

[00:00:00] **Dr Mike T Nelson:** Welcome back to the Flex Diet Podcast. I'm your host, Dr. Mike T. Nelson. On this podcast, we talk about all things to increase muscle performance, improve body composition, and do all of it without destroying your health in the process. Today, we've got some very special guests who have been on the podcast before.

[00:00:23] We've got Dr. Kelly Starrett and Juliet Starrett back on the podcast here. And what I wanted to do with this one is this is a very special excerpt from the Flex Diet Virtual Metabolism Summit. Go to [www.flexdietsummit.com](http://www.flexdietsummit.com). We'll put a link below here. This is going on online, this coming February 9th through the 12th, 2024 Go to Flex Diet Summit.

[00:00:58] February 9th through the 12th and when you opt in there, you'll be able to get access to all of the speakers for free. The catch is, as there always is a catch to it, that you will only be able to see them for free that weekend. We will have an offer that you can purchase the downloads of all of them if you would like, but you don't have to.

[00:01:24] You can go there, you can see all the presentations for free. We've got over 30 presentations lined up everyone from Lee Boyce to Dr. Lonnie Lowry, Dr. Susan Kleiner, Jeb Johnston, Dr. Lisa Lewis, Brad Pilon, Luka Hosovar, Dan John, Allie Gilbert, Joel Jameson, Dr. John Mike, Dr. Jed Teda, Adam Ross, Brian Cron many more than that.

[00:01:51] Go there, and you can get access to all of them for free. So in this podcast here, this is an excerpt from that virtual summit and Dr. Kelly and Juliet and I talk about movement, why movement is super important, how it's related to muscle, why having a higher quality movement is going to be beneficial.

[00:02:14] How do you know what higher quality movement is? And then we also touch on recovery related to sleep, how that impacts your metabolism. And much more. So enjoy this podcast, which is an excerpt from the Flex Diet Virtual Summit with Dr. Kelly Sturett and Juliet Sturett.

[00:02:36]

[00:02:37] **Dr Mike T Nelson:** ,

[00:02:37] thank you so much for both of you being here. We really appreciate it. Thanks, Dr. Mike.

[00:02:41] **Kelly Starrett:** Anything for you.

[00:02:42] **Dr Mike T Nelson:** Oh, wow. Watch out.

[00:02:44] Be careful. Careful what you say. Yeah, and so for the discussion, we're talking about just aspects of movement related to metabolism. And I thought, well, both of you are experts in that area. Obviously, before we get started, make sure to plug your book first and give us the short synopsis of why you wrote it, because I think there's a ton of great stuff in there that we probably won't have time to get to in this short hour.

[00:03:12] **Juliet Starrett:** Sure, I'll take a crack at that, Dr. Mike. Yeah! We published our A book last year called built to move, or I guess it's still this year, it's still 2023, but last year called built to move. And, we, as had been working with high performing athletes and teams and serious athletes for most of our professional lives, but we wanted to figure out how we could distill those lessons for sort of.

[00:03:34] The masses, so to speak, and also we really spent a lot of time in the pandemic trying to figure out like what are the essential behaviors of a human that are realistic that busy people can actually do. And how do all those behaviors integrate with one another. And what was really working for us, the things that we were actually doing on a day to day basis.

[00:03:56] that weren't like the latest health and fitness fad, that are the things that we've as, as too busy working parents, what are the things that we've really realistically been able to do and implement in our lives that have really moved the levers the most for us. And so we really tried to sort of.

[00:04:11] Put all those together into one book and make it fun. There are tests for every single chapter so people can sort of get a sense of where they are and we just wanted to make it

[00:04:20] **Kelly Starrett:** accessible. Let me double click on that because one of the things that I think around health and fitness that we don't have clear necessarily in sort of our brains is.

[00:04:29] This notion of sort of objective measures and vital signs. And I think around nutrition, we're definitely getting better. We can look at blood panels, we can count things, we can measure your body fat and your inflammation markers. It gets a lot easier. But some around some of these other behaviors, we haven't really given people clear guidelines.

[00:04:48] And certainly around movement, we never ever created vital signs around minimums. What we saw in the pandemic, as Julia said, was that People got really comfortable with SAO2 and some of these other markers and look, people are looking at heart rate variability now as sort of a metric that's thrown around our office, which is crazy.

[00:05:06] And yet literally I'm like, well, how much should your hip be able to move? And then people were like, ah, some are little, well, it doesn't hurt. So it's good enough. Yeah.

[00:05:14] **Juliet Starrett:** Or just something basic can I get up and down off the ground? Something as basic as that, which, people take for granted, but.

[00:05:20] Just these simple benchmarks. Yeah. And I

[00:05:22] **Kelly Starrett:** think when we give people benchmarks, then it allows us to come up and down sort of and self test. And what Julie and I have come to appreciate is, and you know better than anyone, there are a lot of ways to eat. And based on your culture, based on your genetics, based on your preferences, and boy, if I just give a bunch of steak to a bunch of women in my life, and that's the only thing, probably not going to have the same outcome as, handing a bunch of steak to a 14 year old.

[00:05:48] 14 year old boy. The idea here is, We really end up being agnostic about the way you like to move, the things that you like to do in your community, the way you want to manage these things, but let's go ahead and just test them against some objective third party measurements that are well validated and clinically relevant, and we can see where you are, and I think when people have that information, then they can tune up and tune down, and also it helps us to appreciate that Hey, I haven't been eating any fiber for the last week.

[00:06:16] Whoops. I've been traveling. Maybe I need to come back up because I haven't had any fruits and vegetables.

[00:06:21] **Juliet Starrett:** And one last thing I'll add, Dr. Mike, is that, a lot of people go and get a physical every year, with their primary care physician, but the physical isn't really physical anymore. I mean, there's the occasional physician who's doing, some little physical test or some kind of balance test or something, but it sort of lacks anything physical anymore.

[00:06:39] And. And, that really is a missing piece. And we all know that we want to be able to retain our movement capability for as long as we live. And so it's, it was sort of interesting to us that's not something that's tested. So our hope with this book is it like sits on your coffee table and.

[00:06:54] Every three or six months you go back and put yourself through the test and you basically give yourself like an at home physical and just check in. Like, where am I? Can I get off the ground? Is my balance still intact? How's my breathing doing? Just some of these basic metrics that people can just keep visiting over and over again.

[00:07:10] **Kelly Starrett:** And lastly, I'll say that these are still the performance anchors, the limiters that we initiate all our conversations with our elite athletes, our world champions, because so often people are like, just show me the secret hip mobilization. So I'm going to have better extension. And I'm like, well, we need to sort of understand the whole thing here or why that knee pain isn't getting better.

[00:07:29] I mean, just recently we were at a concert and a woman you could tell had struggled with some aspects of her health and she was wearing an unloader brace. And Juliet and I had a conversation about osteoarthritis. And I just had this conversation with another physiatrist friend. Osteoarthritis is very much.

[00:07:45] Akin to having a metabolic disease. So which one of these things is not important. And one of the things that we've recognized and tried to do in this book is to appreciate that we are a complex system of systems. And while I'm just a physical therapist, I can't talk about your tissue health and your resiliency, unless I'm talking about your sleep and your breathing and your movement and your decongestion and your nutrition.

[00:08:07] So that's how we ended up here.

[00:08:09] **Dr Mike T Nelson:** No, I think that's great. And especially since my master's was in engineering, I think of You have like the boundaries of the system, and then you have your buffer zone, like how close to the boundaries of the system are you, like the shoulder on the road, like how much shoulder on the road do you have before you put the car in the ditch, and unfortunately with movement stuff, as you guys know better than I do, most people don't do anything until the car is already in the ditch, it's oh, you probably only had one inch of shoulder left, but, ah, It'll be fine.

