THE MODEL HEALTH SHOW

EPISODE 662

Biohack Your Energy Levels & Metabolism

With Guest Dave Asprey

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SHAWN STEVENSON: You are now listening to The Model Health Show with Shawn Stevenson. For more, visit themodelhealthshow.com. Welcome to The Model Health Show. This is fitness and nutrition expert Shawn Stevenson, and I'm so grateful for you tuning in today. What if our biology actually rewards laziness? And I know that this is very counterculture because our culture is so focused on doing more, grinding, working hard, all of these different things that we see in this paradigm. And there is obviously a place for that. But what if our cells are actually dancing to a different tune? On this episode, you're actually going to hear the scientific evidence behind the laziness principle. We're going to be talking about how our cells and our organelles, including our mitochondria, are actually functioning in a way that is often not talked about. And there's a way to leverage our biology, leverage our metabolism to get better results faster, to get better results without the day-to-day grind mentality. As a matter of fact, you're going to learn how that might be counter to getting you the greatest possible results in the shortest amount of time. I know this is a big promise, but if there's one person that can deliver on this, it's my special guest.

He's spent decades, passionately working to biohack his own biology and then to share what he's discovered with millions upon millions of people. And so, one of the things we're going to talk about today, by the way, is our mitochondria. Now, they're often referred to as the cellular power plants within our biology, but there's so much more than that. And in particular, he's going to mention how they're really responders to our environment. To environmental inputs are going to determine what our mitochondria are actually making. They're not just making this cookie cutter energy we put on this camp of ATP or adenosine triphosphate. They're making different things depending upon the inputs that we give them. Now, our mitochondria are the end station for fat to actually get burned. You can "lose fat". Your fat cells can open up and dump out their contents. That's a process called lipolysis. But that fat can get reabsorbed and get released from your booty and get absorbed on the back of your arms. All right?

We want the fat to actually make it to its end point and to get "burned in the truest sense of the word". Now, that burning depot, that burning station is your mitochondria. That's where fat is actually getting burned for fuel. Now, obviously want to have healthy, intelligently functioning mitochondria. We also want to have a robust array of mitochondria. We can have dozens or hundreds or even thousands of mitochondria in a particular cell depending on which type of cell it is.

But to have an adequate amount of mitochondria to really run this incredible system that we're living in, we're talking about the human body. Our mitochondria need to be able to make copies of themselves. We need to also create new mitochondria. It's called mitochondrial

biogenesis. And here's the most important piece. In order for your mitochondria to make copies of itself, magnesium has to be present. Not just that for the mitochondria to make copies of itself, but magnesium is needed for the product that mitochondria creates. One of the products ATP, that energy currency of the cell. For it to actually be biologically active, it has to be bound with magnesium. This is how important this major mineral is, and it's also one of the biggest deficiencies in our world today. So, making sure that we're getting adequate amounts of not just magnesium, actually, if we're talking about performance of a mitochondria, we need a full spectrum of key electrolytes. These are minerals that carry an electric charge. They enable our mitochondria to function and for our cells, at large, to communicate with each other. That's why I'm such a huge fan of making sure we're getting our electrolyte needs met. In particular, an optimal ratio of magnesium, potassium, and sodium. Sodium is another one of those things that is critical to the sustainability of our cells.

Our mitochondria operating in this cellular medium that is retaining, it's all a water medium by the way, but it's able to maintain its water balance and to run all these processes, thanks in large part to sodium. But the right ratios are what's important here. And using hundreds of thousands of data points, there's one electrolyte company that stands above all others, and I'm talking about LMNT. Go to drinklmnt.com/model and not only do you get the very best electrolyte supplement in the world, free from artificial colors, binding agents, sugar, all of these things that are totally unnecessary and often found in popular electrolyte products, but also the right ratios that we're truly looking for sourced from high integrity sources. And also, you're going to get a free gift with every purchase. All right, so they're really stacking it on. They're stacking the goodness for you. Go to drinklmnt.com/model. Again, get a free sample pack with every purchase. Head over there, check 'em out. Their electrolytes are fantastic. It's drinklmnt.com/model. Now, let's get to the Apple Podcast review of the week.

ITUNES REVIEW: Another five-star review titled “inspires me to share” by end votes 0803. “Hey Shawn and team, I started listening to you only a few months ago, but have adjusted and improved my diet and my life because of it. You and your team inspire me to want to help others lead healthier lifestyles, not only in nutrition, but in all other aspects of life. Keep fighting the worthy fight.”

SHAWN STEVENSON: Absolutely. I will do that. And thank you so much for that amazing review over on Apple Podcast and thank you for the shout out to my team as well, because I definitely could not do this without the help of these incredible people in my life. So, thank you so much for that. And on that note, let's get to our special guest and topic of the day. Our guest today is a multi–New York Times bestselling science author, and he's also the host of one of the top wellness podcasts in the world. He's the founder and CEO of one of the fastest growing coffee companies in the world, and also the founder and CEO of Upgrade Labs. And he's back on The Model Health show to talk about the laziness principle and really looking at how our biology

truly runs and what are some things we can start to employ in our own lives on a day-to-day basis to get the very best results for our body, mind, and performance. Starting this conversation with the one and only Dave Asprey. Welcome back. It's so good to see you again.

DAVE ASPREY: I'm so happy to be here. It's always fun. I always get feedback from my listeners when they pop on your show and they hear what you have to say, and they're always like, "He's so nice." You just have the best vibe. Anyone who interviews me, you're always the most chill and just curious. So, whatever you're doing, man, keep it up.

SHAWN STEVENSON: Thank you. Will do, man. I appreciate that. And on that note, I'm going to prod more today. I'm going to poke, prod, I'm going to poke the bear.

