

[223: Resiliency Radio with Dr. Jill: Hacking Stress & Breath 4 Better Performance w/ Brian Mackenzie](#)

Dr. Jill 00:00

Welcome to *Resiliency Radio*, your go-to podcast for the most cutting-edge insights in integrative and functional medicine. I'm your host, Dr. Jill, and with each episode, we dive deep into the heart of healing and personal transformation. Join us as we connect with renowned experts, thought leaders, and innovators who are at the forefront of medical research and practice, empowering you to optimal performance, healing, and having the best life.

Dr. Jill 00:24

Today, I am super excited to interview the friend of another friend. We just met, but I am absolutely passionate about the topic of biohacking and optimal human performance. My guest is Brian, a health and human performance specialist with more than two decades of experience of innovating new protocols for research and for training coaches, Olympians, professional athletes, entrepreneurs, musicians, actors, high performers, and everyday people on the use of biological tools to achieve maximal output in training, performance, and recovery through understanding physiology. He's the author of *Power Speed Endurance*, co-author of *UnPlugged*, and the New York Times Best Seller, *Unbreakable Runner*. And he created the art of breath, a principle-based approach to teaching the breathing's response to the body.

Welcome, Brian, to the show!

Brian Mackenzie 01:13

Thank you for having me, Jill. I appreciate it.

Dr. Jill 01:15

You're welcome. I am so excited to dive into this. We haven't met yet, but I'm going to get to know you today. Our mutual friend, Scott, said, "You guys have got to meet." When I read your bio, I thought, "Oh, this is going to be so much fun." I love to start with your journey. How did you get into this field of human performance?

Brian Mackenzie 01:35

It was the only fit for me. Nothing else worked. Well, it wasn't that nothing else worked; I wasn't enjoying much else. I was in the restaurant industry. My first job was probably around 16. I'm sure you were probably somewhere around there as well. It wasn't until I was about 25 that I discovered a class in exercise science that I ended up getting an A in, and it was literally the first A I ever got in the history of my academic career.

Dr. Jill 02:21

You knew there was something right around there, huh?

Brian Mackenzie 02:24

I was like: "Oh, this is interesting. It sounds like I care about this, so I'll go with this." And I ran with it. I ended up being mentored by a number of different people and working with a number of different people. I'm somebody who has a lot of questions and questions things. But the route I go—even though education was the pinging moment—I do not take the academic route first. That comes second. I end up immersing myself in the subject I'm passionate about, doing it, participating in it, and then going into the academic side of stuff.

Brian Mackenzie 03:09

At any rate, I got started by coaching runners, namely the Housewives of Newport Beach, who made me cash-rich because I was fixing them. They were all pretty broken and running, and I was the guru in the running department, and I was utilizing strength and conditioning. My background started very early around the human movement, and I was very successful for the first decade or so of my career.

Brian Mackenzie 03:46

Then I stumbled into this breathing thing where it made me think about what I had been doing from a movement standpoint. I ran with that in an obsessive way by immersing myself into it. Then I went into the academic side of things, where I started understanding respiratory physiology, the neurobiology of how the respiration centers are set up, and how the brain operates with things. I just dove in.

Brian Mackenzie 04:21

And then I found myself on an island because I was applying this to human performance. I had taken yoga, and I love yoga, but I wasn't applying it to yoga because yoga had that figured out 5,000 years ago. I was really interested in: How does this apply with the upper tier of what people are doing, whether that be an operator, a football player, or an endurance athlete? I started measuring things on metabolic carts, etc. I was seeing changes, and I'm seeing changes today that are unheard of or unseen inside the human performance world. But they just require a little bit of mental change about how I'm approaching something.

Dr. Jill 05:12

Wow. I love that. At the core, with so many of my guests, there's this principle here that I already heard, and it's curiosity. Curiosity is the mark of genius. There's a very direct connection because it takes that curiosity to say, well: "What else is possible? What if..." It's those questions we ask, and then we start to see a pattern that maybe no one else has seen. And then, "Well, let's try this." And I can see that in your history. So I'm curious. You started out with housewives, and they were running and injuring themselves. What in that process did you learn? What were common injuries? And how did that lead you to the breathwork? Let's tie that together, and then I want to go into the breathing. Was there a common thing that they were doing wrong or not thinking about?