[00:08:37] I'll just step on the gas harder and then it's always why did it break?  
Yeah

[00:08:41] **Juliet Starrett:** I mean therein lies the biggest business problem. We have dr. Mike in what it is If we can ever crack the code of getting people to care before the car is in the ditch, yeah we will have sort of one, one at, business.

[00:08:57] But yeah. I mean, most people do find us and find Kelly and find our work and our app and, all the things we're doing at the ready state. They find us usually when the car's in the

[00:09:06] **Kelly Starrett:** ditch or they can't do something, I don't even know why. Yeah. Or, and car

[00:09:10] **Juliet Starrett:** doesn't or doesn't start. Yeah. Or the car doesn't start, and That's right.

[00:09:12] I mean, I think the exception to that would be, high performers and professional athletes and people who. actually need to, their body makes money for them. So if you're, if you need your body to make a living that is a subset of people who tend to, learn to care a little earlier.

[00:09:27] They're able to appreciate that because, they need their body to, to pay their mortgage, and,

[00:09:31] **Kelly Starrett:** for example, for everyone in elite level cycling, our athletes will be putting out 49 percent in their left leg and 51 percent in their right leg. And that's unacceptable.

[00:09:39] And we, that is a, something that we're working on those tolerances. And, I think one of the things that we want to do is move beyond this conversation of pain and no pain. What should the human being be able to do throughout our life? And more importantly, how does that matter to you in your community, in your family, in your job?

[00:10:01] That's really the sort of true modern definition of being mobile, right? Mobility is having access. to your native capacities. So you have more movement choice and greater tissue tolerance and better, application of what it is you're doing. I think where it gets confusing is we've told people will just go smash yourself in the gym with kettlebell swings and peloton and that's enough.

[00:10:22] You've checked the metabolic box and you've breathed hard and that says nothing about your ability to scale move, handle speed pick up a new sport apply these skills. So I think we've can really confuse people. And the last thing that people tend to look at when they are having pain is how well am I moving?

[00:10:41] And I don't mean do I have good squat technique? I mean, does your ankle or knee flex the way it's supposed to, the way every doctor says it should, every engineer says it should like, that's why we have these reference ranges. And I, somehow we've just thrown that out because in part of the physical therapy language, for example, Was that all movement is good.

[00:11:00] It's all okay. It doesn't matter. And I'm like, that's true at low loads and low speeds with very low consequence, you can probably get away with murder because the body is so robust. But as soon as you want to go fast or go long or go heavy, or compete or have more movement solutions, you're going to need to have access and training to

[00:11:21] **Juliet Starrett:** those shapes.

[00:11:22] Or how about just cut in your weekend game of pickleball? Oh, Lord.

[00:11:29] Pickleball is why Kelly and I have a job for the rest of our life, Dr. Mike. And we're fans. We're fans of pickleball. But we're like, keep it coming, middle aged people.

[00:11:38] **Dr Mike T Nelson:** I'm good friends with a couple orthos who are just like, pickleball is the greatest revolution for my job because of the amount of people who go from.

[00:11:46] Zero to hero in one weekend. It's, he's yeah, it's you're, he's I love it on one hand, but he's on the other hand, people, humans are very bad at moderating, which he's is good for my profession, but we are bad. Yeah.

[00:12:00] **Juliet Starrett:** Back to and you just think about what most of the people we know are doing, like speaking of Peloton, like everybody is doing most of their movement in A straight line, they're biking and that's not even

[00:12:08] **Kelly Starrett:** Peloton.

[00:12:09] They even straight lining. That's whatever they're just,

[00:12:11] **Juliet Starrett:** I don't even know what that, but you know what I'm saying? We're just, we're not doing any, we're not doing anything. Most of us aren't doing anything. That's like multi directional and then all of a sudden people, they lunge out for their huge move and their weekend pickleball gold medal match, and they tear their ACL and they're like, what?

[00:12:26] **Kelly Starrett:** We had a friend who was very fit on the bike and went to a ski trip and had a bad ACL tear And some other trauma to the joint and was really surprised because he was so athletic and

[00:12:39] **Juliet Starrett:** so fit so

[00:12:40] **Kelly Starrett:** fit hey, I'm so fit. I can just you know, look at my wattage look at my kilos to watt, look at my output look how I'm and we're like how Could that possibly have prepared you to weight bear at high G forces for many hours during the day?

[00:12:54] And I think that really does speak to the failure of the fitness industrial complex to say, are we treating exercise as disease state and just warding off like, Hey, you're just going to get out of your car. You don't really ever going to do these things. All you need to do is be on a bike or something.

[00:13:13] Right. And maybe do a plank, but then all of a sudden we're like, well, Hey, The other side of that is how can we prepare people to actually be surprised or take these hits or fall or learn a new skill or pick up a, I think people really are shocked when they get injured playing pickleball. We've heard of torn bicep tendons playing pickleball.

[00:13:33] What I have to ask you is how heavy is the racket that you're using? I mean, that, that ball with a ball weighs nothing. So if we start adding speed to that thing, well, why are your tendons, I mean, you're a human being. Why are your tendons and insertions so weak that you rip that thing off the bone, swinging your arm?

[00:13:50] That's crazy.

[00:13:53] **Dr Mike T Nelson:** Yeah, it's, using the car analogy again, I, for years in my career, I thought I could, I would be the one that would prevent them from putting the car in the ditch, and it didn't work. And so now I'm just can we stop when you hit those little rumble strips on the side? That's right.

[00:14:08] Or can you? Just put it in a snowdrift. So you put it in the ditch, but just don't go off the cliff with the thing. Can you, what's the smallest mistake you can make that you'll learn from that hopefully isn't catastrophic? That's great. I love that. Because trying to talk people out of it doesn't seem to work.

[00:14:26] So even like in person, I'll have somebody come in even before an exercise session. I just. It's the old school Kendall manual muscle testing on them. I'm not looking for anything crazy. I'm not a physical therapist. I'm just like, does your glute med do what a glute med should probably do in mid range?

[00:14:41] That's all I care about. And I'm mainly trying to demonstrate to the person like what they're missing. Like a lot of the tests you guys do, it's here's a test. Oh, wow. Cause most of it is an awareness drill of, Oh, I didn't know I was missing this. I didn't know I had, didn't have that amount of hip flexion.

[00:14:56] And now that they're aware. Hopefully they'll ask the next question of, Oh, what do I do to fix it now? It's oh, so glad you asked.

[00:15:04] **Juliet Starrett:** Yeah, I mean, that's exactly what we were trying to do in Built to Move, was just bring this general awareness about people's movement capability and some general health health metrics to people and then say, okay, these are ways you can improve.

[00:15:17] And that's one of the reasons we chose the things we chose because we know that people can improve doing the things, that they're all, I improvable things, and

[00:15:25] **Kelly Starrett:** in there we at least touch all the shapes. For example, our language is that. We speak in these archetypes, which is sort of book ends of key physiologic ranges.

[00:15:38] So if we talk about the shoulder is capable of mystery and magic. Go to Cirque du Soleil. You can really see what shoulders can do, right? Oh, it's so crazy. Go to track and field and watch them pull vault. And you're like, okay, shoulders are pretty rad. But really the shoulder, your arm goes up over your head.

[00:15:54] So what does that mean? Downward dog, swimming, pulling, on a pull up bar, pressing overhead, snatching. There's a lot of ways to get your arm over your head. It goes behind you in either a bent elbow or a straight elbow position. Well, that's running and that's, benching and dipping, right?



[00:16:09] You suddenly, or you're rowing, you can suddenly see that's what that arm does. It goes out to your side and it can either bend or straighten and be out to your side. And that's how you would hang clean or pull something or swim, right? And what else? Oh, it goes in front of you. And in a range around, and again, you can mix and match those positions, but if you're not actually touching those shapes in your training, then you are creating blind spots for yourself.