DAVE ASPREY: I can't see you doing that man. I just... No, I'm kidding. Whatever you'd like.

SHAWN STEVENSON: Listen, over the last couple of years you heard this term again and again, people want to get back to normal. And you addressed that in the very beginning of the book. You shared that when people were saying, "I want to get back to normal," it never really sat right with you. It didn't sound right. Talk about that.

DAVE ASPREY: It feels, feels dirty. You could ask for anything in the world you want. Like, "I just want to be normal." Maybe you could ask for a little bit better than normal. How about upgraded? Maybe. Take off the blinders. I have zero interest in being normal, being average, and I've taught my kids the same thing. Being normal's not a good thing at all. It means you're boring and average. You want to be way better than normal, and it doesn't mean in everything. Pick the things you like, be way better than normal in those and be way lower than normal in stuff you don't like. And that's actually a happy person. So, yeah, asking to get back to normal, that's like basic level stuff. We can do better.

SHAWN STEVENSON: And even our normal, it was very unnormal.

DAVE ASPREY: It was tweaked.

SHAWN STEVENSON: Yeah.

DAVE ASPREY: Yeah. We don't want that. So that was part of writing Smarter Not Harder. It's like if you wanted to tap into all the power that's in your biology that it's capable of, you got to get the right signal into the body to tell it to do what you want. And when you do that, you don't even know what normal is for you. Because what you think is normal is probably something that was built by a big food company, and glyphosate and all sorts of things where

it just... Because that's how it's always been, you think that's normal. Maybe your default settings are way, way bigger than you think.

SHAWN STEVENSON: Yeah. Yeah. One of those big things that kind of stands out when we hit these pandemic times our state of normal was about 70% of our population being overweight or obese, and upwards of 88% of folks being metabolically unhealthy. And again, this is in peer reviewed data and wanting to get back to that is really kind of distorted view of things. And for me, and for you as well, this is an opportunity to do better. To upgrade, to reset things, but not like the great reset kind of that paradigm, but like something we can do within our own bodies, in our own households.

DAVE ASPREY: I did notice something, speaking of the great reset. The guys who are trying to do the great reset, they're actually made out of meat, and meat is healthier than bugs. And I just want to make sure they know that.

SHAWN STEVENSON: We got to slide that in. And throughout the book you also talk about our meat suit continuously.

DAVE ASPREY: Yeah. Our meat operating system.

SHAWN STEVENSON: Our meat operating system.

DAVE ASPREY: That means it runs our body when we're not looking.

SHAWN STEVENSON: And at the helm really in so many different ways. And I love this, you really dug in on our mitochondria. And specifically in the book you talk about training our mitochondria.

DAVE ASPREY: Yeah.

SHAWN STEVENSON: How in the world can we train our mitochondria?

DAVE ASPREY: Well, you got to look at what they are. Mitochondria are actually a collective intelligence. A distributed intelligence. So, each one was once a bacteria, and they're embedded in most of the cells in our body at various concentrations. And each one is an environmental sensor and it'll sense the world around it. And then it'll either make electricity, it'll make sex hormones, it'll make melatonin, it'll make proteins, or it'll make inflammatory molecules. Oh, and it can make fat too. They're manufacturing plants. But that means each one has the ability to make a decision. And one of the things they do is they talk to each other, and they vote via a process called quorum sensing, which is scarily similar to how the latest crypto

networks establish trust. So, there's an algorithm for how mitochondria talk to each other. So, what they're doing is they're voting saying, "Oh, let's do this. Hey, the body is safe. The body is not safe." And they're so terribly afraid that your petri dish, your meat suit may die because it's their home. They're running you like puppet masters. They're exceptionally fast, they make millions of decisions very, very quickly. But they're stupid. They don't understand time, they don't understand resource availability. They just live in the very present moment.

And the problem we run into is there's, for the average brain, about 1/3 of a second between when something happens and when your brain first gets an electrical signal that you heard something or you saw something. So, who's in charge in that 1/3 of a second? It turns out if you're 18, well you probably have a 1/4 second delay. And as you get older, the delay gets longer and longer between when something happens and when your brain even gets a chance to notice something happened, then you have to figure out what it was, which takes more time. So, I can do this, snap my fingers, and you and I we sense it right away, no lag. There's a lag. It's just been edited out of your reality by those little freaking mitochondria. They're doing things. So, they control a lot of what we actually get to see. And they control a lot of our stress response before we think.

So, some of the hacks in the new book, in Smarter Not Harder, what we're actually doing is we're training your mitochondrial network that's distributed intelligence as collective intelligence throughout your body, to not be afraid of things that they're naturally afraid of. We're programming fear out of the tissues. And one of the things that we're afraid of is that you might do something so hard, you'd get injured. If you get injured, obviously then a predator would eat you and then you die. 'Cause because they're dumb, they're bacteria they just know, "If my Petri dish isn't working right, if my meat suit isn't working right, we might die." So, you kind of have to feel sorry for them being so stupid except they keep messing with your reality. So, what you can do in some of the training techniques, for instance. There's five areas in Smarter Not Harder that I talk about different biohacks, but one of them is putting on muscle. And the goal is what if you could train your system to put muscle on in way less time than you think it's supposed to take? And the way you would do that is by interfacing with the meat operating system and getting a signal in that says, "Oh, you can put on a certain load, and you have to adapt to it." And ultimately mitochondria drive that process. So, the traditional way of exercising has only been two things throughout all of history. Guess what they are?

SHAWN STEVENSON: You're talking about the general principles?

DAVE ASPREY: Yeah, general principles of exercise.

SHAWN STEVENSON: Cardio and strength training.

DAVE ASPREY: Yeah. It's like pick up rocks and run away from tigers.

SHAWN STEVENSON: Yeah.