Brian Mackenzie 05:52

Yes. Most people approach running by going out and just running. Unfortunately, with our current lifestyles, that's not the best approach that I've found. Some people can get away with it, especially if you start young with running. In fact, kids under the age of five run perfectly until we mess them up. We put them in shoes that promote more heel striking—things that wouldn't naturally take place had they not had that buffer mechanism. But the amount of sitting we do changes the hip, the structure of the spine, all of it. So we compensate. Most of what I saw very early on was lower-body injury-type stuff, but people weren't recovering well from things. That's where the strength and conditioning came in with the movement stuff and the endurance stuff.

Brian Mackenzie 06:54

My first book—that's what it was about. It was a skill-based approach to endurance training where I utilized strength and conditioning to help build the tissue and get

the mechanical stuff we wanted to see with people, like getting them better posterior chain function because we are anterior chain dominant species. It doesn't even matter if we're sitting all day; it's how it is. Developing those sorts of things allowed people to start seeing results that weren't even in their scope. And then they're like: "Oh my God, I feel so good. I'm running fast. It's wild. What's going on?" That really took off. But at the foundation of that is: What's going on with what we would call "the core"?

Brian Mackenzie 07:55

My epiphany, the big moment for breathing, was [when] somebody handed me a resistance breathing device. I laughed at it because it said "elevation training mask." I've studied and applied high-altitude, low-oxygen training for 20-something years at this point. And 12 or so years or 10 years into my career, somebody's handing me something that has no way of changing oxygen or pressure—meaning the pressure of the air—so it doesn't affect the gradient change in the lungs. I'm like, "There's no way this does anything for elevation." So I laughed at it. But I knew that I hadn't tried it. And my whole MO is like, "We'll do it first, then see." So I put it on, and when I drew a breath, I sat up and organized myself. I was just sitting like this, but I organized a little bit differently, and I was like, "Holy crap!" Like, "Wait a second. If I were to give this to my athletes to use in warmups or some conditioning stuff just to do, they're going to organize them. The diaphragm is the epicenter of human movement." That's when I started looking into the physiology of stuff. And even physiology tells this story.

Brian Mackenzie 09:17

There's this phenomenon called blood stealing, which is the metaphor of basically how the lungs operate. And if the diaphragm and intercostals are not operating correctly, you are going to draw blood from locomotor muscles earlier when moving—so, as intensity increases—to shunt it towards those muscles. So you're more anaerobic sooner. You're using different energy systems sooner. You're changing these things.

Brian Mackenzie 09:53

As the evolution of what I was looking at started to evolve... This happened over a month where I was like, "Oh my gosh, everything's changed." My rib cage expanded. My breathing changed. The way I was training changed. I invested in changing how

I was breathing and adapting to things. At any rate, it was this curiosity that drove me to get into this obsession. And then I was just seeing result after result after result.

Brian Mackenzie 10:27

My first thing to do after I'm seeing results is I toss it out to the coaches I work with, the people that are in my direct circle, screw around with this, and start playing with this. They start doing it. Then I talk about it publicly. And then people start screwing around. And it's like, "Okay, now we've figured it out." And now here I'm being contracted by Stanford. I'm being contracted by other people, like: "Hey, can you help me understand this? Could we apply this in this setting?"

Brian Mackenzie 11:01

The big outcome of this is that I figured out largely how to apply this in real-time to, let's say, "exercise." And it's become fundamentally the foundation to how we train because breathing is the first respondent to change as we exercise. As we increase the intensity, going from sitting to walking, the respiration rate changes, as you know. And this happens largely due to CO₂. There are other factors that exist, but CO₂—

Dr. Jill 11:44

Right. The gradient of everything in the body is driven by the level of CO₂.

Brian Mackenzie 11:48

Correct. And if you are overbreathing, it's the big thing. Even the world champions I was working with were overbreathing.

Dr. Jill 12:03

Which drives down CO₂, which then they lose that drive to get oxygen transfer into the cells, right?

Brian Mackenzie 12:08

Correct. So we now change the dissociation effect of things. We're explaining a basic thing that is a very complex phenomenon that is—

Dr. Jill 12:19

Is this like a fancy paper bag?

