## Endocannabinoids, Trauma, and Hypervigilance

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And that hypervigilance comes from a drop of anandamide and that's what they're now if I take you out of the rattlesnake pit and I put you in a house full of bunnies, the anandamide doesn't come back.

Okay, it doesn't actually that that that and if you think of trauma, and if you think of what the amount of trauma we deal with in our society. Hypervigilance is a permanent adaptation.

Okay, now we can adjust it. And if you think back, now I don't think you're old enough to remember Vietnam, but when we were taking soldiers from every household in the United States and dropping them into a rattlesnake pit that we call Vietnam, and traumatizing the daylights out of them, you know, literally fearing for their lives on a daily basis.

And then we bring them home. No wonder they like to smoke pot. This is Doctor Talks, real talk from real doctors on the issues that matter to you most.

Hi everyone and welcome back to today's show here at Radcast where we dive into the science and soul of longevity, performance, and living your best life for as long as possible.

Now my guest today is one of my personal friends and favorite people. He is someone who has been at the forefront of human performance and longevity science for decades.

And he has a way of making even the most complex science immediately actionable. One of the things I love about him. So joining me today is Don Moxley.

He's an exercise physiologist, sports scientist, educator, and lifelong student of human resilience. Don's career spans elite athletics, where he helped lead Ohio State's wrestling team to Big Ten and national championships to educating athletes, professionals, biohackers, doctors, clinical researchers, and everyday folk on how to add not just years to your life, but more importantly, life to your years.

So Dawn is especially passionate about helping people understand one of the most powerful and too often overlooked signals of health span, heart rate variability, or HRV.

And today we are going to take a deep dive into HRV. We're gonna explore why you wanna track it, why it's one of the best metrics, and how it can help you gauge your own longevity journey and resilience path to living better today for longer tomorrows.

Don, my friend, are you ready? I am ready. I am ready to go. Let's go. Let's do this. It's so great to have you here, my friend. We're going to dive in.

I am excited to be with you all today. Thanks for the opportunity. Oh, man, you're incredible. All right, you know,

before we were getting ready and yes, we're going to dive into HRV.

So hold on tight, everybody. But you were just sharing with me years ago, you had a change in your life trajectory that created a defining moment when you really set your own kind of life's mission.

Now you have a personal mission. So you're going to give us a little context on this. And it is helping individuals understand the changes necessary to alleviate suffering and contribute to the betterment of all people.

So I want to ask you, A, how did you come to that? And then B, how does HRV fit into this mission? Well, I'll tell you how I came to that I came through it through a bit of desperation, you know that that prior to 20 and I probably established that 2019 and and where it came from.

I had just finished up working the job that I thought was going to be my last job ever.

## Don Moxleyu2019s Mission and Performance Background

I had been invited to go back and work with the Ohio State wrestling program. I'm an alumnist of Ohio State. I wrestled there back in the early 80s and have had my fingers on that with that program for a long time.

The coach came and I helped the program do some work and we did some really interesting work there. By the last year I was there, we're measuring three and a half million data points per season on the team.

And the thing that really came out of this, Melissa, was the last year I started working with him because they had an athlete that was struggling. He was not able to get the, and very talented kid, The coach brought him over to my lab, which was in my house just outside of Columbus.

And I started to work him up in the way I work him up. And one of the things I started doing probably 20 years ago, When someone comes in to get assessed, I always do an HRV check.

Listen, as a physician, when someone walks into your office, you've got no idea what they're bringing with them. There's a person sitting there, you can ask questions, but that subjective interview leaves some things that are short.

And the same thing with me. So I started working with HRV when I was working for polar the heart rate monitor company. This is before smartphones. I'm that old and and we started to learn about this.

But so this kid has HRV was horrible. We did some things we did some adjustments to him. We helped him go from where he was barely able to qualify for a tournament to where he made All-American that year.

And the coaching staff, when I was making the changes, they're looking at me like, what are you doing? Because I'm raining kids back, this kid back big time.

And the coaches are like, we're going to nationals. We've got to be going. And I just said, listen, this kid's not prepared for what you're trying to put him through.

So he's maladapting to your training. If you want him to adapt, we need to make the training fit the athlete. So successful, we win a national title. All of a sudden, the coaches now look at me like, OK, what is this voodoo you have?

And we started a program looking at, HRV in the team, we built up through a partnership with the Air Force Research Lab out of Wright-Patt. They brought me a bunch of technology.

I had 16 athletes that were measuring HRV on a daily basis. And the last year, we qualified our entire starting lineup for Nationals, first time in school history.