DAVE ASPREY: It's always been that. We can concentrate the rocks into iron plates, right?

SHAWN STEVENSON: Yeah.

DAVE ASPREY: And instead of running away from tigers, we can get on an exercise bike and spin or something. But it's the same thing. With AI, with exercise science and with stuff we've figured out about network effects in the body lately, turns out there are signals you can send that really transform your biology. So, you can put muscle on 3-5 times faster than lifting weights. And usually, it means not using gravity at all as a force 'cause your mitochondria understand gravity and they're used to saying, "Well here's how weak I can be and still survive." When you send them a completely foreign signal like, "Oh God! I'm going to have to bulk up." And "Oh maybe I don't have to worry about getting injured because gravity isn't in the equation." And then all of a sudden you can put muscle on with very little work. And since like you said, 88% of people are metabolically dysfunctional, having more muscle helps a lot with that. But if you're metabolically dysfunctional, "Oh, it's New Year's, I think I'll go to the gym every day for 45 minutes." And then a week later you don't do it 'cause you're tired, 'cause you're metabolically dysfunctional. I know this because I weighed 300 pounds because my motivation for writing this book is that when I was fat, I was a young man and I said, "You know, nothing matters more than losing this weight. I don't want to have another knee surgery. I'm just, I'm going to do it."

So, I went to the gym for 702 hours. I went 90 minutes a day, six days a week for 18 months. And at the end of that time, I still had a 46-inch waist. I could max out all but two of the machines and I was doing the treadmill 45 minutes wearing a backpack at a 15-degree incline, walking, running 'cause my legs were screwed up and I couldn't lose the weight. And that was wasted time. I could have gotten way better results in a tiny fraction of that 702 hours. So, I want people who read Smarter Not Harder to say, "All right, it's okay. I actually don't want to go to the gym." By the way, if you get endorphins from going to the gym and it's what makes you happy and it's your community, go to the gym, it's totally fine. Just understand over training is a thing. But for most people, we want to be parents. We want to be friends, we want to be giving back to our community, we want to build our career. We have lives to lead and missions to achieve. And going to the gym probably isn't it. So, if for that part of the population, how about 10 minutes, twice a week? If that's going to get you 80% of this, it's going to put the muscles back where you need them. And in all the free time, you do something else. Or maybe you go into Upgrade Labs, and you can go to an ownanupgradelabs and open an

Upgrade Labs in your neighborhood. It's a franchise model. We're opening dozens of these things across the country right now.

And it has the most advanced tech that I talk about in Smarter Not Harder, but you can do all the stuff at home using these same principles. So, okay, I spent just a couple minutes on my muscles, I guess I wanted some cardiovascular as well. We can do about 12 times faster than going to a spin class. So, if you give me five minutes three times a week for 6-8 weeks, you're looking at about a 12% Vo2 max improvement, which is correlated with a two-year increase in lifespan, for five minutes three times a week. Whereas most of us believe, "Oh, if I want to get cardiovascular fitness, I'm going to have to go to my spin class or get on the treadmill and just sweat a whole bunch." And there's a principle in Smarter Not Harder, and I call it slope of the curve biology. And it's something that I picked up from looking at neurofeedback, which is how you train the brain and looking at all these different interventions.

And it turns out, we like to think that we respond to the amount of work we do. 'Cause you work hard, you struggle, you sweat, you have grit. Those are willpower based and they're admirable, they're important traits for humans. And that's how we change the world. But it's not actually the most effective way to put on muscle and become metabolically stronger. In fact, it's terribly inefficient. What the body responds to is very, very fast onset of a signal like, "Oh my God, I'm going to die." And you take the signal right to the edge where it would cause the system to lose equilibrium and then... And this is the trick, the whole backbone of Smarter Not Harder, is that then you very quickly return back to baseline. So, the body believes, if you take it to a max, sprint for one minute like, "Okay, I spread it, now I'm going to go to 70% and I'm just going to grind it out for a while. And then I'll go down to 50%. Then I'll go back to 70%." Like, "I'm working so hard and breathing hard, I'm sweating, I'm feeling stressed, I must be doing good."

What you're doing is you're pushing the body out of equilibrium, and so the body has more energy to deal with stress, but less energy to adapt. Whereas if you had done the types of techniques in Smarter Not Harder, literally 10 seconds, two times in five minutes, you would go there, but you wouldn't go over the edge, just go right to it, and you come right back out. And it's the return to baseline that drives adaptation, and this frees us. Now we can have all this extra time. And so, I want people to come in to Upgrade Labs or just to do the techniques in Smarter Not Harder, and they're going to get their cardio if they want it, they're going to get their muscles if they want it. And not everyone wants the same things. Or they're going to say, "I just want my energy back." And it's a totally different set of techniques for restoring energy, or "Maybe I wanted my brain to work again," or "To work better than ever." There's enough time to do all of that in one hour whereas most of us go to the gym for an hour, we flop some rocks around. Concentrated rocks and full of iron, and you get big from that. It's just, you kind of could have got big in five minutes.

SHAWN STEVENSON: This is paradigm shifting.

DAVE ASPREY: It is, and it's going to piss off a lot of those exercise physiology calories-in calories-out trolls, you know the type. But I love pissing them off because that's what their moms did to them, and they're still angry about that.

So, the... You weren't supposed to laugh at that. You're the nice guy.

SHAWN STEVENSON: The underlying principle that you are really providing for everybody is called the laziness principal.

DAVE ASPREY: It is.

SHAWN STEVENSON: Can you deconstruct that? Because for me, when I first said, of course, at first glance, I'm like, "What is this?" Then you start to really get into some inherent qualities that most of us have.