Brian Mackenzie 12:25

It's funny because when I go speak, you remember what people used to do when they'd tell you to calm down?

Dr. Jill 12:33

Yeah.

Brian Mackenzie 12:33

They'd tell you to breathe into a bag. Why? Because it vasodilates; it calms you down. You're actually getting more oxygen. You're not going to run out of oxygen while... At any rate, when I started to really understand the physiology behind this stuff, it was like, 'Wow!' And then you've got the cascades of the endocrine system's response to things. You've got all of these things that are occurring. But it came down to, if you don't manage how you deal with stress, and you can exercise your life away if you want, but if you do not confront the pain that bothers you—we've all got it—there's no amount of breathing, there's no amount of exercise that can help you. However, I know where to insert the breathing in that process of dealing with pain based on all of this stuff at this point because I've gotten into the weeds enough to see: "Oh, here's where the intervention happens. Here's how it happens and when."

Dr. Jill 13:38

Wow. My mind is blown because it's so exciting when there's something that's so simple, in a way, and so aligned with what we know about physiology. It's not like a \$200,000 hyperbaric chamber. Is this a mass device that you use?

Brian Mackenzie 13:57

Oh, no. No, no. This is you—you and you alone.

Dr. Jill 14:00

So you're teaching people how to breathe differently.

Brian Mackenzie 14:03

Correct, yes. Correct. And your listeners—

Dr. Jill 14:06

You just learned that the click was with—

Brian Mackenzie 14:09

You're going to walk away today with applicable tools to screw around with. This is largely the basis of my work. I'm hired largely at this point by private clients who want me to restructure what's going on inside their regimen. I don't necessarily take away things. I look at what they're doing and I go, "Okay, here's where we need to insert breathing or breath control."

Brian Mackenzie 14:44

I've got one of the top guys in the NFL right now who is riding real close to my top client, who's a CEO of multiple companies. But he's an NFLer who follows direction incredibly well but is curious about it and wants to deal with it. And he's having incredible results. And this is a guy who's at the top of the food chain—literally at the top of the food chain, in the NFL. You would think this guy has it all. And it's like, "Well, no, there's always something we can tweak if we're willing to look at it a little differently." So I get hired to come in and restructure things and run programs like that for people in order to adjust things based on all of this stuff.

Brian Mackenzie 15:36

What we've figured out how to do is fingerprint breathing for somebody based on what one might call CO2 tolerance. But it's more complicated than that. It's, "Hey, where's your nervous system at?" Because if your nervous system's a little hot, your HRV is low, I can tell you right now, you're going to be a little CO2 intolerant because your nervous system is running hot, your chemoreceptors are going to legitimately respond sooner, and you're going to probably be overbreathing a bit more. So your HRV data is going to be low and respiration rates are probably going to be a little high. But we can change that. It's just, are you willing to listen?

Dr. Jill 16:16

You obviously work with very high-profile athletes/performers. But obviously, [among the] people listening here, we've got a lot of doctors and professionals, but we also have a lot of patients. Where does your assessment start? What could we do to know where we're at—heart rate variability?

Brian Mackenzie 16:36

One of the things that's taken off is what's called the CO2 tolerance test. I call it an exhale assessment because I stole it from the freediving community. They've been using it for years and for good reason. Their lives are on the line. They want to understand where their actual breathing is at. It's simply a long, controlled exhale—the longest, most controlled exhale you can manage off of a single breath. On our website, we offer people a whole free assessment for this. So people can go to that, which is ShiftAdapt.com, and then just go to 'Take the Breath Assessment', or I think it's '/breathwork'. But they'll find it if they just go to ShiftAdapt.com. They'll take the breath assessment. They just pop in their email, they'll get the whole instruction, and then it'll kick out some protocols.

Brian Mackenzie 17:32

But the most effective way to do this is to take this assessment and go through the process of calming down for a couple of minutes. Then you inhale all the way up, then you'll start a stopwatch the moment you hit the top of a breath, and then you're going to exhale as slowly as you possibly can through your nose. You want to think, "I'm going to exhale for two minutes." You won't. But you'll try, and you time it. Do it a few times the first time you do it. Do that every day for five to seven days to get a statistic on that. What is the average number? What am I putting out with this? That number multiplied by 0.7, I believe, is the number. That'll give you a starting breath to start with. It'll help build some things.