So 10 guys go to Nationals. We have eight All-Americans, most in school history. But of the two guys that did not make All-American, I could have told you them the first day of the tournament because they didn't have the necessary resilience as expressed through HRV.

Now we had started to see this three years prior when we had started coaching resilience that that we had some early indications from an Olympic gold medalist on my team I had some very talented athletes in this room.

And so we had some interesting indicators early on. But in 16, we really started coaching resilience. We taught breathing RSA breathing. We taught it before when we're warming up before practice, we would teach it.

I'd work it into the warm up. And then when the guys were cooling down, we would work it into practice. So they had had the experience of doing this. And then all of a sudden, I see my athletes in a match, in a big match, and they go out of bounds, and as they come back, I see them achieve a posture that's consistent with parasympathetic boosting.

I'd watch them add parasympathetic breaths, and I'm like, ah, I've broken through. These guys are using the skills. And then, and then the last year I was there, Melissa, we floated, you know, century deprivation floating, we floated that team 140 times.

We picked up the floating stuff from the Navy SEALs. We were in another program that we were working with some special operations groups, and we started to add it in, and it was just incredibly beneficial.

So we have these huge successes. Now, here's the rest of the story. Ohio State didn't necessarily want me there. I was challenging dogma. And there's so much dogma in athletics that you work hard, challenging dogma.

It's the old Baptist education I have. But so while maybe my third grade teacher was right, I don't play well with other people because I'm constantly looking for what the truth is.

And so I wanted to believe in Ohio State. I got an offer to go work in the cannabis business because, and the reason I took it, this is what really caught me, is the reason I took it, because I had pro guys reaching out to me saying, hey, what do you know about cannabis and HRV?

And they're saying, I'm getting some really big readings on my guys after they've been using cannabis at night. And I'm like, you know, my guys are NCAA athletes.

You know, we can't do that. So I got this, you know, it's the proverbial offer. You can't refuse. I took it. I moved to Florida. I'm working in this business.

I do a deep dive into. the science of endocannabinoids, your cannabinoid system, your receptors, your ligands, your enzymes. And I'm like, wow, this really makes sense.

There's something here, particularly in fear mitigation, Melissa. I got there, I ran into two people. One had written a paper on how the runner's high is probably not dopamine, but rather it's the endocannabinoid.

It's an endocannabinoid that your body produces when you exercise. It's a molecule that it's called anandamide. It looks like cannabis. And what we know in fear conditioning in animals, dogs and mice, if we fear condition dogs and mice, we see a natural and permanent drop of anandamide in the amygdala.

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And then we bring them home, no wonder they like to smoke pot, okay? Because this is the only thing they can do to normalize their system. Well, so back to Florida, I come across this and I'm like, wow, this is really interesting.

## What HRV Measures and Why It Matters

And I think back to my athletes, that were not able to build the resilience necessary to achieve this All-American status. To make All-American in the national wrestling tournament, you basically have to win five matches in three days.

It's not just win one match. You've got to come back and win, and the talent's all good. I mean, you've got to be on for five matches. Anybody can beat you.

And I started looking at this and I said, wow, there is something here. So we keep digging into it. The cannabis business is batshit crazy. I got out of that when I figured out how bad that was, but then started working this longevity space.

And as as we look at this, I'm sitting in Florida, I'm liking, so how do I go from where I'm working with Olympic gold medalists to selling weed in South Florida?

And I'm like, universe. please help me understand this. And I was listening to a really cool podcast talking about mission. And I sat back and I said, so what is my mission?

What do I do? I had been a professor for 27 years. I have students, I have great relationships with my old students to this day. And I'm a lifelong teacher.

And I said, so what do I do? I'd like to help people not suffer. And I like to help people achieve big goals. And that's where the mission came from. And maybe we do that in desperation, but thank God for desperation sometimes, right?

Are you ready to redefine aging and unlock your full potential as a longevity leader? At the Human Longevity Institute, our world-class certification programs train doctors, coaches, and wellness professionals how to deliver cutting edge, integrative longevity health solutions so people can live better today for longer, healthier and more vibrant tomorrows.

If you're ready to join the Longevity Revolution, visit humanlongevityinstitute.com to enroll and become a practitioner today. Okay, well, there's so much like, I'm just like, shoot, we are probably going to have to have a two part interview, I swear.

Okay, so let's break this down. So first and foremost, I want to we're going to work in reverse, we're going to start with the fact that as you really came to having a mission.

So to me, mission also equates with purpose, like it gives us a reason To get up the meaning behind why we do the things that we do it's what's driving us and of course when we look just through the literature around longevity.