DAVE ASPREY: Oh yeah. So, we could try to hide our laziness and say, "Oh, no, I'm not lazy, I am a good person, I have will power, I have grit." And that already triggered some people, and I think I have will power. I've built a company that's on almost a half a billion dollars in revenue, and I've created by... I've done so, I think I have will power. And I lost my 100 pounds, so A, I'm honoring your will power. B, will power exists because you're lazy. You wouldn't need will power if you weren't lazy. It's built into your meat suit, your cells, they're there and they're saying, "Okay, what are the things that are going to kill us? Number one, something eating us. Number two, running out of food." And if you use less energy, you need less food. So, they're constantly driving you before you can think to lay on the couch. And they're also driving you to eat all the Ben and Jerry's. And so, you could be ashamed of the fact that your meat operating system runs that way, or you could say, I'm going to hack that b*tch.

And that's what I did to my own meat operating system. So, what you do, is you say, "All right, if the body wants to be lazy, but I want to be full of energy, and to do the things that I choose to do," you could just push against the body, or you could say, "What's its motivation?" Well, it's motivations to save energy. There's a group of people who has figured out how to hack the system brilliantly. They're called advertisers, so... You ever date someone? And she comes back and says, "Honey, I saved $400 on this pair of shoes." Okay, how much did she actually spend?

SHAWN STEVENSON: It's the framing.

DAVE ASPREY: It's the framing.

SHAWN STEVENSON: Yeah.

DAVE ASPREY: So, why do we focus so much on how we say? You spend $500 or whatever it was on shoes, I don't know much shoes cost, but you spend $500 on shoes but you save $400, but you're talking about the $400. But the reality is you just blew a bunch of money on and shoes you're probably never going to wear. Why do we focus so much on the savings? Because our meat operating system wants us to save energy, that's laziness in and of itself. What would happen if every time you worked out... And instead of saying, "Yes, I am a good person, I did my 45 minutes of cardio." You went in and said, "Yes, I saved 40 minutes of cardio." It actually rewards your nervous system, and your unconscious process is way more to focus on savings and to focus on effort. That's 'cause you're lazy, and it's okay that you're lazy. In fact, I will argue that my success in the world is because I am lazier than you are. And laziness drives our desire to save energy and time, so every innovation on the planet came from laziness. I didn't want to do it the hard way, so I made up a better way to do it, airplanes, trains, blankets, every technology, cell phones was... You know what? I don't want to get up and do that.

This is laziness changing the world. So human innovation comes from that. So, I'm not ashamed of it. I know I'm lazier than you, I'm lazier than everyone, except maybe some people are more successful than me, have found a better way to solve a problem that I was working on, in which case hats off to you. So, I'm not interested in being ashamed of having laziness built into our tissues as a species. It's powerful when you harness it, and what I'm suggesting you do in Smarter Not Harder, is that when you do hard things, you focus on the amount of time you saved because you did them so much better, so much more elegantly. And I actually tell you how much you save with the different techniques. When you do it, you're happier and you feel less resistance when you wake up in the morning. You say, "Today, I'm going to save 45 minutes," whereas "Today, I'm going to go beat myself up for 45 minutes." Which one's easier? Do the easy one, and you'll keep doing it. Do the hard one, and the odds are you'll be like 43% of people who fail in their New Year's resolutions in the first month. So do the easy way. It's okay.

SHAWN STEVENSON: This is... So, first of all, when I saw the principle, the laziness principle, and I had to open my mind to it. I started to really realize... You just said something so profound. Really, every cell in our body is always trying to find more efficiency, always trying to do less. And we live in an environment today where we simply don't have to work to do anything, and our cells are also driving us to store up nutrients for a rainy day. Store it all up, and now we're living in an environment where there are no rainy days, ever.

DAVE ASPREY: There might be some coming.

SHAWN STEVENSON: Let's not open that door. Now with that said, understanding that our bodies... Every cell in our body is driving us towards efficiency, what we're really doing is leveraging how we're designed. And you just shared also how we've evolved, especially in recent human history, just like these innovations to take away the necessity to do stuff, to make stuff easier. And so, we can either fight against that or we can fall in line with it. And like you said, and I love that you did this, "If you love to do those things, keep doing them." But for the majority of people, they're not going to do them. But we can't just leave them out of the equation, they're living in this world that has pulled away all the necessity to move. And so, you give specifics and you talk about these various hack targets. So now we're going to dive in on some of this... And how we can employ some of the stuff for ourselves, and so the first hack target I want to talk about is energy level and metabolism. And you talk about vibration in this. And I love it. My son knows this, who's in the studio with us. I have a vibration plate on my patio. So, let's talk about how vibration can help us to increase our energy level, improve our metabolism.

DAVE ASPREY: Alright. Let me talk about what a hack target is, at first. Just a ground to the audience and that. I opened Upgrade Labs about eight years ago in Santa Monica underneath Arnold Schwarzenegger's office. And this was the first ever biohacking facility, and now... The idea is spreading, and people are saying, "Oh, there's a demand for this." And this was all the stuff that I used to recover from toxic mold and obesity and brain fog and chronic fatigue and all that. As well as stuff I used to upgrade myself, like "How do we make it available?" And after eight years of testing all kinds of stuff and talking with thousands and thousands of members, these five buckets emerge, this is what people want and would say, "I want to be healthy." It doesn't mean anything. But you can boil it down to these five targets. And the five targets, I call them hack targets in the book, so in Smarter Not Harder, I talk about strength, I talk about cardio. I talk about stress, resilience. We're talking about energy and metabolism, which we're going to get into, and we talk about cognitive function. That's what most people are looking for.