[00:16:36] And so what we're asked to come in and evaluate people's programming, elite Olympians programming, what are we missing? Why are we having this problem? Let me give you a good example. We've seen in our Olympic lifting communities, people going to the Olympics, the best Olympic lifters in the world will have knee pain or a colt back pain that they can't wrap their heads around.

[00:16:54] And so what we do is we say, Oh, it must be that you're not strong enough. You only squat 300 kilos, right? So we just suddenly remove this strength issue because it can't be that right. And what we ended up looking at is, well, let's go ahead and look and make sure that The training that you're doing is at least not robbing some key physiologic ranges.

[00:17:14] And what we find usually is that most of those athletes are actually very deficient in hip extension. That means getting the knee. Juliet's

[00:17:22] **Juliet Starrett:** laughing because it's my favorite topic. You know what, Dr. Mike Kelly has been waiting to try to figure out when in this conversation he could talk about hip extension because it's his favorite subject.

[00:17:32] And he's so excited right now that he's teed himself up for it. So

[00:17:36] **Kelly Starrett:** a lot of people think that they're working on hip extension when they do glute raises. Right. So you're doing your brick Contreras guy. You love the hip thrust. And I agree. It's great. That's what fine. You love that thing, but your hip actually doesn't go into extension.

[00:17:49] It goes from flexion, like a squat into mid range, neutral, like good and standing, but the leg is bent. So you think you're doing all this work. But if we see the single leg squatting varieties that most people do, the back leg is just a balance point and it's more single leg squatting. They're actually haven't loaded that back leg.

[00:18:05] If you look at the work of Stuart McMillan of Altus, Franz Bosch, what's going on over there, Bosch Systems, you're seeing that more and more people are really beginning to recognize we better do more things in split stance. You better load that back leg and extension and that's the reason why we see so many Achilles tears.

[00:18:23] We're not competent in that back range. We turn the foot out. We don't have a good, system. We haven't loaded those tissues. There's your Achilles. That's your plantar fascia problem. That's your knee pain. So when we start end up loading people in those positions and it might just be, Hey, we need to do some isometrics and a Bulgarian at the end of the session, that tissue exposure back there suddenly.

[00:18:45] reminds us, Oh, I should have this access. Maybe there's a tissue restriction that's preventing me because I'm doing all the squatting and jerking and suddenly pain goes away. And more importantly, hip function improves. And what we start to see is that people lift more and ultimately, just so everyone can wrap their head around the thing we really care about is.

[00:19:03] I can objectively measure your range of motion. That's my, I'm a physical therapist. That's what I can do. And I can measure your output. Everything else is slave to those things, is in service of those things. Full stop.

[00:19:17] **Dr Mike T Nelson:** Yeah, I was just commenting about the output thing today that with sensors and everything else going on, it's so easy to get wrapped up in all these other adjacent metrics, which can be super useful.

[00:19:29] But I've lost track of even. And people have emailed me just reams of data and I'm like, okay, so you're on a rower. What was their output of this thing you did? Oh, I don't know. I forgot to look, so like output and range of motion, like even if you only know those two things, you don't have any other surrogate markers.

[00:19:47] You can get really far with that, but you kind of need both of those to start.

[00:19:53] **Juliet Starrett:** Well, I was just going to give kind of a 50 year old exercise lady example of this, especially with respect to Kelly's archetype model. We obviously owned a CrossFit gym for almost 20 years and I understand programming and but my goals as a 50 year old female exerciser.

[00:20:09] Are to keep my muscle mass and I love mountain biking. So I want to be able to continue mountain biking. But when I think about my programming the most important thing as I look at my week and my days are, am I touching all the positions? Am I touching all the archetypes? This is the most romantic thing you've ever said.

[00:20:26] I know. So if yesterday I, put my arm over my head, then, maybe today I need to put my knee behind my butt. I mean, it's just this very simple way of thinking about it. And I think, for your sort of average everyday middle aged exerciser out there, it's it's important to bring some attention to the fact that most people listening to this are probably just doing one or maybe two of those movements and skipping out on these.

[00:20:49] whole, these huge swaths of the, other things that the body needs to be able to do. And you may not want to access it now, but you might later. And in two years you might determine that you have a love of pickleball and you haven't touched that shape for the last 20 years because you've just been pellet hunting and you're going to touch it and then you're going to touch it in the orthos office.

[00:21:10] Right. And Kelly can get all deep and technical about the archetype model and all the specific things that the body's supposed to be able to do, but it's actually pretty simple. Your joints are supposed to be able to do some real basic things. And it's I think about, okay, did I, in my own simple way of programming, did I put my joints through all of the possible ranges of motion?

[00:21:27] And you can do that in a seven day. I only really do like strengthening, conditioning training, three or four days a week. Cause I like to mountain bike. So in those three days, I'm able to hit all those shapes. And that's how I design my program, all these people are like programming is it's no, I just designed my program around.

[00:21:42] Am I hitting all those shapes? And what

[00:21:44] **Kelly Starrett:** works pretty well, what you can do then is suddenly recognize if we take something like a basic squat shape, right? Everyone can relate to that. I think everyone agrees that you should probably squat in some form. Well, the way we only typically load it. In the language I think where it's right now happening in strengthening, let's not call it strengthening conditioning, those, we're on it, in the durability, longevity sort of space, it's all about muscle mass, right?

[00:22:13] Dumb muscle mass. And it's Hey, we just need to get muscle mass on you and load you. So your bones are big and you have this metabolic. Because

[00:22:19] **Juliet Starrett:** Galpin says it's about strength.

[00:22:21] **Kelly Starrett:** I know, but still, Galpin's

[00:22:23] **Dr Mike T Nelson:** always the exception.

[00:22:24] **Kelly Starrett:** But Galpin would say, those things correlate roughly. Yes. But what I'll say is Whoa.

[00:22:30] Galpin also knows it's about coordination of that. And I think I quoting Franz Bosch is that strength training is just coordination training with resistance. And when we begin to pull all of the skill out of the strength training, resistance training, what we end up with is sort of the, imagine a bodybuilder just jumping into an MMA ring.

[00:22:53] And I use that analogy. Because we saw this TV show recently called what is the fit 100. It was that Korean show. Yeah. Yeah. Yeah. Right. Did you see it? It was so

[00:23:04] **Juliet Starrett:** now it's on Netflix. It's like the fittest 100. It's great.

[00:23:08] **Kelly Starrett:** It took a hundred athletes over Korea from South Korea, from MMA fighters, crossfitters to Olympians and

[00:23:14] **Juliet Starrett:** dancers.

[00:23:14] I mean, like any. And they just

[00:23:16] **Kelly Starrett:** had them do some if you've ever crossed it before, you'd be like, Oh, this is very cross. But then some functional tests and hold this over your head. And the most jacked guys died early, died, of course, because they couldn't put their arms over their head.

[00:23:27] They weren't very

[00:23:28] **Juliet Starrett:** fit through we don't want to spoil it for you. They made it a little wild, but they

[00:23:31] **Kelly Starrett:** look great. Right. But what you see is the expression of all that. ends up sort of falling on its face. So if your goals look great, that's fine. That's a fine goal. But when we're talking about strength and conditioning and not just dumb musculature, what Juliet is pointing out is suddenly we can say, well, there's a lot of ways to put your arm behind your back.

[00:23:51] You can bench, you can dip, you can push up, you can do chaturanga, right? You can push and pull from those positions. You can approximate the joints or compress the joints or distract the joints, but then I can add load. I can add speed. I can add reps, metabolic volume. I can also add cardiorespiratory demand.

[00:24:08] And so suddenly, if I, I can change the movement learning, the motor learning parameters. And so instead of a bunch of block practice, you get more random practice. Suddenly I'm like, Juliet and I are competing for world champion of the world. And there's a little time stress. And boy, that changes everything.