You know purpose just purpose alone can reduce all cause mortality by upwards of 50% we know in the data how it correlates with the longest lived people around the globe purpose matters purpose matters more than.

You know, it's it's it's a big needle mover. And so I think there's no mistake that you came to a pivotal moment, but

now let's tie in HRV. Right? So.

Okay. So lesson one is, do we all have a mission a purpose? And if you don't, we can. We can kind of massage that a little bit, but I do want to tie it to HRV today.

So HRV, you talk about how this is really the metric of resilience. And so I am not going to dominate. I'm going to take it back to you and say, first, let's go back to basics.

I apologize, everyone, if I was remiss to not start there. Take a moment and explain what heart rate variability is really measuring, what it's really looking at and help to now connect the dot.

Dots rather about what's going on in that the reading of that autonomic nervous system to tell us about resilience and why resilience matters not just in sports, but especially in longevity.

So let's kind of go there and I want to. keep ping pong with us, because there's a lot of good stuff you just said. And we'd be remiss if we don't talk about the endocannabinoid system and also just you at a cannabis farm.

So let's pick up with HRV. Tell us what it is. Let's go back and put that foundation in. So heart rate variability is basically, it's defined as the difference in time between heartbeats.

So if your heart beats 60 beats a minute, most people expect the heart to be beat beep, beep, a good consistent rhythm. But someone with high fitness, high resiliency, the heartbeats will sound more like beep, beep, beep, beep, very variable.

That tells you that your autonomic system is in control, meaning the parasympathetic side, the rest and digest side is in control and you're building resilience.

So the autonomic system, for someone who's listening that doesn't know, your central nervous system has two sides. You have your motor system, which tells your bicep to flex and your mouth to work and those kinds of things.

But then you have the other side, the autonomic side, which I call the automatic side. We don't have to think about breathing. We don't have to think about our heart beating.

We don't have to think about our pancreas working. The autonomic system drives that. Now, the autonomic side has two sides to it. There's what's called the sympathetic side and the parasympathetic side.

You've probably heard of fight or flight. That's the sympathetic side. So if you're sitting in a room and a lion walks through the door, your sympathetic site through the amygdala that we talked about earlier.

I see the line, the amygdala says, that's a threat. It goes ahead and dumps a bunch of chemicals down into your hippocampus. Your hippocampus then tends down through your HPA axis.

Your adrenals wind up sending out a bunch of hormones that say, get the fuck out of here. Pardon my French, but that's, I like to use all the words. You're in good company, I'm with you.

And that's the sympathetic side, fully engaged, like, get out of here. That's fight or flight. Now, there's ways that… I think Stephen Porges and Polyvagal theory, we can go deeper on this, but at a high level, that's what's going on.

The parasympathetic side is that if you get away from the lion, and you climb up into a tree to rest and clean out your shorts. Well at that point in time your body says you're chilling out now we're going to recover here a little bit.

It begins to build resilience because it says, listen, if this happened today, there's a chance it can happen tomorrow. Our body has a natural knowledge, has a natural understanding, and it makes you stronger.

That's through the recovery process. So when sympathetic is in control, you have a very low HRV. The wrestler I

described to you that I worked with on a Sunday morning at nine o'clock, nearly 48 hours after a wrestling match you'd had, he walked into my lab with an HRV of 10 milliseconds, which is the equivalent of a full stress response.

Waking up in the morning, he's at 10 milliseconds. I had him go lay down in my facility. He climbs to about 90 milliseconds, 100 milliseconds, and then as soon as he stands up again, he goes from 100 down to 10. So just the process of standing up for him was the same as a lion walking through the door.

Um, and so we had to fix that. Okay. His body saw everything as a stress. Okay. So we had to recover him to the point where he could recover. Um, and, and, and that's, so that's where we really started with it.

I first saw HRV 30, 35 years ago when I was working with Polar, the heart rate monitor company, they were building it into their products. And, and Melissa, I've been an exercise physiologist for about 40 years.

I do a lot of exercise testing. Someone comes in, we put you on a treadmill or we put you on a bike and we put a mask on you and we do VO2 testing and things like that.

It's probably been 20 years ago. I have a police officer come in. He's in my eight o'clock appointment. I've known this guy since grad school. I check his HRV and his HRV is 25 milliseconds.

and which is kind of low. I kind of like to have people above 40. And I said, did you work last night? And he goes, how do you know that? And I said, well, regardless of how I know that, did you work last night?

He says, yeah, I just got off. And I go, we can do this test. I said, but you're not going to thrive on it. You should come back to me when you're fully recovered.