It's a mix of those. But if you don't pick your top target and your number two target, you won't know what techniques to use to get the most results, and then you'll waste a bunch of time, and if you waste time, your laziness systems will get angry with you and tell you to eat pizza. So, you got to get the right targets and the right tools to meet the most of your goals. And with energy metabolism, one of the very interesting things that works is whole body vibration. When I brought this out into the world of biohacking about 10 years ago, when I was first starting biohacking, people thought I was completely crazy.

If you stand on a vibrating platform, you're a kook. And I said, "Well, all right, it works for NASA, for bone density for astronauts. So, I guess they're a little crazy too. So, I'm just going to do it because it feels energizing in a really weird way." And since then, we've learned that your cell

membranes particularly bound, but all of our cell membranes to a certain extent, are piezoelectric. What piezoelectric means is that they make a small electrical charge when you move them. So, the way our bones get stronger is from doing either high-impact or ideally high load-bearing exercise. And what that does is it subtly flexes your bones, and when they flex, it creates a small electrical current that's involved in signaling the bones to get stronger, and then they make something called bone morphogenic protein. And when they make more of that strangely, it fixes type 2 diabetes for a lot of people because it ramps up metabolic functions.

So, "Oh, I guess I'm going to have to live in a world where I need strong bones, who would have thought." So, then it goes to work building them. So, how do you get a signal in? One of the ways to get a signal is instead of jumping up and down, which you can only do once a second if you're going to get tired quickly. What if you stood on a platform that vibrated 30 times a second, like the ones we use at Upgrade Labs, ones I've been using for years now. When it vibrates that much, your meat operating system gets a signal that you're doing 30 squats. If you do one squat, because it's vibrating 30 times on, off, on, off, on, off at each part of the curve of a squat. So, it feels kind of weird because your muscles are getting more tired or try and hold a plank on a whole body vibration platform, you come out of it like, "Damn, look at my chest. What just happened here?" What happened there is you tricked your operating system and you used this piezoelectric effect, so that you got more lymphatic drainage, and you actually got a stronger charge in the cells. And strangely, if you look in a lab where they're culturing stem cells or any kind of cell culture, you've probably seen these things like on CNN or something, there's a tray and it's got test tubes and the tray's just rocking back and forth.

You ever see this? That's because cells need movement actually for light. And when you add this vibration, and you get a very noticeable boost in mental clarity. And you put on muscle more quickly and your metabolism proves. So that's why I like vibration as a hack. Most people don't even know it exists, and if they see it, they think it's nuts.

SHAWN STEVENSON: Yeah. Oh, it's so profound. So, we'll just say if somebody has access to a vibration technology or going and seeing you or one of the Upgrade Labs facilities, how often would you do something like this vibration?

DAVE ASPREY: I like five or 10 minutes a day. It's great for warming up. And if you sit a lot, which most of us do, I have a couple of them in my house. It helps to have a hacking lab in my house. But if I'm sitting down doing podcasts like this, it's very easy to hop on it for five minutes and just do a little bit of wiggling around, squat or a stretch or something. And it's much better than going for a five-minute walk. You spend five minutes on a vibration plate, it's like going for a 20-minute walk. And sometimes I just don't have time or it's raining. So, you can do this and fit it into your day. And it's possible to buy platforms that are more consumer grade at

home, they won't hold up for long-term use. My advice for listeners is if it rocks back and forth, run screaming, 'cause you're going to need a lot of chiropractor appointments. If it does a circle or a straight up and down, you're fine. But the very cheapest ones you find online, rock back and forth.

And you come in to Upgrade Labs, we use a $5,000 or a $10,000 type of model that has more settings and more capabilities. The very entry level way of doing this though, and everything in Smarter Not Harder, there's a free or exceptionally low cost. There's a medium cost, and then there's here's what we're doing at labs or what astronauts and pro-athletes do. I just want the principles to be very clear. It's better than what you were doing before. But the mid-level affordable is a rebound or a little mini trampoline. These are popular in the late '80s, early '90s.

And they do something really powerful, because when you jump up and down, and you'll see this even backstage at Tony Robbins, when I was back there, before going on, Tony's got a rebounder and he's using it to increase his energy before he goes on stage. And the man's like a master of bringing tons of energy for 10 hours a day, for a week straight. And that's one of the many technologies that you would see in an environment like that. So, you can get a rebounder and it's not that hard to do what you were going to do for five minutes in the morning while you're jumping up and down. The benefits of that are the same as whole body vibration. It's lymphatic circulation, getting rid of toxins, tightening up things throughout the body and then bone density. So, you had five minutes. What are you going to do? I will tell you rebounding or vibrating, that's whatever you were going to do during those five minutes, it's just a better outcome. You can talk on the phone on a whole-body vibe, you can't talk on the phone while you're bouncing on a trampoline. I think the vibration is a better move.

SHAWN STEVENSON: I love it. My son knows. For years in the morning, especially when we lived out in Wildwood in the forest, and sometimes would be... The conditions outside might not be that great to go walk, I'd jump on my mini rebounder. And just a lot of days, period. For five minutes throwing a podcast or an audio book, and just jump for 5-10 minutes.

DAVE ASPREY: Did he make fun of you?

SHAWN STEVENSON: No, got everybody involved. The family's doing it, you know, it's not weird if the homies are doing it too, you know.

DAVE ASPREY: I remember my daughter when she was like five. She'd get in the ice bath with me, as long as she could splash ice water. I mean like, "Oh man, that's painful. Alright, fine." We're just sitting there and she's in there, were getting an ice bath too. Throwing ice water on me. Yeah, it's a family thing.

SHAWN STEVENSON: Yeah, absolutely, absolutely. So also, and I love that you talked about this. You talked about vocal vibration as well.