Brian Mackenzie 18:35

If I were to do box breathing, if I went 30 seconds... I'll just run you through this real quick. Let's just say I exhaled for 30 seconds and I multiply that by 0.7; I've got 21. I would divide that by 3. That gives me 7. So if I did box breathing, we'd want you to do 7-7-7-7 to see if you could handle something like that. If they just go to ShiftAdapt.com, they'll get a protocol that fits with their profile because I go into this a little bit deeper. I use what's called a DOS questionnaire—the depression, anxiety, and stress assessment. I've been able to see certain profiles, depending on where we lean—how they respond to certain breathing protocols, whether it's holding the breath on an in, holding it on an exhale, long exhale, short exhale, whatever. Anyway, we apply a lot of these principles into the breathing so that we can fingerprint somebody on a protocol. But it's best to take those numbers and

apply them to being able to follow a breathing protocol that works for you based on that exhale assessment because that exhale assessment is giving you a number that is where your tolerance is at.

Dr. Jill 20:10

Got it.

Brian Mackenzie 20:11

It's similar to a breath hold. However, the problem with the breath hold is that that can be manipulated. I don't need mechanics for that. So I can go and hold my breath, and I don't mechanically need to do anything. If I'm exhaling through my nose, I need eccentric control and glottal control to handle that air, so I'm getting more of a mechanical intervention. And then I'm seeing physiologically how I'm responding to the stressor of CO₂ build from such a slow exhale. And then, if I'm with the person, I can ask them how they felt about it, and that'll give more of the psychological profile of things. We've all got a panic switch. It's what happens during that panic, what you go through.

Dr. Jill 20:59

Fascinating. I'm wondering: Divers, swimmers, pilots—are there subsets of people that already know some of this and do it naturally because of their occupation? I'm just guessing; I have no idea.

Brian Mackenzie 21:10

Yes. The NFLer—he scored in a very normal category. However, he had anomalies on a VO₂ max assessment and a pulmonary assessment. So I went in, ran my own pulmonary assessment and metabolic assessment on him, where I'm looking at tidal volume, ventilation, and respiration rate. What I'm also doing is looking at tissue O₂ saturation. I'm watching it—delivery and saturation, all of this—so I'm able to pinpoint things. We found a bit of an anomaly with him. Nobody else would ever pick this up because they're not doing what I'm doing. Not that I'm special. It's just that what I'm doing is so specialized that that's what we do. With lead athletes that I get a hold of, I see a 20% increase in VO₂ max.

Dr. Jill 22:21

Oh, that's unbelievable!

Brian Mackenzie 22:24

Yeah. We don't see that number with everybody, but with the general population, I'm seeing between 20% and 60% changes in VO2 max, which is unheard of.

Dr. Jill 22:40

And bigger because the lead athletes have already honed this in so well that you're taking that next little sliver. But the average person might be so poorly using their facilities that they have a much bigger—

Brian Mackenzie 22:53

It's largely a mechanical thing. Most people, including lead athletes, even though they're strong, have been breathing fairly normally. When you train the primary breathing muscles the way that we are applying things, you're training them like a powerlifter would train to squat. You're training those muscles in a way that you've never trained them through what we've developed through what's called the Breathing Gear System. That begins with really understanding how to breathe through your nose when you exercise and that most of what you're doing in exercise should be breathing through your nose and not your mouth.

Dr. Jill 23:39

Again, my patient population might be a 55-year-old menopausal woman who wants to start a training program. Obviously, anyone can benefit here. But you started out in conditioning and strength and some of the body mechanics. Does that tie into here? Can they do the breathing without knowing how to move their body and have that interior?