So that was my introduction to HRV. Then as a coach, we really started to support it, drive it, push it. Okay. So this is so important. So now. Again, just recapping because that's what I do as we kind of come into these little moments.

Everybody take a breath, take a pause, is that if you heard it, right? HRV, it's measuring your autonomic nervous system, your fight or flight, your rest digest.

Is the foot on the gas pedal of life or are you pumping the brakes periodically so you can have those recovery moments?

## Recovering the Athlete Through Sleep and Training Caps

Or both. One of the things that we know Yes, exactly. The system is meant to modulate. We're supposed to be able to respond really quickly and aggressively, and we're also supposed to be able to relax and recover.

And so it's an and also, one is not better than the other. Because if we're too parasympathetic or too sympathetic, we're out of balance. So we want the system to modulate.

In our very modern world, we are hyper-vigilant. We are sympathetic dominant. We always have the tigers coming after us. The moment we pick up a phone and we start to scroll, our system is constantly reading threats.

I really want to come back to this athlete because there's a really strong example in there of how you basically brought him back online. Every time we look at this marker, Every time we're teaching our doctors about this marker, every time I've got clients and patients that come in and they're looking at this marker, people start to freak out because they're like, well, it's low and I can't get it to move.

And so we know like I am actually not resilient and I'm not recovering because too often we do have our foot on the gas pedal of life and whether we realize it or not.

and we're not having those moments to pump the brakes, to give the body its natural rest periods. And then for

many of us, we might think we're resting, but we're really not allowing that system to come into a full rest in a way that provides recovery.

And it is that restful recovery that allows us to bounce back. And really when we lose resilience, we lose our ability to bounce back. And as we chronologically age, the more we lose that resilience, the less we bounce back, It's like we're always two steps forward, three steps back.

We're never getting ahead. We're always kind of losing ground, so to speak, and that's quickening that pace of breakdown and aging. And so when I hear this work that you have done for so many years, Don, and really you're such an innovator, right?

Like we talk about it often now is on our wearable devices, but you are doing it at a time when there were no wearable devices. Few people were even understood what this marker was let alone the importance of reading it.

So back to the athlete that was 10 laid him down started to show recovery stood him up tanked again. How did you because to be fair gang that athlete was training really hard, but you heard Don talk about trauma.

Big T, little t. We've got all these traumas, these inputs, these tension stressors embedded in our systems that every time we go to stand up, metaphorically, our systems can tank.

So walk us through how you helped him and you also mentioned something about RSA breathing. So right now I want to help us to understand some things that we can be looking at and doing because HRV is the hardest thing to move for most people.

Yeah, well, you already talked about it, Melissa. You talked about the fact that, okay, I'm a huge believer in purpose. If you've seen, in fact, we can put a link into a presentation I did.

I call it my rocks in the jar, the four rocks in the jar. And the jar is purpose, period, end of story. You've got to have it, number one. But number two is, Okay, this athlete effectively recovered when we limited his workload, stepped in, and I had a head coach I was working with that had the courage to say, points at me and says, you're handling this guy.

And I'm pushing against four other coaches that wanted to do something else. And it was simple for me. If you keep doing what you're doing, he's going to fail.

It's really simple to look at. So let's lower the probability of failure. Let's try and raise the probability of success. And so really what we did is I threw caps on his training levels.

Two things. Number one, I taught him how to sleep. I said, okay, let's get you, because this was one of the early indicators that we have that sleep is always bad with someone with poor HRV.

I had to have a talk. I said, listen, I need you sleeping in a bed by yourself. I know you have a girlfriend. I know you guys are tight. I don't care what you do before you go to bed.

I just want you in bed by yourself eventually. Girlfriend was not happy with me, but girlfriend was very happy with me when this kid comes home and all American.

It's like, oh, okay, the payoff was there. So number one, we taught him how to sleep. Number two, we went through about two weeks where I threw training caps on him that I would go into the room.

I put a heart rate monitor on him in the room. We had to figure out how to do that with a wrestler. It was a little bit of a challenge. but I had calculated his anaerobic threshold at about 165 beats a minute, which means when you're doing work that's producing a heart rate of greater than 165 beats a minute, you're probably producing cortisol.

Cortisol is a driver of, you're producing, excuse me, you're producing lactate. If you're producing lactate, you're

producing cortisol. And I wanted this kid to be as cortisol free as I could have him for a period of time until I could get a response.

So we threw training caps on, but then the other thing is I did is I have a bike ergometer that I can program watt by watt. I can put you exactly where I want you.