DAVE ASPREY: Yeah. We don't talk about this as much, but there's a reason music is such a thing. There's a reason people listen to your show, you've got a great voice for this. I don't know if you did voice training, you just naturally sound that way. I actually did voice training to improve how I read my audio books. I did it with a guy named Roger Love, he's on the show. So, we know that some voices, they just feel better, and they do this thing. And I was breathing the way Roger taught me to... And female voices have a different effect on us, and Tibetan singing bowls have an effect on us. So, we can use sound to change our brain state, and I write about that in the section on improving your brain. And the original probably biohacking of the brain technology was Tibetans or similar... There was a similar thing in the Andes.

They'd ring a bell or a bowl in one year and a slightly different one the other year. So, there's a mismatch between the frequencies. And the size of the mismatch determines the state of your brain. Today, we call that a binaural beat. And it's weird, it sounds like this...

Sound. But if you listen with just one ear, it's a constant tone and you listen with the other, it's a constant tone. So that's a way of getting a signal into the brain to cause the brain to try to match up signals, and in the process of doing that, you change your state. But you can also get signals into the whole body that way... And one of the guys I mentioned in the book, Stephen Porges, who invented something called Polyvagal Theory. The vagus nerve runs throughout the body and controls a lot of your fight or flight and rest in recovery things. He came up with a technology using very specific sounds that lets people access really deep trauma in the body and let it go. Just from listening to the right sounds. So, vibration, whether it's physical vibration or vocal or sounds or tones, it's another way of getting a signal into your meat operating system. And it's so important to understand, your body evolved so that you don't have to see everything in reality because you wouldn't be able to function.

If you had a life-sized map of LA, it would be useless, you'd have to roll it out over LA and then to use the map, you'd get lost using the map. Our consciousness is the same way. So, your meat operating system does a great job of hiding huge amounts of reality, but when you find ways to get in and tell it what to do, it may show you parts of reality you didn't know about, or you may just be better at moving in the world or it just made you do a better job of giving you energy. But it's very important to understand that physical and sound vibrations are a direct interface with your system, and they can edit your system for you, which is really powerful.

SHAWN STEVENSON: You know, I've never talked about this before, but when I was a teenager on the phone, you want to sound a certain way on the phone with a girl until your parent gets on the phone. This when everybody in the house had the same phone.

DAVE ASPREY: I remember that.

SHAWN STEVENSON: They'd use phone. That's one level, like okay, my voice seems to be interesting to people, but really everything changed. There was before and after when I started to do this meditation, every day is a humming meditation.

DAVE ASPREY: Oh wow.

SHAWN STEVENSON: And this was before podcasting existed in my reality. It was just a meditation that I was doing to work on my heart as an anahata chakra meditation. And so, it would be like 20 minutes of humming to start the meditation. I did this every single day for a year.

DAVE ASPREY: No kidding.

SHAWN STEVENSON: And so, I didn't realize the change that had taken place with my voice, and also there's... Because there an energy behind it. And this is true with all of us, you can sense people's personality, you can sense their intentions, you can sense these subtle things that are in the texture and tone of somebody's voice. And so, my intention was so strong just to become a better person, these are all the things that I was focusing on, I was focusing on my heart through that time, and I really think that that kind of just fleshed out over time. But it was through this process of humming was one of those gateways to changing not just my voice, but my vibration as a human.

DAVE ASPREY: There is meaningful evidence in scientific papers even that humming has profoundly calming effects on your body, on your nervous system. I did something similar years ago. You just made me think of it. I used to do; this is before I had kids. It's a lot easier to meditate before you have kids.

SHAWN STEVENSON: True.

DAVE ASPREY: Just 'cause whenever you wake up to meditate, they have remote sensors watching you. If you wake up, they're going to wake up and you're like, "But I woke up at five," and like... So, it didn't last long after that, but for about a year I did, Dharma Singh Khalsa's Meditations. This is a western trained medical doctor who became a Sikh and just said, "Look, these chants work for medical things better than a lot of my medical stuff." And so, I would wake up and I would do like a series of chants, humming and breath exercises, as well as postures. And I did that after about five years of Art of Living meditations, which are every morning breath, work with different postures to improve where the air would go in my lungs.

And in fact, I just interviewed, Guru Sri Sri Ravi Shankar, who has 50 million followers doing his breath work every morning. And it's profound what learning how to bring air into the body and then learning how to let it out via humming or via these old Sanskrit chants. There's great power in there. And how much of that power is interacting with mitochondria? I don't think anyone knows, but I think they're listening to vibration because that's what bacteria do.

SHAWN STEVENSON: Absolutely. And this is one of those things where, again, this has been done for so long. Humans have been doing this thing and there's always going to be a reason why that we might have got... It might have gotten lost in translation, you know, the magic and mystery behind it. But today in a conversation I had with James Nestor.

DAVE ASPREY: Oh, you talked to him today? I love James.

SHAWN STEVENSON: No, no, no. I'm just saying today.

DAVE ASPREY: Got it.

SHAWN STEVENSON: At this time in human history. But he shared with me a study on humming and boosting nitric oxide.

DAVE ASPREY: Yes.

SHAWN STEVENSON: Let's talk about nitric oxide a little bit.

DAVE ASPREY: Wow. There's so much that we understand now about gases as signaling molecules. And we know about hydrogen gas, James Nestor in particular talks about carbon dioxide. And these are all gases I manipulate in my biohacks. But, when you're looking at nitric oxide, it's a very short-lived gas that has profound effects on the lining of your arteries. And if you're low on nitric oxide, probably the first sign as a guy is you wake up without a kickstand. Like, "Oh, that's interesting." Because this is what allows your... The lining of your arteries to become flexible and to be more flexible.

SHAWN STEVENSON: Are you talking about waking up next to your bike? Are you talking about, are you talking about a tent, pitching a tent?