Brian Mackenzie 23:59

Yes. [For] everybody that I work with, the buy-in for heavy training: You've got to do a minimum of 45 minutes of walking per day with your mouth shut. That means you're not talking on your phone and you're not talking to your friends for 45 minutes. The bonus is 90 minutes—get 90 minutes in. This is your 10,000 steps per day. However, it's now 10,000 steps per day by design, meaning how we were designed to move and breathe. You're now using what I call a gear 1, which is nose breathing. And anybody can do this; they just may need to go slower at first. But this will also help develop that nervous system and your CO2 tolerance because it's

low-level work that you're starting to use the full tidal volume with because through the nose you don't get as much [inaudible] through the mouth.

Brian Mackenzie 25:11

This has huge changes for people pretty quickly. Within two weeks, you start to see pretty radical changes. It can then progress up to there. Football players, I'm not doing this with, because they don't need this kind of work but [with] the general population and a lot of other athletes.

Brian Mackenzie 25:29

We hear about heart rate zone 2. Heart rate zone 2 is this mythological place that the vast majority of people have no idea what they're doing, even though they say they're doing heart rate zone 2. They're doing cardiovascular training, not actual metabolic training per se, if they don't know where the physiological change is happening for heart rate zone 2. Meaning, I've got an upward change in lactate at the first change that happens where that heart rate meets at that moment. That's where that heart rate zone 2 is at. Back out of there. If lactate is going up, I know we're having a bit of a metabolic change. You know this as well. I'm having a bit of metabolic change. If there's a metabolic change happening and CO₂ is rising, you're going to see a respiration rate change. We know this to be VT1.

Brian Mackenzie 26:35

It just so happens that anything beyond heart rate zone 2 should probably change into some very rapid nose breathing if you can handle it or mouth breathing. Everything below heart rate zone 2 is nose only. Developing your breathing up to that level is where you want to go, and then you want to progress. You can start to ramp that intensity from the walking into maybe a little bit of jogging for a period of time. You may need to walk between efforts, but keeping the nose and going at a low effort to start or just doing some drills with even some high intensity. You don't see 100-meter sprinters breathing through their mouths much at all until after the event. You can get away with stuff for some time but it's retraining this breathing through the nose up to a certain intensity, then starting to introduce mouth breathing.

Brian Mackenzie 27:34

But you do not want to start doing that if this is new until you're about three or four weeks in because that diversion happens pretty quickly and you start engaging a lot of the neck muscles and a lot of the things that tie into trying to pull that rib cage open even more. And unfortunately, that's what most of us are doing because of the lifestyle that we're living already.

Dr. Jill 28:09

I have so many questions. First of all, for those non-exercise physiologists, define heart rate zone 2. Is that up to 130?

Brian Mackenzie 28:18

It all differentiates. It's like 60% or 70%. So it's 70% and below your max heart rate, roughly. Just to be clear, if you're following heart rate for that, you're training heart rate. You're not training metabolically. Although your metabolism is involved in this, you do not know unless you're drawing lactate and/or you're very clued into your breathing that you're transitioning. And most people—so a lot of your patients, a lot of the client population—their heart rate zone 2 is going to be way below 70% of max heart rate, way below, because that shift in energy is going to happen a lot sooner and they'll know based on their breathing. Once this gets really difficult to breathe through the nose when they're exercising, you're crossing that line.

Dr. Jill 29:19

And you're saying if we could measure lactic acidosis, that's the driver, that is the thing, not heart rate?

Brian Mackenzie 29:26

Correct. Yes, correct. That's what they do. Or, we use a metabolic heart rate [inaudible] ventilation—VT1 and VT2. But if you really want to be accurate, you draw a lactate. You can get a \$300 monitor, draw a lactate, and see where the upward curve and intensity happen. But you've got to do that test in and of itself. That is the definitive point. You'll see that when you hit that point, "Oh, my breathing is also changing at this point." Well, yeah, now it makes sense.

Dr. Jill 30:04

Got it. Okay. So you're saying the way we'd know versus a number—it's going to be really freaking hard to get enough breath out of the nose because you're trying to compensate from that lactic acidosis.

Brian Mackenzie 30:14

Correct. Your heart rate zone 2—let's just say you were told it's 130, or that's what the app says, but you can only nose-breathe to a 115 heart rate. I'm betting, I would put a lot of money on the fact, from what I've seen, that your heart rate zone 2 is at 115.

