're gonna see it's dropping faster than what they expected. So they're gonna add more specific work into that to try to maintain that VO two max.

[00:53:03] No, that's just my bias.

[00:53:05] **Bryan Boorstein:** Interesting. So what would be the split, like if I'm gonna do five cardio sessions a week, would you say maybe it's three zone twos in two more performance based zones?

[00:53:14] **Dr Mike T Nelson:** Yeah, I would start with two more performance based. So easiest thing to do, so I've done this with clients is just take three minutes and see what you can hold for a wattage or just speed if you've got a bike, and it should be pretty hard, but you should be able to hold a pretty good watch or a speed the whole time.

[00:53:33] And then I actually do almost complete rest. So you can just pedal lightly if you want, and then go again. Your goal is that next time you want to hit about that same speed, that about that same intensity for three minutes and then go off and you just start at three to four intervals of that. And so then your progression over time is I'll have people work up to six minute intervals and then the average watts per minute will go up over time if you're using watts or speed.

[00:54:00] And the mistake people make is, They get on and they're like, oh, I just went balls out for three minutes. Great. But if we look at your performance over consecutive things it's dropping by 50%. Yeah. So you have, if you just like, like junk volume with lifting. Yeah. It's oh yeah, you lifted, you did a whole nother set, but your performance, you lifted like half the weight you did on your first set, right? Yeah. So is there really a lot of benefit to that? Eh, probably not. So that's what I like to do. And then the rest between you can adjust, like you don't necessarily need to rest the same amount of time period.

[00:54:31] Because what you'll find is even allowing your heart rate to recover all the way back down when you go again. It's just gonna take longer to be able to repeat that level of performance again. Gotcha. Cool. There, there's some really old literature, God, I can't remember the guy's name again, pissed me off, but I'll remember it.

[00:54:47] But they did this horrible study. I'm gonna do an article on this where they had people do repeats of four to six minutes. Just as a heinous programming for 10 weeks, I wanna say their VO two max, the average, I think in the study, I think that people go from 42 to like the mid fifties or something insane.

[00:55:08] It was the largest VO two max increase in a study like I've ever been able to find. But the protocol to do it is just, I've never had anybody do it because it's just so utterly horrible. It was like a 10 week protocol. Yeah. And most people, that's not their number one all out goal anyway. So I'd have to program that just like you would be programming in addition to all the other goals and stuff. So yeah, I've never had anyone come to me who's I'll do whatever it takes just to increase my VO two max and 10 weeks. Just whatever you say, it's like nah, no. Those people don't really exist.

[00:55:38] Even endurance people usually have some performance goal, not just VO two max. So yeah,

[00:55:42] **Bryan Boorstein:** I find the issue for me with the higher intensity, like zone five type stuff is that it does seem to have some kind of detrimental effects on my resistance training. Oh yeah. In subsequent days where the zone two stuff actually seems to be recuperative.

[00:55:58] Yes. And makes me feel like better and prepared to train again with no deleterious effect. The zone five stuff certainly does have that effect and so I have to more strategically place it and then that's why I've been keeping it to once a week. I've, I talked on a podcast the other day about how it's like I have a one A and a one B, and like right now my one A is my lifting and my one B is my cardio.

[00:56:22] But if I really want to see these improvements that I seem to covet, I may need to switch the one A to cardio and put lifting more on like a maintenance phase for a short period of time. Yeah,

[00:56:33] **Dr Mike T Nelson:** That's what I do with people. Like I'll have 'em start and then just see how long they can maintain both.

[00:56:39] And then if you see one or the other dropping, then it's oh, okay, now we gotta pick. We've done the kind of concurrent thing. We've tried to maximize both of those as best we can, which you can to a certain degree, but like you said, at some point, especially in higher level athletes, you're gonna have to prioritize in one or the other.

[00:56:54] Yeah. So in general then I'll be like, Hey, let's keep lifting pretty good, or gimme like your top lift that you want to be the best. We'll move that to Monday aerobic development stuff. We'll push Tuesday, Thursday, or move them away from each other. Then our goal for this training period is increase bench rest, and then VO two max is second.