And I programmed him right at threshold. And we did rides right at threshold. And literally every time we did that, we saw a bump in the HRV. So these are two key elements, sleep, and the appropriate kind of work.

Okay, these are the two big elements we were dealing with. Let me ask you this really quickly. Okay. So because I want to translate this into everyday life for us and you're bringing up some really important principles.

I love this. So in essence, like you figured out his threshold and you took him right to that point. So the system could go there not beyond it. And I think this is what we as individuals, we don't know what our threshold is, right?

Like, so we constantly train beyond, we live beyond, we push beyond. we do beyond what our body is actually able to to handle because that's where we know because that's where we feel it we go there because that's where we feel it we tend to go to where we feel what we're feeling is lactate okay this is an important part you're feeling lactate and when you recognize that and then you recognize the value of sub lactate of sub glycolytic energy systems Then we realize wrestlers train with their face on fire 100% of the time.

If they're not just at the bone, they don't think they're going hard enough. And what we've learned is that's not the case. The problem is, Melissa, in sport, everybody goes hard now.

There's no, that the ability to win by going harder than your, which was the case back when I was an athlete. So in the early 80s, in the early 90s, you could win by outworking all your opponents.

Everybody works hard now, so we have to look at, okay, where is the advantage? And this is what we saw with the wrestling team is that by 2018, recovery dictated success.

I mean, we all recruited the same athletes. We all trained hard. We all had the same skills. You know, all the top programs are that way. recovery dictates success now.

And this is the case. I'm seeing this in multiple sports. I'm consulting with a couple kids from from all over North America and and we're seeing it and we see it.

And look, my daughter coaches lacrosse. She sees it. I'm working with a kid, a kid that's a canoeist up in Canada. We're seeing it with her. We're seeing it a lot of different levels.

We've seen it with football. We've seen it with with wrestling. It's it's very clear to me mainly because I've got I've got 8 million data points to go back and look at.

Right. So let's do this. And I want to come back and touch on the sleep thing for a moment. And I want to extrapolate. Again, I'm making the metaphors, right?

So what you're seeing with the high performers, this is not getting just relegated to the athletes, OK? So now let's make the metaphorical association to how we show up for life every day, how we as individuals, whether we ever step foot in a gym or perform on a court or not, Every day that we get up out of bed, we are showing up for the performance of life, right?

So so let's start there. Many of us bring many of us bring a lot to the table, and it's a lot of baggage.

## Everyday Stress, Flow, and Practical HRV Tools

It's a lot of weight. It's a lot of things that we already come that are already a stress on the system, how we're

thinking, how we're eating, how we're moving so that when we don't even know.

OK, so no shame to anybody. So we show up as we are, and now we're kind of getting into this. We start looking at some wearable stuff. We see we got a pretty low HRV.

Like, I'm not really sleeping well, but I don't know how to improve my sleep yet. How do I improve my HRV? They're taking pieces of what you're hearing on talks like this, right?

And they're trying to make sense of it. So if we first and foremost think of the analogy that, are you pushing yourself beyond? And I'm wondering, Don, sports analogy aside, how would you maybe help our listener consider That they don't have a heart rate monitor on and they're not going to that lactic acid threshold, you know, but they're like, what's the how would you help them understand the threshold?

of how they show up for life, because we all push ourselves too much every day. And sometimes we don't know it until we're just exhausted and on the couch, and then they're going for all the comfort food.

So what, if any advice, practical advice, might you say, this is when you could potentially start to check in with your system and notice that maybe you're right at that point?

Any suggestions? You know, what's funny about that is your friends, other physicians that have thriving practices, I have talked to him probably more than a dozen.

I got an aura ring, my HRV is like 15, and I just quit wearing it. And I'm like, okay, that's one way to respond to it is ignore it. Denial is more than a river in Egypt.

But you can't ignore the fact This is the fact, when your HRV is zero, you're dying. You're within an arm's length of death. When your HRV is very high, you're nowhere close to it, okay?

And so we're always striving to move away from zero. Now, moving from 50 to 65 may be, a lot easier than going from 15 to five. Once you're down in those low numbers, it's really hard.

Listen, you've got to be very ill to go to zero. You've got to be really ill, but I know a lot of great docs that are out there walking around with nighttime resting HRVs of 15 to 20. Do you feel good?

Yes, when you're under stress, the brain dumps dopamine, it dumps serotonin, it gives you a lot of happy chemicals to help keep you alive, to help keep you in the fight, okay?

and too many people are running on those okay and creating too much stress down the road and not able to build the resilience and I think this is we have to learn more about this I'll tell you I'm ready to do the study and start to work with with orthopedic surgeons, and emergency room docs, okay?