DAVE ASPREY: Well, some people are into backpacking, some people are into bike racing, but whatever they're into. Yeah, pitching a tent. So, basically, you'll feel that for women, it's harder to know right away, but you actually need nitric oxide for vasodilation of the juicy bits. So that's just the most visible of it. But if you want your brain to work right, you want to get the pump that you get from having healthy, flow in your veins. You need nitric oxide. So how you breathe

changes the amount of nitric oxide. Using mouthwash destroys your ability to make nitric oxide. Taping your mouth at night, the way I have for a long time now causes you to breathe through your nose, which increases nitric oxide. If you go to Upgrade Labs and you use our big red-light bed, it increases nitric oxide.

If you use the true light home device, it increases nitric oxide. If you hum, it increases nitric oxide. And if you eat beets or there's a supplement called NO2U, N-O the number two, and then U. Is a lozenge you suck on, or you chew on and then magically your nitric oxide levels go up. And then you look down and you're like, "Dang, I've got the veins," That weren't there five minutes before. That's how powerful nitric oxide is. But if you could just get that from humming where you're making your morning cup of coffee, maybe you should hum when you make your coffee besides coffee makes you want to hum anyway, so.

SHAWN STEVENSON: And that's that habit stacking.

DAVE ASPREY: There you go.

SHAWN STEVENSON: Right there. I love it. I love it. It's so good. Got a quick break coming up. We'll be right back. Hippocrates is often considered to be the father of modern medicine. Have you ever wondered what was in his treatment protocols or one of his storied favorite treatment protocols involved something that the ancient Greeks, Romans, and Egyptians were all well aware of. And it was the healing properties of propolis. Today our modern technology is proving the efficacy of this miraculous superfood. A study published in the Peer Review Journal Antiviral Chemistry and Chemotherapy, revealed that propolis has significant antiviral effects. Specifically reducing viral lung infections. Propolis is one of the few substances ever discovered to be effective in the treatment of a variety of viruses, including herpes viruses. A recent study published in Phytotherapy research found that topical propolis applied three times a day, accelerated the healing of cold sores faster than no treatment.

The researchers found that the topical propolis not only reduced the amount of herpes virus present in a person's body, but it also protects the body against future cold sore outbreaks. That is absolutely miraculous. Now these leans into what Hippocrates was noted to use it for, which was the healing of wounds, accelerated healing, the healing of sores. And whether it's a viral lung infection or an infection that is interacting with our nervous system like herpes virus, there's something really remarkable about propolis. And this is one of the storied compounds that are coming from the world of bees. And humans where thousands of years have had a deep relationship with bees. That is, today this relationship has been fractured and the populations of bees are dropping rapidly. A big reason behind this is the use of pesticides. And this is why sustainable beekeeping is so important to invest in, to help to lift up these populations of bee because our livelihood truly does depend on bees in many ways.

The propolis immune spray that I utilize multiple times a week is from Beekeeper's Naturals. And they're committed to third party testing for 70 plus pesticide residues to ensure that we're doing truly sustainable beekeeping and creating a wonderful environment for bees to thrive in. Also, they're making sure that pervasive offenders like DDT are not in your bee products. Heavy metals like arsenic and lead and bacteria like E. Coli, all of these things are commonly found in bee products. These are definitely things you don't want coming along with your super foods in your medicine cabinet. Go to beekeepersnaturals.com/model. You're going to get 20% off your incredible propolis immune spray, your superfood honey. And their nootropic that I absolutely love called Brain Fuel that utilizes royal jelly. Again, make sure to check them out. They're making propolis incredibly accessible and affordable. Head over there, check 'em out, beekeepersnaturals.com/model. That's B-E-E-K-E-E-P-E-R-S naturals.com/model for 20% off. And now back to the show.

All right, let's talk a little bit about, this is another hack target, which is the strength component and cardiovascular fitness. You introduced how to look at this differently.

DAVE ASPREY: Yep.

SHAWN STEVENSON: The beginning of the episode, but you get into some specifics here. So, I want to talk about this one first. I want to talk about electrical stimulation.

DAVE ASPREY: All right, we can talk about that. A lot of people say, "I want to be fit." Are you talking body fat? Are you talking endurance? Are you talking strength? Because most people want an impossible goal. I want to be able to pick up a truck and run a marathon. Pick one, because endurance training, I will argue does bad things to your body. Being fit as measured by having a high VO2 max is known being good at using oxygen to make energy for endurance that makes you live longer. But what we've done is we've said, "Well, if you just run 10 miles a day, well of course you've done a lot of work, therefore you'll be fit." That is not a proven, therefore it's just what we believe. So, if you just do that every day, that'll be great. And if you make a practice of it, you'll become addicted to it because you get endorphins from it.

Now what you're actually doing is you're training your body to go to a high heart rate and stay there. When you have a high heart rate, you have a lower ejection fraction. An ejection fraction is the amount of blood per pump of the heart. The healthiest, longest lived calmest animals can go from a small amount of blood in one pump to a huge amount of blood in one pump. This is what allows you to immediately go, "Tiger, I'm gone." And to run long enough to get away from the tiger. But if you train yourself not to have explosive power and to have power on demand, but to run with very, very rapid heart rate going split, split, split, instead of just powering blood through your system, that isn't actually good for you. In fact, the guy who ran

the first marathon died. That's why we run marathons, is to celebrate the fact that he sacrificed his life by running longer than is healthy to warn of an impending invasion.

So yes, run a marathon one time to show yourself that you have grit and more power to you. And to show yourself that you can push your meat operating system far beyond what it tells you is real. That's power. However, you better recover like crazy afterwards. And if you do what normal marathon people do, which is we're going to celebrate with pizza and beer, you're an idiot. If you do that to your body, you had damn well better celebrate with a big rib eye and some carbs. But they need to be healthy, they need to be low inflammatory, and you need to recover like crazy from that because otherwise you can do long-term damage to your joints and even your cardiovascular system. So no, endurance exercise does not give you a license to eat junk food. One of my friends, years ago, his name was Chris, he was a semi-professional road cyclist.