[00:57:13] Instead of trying to see hypertrophy gains all the way, across the board, that kind of thing. Yeah. But it's hard because a lot of times for people, especially lifters, it's not like their number one goal. And you just generally need to get to a point where you're good enough, right?

[00:57:26] Yeah. And what that number is highly debatable. Like the number I didn't use is if you're in the forties to fifties for VO two max, I think you're probably pretty decent. Now if you wanna maximize that more, like the old stuff from Costel says everyone should hit 50. I think Andy Galpin talked about that.

[00:57:43] Yeah. I think that's probably a good number. From 40 to 50, you're probably gonna have to take some time and specialize and do that. And once you hit 50, could you hold that number without a lot of work? Yeah, you can. It doesn't, it's just like lifting, if you want to get bigger arms, you probably need to specialize and do a lot of work to just to get bigger arms.

[00:58:00] But once you get 'em, Probably don't need a lot of work to actually maintain, that type of thing either.

[00:58:05] **Bryan Boorstein:** Yeah, I remember Indigo saying that he sees five to six times a week of, big cardio sessions to be the key to seeing improvements, but that you can generally maintain them with two or three sessions a week.

[00:58:17] And so maybe that is just an inevitable course of action for me in that, given where I am with my training and 25 years of experience, I probably could cut back training to lifting to two to three times a week, maintain most of what I have and really put the full focus into the cardio stuff for a couple

[00:58:34] **Dr Mike T Nelson:** months.

[00:58:35] Yeah, if you do, I'd be interested in and just to see what it is. 'cause it's nice that at least people are having this discussion now. 'cause I remember I got this from my buddy, Dr. Kenneth Jay, like the first time I did VO two max assessment on clients was probably like five or six years ago.

[00:58:51] And once I started doing it, I'm like, oh my God. Like some people are trash, like they're horrible. And then some people like would not train cardio at all and would be like amazing. I dunno, do you know Ryan Laur? I dunno if you know him or

[00:59:03] **Bryan Boorstein:** not. Yeah. Ben House's friend.

[00:59:05] **Dr Mike T Nelson:** Yeah. Yeah. So we took him in Costa Rica.

[00:59:08] We stuck and we're like, we're giving him shit about his VO two max is probably pretty low, which he just got really annoyed about. And so we stuck him on a, Ben stuck him on a concept two rower and he put the little pace boat on there and he put him on a two K and he said, okay, whatever you don't let this boat beat you.

[00:59:23] And he set him at a seven minute pace, seven minutes for a two K. And so I come in like halfway through and Ryan looks like he's just gonna die, but you could see the, the concentration. He is I gotta beat this little boat. Okay. We ended up getting 6 58 or something.

[00:59:36] Yeah. I was like, dude that's phenomenal. Have you been doing more cardio stuff or whatever. He's I. No.

[00:59:42] **Bryan Boorstein:** Isn't that kind of confounded by his muscular output though? Oh, a hundred percent. Yeah. Yeah. Yeah. 'cause like for me, I can do much more watts per kilo and I can hammer rowing and even a salt bike much better than I can when it's just my legs churning.

[00:59:58] Yep. 'cause there's just so much lactic acid accumulation that occurs in there, but when you can get that full body in, whether it's with the arms on the assault bike or the pulling on the rower, it just seems to be like a much more efficient process of producing power.

[01:00:10] **Dr Mike T Nelson:** Yeah. Yeah. And also if you look at his training, like probably similar to your training, it's, he does a lot of short rest periods.

[01:00:15] He does a lot of stuff that's borderline metcon, extended sets, all that stuff kinda leads you into a little bit better sort of conditioning for those types of events too. 'cause I made the mistake early on, I just started having people do Cooper run tests for 12 minutes. That was a fucking disaster with lifters.

[01:00:32] So you've got these huge dudes like trying to lift and they sent me videos of them running. I'm like, oh my God, I wanna throw battery acid in my eyes. This is like not a good thing to do. Yeah. I

[01:00:42] **Bryan Boorstein:** realized very early on that I can't even do zone two while I'm running. It's like most people can't. Yeah.