This is two classes of physicians that notoriously have horrible HRVs. How do we help them boost that? And most of them love to train, they're doing high rocks, or they're doing CrossFit, or they're just living in zone four, they're living in there, because that's where the dopamine's at.

And I don't want to minimize the value of being there on occasion, but the data is becoming so clear on a daily basis. Training in zone three and below has so much value.

There is so much value there. Now you may not get the dopamine hit that you get with the zone four work, but in the abs, this is where I go back to. I think in this environment that we live in now, Melissa, can you imagine going through life without a cell phone?

Probably not, our society's there. A computer, a cell phone, that's a technology. Well, there's a piece of technology that we have access to that is so inexpensive, and that's a heart rate monitor, that if you're going to take the time to lace up your Nikes that cost you $280, and pull on your Lulu's that cost you $90, and try something else.

That $80 heart rate monitor that you'll have, I've got one that's 20 years old, okay? And it lasts and it works. I believe that is a key element. Okay, I just think it's a key element so that you're able to put yourself in the right position clear goals and feedback.

We were talking earlier about co engagement of sympathetic parasympathetic. There's a psychological concept called flow the psychology, the optimum experience.

I consider it the most important book I ever read. I read this, my sports psychologist back when I was wrestling turned me on to this and I've been teaching it for 30 years now.

I believe flow is a co-engagement of both sympathetic and parasympathetic. It's both. Stephen Kotler, the author Stephen Kotler, he's got eight New York Times bestsellers.

Stephen and I have gotten to be friends over the years and we were talking about this and I think fear is easy. It's easy to do. We do fear. And in our armed services, in our special operations, I mean, these guys are elite, fear endures, okay?

But if you co-engage parasympathetic, man, you drop into flow, and there's not a better place to be. Now, what do you need to drop into flow? Well, part of it is concentration on task at hand, being able to clear the chatter being able to focus on the task at hand.

You know, a good friend of mine, Dr. Ron Garbo, who's over in Virginia Beach, he's a pain management doc, he said to me one time, he says, stress only exists in regret of the past or fear of the future.

He says, when you are present, there is no fear. And I, man, this makes a big difference because when you start looking at, I know what I did. I had horrible anxiety as an athlete.

I had to, this was the last barrier for me to really achieve my goals. I had to deal with the anxiety and I did it with meditation. You know, we were doing this back in the eighties.

and visualization in these things. And it helped me with my sleep. It helped me with all those things. I wasn't measuring HRV back then. I didn't know what it was.

But these are the tools. This co-engagement is so important. And I think from, again, let's use this physician, this orthopedic surgeon, this emergency room doc, that wakes up, don't use your wearable for just to confirm your belief, okay, because it won't.

Your stresses is mismanaged. Your autonomic nervous system is mal-aligned. If you're an athlete, I call it mal-adaption, you're either adapting to the training or you're mal-adapting to the training.

If you are an executive, if you're a mom out there trying to raise kids on your own, You've got to pay attention to, okay, I know the stress is there.

I know the lions are right around the corner. I know the fear is there. But the only way to deal with that is to be present, to pull in, to focus. And there's tools that we can use to do that.

That's where the breathing exercises, that's where meditation, that's where floating. And now we're developing some technologies. I'll tell you, I've started playing with some of this vagal nerve stimulation stuff.

This is really impressive when you take a look at vagal nerve stimulation and its natural role as a GLP. This is pretty interesting. Can I use a microcurrent on my neck and get the same effect as an injection of a hormone?

I think there's some interesting data there that can support that. And then when you take a look as an athlete or just a human, okay, let's take the athletic competition out, just a human that's trying to compete in life.

If you can boost your nighttime parasympathetic rest and digest, if I meditate at night, if I float, if, you know, all these things, or if I do vagal nerve stimulation at night and I improve my sleep and if, You can't improve HRV without improving sleep.

It doesn't happen. So you've got to focus on that. And then the second thing that you focus on is building more space between heartbeats. So you can have more variability there.

The more space, and you do that through cardiovascular fitness, which will be represented. I don't believe in VO2 testing, VO2 max testing. I don't, I, I, to take a, to take a regular human and to put them on a treadmill and George Jetson them off the back, the fear there is too great for the benefit that comes with it.

But I'm a huge believer in threshold testing. Um, I will bring you up. I'll watch your breathing. Maybe I do a little bit of lactate work. That is the powerful point.

And as you improve sleep and as you improve power threshold, HRV will come along. I love it. Okay, so we've only got a few minutes left together, so we're going to do a nice little recap to button this up for all of you.