[00:24:22] I just went unconscious and all of a sudden started, moving like a jerk to try to beat Juliet. And so suddenly what we recognize is in our model is, Hey, we're really looking for you to be able to express fundamental patterns. And again, those are expressions of what the body should be able to do, but just given a formal language of strength conditioning, and they should be relatively stable movement patterns and strategies across these different domains.

[00:24:48] And so that means, Hey, if You can't do this air squat with your heart rate at 180 and a little bit of fatigue. Chances are that's not a really great, well ingrained movement pattern, right? You may not be as strong with your heart rate at 180, but you should move relatively the same way. And that's where this kind of conversation about living forever.

[00:25:09] And just putting muscle on has nothing to do with high performance or actually getting someone to the pickleball world championship.

[00:25:16] **Juliet Starrett:** Well, and the other thing I was going to say, another way to think about this is, why are we here? And we had Katie Bowman on our podcast and we're big fans of her and her work.

[00:25:25] And, she was just talking about how we, your, the body, you, whatever you're practicing is the shapes that your body adopts. And unfortunately, most of us are practicing sitting. for most of our days. And when you're practicing sitting, your joints are all at 90 degree angles all day.

[00:25:41] And that's fine. We're not anti sitting. Sometimes people think we're like the anti sitting people. We're not anti sitting. We like sitting. We're fans of sitting. But I think, one of the reasons we love this kind of training we do and thinking about putting our body into all these shapes is that we want to make sure we're, practicing something else besides sitting and practicing all of the shapes.

[00:26:00] Because if we just practice sitting all the time and then we try to access these shapes that we haven't been practicing, it becomes really difficult.

[00:26:07] **Kelly Starrett:** Practice doesn't make perfect. Practice makes permanent. Yeah. And wrapping this back into a sort of a metabolic conversation. We want people to understand again around performance and nutrition, we should see changes in your output, but I think that's the problem that people sometimes forget, like they get on a diet and it's about body composition that may change your output because you're generating, more force at a lower body weight.

[00:26:33] But ultimately we're interested in you handling higher loads, higher volumes, and reducing that, what we call session costs. That's our phrase for limiting sort of the total physiologic cost of the training and sort of your adaptation response to it. And what we find now is that no one can outwork anyone else that ship sailed in like the nineties Oh, I'll just.

[00:26:54] I'll just do my secret scroll program and get more volume. Yeah, that shit failed

[00:26:58] **Juliet Starrett:** when CrossFit, the CrossFit game became a

[00:27:00] **Kelly Starrett:** thing. Right. There's just so many people are all trained or the tour de France, or we got access to, we just saw suddenly that the volumes that people are handling. So we're always looking at how do we allow athletes to handle more volume?

[00:27:13] And I think that's what. Sometimes gets lost in this conversation among experts is that we're not all of us aren't playing defense. We're playing offense. We don't say do this because you may not go into the shoulder on the ditch. We say do this because you're going to go faster down the freeway.

[00:27:29] And when you end up in the ditch, you'll end up back on the freeway faster. And here's an example for everyone. I love dessert. I have loved dessert And have had a romantic relationship. It's the third

[00:27:40] **Juliet Starrett:** woman, second woman. Primarily, it's his, it's primarily the cookie.

[00:27:45] **Dr Mike T Nelson:** That is his cookies are great. I

[00:27:46] **Kelly Starrett:** love cookies.

[00:27:47] Yeah. And here it is for the last two months. I've given up all sugar. And I don't, when I say that, I mean, refined sugar dessert. Like people do not eating fruit. I'm like, stop being a child. Of course I'm eating fruit. But what I stopped doing was eating candy. I stopped eating dessert. I stopped eating gummy bears.

[00:28:03] None of it. It's all going right now. I know. And what I'm

[00:28:05] **Juliet Starrett:** running is an experiment. He's barely alive right now, Dr. Mike. He's barely alive.

[00:28:09] **Kelly Starrett:** My A1c was fine. My, homocysteine fine. Those things were fine. Why? Because I'm checking. It's objective, right? What I'm interested to see is, can I actually feel better and go better as a 50 year old man?

[00:28:20] And I'll tell you what, pulling the sugar out, I feel like I found another gear. Because my body, well,

[00:28:27] **Juliet Starrett:** hold on. I'm going to tell you what his new gear is that Kelly has, we've been, we track our sleep on an aura ring, like everybody else. And he definitely does not historically sleep that well.

[00:28:39] But he also historically eats dessert right before he goes to bed. And in the last two months, he's pulled dessert out and his sleep score. He's not just pulled the dessert up, but he's pulled out eating close to bed. And his sleep scores have dramatically improved. Heart rate variability has

[00:28:56] **Kelly Starrett:** improved.

[00:28:56] Yeah, his resting heart rate down two beats. Yeah.

[00:28:59] **Juliet Starrett:** So it's been really interesting to see that. And who knows whether it's probably more likely to just be that he's not, doesn't have,

he's digested his food when he's gone to sleep, whether or not it's sugar, who knows. But just that alone has been a major difference.

[00:29:11] And what And then chances are Those are still

[00:29:14] **Kelly Starrett:** Analogs.

[00:29:15] **Juliet Starrett:** Yeah. But then who knows because maybe tomorrow when he sleeps well, he slept well last night. So maybe today four o'clock he won't have a strong desire to eat sugar because he got such a great night's sleep.

[00:29:27] **Kelly Starrett:** I never had a desire to eat sugar.

[00:29:28] I just chose to eat sugar. Don't

[00:29:30] **Juliet Starrett:** even, except for you chose to eat it every day,

[00:29:34] **Kelly Starrett:** just 700 or 750 calories of additional because if it fit in your macros, right, I've heard that before. And oftentimes it fit in my macros. I'm a, and I'll, what I'll say is I definitely had bigger shoulders on the road than everyone else.

[00:29:47] I'm 240 pounds. Under 10 percent body fat. I have gigantic hamstrings and quads that can soak up that glucose. I don't think

[00:29:53] **Juliet Starrett:** Dr. Mike is a

[00:29:54] **Kelly Starrett:** small man. No, I'm not saying he is not a small man. What I'm saying is for me personally. You got

[00:29:59] **Dr Mike T Nelson:** lots of big sinks there. Yeah, I

[00:30:01] **Kelly Starrett:** had a bunch of big sinks. Exactly.

[00:30:04] What we're interested in is, hey, I'm starting to look at what happens when we make a change, what do I feel? And that's where all of this comes. Do you think my tendons and ligaments and joint surfaces are going to likely handle larger loads because I'm not having to sort of manage that sugar bomb?

[00:30:22] Probably. And



[00:30:23] **Juliet Starrett:** because

[00:30:23] **Kelly Starrett:** you slept well. You got it. So I think that's this really interesting interface of all of your life's work. And again, I think I, I appreciate that you are such a performance coach. That's how I would describe you to my friends. Who also is an expert in nutrition. And I think I might be an expert in movement who has a minor expertise in nutrition, right?

[00:30:50] What we're seeing, though, is all of these things are important. And when people come to us and ask us which one of these things is not important, we're like, which hand do you not want?

[00:31:01] **Juliet Starrett:** Yeah. But I mean, at the same time, I think one of the challenges and especially because there's so much easy access to information now is that, again, those of us that.

[00:31:09] live and breathe what we're talking about. It's easier for us to have a 20 item daily to do list of health behaviors that we check off. But for most people that might be five and what are, how do they choose which things are essential? And that's what we're trying to help people figure out how to do is how do okay, there's a thousand things you could be doing, from taking supplements to certain types of exercise, to tracking things to certain diets.

[00:31:36] I mean, there's a. thousand things people could be doing and those of us who do this, we can, we have maybe a bigger capacity and ability to choose 20 things each day, but most people have five things. And so what Kelly and I have been trying to do lately in life is help people figure out like, what are those?