Dr. Jill 30:40

Yeah. That makes so much sense to me. I love this because so often we're on the heart rate, the garments, the monitors. And those are nice. Those are the great things with heart rate variability. But if we could teach people—it sounds like you do, I do the same thing—to get in touch with their bodies, there might be more clues with their pure physiology than a number, right?

Brian Mackenzie 30:58

Correct. Correct. They are having an intimate relationship with their physiology. Quite literally, you're learning how your physiology works. You're going back to what many of our ancestors knew intuitively.

Dr. Jill 31:11

Ironically—just personally, and I think this would be relevant to listeners—I just started working with a trainer and started running. And I haven't run for years. We won't go into reasons why, but just today I went on my first run. So for someone like me who's starting off again after years of not running, it sounds like what you're saying is that that when you reach that threshold, either you keep breathing out of your nose or you take these breaks and you do a slow down. You bring that back into the range where you can breathe out of your nose. So I might be running 20%, 30%, 40% versus 100% or 80% and walking in between as I get to know my body until I can breathe out of my nose through the whole run. Is that true?

Brian Mackenzie 31:53

Correct. Correct. If you really want to make a huge impact, I would apply this fundamental to the running. And when you cross that line—and it happens because

running is a big cost—it'll catch up. And when you feel that transition happen, cut it, walk for a moment, and then repeat. And then what you'll see over, I would say, a few weeks is that change. And you'll see your ability to run with your mouth shut fairly easily.

Brian Mackenzie 32:34

Not all running is mouth shut. I've run into this problem as well. Early on, we thought it was almost all nasal running. No. When I finally had enough data and I could see metabolically that there were crossover points that were happening... You get the opposite effect of what's happening with overbreathing. You're getting underbreathing. So now when you do need to onboard more oxygen when you've got a higher intensity because you've got hydrogen in the system—there's plenty of lactate—oxygen becomes a buffer at that point so that you can buffer the system and you're not as acidic. Just one of the things. However, this allows you to transition into more of the mouth breathing, which is where the gear system really comes in. It's five gears.

Brian Mackenzie 33:29

And I saw a number of people; we'd do metabolic assessments and then they'd be nose breathing till like two minutes until they shut it down. They couldn't maintain a fast enough breathing pace with their mouth, meaning they'd only get to 30–35 breaths a minute before they were toast. And you should be able to easily get over 40 breaths a minute while going hard if you're trained in some capacity. Anyway, we started to see this issue.

Brian Mackenzie 34:07

At any rate, that's where the gear 4 and gear 5 start to come in and we start to play with that stuff. But because you're training the primary breathing muscles with the nose breathing, you're going to maintain a lot of that when you get into the higher intensity stuff versus the secondary muscles taking over sooner. So we're staving off blood stealing to a later stage. It's a horrible thing, but this is what happens. This is one of the anomalies we saw within our NFLer. We could see the blood stealing happen but it was the opposite of what was going on. He was doing 60 breaths per minute, and yet his tidal volume wasn't anywhere near what it was. I was like, "Oh, he's literally got less tidal volume so he's..."

Dr. Jill 35:00

By rate. Yeah.

Brian Mackenzie 35:01

By rate. And I'm like, "Oh, boom!" So that was kind of the catch of what we were able to see.

Dr. Jill 35:09

This reminds me because I'm not as up on my pulmonary physiology. But cardiac output, obviously stroke volume times heart rate, so we compensate as the stroke volume decreases. I see that a lot because I'm dealing with a lot of POTS/dysautonomia, where they're having decreased volume and depletion. So then, often, they get tachycardic. They get POTS/dysautonomia, a drop in blood pressure. So I'm dealing with this on that level.

Brian Mackenzie 35:32

Okay. So here, you're going to love this. All right. I'm so glad you just brought that up. The heart beats fullest between 40% and 60% of VO₂ max. From there, the heart only beats faster, and it does not beat full.

Dr. Jill 35:50

Right. You're losing stroke volume, right?

Brian Mackenzie 35:52

Correct. So, watch this. Here's where this is beautiful, what we've already covered, and what you're going to love: That is largely walking pace for a lot of people.

Dr. Jill 36:04

Wow. Where they lose that stroke volume, literally walking.