So here we know HRV, if you're not already measuring it, you can and should be measuring it on any type of wearable device. If you are the person that you get stressed out by looking at your data, then in and of itself, it's going to tank your HRV.

So use data in a way that can be beneficial for you, not obsessive. So even if that means you're going to just put it on, at first, it's good to create a pattern, get a baseline, and don't even look at it to say, what is it?

Just go, just don't even look at it. Just give yourself a week of letting your body establish a baseline. And I think it's simply it's longer than a week, Melissa.

It's longer than a week. I think the mistake that people are making, I just wrote about this this morning, by the way, I find very little value in fluctuations day to day.

But if you go back and look at my data over the period of a year, you can see major shifts and changes. So my wife and I, we're nomads. We live in an RV and we travel all over the country.

We've been doing this for about three years. Back in January and February, we were out in Lake Tahoe for an extended period of time, living at about 7,000 feet.

I was training pretty well and I got the highest HRVs I've ever, I've had, in the last 10 years since I've been measuring it myself regularly. We then come back east, my daughter coaches in Pittsburgh and we came back east to be close to her for the summer.

I've duplicated the workloads, I've duplicated the sleep data, I've duplicated, and I didn't get the same response at sea level that I get at elevation.

Now, we're gonna go back this fall and I'm gonna have the second, I consider this a washout, I'm gonna go back for another experimental trip. But the value of HRV comes in time, not in days, okay?

## Tracking HRV, Building Resilience, and Closing Takeaways

Be willing to build the profile. I love it. So at minimum a 30 day, like at first, like just to get something context as a baseline. Obviously you're saying years, I'm hearing that.

It may take longer. It may take longer. But what we know is you can trust the process. Purpose, sleep, cardiovascular. Yep. Sleep, cardiovascular. Well, my rocks in the jar, the big rock in the jar is movement.

The more you move, the better you move, the better off you'll be. Second rock in the jar is nutrient-dense food. And

if you can't get nutrient-dense food, then you need to supplement the nutrients that aren't there.

Work with a pro on doing that. The third is sleep. You can't hack sleep, but you can hack the sleep environment. And that's really important. And finally, the fourth rock for me is light.

The addition of nutritive light and the subtraction of toxic light. You remove those so that we can get our circadian system established. Those are the four big rocks in my jar and the jar is purpose.

You gotta wake up and say, why am I on this earth? Who am I here to affect? What is my role? Rarely is that role sitting in the Barca lounger or playing golf in the league.

You need to figure out how you're giving back, how you're contributing. And that can be as a grandparent, that can be as a parent, that can be as a mentor, that can be as a, but you have to have purpose.

I describe, okay, let me give you, okay. Okay, I'm sorry, just because we're almost out of time and I know that everybody wants to know this. What is the best way to track HRV?

What do you endorse as the best? I'm doing a personal tracking. What are your favorite ways to track it? I think the best tool on the market right now is an Oura Ring.

They've got the best science. I'm paying very close attention to a company out of Amsterdam called Nowatch. N-O-W-A-T-C-H. Nowatch? Yes. And what do you think about who because who came out with like really kind of some of the strongest HRV and they do elongated monitoring.

So what do you think about who comparative to aura? I don't think you can get an HRV. I don't think I don't think who gives HRV anymore. They have their recovery data.

I don't I'm not a supporter of whoop. I'm a huge supporter of all right. Got it. Perfect. So we're doing rapid fire right now because I've got like two minutes left.

I like this is so important. Okay. So to boost HRV the things that you have found to be the most effective way. I'm just kind of making sure I'm understanding working on sleep.

So while you can't have sleep you can hack the environment. It's it's light. It's sound it's maybe even who's in the bed with you the temperature temperature control, you know, one of those things that help at night.

It's even taking a warm bath because it's going to raise the core temperature you get out. It helps to then drop the body's temperature because temperature is a really key part of ensuring that we get into good deep sleep.

So I'm hearing sleep is of course a great way to start working on HRV movement. I heard you really say so go ahead. Exercise is critical, is when it comes to sleep, this is where balancing your endocannabinoid system, we actually developed a product called HRV Plus.

If you look at a thing called mode method HRV Plus, that's a product that we developed. I don't know what's gonna happen. I'm not with that company anymore, but it worked great.

The sleep was awesome that came from it and the HRV came with it. So balancing endocannabinoids can be an important tool for good sleep. I love that and then okay, so movement again.

It's about being in the right zone. So we've got to move but move with let's really talk about again the best recovery after movement. So zone 2 has the most data when we're looking through a longevity lens.