[00:31:53] Five things that are going to move the lever the most. And it turns out this like not eating late and not eating sugar thing may be like really a key thing for Kelly, because if it means that he sleeps well and to us sleep is a keystone behavior and that, impacts all and positively impacts all other health behaviors man, that could be a really big lever for him.

[00:32:14] **Dr Mike T Nelson:** Yeah. And that's what I think having professional help in any sort of imagine that could be, obviously while we're doing this could be a book could be hiring people such as yourself, that it helps you figure out where the next action needs to go, right? Because the reality is people could do a bunch of different things and couldn't make a big difference.

[00:32:35] Sure. But the question most people want to know is, Hey, I've only got time for two more things. My life's crazy. What has the highest leverage for those two things? And I think any professional can look and go, okay, how's this? How's this? How's that? They may not be exceptional in one area, but like in your book, they can go through and look, okay, do you have these kinds of basic movement patterns?

[00:32:57] How's your breathing? What's your base nutrition, sleep, et cetera. And sort of the filtering mechanism I use for that is. As a survival, I think your body is just intrinsically wired to survive as best they can. So the top of my list, which would be breathing. And then actually I would have Kelly would like this hip extension and hip flexion.

[00:33:17] Because you have to be able to ambulate like the joke I make is. If you could walk around, you could probably still get food and find a way to feed yourself. If you can't have hip flexion or extension, let's say without technology, man, it's going to be a lot harder. It's going to be really hard.

[00:33:36] **Juliet Starrett:** You have no idea how happy that makes Kelly. Like he's so happy right now. He feels seen as a human.

[00:33:42] **Kelly Starrett:** I want people to hear that. When we look through this hierarchy, through this lens of two and a half million years of evolution, then it really does hint at what are essential behaviors.

[00:33:56] Turns out sunlight is super important. And I think what that makes it easier to understand is. Okay. How am I disrupting sort of this base programming that's existed for a long time? And I'm not pining for the old days of dying of a

[00:34:12] **Juliet Starrett:** tooth. Eating locusts for dinner.

[00:34:15] **Kelly Starrett:** I originally, when I was like, Julie, I heard this diet called the paleo diet.

[00:34:19] This was like in

[00:34:20] **Juliet Starrett:** 2004, by the way. Maybe

[00:34:21] **Kelly Starrett:** 2003, 2004. And it was like, Hey, I just Googled that. And I don't know if Google's around. You're like, I Yahoo'd that. And And

you were like, the first thing that came up was fermented wasp nest soup. She's I think you're full of shit.

[00:34:34] **Juliet Starrett:** Yeah. I was like, I don't know if this paleo diet thing is going to work out for us, Kelly, because we're never going to make fermented wasps.

[00:34:41] And I was like, I

[00:34:42] **Kelly Starrett:** think what it means is that we're supposed to eat more food again, like that we cook. That's what I thought it meant. The, I think when we look through that lens, suddenly it becomes what are the keystone behaviors? Well, It turns out, for example, everyone loses their mind about walking.

[00:34:57] Well, I'm an athlete. And I'm like, well, it turns out you used to probably walk 68, 000 steps a day, no matter what, just for 16, 000, right? Somewhere in that range, minimum

[00:35:07] **Dr Mike T Nelson:** 18, 000, 22, right. Technology.

[00:35:11] **Kelly Starrett:** So if most people are walking two to 3000 steps, we know that to be true. Then we can ask. Is, does that have an impact?

[00:35:20] Was that important? And what we see is, well, our lymphatic system doesn't work as effectively. We don't load our joints. We're not outside getting sun. We're not in nature. We see this sort of cascade of downstream effects from the simple idea that, Hey, it's a lot easier not to have to walk anywhere today.

[00:35:36] So now we have to be more formal about asking people to move their carcass in space, right? Pilot this meat Mac around, so that. Your body can do what it's supposed to do. We did a interview with a friend and I suggested, wait for this. This is going to blow your mind that our minimum is trying to get seven hours of sleep.

[00:35:57] We really think that is a good basement, especially if you want to change your body composition, grow a body. Get out of pain surgery and you're shaking your head inside cause you're like seven. Good luck with that. I mean, that's going to make it, the tolerances get real small. We, the magic starts to happen towards

[00:36:15] **Dr Mike T Nelson:** eight, right?

[00:36:16] Yeah. Eight or nine for some people, even right. Nobody wants to

[00:36:19] **Kelly Starrett:** hear. And we had, I don't know, it's a half a million views on that thing or no 3. 5, 4 million views and the hate. That we got, where people were like, what would you even do with all that sleep? I mean, all the people who are rich only sleep four hours.

[00:36:35] Don't be a sucker.

[00:36:40] **Juliet Starrett:** You know what I really took away from that experience that we're watching that whole Instagram post go down is. Just this reminder of how siloed we all get in our communities, how Kelly and I are no exception that we live and breathe in this health, fitness, wellness, whatever community, however you want to describe it.

[00:36:59] And so saying you should get seven or eight hours of sleep within this community is pretty well accepted at this point. I think everybody is tracking their, in this community, a lot of people are tracking their sleep or have at least tried tracking. Yeah, I was feeling

[00:37:10] **Kelly Starrett:** gaslit. Like I was like, am I being gaslighted?

[00:37:13] I had to go out and do the research again. Yeah,

[00:37:14] **Juliet Starrett:** but what we realized is we just. stepped one foot out of our own silo, which I think is really important to do in all ways in life is just to step a little bit out of our silo. And we realized that, man, like we sort of have assumed this is everybody gets it that this sleep thing is well understood.

[00:37:31] Well, man, it's not like we all, those of us who live in this silo, we have. so much more work to do from an education standpoint, we just need to step one, we need to step a little bit out of our own universe and start getting these messages out to people. I mean, there's a lot of work to do there.

[00:37:48] That's what we really learned.

[00:37:49] **Dr Mike T Nelson:** Yeah. I still try to keep a couple, I would say just kind of general population clients because just for that matter, that it's so easy with. More higher performing clients where the small things make big differences and they've got most of the basics down, not all the time.

[00:38:06] Granted, there's a lot of, like we've talked about before, elite level athletes that eat like a floating trash bin fire and sleep six hours a night. There's always exceptions to and they're still world champions. Yeah. And they still destroy people, which is crazy. But even just that, just getting.

[00:38:20] education and talking to people about, my client once a couple years ago, she was like, yeah, you'd be so proud of me. I had a high protein breakfast. I'm like, Oh, this is so cool. What'd you have? Like I had an egg. I'm like, an egg, like a single egg, is just yeah. And I'm like, well, it's better than the, half a piece of toast you had, two weeks ago.

[00:38:40] But she thought that was like the pinnacle. She thought I've made it now, that's seven grams I'm good to go for the rest of my life. I'm like, well, it's better, but.

[00:38:48] **Juliet Starrett:** Gone from zero grams of protein a day to seven. Right. To seven. It's an exponential increase.

[00:38:53] **Kelly Starrett:** And really, I think. Where Julian and I have been led, like everyone else in our field is saying, well, how do we set up the environment so the person can do it without thinking?

[00:39:06] How do we, and we call that environmental constraint. And we originally, when I was a young physio in school, we did a bunch of work with the occupational therapists, with people who had cerebral vascular accidents and strokes and trauma. And someone would come in and they'd have a deficit in their sort of affected limb.

[00:39:23] And let's say it was like their left hand. And what they would do is they would go ahead and put like a cooking glove, like an oven mitt on the less affected side. So if my left side is more affected, right side is less affected, which is the right terminology for that, everyone, not good side, bad side.

[00:39:39] And what they would do is suddenly make it so it was really difficult. To use the easy side. And it was really, I had to focus intently on redeveloping those motor patterns and practice with the more affected limb. And that was an idea called constraint. And I came home and I was like, Juliet, we have to take the cookies out of the house.