[01:00:47] I, within, I was run trying to run a 10 minute mile just 'cause it felt easy and within two minutes my heart rate was in zone three. Zone four.

[01:00:54] **Dr Mike T Nelson:** Yeah. Yeah. I even find that with rowing too. Like even now, like I can do zone two on a rower, but I. It's hard. I gotta put the damper all the way down, do it unloaded and just do a real weird kind of pace.

[01:01:07] It's it, 'cause that full body movement, it's, yeah. It's just different. But on a bike yeah it's definitely much easier too. Yeah.

[01:01:16] **Bryan Boorstein:** Anyway, I'm excited about it. I feel like, yeah, this point in training, being this far into it, it's like cool to just have a new endeavor to pursue, not just the same hypertrophy goal all

[01:01:26] **Dr Mike T Nelson:** the time.

[01:01:27] Yeah. And I think that's what makes, lifting interesting too, right? I much prefer people take an approach like you did, of Hey, I wanna look, I wanna do something different. But at least you're picking a direction to go where general population, most people, they're like off working with a different coach or doing a different program entirely or whatever is like the next greatest thing.

[01:01:48] But, and that's fine if you realize you're doing it more for entertainment than progress. But if you wanna make progress on something, like you said, you have to. Take a period of time and dedicate time to doing it and see what happens, yep, for sure. Awesome. Thank you so much for all your time today.

[01:02:05] I really appreciate it. Where can people find out more about you?

[01:02:09] **Bryan Boorstein:** Yeah, I am mostly on Instagram. Brian Borstein is the name. You can probably find me if you don't know how to spell that, just look at the show notes. And then, yeah, I have a podcast with my co-host, Aaron Stryker, who we were talking about in the beginning.

[01:02:21] Yeah, it's called Eat Train Prosper, and we focus a lot on hypertrophy. But in the last seven months since I've begun getting into cardio we do talk a decent amount about kind of zone two, zone five different cardio stuff as well. And I own two companies. We do primarily group programming. I do a little bit of individual coaching, but primarily group programming with paragon training methods and evolved training systems.

[01:02:45] And yeah. I really appreciate you having me on. It was great. I feel like I learned a lot from you as well. I got to have interview. Yeah.

[01:02:51] **Dr Mike T Nelson:** I feel about, I'm just like, Hey, whatcha doing?

[01:02:54] **Bryan Boorstein:** No, it was great. I appreciate it. I think I'm definitely gonna incorporate some more of that up down, interval based kind of performance protocol into my cardio work and we'll

[01:03:03] **Dr Mike T Nelson:** see what happens.

[01:03:04] Cool. Awesome. Thank you so much.

[01:03:06]

[01:03:11] **Dr Mike T Nelson:** Thank you so much for listening to the podcast today. Huge thanks to Brian for coming on and sharing all of his very cool experiments. Shout out to him for doing that and really appreciate it.

[01:03:23] It's always fun to see some n of one experiments and what's going on. If you enjoyed this podcast, make sure to sign up to the website [mike tnelson.com](http://mike.tnelson.com) for all the information there. Most of it goes out to the newsletter. You'll be able to hop on there and get all the free content. Make sure to check out all Brian's stuff.

[01:03:42] He's got really great stuff on Instagram and through his website. We'll put links to everything that he has there. So make sure to check him out and send him a thanks for coming down to the podcast and sharing all of his. Very cool experiments with us. And if people are interested in, maybe I'll get an update from him on how his cardiovascular training is going.

[01:04:05] So let me know if you'd be interested in seeing that. As always, thank you so much for listening to the podcast. Really appreciate it. Huge. Thanks again to Brian for all of his time. If you enjoyed this podcast, please send it to someone who you think may also enjoy it and leave us whatever stars you feel is appropriate.

[01:04:22] And even a very short review goes a long way with the algorithms. Thank you so much. Really appreciate it. I will talk to all of you again next week.