Brian Mackenzie 36:08

They lose it. So if we've got them nose breathing, full lungs, off that aortic arch, you're remodeling the heart. You're doing all the things you want to do with all of these patients you've [inaudible].

Dr. Jill 36:27

Okay, this is such an awesome aha. It was worth the whole podcast because what you're saying—and correct me if I'm wrong—is that by starting with the 90 minutes or 60 minutes of just breathing with our nose and doing the walk, they will increase their heart's ability to have a stroke volume at the same level of activity, and in turn, they could probably decrease their POTS/dysautonomia over time as well.

Brian Mackenzie 36:54

I'm not guaranteeing that. I'm just saying, "Here's what I understand."

Dr. Jill 36:57

But logically, it makes sense, right?

Brian Mackenzie 37:00

Here's what I understand about physiology: The heart beats fullest between 40% and 60%. The fitter you are, the lower that rate gets. But [for] most people who haven't been engaged in something like this, that is where that place exists. If I put anybody on a metabolic cart and get them walking, they're going to be at 40% pretty quickly. So it's somewhere in that range where we're getting that. So if I'm constantly focusing on below heart rate zone 2 with people, namely walking, the changes I've seen with my client base and close compadres who I bounce things off of are wild.

Brian Mackenzie 37:54

I've got a buddy of mine who is one of the most famous ultramarathon runners. He wrote a number-one bestseller on everything back in 2006. He's been ultra-running for 30 years. He applied this a couple of years ago. Six months into it, he calls me up and goes: "Mackenzie, dude, my VO2 max has increased 20%. How in God's name did that happen?" And I'm like: "Dude, you just retrained your breathing muscles. You're so used to doing everything the way you've always been doing them, so you've just built that." I've seen women change their rib cages from 32 inches to 36 inches.

Dr. Jill 38:43

Amazing. And the other thing I'm curious about is that obviously our diaphragm is the driver here; we shouldn't be using accessory. But is there a "never use accessory"?

Brian Mackenzie 38:55

Accessory should only come on once we cross moderate levels of exercise. Sure, you can have a... But retrained, everything changes. It's not just the diaphragm; it is the intercostals and diaphragm. All this talk on diaphragmatic breathing—it's a great thing to say, however, it's not factual.

Dr. Jill 39:26

Yes. There's so much more.

Brian Mackenzie 39:28

There's so much more. And it's about your rib cage. The rib cage is not just moving with that diaphragm. And everybody's diaphragm actually works. Everybody's using their diaphragm; it's just how sticky, glued down, or tight it is. And once we start engaging in this process, it starts to open things up, and everything expands. The bigger the cage, the bigger the VO2 max.

Dr. Jill 39:59

Got it. Amazing. VO2 max—obviously, there's a little bit more availability of machines and things that are more portable. But is that something you recommend for someone? Maybe not our average patient kind of person but someone who really wants to optimize. Should everybody know their VO2 max?

Brian Mackenzie 40:15

Yeah. I think it's a very good thing to get tested at least once a year. Most people will never do that. They'll probably do it once a decade or once every five years if they go to their cardiologist, who runs a stress test on them. There are so many people that are doing things like this. And you can go to a university too. They might even do it for free. But knowing your VO2 max is a really good thing—just getting that number. If it's high enough, you don't really need to worry about it, especially if you're engaged in stuff like this. I test myself every probably less than three months. But I have the equipment, and I'm constantly looking at this stuff. And at 50 years old, I still have a 65 VO2 max. The folks I work with all have very high VO2 maxes. And it's not this, "Oh, you're predisposed." This is just where you're at. I think we're a bit more capable than we've given ourselves credit for. We're just not using the things that have always been there in the way they have.

Dr. Jill 41:27

This is so fascinating! And I've learned so much. And maybe in the last few minutes, I would love to know... You've got all these high performers/athletes, but my average audience is like, "Well, that's not me." Do you have any stories or just scenarios of where you've helped the average everyday kind of person make a massive transformation through [inaudible]?

Brian Mackenzie 41:44

Yeah. Most of my clients are your average executives.

Dr. Jill 41:51

Yeah, exactly. And they're not very fit sometimes.