[00:39:57] Because if I can't get the cookies, that's the same thing as putting an oven mitt on my, myself. And we started applying that more and more to an exercise. How might we get a better cueing or an automatic better physiology or

expression of the physiology through our movement? And a good example is the burpee.

[00:40:16] We see people do, very meticulous in their exercise and their complex movements and their, and then as soon as they do a burpee, they It's just a trash fire. They just flop to the ground, overextend, no butt, right? Land with like foot in a crappy turned out arch collapse position and jump from that position.

[00:40:32] I'm like, okay, we just did a hundred repetitions of practice, undoing all this foot pressure balance work that we've been doing. And when we just said, I was a great, you win feet together burpees. And so you now have to land with your feet together and guess what? We suddenly didn't see any of that silliness.

[00:40:48] So that environmental constraint led us down to these ideas of how can we set up the environment and where might a person have agency in the day so that they can live their lives and not feel like they're dumping 90 percent of their available Ram, into, this idea of how do I manage, I have to eat two eggs, Dr.

[00:41:06] Mike, that's insane.

[00:41:07] **Juliet Starrett:** But I mean, I can't emphasize enough how Kelly and I. Like our good health practices are operating on autopilot because we've so carefully set up our environment to make the, the way that we shop for food, the way that we exclude certain things from our house. I mean, we've become known as like the standing desk people and wrote a book about.

[00:41:27] standing. And, we're not necessarily fans of, like I said earlier, we're not like fans of standing over sitting, but what we like about standing is that it gives you movement options. You're more likely to move around and leave your desk and fidget and, do all this sort of like little micro non exercise activity movements.

[00:41:41] And there's a thousand ways, if you look at our house and our office, that we have set up our environment to make it so that it is. Without thought to make the right decision completely without thought. And that's really the goal, so yes, we have to be intentional. We, we go and actually exercise and there are some things we have to really think about and be intentional, but most of the health practices we do are literally built in because we've created an environment at our house and our office to facilitate that.

[00:42:11] **Dr Mike T Nelson:** Yeah, I teach coaches and even clients, I call it like rigging the system in your favor. Yes. Yeah. What are you gonna do to make it easier? Which is, well, I'm a huge fan of like fasted cardio stuff. Yeah. There may be some metabolic benefits that we could have a long drawn out discussion about body composition changes, fat use, et cetera.

[00:42:28] But the biggest reason is for most people, it's just easier. Get up, go for a run. If you're a runner, go for a walk, get on the roader, go on the bike. What do you do beforehand? Nothing. It's a low intensity you probably don't need much of a warm up. What do I eat beforehand? That's fasted.

[00:42:42] If you want to drink some water with electrolytes, like you, you've just simplified so many questions and so many other steps beforehand. Cause if there's 17 steps to do before they do the thing, the odds of them doing the thing just crap.

[00:42:55] **Juliet Starrett:** Yeah, right. If you have to have a perfect meal that has the perfect macro count and you have to make sure to eat it an hour and a half before you train so that it's fully digested, it's okay, yeah, no one's ever going to exercise again.

[00:43:05] **Kelly Starrett:** Right. I really, I love that. I don't think I've ever thought of it that way. And I

[00:43:09] **Juliet Starrett:** think that's just like the barrier to entry. Yeah.

[00:43:12] **Kelly Starrett:** And I'm like, he just, so we're clear, that's not the same thing as competing in a world cup final. I mean, and I know you're not ensuring that, but I think that's where the, sometimes the messiness is.

[00:43:24] Is that, hey, this thing that we're doing can be scaled up. We, but if you're going to do three sessions today, we need to make sure you're fueled. And, but if you're a middle, like what, I, every once in a while, I'm like, Hey, here are my physical goals. Now I want to be less gross for my wife.

[00:43:41] That's a technical term and I want to be the most badass 50 year old middle aged guy in my neighborhood who can like mountain bike when his back doesn't hurt like that. What am I really training for? And so you're absolutely right. Sometimes we get so precious because it makes us feel like that misplaced precision.

[00:43:56] I have the right goo and gel and bar and I'm like, dude, you're we're writing for a mountain bikes for an hour. It doesn't matter what you're doing. Stop

[00:44:03] **Juliet Starrett:** it. Yeah. Like we're not trying to win. Kelly and I are not trying to win mountain biking. Who is it that said we don't nature for time.

[00:44:08] Who said that recently? I like that. Yeah. It was like, yeah. We were just like, we don't nature for time. Shout out Nicole Christensen. Yeah, we do. We, we like to do outdoor activities because they bring us joy and it's part of our community and we get some exercise on board and we are not trying to win mountain biking.

[00:44:25] At all.

[00:44:25] **Dr Mike T Nelson:** Yeah. And that's why going back to output, to me, output is a differentiator. So if I, if someone comes to me and says, this happened recently, I want to qualify for the Olympics as a rower, right? So we're going to use a 2k on the concept two as a thing. And then it's a series of all these highly in depth questions.

[00:44:44] And my first question was, what's your 2k time? Like you send me a 2k time because I need to know. Are you up at that elite level where you, these things are justified? Or, are you not? And then it's just eh, let's just start here. Let's just make it more simple. You don't need to Have, the exact precision matrix meal two hours before this.

[00:45:07] And, your caffeine down to the milligram, but the output will tell me kind of where you're at and the order of priority then at that point. So

[00:45:15] **Kelly Starrett:** Tom Pidcock is arguably one of the greatest cyclists around today. We're in peak biking. Like where you can just, these men and women are just casually jumping in and winning a cyclocross world championship, then riding the Tour de France and then coming back to the mountain

[00:45:31] **Juliet Starrett:** biking.

[00:45:31] And then like winning an Olympic gold medal in mountain



[00:45:33] **Kelly Starrett:** biking. I mean, I really, everyone, what's happening in cycling right now is it makes Lance Armstrong look like old school. Just boring. Just oh, you're, oh, that slow old guy. He did

[00:45:43] **Juliet Starrett:** one race a year.

[00:45:44] **Kelly Starrett:** But Pitcock found, and he talks about his breakfast, he's oh, on race days.

[00:45:49] I eat three scrambled eggs and a hundred grams of rice and literally it's the same thing and he just figured out all that works and that and I'm comfortable and I don't have to think about it now because I've just found my pre race meal and maybe it was 200 grams of rice, but or whatever, but the idea here is that he knew roughly what was in it.

[00:46:06] He knew he could always get it. It was easy to digest and it didn't mess with him. And he just worked that piece out. So then the real thing, what matters most not, did I have this, cause it is, it feels, I think one of the things that we're always trying to have people understand is we want to move beyond this idea of plausible deniability.

[00:46:25] Implausible deniability in sports means that I can turn around and be like, but Mike, look, I took my Coke, you 10 and I sprinkled it on my, my Mike flakes and it didn't work. And you can point and say, well, it wasn't my fault. Or you can say, look how hard I trained and it's not my fault. My knee hurts or my back hurts or I couldn't train because look at my volume.

[00:46:43] And so it gives us a way of looking back and saying, well. My result can't be my fault because I did all of this very precise work or very intentional work instead of seeing it for what it is all in service of can I show up when it matters and do what matters, and now we're into, all the performance aspects of it.

[00:47:04] We're just talking about trying to get your body prepared to the, line.

[00:47:08] **Dr Mike T Nelson:** Yeah. And I think as you guys know it. The high end, like once those, what I do with people, once they're like super dialed in, I just fuck with them. I try to pull stuff out, I try to, I want them to be as resilient as possible to not have that excuse on the day.

[00:47:24] Oh my god, you had 50 grams of rice instead of 60 you'll be fine. But let's test that and make sure that you can handle these small amounts of

variability. Because you guys know stuff's gonna happen you compete long enough you're gonna miss a station, you're, Like shit's just going to happen, and I think the more elite level athletes are prepared both physiologically and mentally to handle that, and it doesn't derail them.