Obviously, you said zone three, we can kind of get to our threshold because you do a lot of threshold training. I love that. So best ways of recovering post any kind of activity beyond sleep to help with HRV.

Start with breathing, start to pay attention to recognize that our breath, that breathing is a motor system that overtakes the autonomic system. So it overrides it.

So when I breathe correctly, I can trigger recovery. So I think breathing is a critical tool there. Being able to, I'm gonna use the term meditate, being able to pull in and be focused On the task at hand, where am I at right now?

I think those two things are critical. Yeah. And so you just said breathing correctly. Explain what that means really quickly. Well, I would call it intentional breathing.

I would say, listen, it can be. With all these gurus out there, everybody's got there, it's this, it's that, or it says, listen, it's really simple. Start with five seconds in, five seconds out.

Just start there. Do three minutes of that, okay? What is that? That's 18 breaths, okay? If you can't give me 18 breaths, you got bigger issues, okay?

Take three minutes, breathe five seconds in, five seconds out. The response will be amazing. I love it. low, slow, in and out through the nose. So breathe low into the diaphragm, slow down the rate of breathing, into the belly, no mouth breathing, in and out through the nose.

So, okay, great. So we've got breath, we've got presence, that mindfulness. And again, gang, meditation is simply mindfulness. It's being mindful of the now.

And so a lot of times you'll hear practices as simple as focusing on an object, focusing on a candle, focusing on a mantra, a word, a sound, You know, it's just, and so the idea of can we get to a point where things fall away, all the chatter, all the noise, that's the goal, but sometimes that becomes hard for people.

So don't make it about trying to get things out. Can you just focus on one thing? Go ahead. Take your smartphone and go download the app Headspace. The first 10 days are free you get you get a huge level of benefit from the free side I've got a feeling once you're doing it for free You'll probably subscribe or if you're wearing an Apple watch once you learn headspace Your Apple watch has got some cool little breathing tools built into them that can coach you through one of my favorite tools is working with HeartMath, the HeartMath products out of Southern California.

These are wonderful tools. I've done a lot of big work with those, had a lot of success with them. So these are all tools you can use that are all breathing related.

And I love it and HeartMath Institute, you guys, it is where so much research and data comes out about HRV through looking at coherence. It's, you know, it's really, it's using biofeedback as a tool to work on improving HRV if you're not familiar with the work that they do over there.

Don we could keep going my dear friend and I love it so when we wrap it all together it really does start with purpose what gets you up what gets you out so lean in with curiosity with love with just.

you know, to what, just what matters to you? And there's no wrong answer. And then from there, as you start to measure, as you start to get curious, it's not that you're doing anything wrong.

It's notice, where are those opportunities for more aliveness? And if your numbers are low, this was the question, what's the, I meant to ask you this, what's the most optimal range that you like to see people at with their HRV?

Where should they target to? Higher than they were last month. It's really that's- Higher than they were last month. Trauma, Melissa, trauma changes everything.

Yeah, yeah. Trauma changes everything. So I can't say, oh, it's here, it's here. It's not like blood pressure, but we can always push to move away from zero.

I love it beautiful that that's the best answer I've ever heard around that. So because too many people get so

freaked out and like it's too low. It's too low.

It's too low. It's just then let's just see how we can move it up and even it's it's the inches. It's the it's a little it's the baby steps into the quantum Leaps and so let yourself enjoy the process and notice the things that you do.

that allow your system to feel restful, to feel recharged because that's what creates the resilience, this beautiful loop that's gonna help to be regenerative onto itself.

So Dawn, where do you want everybody to find you, my dear friend? Well, to find me, you can either go to my website, it's called trainrecoverwin.com, or you can find me on LinkedIn, Don Moxley on LinkedIn, I have regular communications with people there.

My socials are okay, my Instagram is probably my most active, that's where I push the most information, but those are the three places you find me. Amazing.

And we will have those links in the show notes below. Don Moxley, man, dear friend, keep leading. You are legendary. I always love our conversations. I learned so much from you.

I'm inspired by you and I love supporting you. So what an honor having you here share your brilliance today. Thank you so, so much. I so appreciate the opportunity, Melissa.

You guys do a great job and I'm excited to be part of your program. Amazing. All right, everybody. Wow. I know you loved this. Tell me what you loved the most.

Tell us about your HRV journey. Make sure that you put your comments in the comment section below because we want to go on this journey with you. All right, everybody.

Until next time, as always, thank you for tuning in and continue to be bold, stay curious so that you truly can thrive by design. I'm Dr. Melissa. Take care.

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