Brian Mackenzie 41:54

No. Look, I've got a client right now who's one of my favorite people but it took him probably four or six months to get him to the baseline of walking every day for 45 minutes. That's how long we worked together before we engaged because he just didn't want to fit it in. He had all these excuses fitting it in. I was like: "You can keep doing this; it's perfectly fine with me. But you're paying me a lot of money to sit here and get you walking."

Brian Mackenzie 42:32

All of this applies to anybody and everybody. This is the beauty of what human performance is: If it works for an elite athlete, it works even more for us or the general population. And the fact is that if you have kids and you're working, you are more of an elite athlete than an elite athlete. An elite athlete does not have a job outside of the training. The training is the job. They get time off between training, they're eating, they have massage therapists, and they have all the recovery stuff set up. They're being paid to do this stuff. They're going to bed at a time that nobody else is screwing around with. They've got everything. We have this whole thing we're trying to juggle. The moment you get over the self-abandonment crap and start going, "No, I'm going to take care of myself first..." The number one thing I start with when I go and speak is "Here's the foundation of it all," and it's a slide that just says "boundaries." You need boundaries to tell everybody else, "I'm dealing with me first."

Brian Mackenzie 43:45

My top client, who owns multiple companies, affects everybody who I talk to, including on this podcast. Everybody's affected by what he runs and does. He is up at 4:30 in the morning and takes care of all of his training and stuff prior to him engaging and going to work, no matter where he is in the world. He's on a plane Thursday; he'll be in Paris. I'll adjust things for his training to happen. He's in Scotland, then he's somewhere else, and then he's home. Hey, he's doing this every time because he's set these boundaries.

Brian Mackenzie 44:23

Everybody's capable of this. It's just not letting your emotional system overrun the excuse side of things and letting the more realistic side of things, like the thinking part going: "Oh, I really do want to do this. This is what I want to be doing." Okay, so you've got to say no to other things. One of my colleagues gave me this shirt. He's literally like, "You need to start learning how to say no." I was running around saying yes to everything and everybody and it really screwed me up. When we start to set these boundaries and start to take time, you don't have to get up at 4:30 in the morning to do this. But get up and go move. Go for a walk, even if it's 15 minutes. Break that up four or five times a day. Do it. Do it repetitively. Make a routine. Get consistent. Do that. Build this over a few weeks. What happens? Tell me I'm wrong. Tell me you feel worse. I have yet to have anybody tell me that that has happened. At any rate, it does apply to everybody to set these boundaries and take care of themselves so that they can live the lives they want to be living and not have to make excuses for it.

Dr. Jill 45:46

I love it. And what I love the most is that—granted the higher levels, there are a lot more details and assessment—the tips that you just gave us are accessible to anyone. So tell people where they can find you again, where they can go to get this information on your website.

Brian Mackenzie 46:05

They can go to ShiftAdapt.com. That's our website. My partner, Emily Hightower, does more of the somatic trauma work around breathwork. She does really cool stuff with that. I'm more in the, "Hey, how are you taking care of yourself?" "Okay,

we need to get you walking, then we need to start to develop a program." I'm that side of things. We also have a membership side to what we do that's a very easy cost thing for people who can't afford us privately. That implements all of this stuff. However, that breath assessment is on there. They can get breathing protocols based on that. They can also start walking and then start increasing things [based] on how we've talked. And I can guarantee they will begin to not only remodel the heart but remodel how they're functioning metabolically, which changes the entire game. It's not even a biohack. This is how you were designed to operate. Walking changed how I trained. I walk 90 minutes every day minimum.

Dr. Jill [47:20](#)

Amazing. I love this because it's so practical and so applicable. Even my sickest patients can start somewhere.

Brian Mackenzie [47:26](#)

Yes. And if walking is a problem, get on a bike or a stationary bike—the same effort—and pedal. Pedal. Shut your mouth and just pedal.

Dr. Jill [47:37](#)

Awesome. Brian, thank you for your brilliance and your curiosity decades ago, I don't know 10–20 years ago, whenever you started. It's absolutely amazing. I love the work you're doing. I love sharing this with the audience. And thanks for taking the time to come on today.

Brian Mackenzie [47:52](#)

Thank you, Jill. I appreciate it.