[00:47:48] Where some people are so dialed in that they become very fragile. And their competi usually you see their training is amazing, and their competitions are dog shit. Right? And to me, that's, the transfer got missed. So those people need more distress just thrown at them in training. But again, people who are general population would look at that and be like, oh, well, I should be able to get away with this.

[00:48:12] It's no, this is an elite level person and we're doing this on purpose. This doesn't mean you should go back to having four donuts for breakfast.

[00:48:19] **Juliet Starrett:** Yeah, I mean, we laugh. This is kind of a joke, but we've become so dialed with our sleeping situation. Dr. Mike at the star at house. We both we found the chili pad years ago and it changed Kelly's life.

[00:48:31] Cause he was such a hot sleeper and we take the, like Perfect dosage of magnesium. And we sleep with eye masks and ear plugs. And, like we have this whole setup, like our sleeping setup is pretty sweet, the drawback of it is we definitely are less flexible when we try, and yeah, I mean, we go to hotels and we're like, yeah yeah.

[00:48:50] You should tell about, how Heather was talking about the cow women and, practicing with Lenny where they're like. Getting coaching and learning, but when they're stressed and tired during games, that's what I was thinking about when he was talking. Oh, yeah,

[00:49:04] **Kelly Starrett:** One of the things we work with, you know regularly Everyone can do everything fresh, and one of the ways that we regularly mess with athletes is ask them to perform very precision, high skill, high outputs when they're metabolically trashed.

[00:49:18] And that might be consciously, can you pick up, can you see, or do you have the peripheral vision in these team sports? And it's an art and science to do all of this. But I think you're absolutely right that we're looking for how can we reduce the variability? So when our athletes travel, we try to have them at least take their pillow and an eye mask.

[00:49:37] So they're sleeping on the same pillow. They get the same sets of smells. How can we set the temperature? How can we, control for the room and everyone, how that scales up is that now some of the teams in the tour de France, every. Athlete has their own mattress, every athlete has their, has their own washing machine.

[00:49:55] And we just start to say, well, where's the variable where we can not, end up putting the car in the ditch because we got sick or we got one bad night's sleep, which put us in the hole versus, and I think you're absolutely right. The central conversation is what is output and if the output is I just want to feel better that starts to become a lot more simple well, you didn't eat fruits and vegetables this week or you did on your, you didn't go in any sunlight, we just had the founder of a company called nature dose on.

[00:50:24] And nature dose is an app that tracks how much time you're actually going outside.

[00:50:29] **Juliet Starrett:** And it's really cool. It's cool. And I recommend you download it. It's free. And they've done this amazing job basically tracking the entire contiguous United States. And they can tell if you have as long as you have your phone with you, they can tell whether you're inside or outside.

[00:50:45] And it's really interesting to see,

[00:50:48] **Kelly Starrett:** average American is spending 120 minutes outside a week. A week. Oh, that's

[00:50:54] **Dr Mike T Nelson:** so much worse than I thought. It's way

[00:50:57] **Kelly Starrett:** worse. 120

[00:50:58] **Juliet Starrett:** minutes. And that is actually also includes kids as well, which is sort of extra disturbing because you think, man, okay, at least as adults, like we have this excuse of we go to work and we have to be in offices and whatever.

[00:51:10] And, I know kids go to school, but I think people would think that kids were getting more time outside, but they're not.

[00:51:18] **Kelly Starrett:** I went outside for. Probably less than three minutes yesterday. No, we walked to get a cost. So you're outside for 15 minutes max.

And so it's easy suddenly when we create these benchmarks, vital signs, then you're like, Whoa, I blew it.

[00:51:33] And tomorrow I'm going to do a little bit better. And I think, as everyone in sports science, performance science, performance therapy knows, we're really interested in trends. Show me what you're. Sleep latency is or slow me what your sleep time is or your trend of your sleep, density, we need to see those trends over time.

[00:51:52] You can literally have a baby never sleep for a year and come back and win a world championship. We see that all the time, right? Your body can handle that, but you can't do that. Forever and not pay a price and I think that's what we're expecting Well, I you know, I took this vitamin and I listened to this podcast and I don't understand.

[00:52:10] Why didn't it fix

[00:52:11] **Dr Mike T Nelson:** everything? Yeah, and I think that's what also makes physiology difficult because you as a human organism Can absorb a fair amount of stress even if you're kind of half off the rails, but at some point That caught that has a limit, right? So people think, Oh, well, I didn't sleep well last night.

[00:52:31] I got through today. I didn't sleep all the other night. Oh, I don't really need sleep anymore now. Right. And then all of a sudden something crashes and they're like, I can't figure it out. I went for two or three days without much sleep. And now a week later, I'm a mess. Right? It's the brain is just so stuck in these linear patterns that things that are nonlinear, it's hard to see, but I think the benefit of having some data is you can go back and look.

[00:52:56] I do this with heart rate variability all the time. Here's your graph of stress. Here's your graph of hours of sleep. And you see hours of sleep go down, stress goes crazy. And I literally just take a picture of the graph, send it to clients and go, What do you think is going on here? And they literally look at the graph and they go, Oh my gosh, I didn't realize that sleep impacts my stress that much.

[00:53:18] This is so crazy. And it's they knew it, they understand it, but when they're forced to see the trends of the data, again, back to their output, all of a sudden, oh, okay, now it becomes a lot more real at that point.

[00:53:30] **Juliet Starrett:** And we just wish we could get some kind of data like that around people's musculoskeletal pain and injury, or, proclivity to injury.

[00:53:37] There is some, there are some genetic markers and stuff for pain, but, we just, we've seen that so often over the years and, with our work and with Kelly's clients is the amount of people who come in and they're like, well, I've been running like this every single day for 20 years and I didn't, tear my Achilles.

[00:53:53] And it's yeah, well at some point. The body was like this was the last step you were going to take in that shitty position. And now your Achilles is going to fall with that nutrition, with the lack of sleep and whatever. Right. And so it's man, if we could just sort of like rewind in time and have some sort of, like picture, we could send to people that just said, hey, you've run with this crappy technique with no sleep and no fiber in your body for 20 years.

[00:54:16] This is where you're headed.

[00:54:17] **Kelly Starrett:** We had a woman in our gym who had a. Broken foot. And she did a lot of exercising with a boot on for a long time because we had to protect that. It was a bad break. We just kept training and she got out of the boot and full return to sport. Three months later, she's wearing the boot again.

[00:54:33] And I see her just on the assault bike, super bummed. She looks

[00:54:36] **Juliet Starrett:** so sad. She has one foot up, she's doing three limbed assault biking. And

[00:54:40] **Kelly Starrett:** I go up and I'm like, Hey, what happened to you? Are you okay? What's happening? Tell me what, like, why is the boot back? And she's nothing.

[00:54:46] My dog died. And Her brain was so stressed. That it's reimagined and interpreted what was this healed foot and all of a sudden her foot started hurting again. And that's why for everyone to hear this that we want your brain and your brain tolerance almost to be at the top. If I have a person who feels safe.

[00:55:11] It feels seen, it's well rested, it's stoked. That person can tolerate way more shit than someone who is not. And I think suddenly you're like, okay,

what does that mean, Kelly? What means you have to pay attention to what you eat? You have to pay attention to how you sleep and how you downregulate and did you get sunshine and do you have meaningful relationships?

[00:55:32] And suddenly what we see is that we have a brain that will put up with a lot more silly crap. And all of a sudden though, when we send that knee flares and you can't tell the number of sort of noxious inputs into the system that have arrived for your brain to say, we're going to pay attention. We get your attention now with this pain signal.

[00:55:51] I think that's where the narrative gets lost a little bit is how people kind of think about, well, I'll just take this supplement or a. The secret, I'll move from this secret school program to this secret school program, instead of saying, let's put the nervous system first in the order of magnitude of things we need to work on.

[00:56:10] **Dr Mike T Nelson:** Yeah, and if someone asked me what kind of my ultimate goal for people is independent of performance would actually be Secretly, I'm trying to make them as resilient as humanly possible I love that but nobody maybe this happens you guys too. Nobody comes to you for that it's kind of getting there a little bit more but nobody comes in and goes I just want to be as resilient as possible But all the things they talk about and the things that they do, they are kind of asking for that, but they don't have the language to it.

[00:56:37] It's I want to do this output, but I want to be able to do it kind of. It's like for body composition. Like the question no one has ever come in, but they really want to know for general population is, How shitty can I eat? And how little movement can I do and still look good? Right? That's kind of what they're asking for.

[00:56:55] And again, we all know

[00:56:55] **Kelly Starrett:** this. What's the cheapest gas can I put in the car? Right. What are the crappiest tires I can go and race with? And I think that, That is a reasonable approach because you don't care until you care, let me tell a story where I'm a young physical therapy student in the hospital watching an open heart surgery.

[00:57:12] It was an open heart surgery. It was. I saw those two, but I was looking at someone who was getting some plain old coronary artery bypass grafts, right? They were doing that, they were putting some stents in. This guy

was very heavy, very successful, had the most beautiful family of all time, owns a house in Pacific Heights in San Francisco, like a partner in his law firm.

[00:57:35] Every metric on the planet is killing it. But cannot change his coping mechanisms, his manage his stress, and he ends up putting himself into this position where he may die if this intervention doesn't work and his whole family is stunned to see this happen. And if that guy has. Every resource available to him and the most amazing family ever and all of these things and ends up there that tells you how hard it is to change and how wired our brains are and I even don't even know if, I mean, did those interventions change him that he was like, I got to get religion.

[00:58:10] I got to start, probably not. He probably was like, well, I'm good to go now. Let's keep drinking and doing all the cope stress coping mechanisms. And I think that's a really that stuck with me about how hard it is to get people to care. And why we really do want to try to say what's important to you, let's go there and get that goal because that will, a lot of other behaviors will sort of dovetail into that.

[00:58:33] **Dr Mike T Nelson:** Yeah, I love that. And it goes back to me, like I'll put again yes, if you want better body comp, cool. Even with physique competitors. Great. I get it. That's what you're graded on. You're going to be on stage and basically your underwear. But even then, on a daily and weekly basis, we're going to track your performance, we're going to track these other metrics, we're going to track some form of output, because that's what's driving all these other things.

[00:58:56] And we can see small changes in that too, where body count, what do toss in an MRI every four weeks or something to even see changes? You'll notice them over time. But day to day, week to week, it's really hard. And as if you're trying to get someone to change, if they don't see any difference, Ooh, that makes it really hard to sustain that momentum just to get them there long enough to get those habits somewhat on autopilot.

[00:59:24] **Kelly Starrett:** Why am I doing all this algebra? You're going to need it someday. That's why I

[00:59:28] **Juliet Starrett:** like the greatest gift for nutrition coaches is that people lose some early water weight when they start changing their diet and they see something change on the scale and it's man, if that didn't happen there, people need a

[00:59:40] **Kelly Starrett:** little feedback.

[00:59:40] Or yeah, how can we measure your output? And again, I think it really comes down to this output piece and then. And then really is pretty remarkable when we start to see how the pieces interact. And I just want, people understand that is something that we are very, feel very strongly about.

[00:59:56] And it's why, if you're going to have a human performance conversation with someone, we have to be talking about these different aspects. If I'm going to ultimately talk about your ability to extend your hip, the bottom turn of a surf in the world, world championship, we're looking at who can do this the longest, the most efficiently, the most powerfully with the least cost.

[01:00:17] That isn't a worthy conversation, comma, how do we take those lessons and actually transform our own families? Thanks.

[01:00:25] **Dr Mike T Nelson:** Yeah, very last one as we wrap up. I love the constraining the environment because I always look at principles that transfer across multiple domains. To me, that's the definition of a true principle and you go back, you mentioned like Franz Bosch, like the whole, ecology of movement, the whole setup, the movement parameters for what you want to happen.

[01:00:45] And then have the athlete express within those parameters versus I want you to do X movement, internal cues, external cues. But the longer I studied movement, the bigger fan I am of let's just set up the environment, give the athlete the task that we want to do at a high level, see what happens.

[01:01:03] And then let's not maybe adjust this minute stuff, but let's Constrain the system a little bit different to get a better output. And then let's try to get some reps and some repetition there. And if you have a hard time eating cookies all the time, then. That means maybe moving cookies out of your house for a while.

[01:01:20] Doesn't mean never have a cookie. That's right. All I'll do is put them in tin foil and put them in the freezer. They're still here. I can still get them if I need to, but now I have to unwrap them and they're frozen. And just, they're just not quite as good. It's more effort. So I kind of don't eat as many.

[01:01:35] **Kelly Starrett:** That's exactly right. And everyone, just the Franz Bosch example is he does a lot of work with a water bag behind the neck. And by putting the water bag behind the neck, you force the torso to be upright, you



force sort of, you can't just get away with being a noodley torso and do something, and most sports need a little bit more upright torso, and that's an example of, we're going to have you do all of these complex things, or seemingly complex things, but all the while your torso is going to have to be upright and you're going to have to manage that, so that's a great example.

[01:02:09] **Dr Mike T Nelson:** Awesome. Thank you so much. Really appreciate all your time and where can people find out more about the book and the website and just all the wonderful stuff you guys are doing.

[01:02:19] **Juliet Starrett:** Sure, we are on Instagram at TheReadyState and you can learn about all of our sort of musculoskeletal stuff on thereadystate.

[01:02:27] com and the book you can get anywhere people buy books, Amazon, Barnes and Noble, all the places and also learn more at builttomove. com.

[01:02:36] **Kelly Starrett:** And if you want to see how effective your training program is, run it against anyone else's training program. And if you think that your system is the perfect system, go ahead and take yourself, your self test on our app, and we'll see how your movement minimums are working.

[01:02:51] We've got a really great self mobility test there that can help you understand the blind spots that you probably have in your programming. And where do

[01:03:00] **Dr Mike T Nelson:** they get the app?

[01:03:02] **Juliet Starrett:** It's in the app store and Google Play store. It's just called the ReadyState Virtual Mobility

[01:03:06] **Dr Mike T Nelson:** Coach. ReadyState Virtual Mobility Coach.

[01:03:09] Awesome. Well, thank you both so much. I'd highly encourage everyone to check that out. I love the book. Thought it was great and huge fans of all your stuff. And thank you so much for all your time here. Really appreciate it. Let's see you, sir. Yes, thank you.

[01:03:21]

[01:03:22] **Dr Mike T Nelson:** Thank you so much for listening to this excerpt here on the podcast.

[01:03:26] This is an excerpt from the Flex Diet Virtual Metabolism Summit, which is going on February 9th through the 12th, 2024. You can still get access to it at [www.flexdietsummit.com](http://www.flexdietsummit.com). That has all the information there. And if you go there before the dates of February 9th through the 12th, you'll be able to get access to all of the talks for free.

[01:03:55] Just sign up there and we have a virtual play of all of them over that weekend. If it's outside of that time or you want to purchase all of them for download, you'll be able to do that there also. So thank you so much for this special excerpt of the podcast. I hope you enjoyed it. I will talk to all of you next week and hope to see a fair amount of you at the virtual summit coming up.

[01:04:19] Thank you so much.

[01:04:22] You know something? That was a sweet number. It sure was. You know something else? What? I hate sweet numbers!

[01:04:30] **Nancy:** 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.

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[01:05:37] If you think you have a medical problem, consult a licensed physician.