He'd ride 30, 40 miles a day just like before breakfast and rode with professional athletes but wasn't a pro. He was also an inventor of a fundamental internet technology. So, we hung out a lot and when he was 46, he collapsed on Sand Hill Road and died of a heart attack despite being in just ridiculous shape. But his typical diet was pizza and beer and ramens. I can eat whatever I want because I exercise so much. It just doesn't work like that. So, I would tell people when you read the part of this, you can choose to focus on cardiovascular function, and you will sacrifice some muscle mass and some power for doing that. You must have both. But you've got to pick a target. And if what's most important to you is the ability to go on a hundred-mile bike ride every weekend because it makes you happy and you do it with your dog in your sidecar whatever, "Okay man, let's hack you. Let's get you there." So, you can do that without harm and it's an act of joy.

But if it's an act of suffering that you do because it gives you endorphins, there's plenty of ways to suffer that don't cause that much damage. You know, you could wear a hair shirt the way the monks did in the 14th century. You're itchy all the time. There, now you're suffering. It was less work. Maybe there's a better way. So, what I find most people want when they really get down to it, they want to be cardiovascularly fit enough not to run a marathon, but to do what they want to do. And then they want muscle. So, we get into the muscle discussion there and one of the hacks that's in this book is around, EMS or electrical muscular stimulation.

Most of your listeners have probably tried TENS or heard about TENS. You put these little electrodes on, they kind of maybe help with a tight muscle. They're a little tickly. That is a form of electro stimulation. Unless you're using very specific currents over acupuncture points, it doesn't do very much except relax muscles. And there are cases of using microcurrent TENS on acupuncture points around your eyes to reverse macular degeneration. You can get a very specific signal into the body that way by modulating the frequency of the electricity going in.

So that's a special case, but generally TENS doesn't do much. But in Smarter Not Harder, I write about a device that was first released and patented in the '90s called TheraStim, and for a long time there was a small group of sports trainers and chiropractors who had hoard these old devices. 'Cause they were the only ones that worked.

And the reason they worked was based on what the, east Germans and Russians were doing in the '70s and '80s to put muscle on their athletes. So, winning the Olympics was apparently a really important thing. Now, I don't know why it was that important for national pride or something like that 'cause I don't run on national pride, like I run on a different set of rules, but it mattered a lot. So, they would take their athletes, they would anesthetize them, they'd knock them out and they'd run huge amounts of electrical current that'd be so painful, that they couldn't stand it. And then that would show the muscles and the mitochondria, the meat operating system without the athlete present. It would show them that they could handle that amount of power. And then they would adapt, and they'd wake up and, and then probably go eat a steak. And I don't know, Rocky would make fun of them. Whatever they did in the '80s. I don't know, I wasn't into it back then. So, turns out most of us don't want to get knocked out and electrified.

So, this company came up with a way to confuse the nervous system with one current and then to apply another current. And it's an alternating current, kind of setup. So, I, for years had a Russian prototype of a device that was a copy of this now off patent technology. And I would carry it around, I tell a story in there of how I was, you know, shocking biceps of billionaires at the XPRIZE Foundation. And it looks like an IED. It's got knobs and dials and a battery and wires and it's like, it's crazy. But you'd put this thing on, and you can add an intro to your bicep in just no time at all. I mean, it would last for a week because there's some vascularization. But you get strong. More importantly, with EMS, you're teaching your nervous system that it is required to handle much more electricity than normal humans. Well, what your body will do when you have to carry current is it'll insulate the nerves with something called myelin. Now you've heard of the 10,000-hour rule, right?

SHAWN STEVENSON: Of course.

DAVE ASPREY: That whole book is based on the idea that if you do something for 10,000 hours, your body will myelinate a nerve, it'll insulate the nerve. And when a nerve is myelinated or insulated, it'll carry electricity hundreds of times more effectively and faster than a normal nerve. There's less resistance in the nerve. I don't believe 10,000 hours; I believe in biohacking. So, if I can run electricity over the nerve while I'm doing something, the body's going to grow myelin a lot faster than 10,000 hours. So yes, for the past, just trying to do a little bit of math here, probably 15, 17 years I've been running electro current over different muscles and nerves in the body. And for much longer than that, I've been running electoral currents across my

brain to improve myelination in my brain. Also using an old Russian technology. So, I write about these in Smarter Not Harder. Bottom line is I don't run a basic operating system anymore. Like it's highly modified and hacked. It's like, you know that weird hacker who I would never use macOS or Windows. I have to install my own version of Linux on my computer. And like, is it really worth it? I come from that world. I've done that to my computer. I just use Mac 'cause I'm lazy now. But I worked on the other operating system because I get joy from that, and most people aren't going to do the crazy stuff I've done.

But I will tell you, EMS works, and it will put muscle on substantially faster than lifting weights. I can also tell you that the best technology of all that I've come across is the one I put into Upgrade Labs. And again, if you guys want to check it out ownanupgradelabs.com. But this one I call the cheat machine because, well, I like cheating 'cause that means you're lazy. What it is normally if you're going to say, you know, do a curl, we talked about proprioceptors I think a little bit earlier. These are the parts of the body that tell you where you are in space. So, your meat operating system says, "I'm going to get injured." So, you pick up say a 20-pound dumbbell and you think it weighs 20 pounds, but as soon as you wobble a little bit because of gravity, it weighs more than 20 pounds.

If you throw it up in the air and catch it, it doesn't just weigh 20 pounds when it hits your hand. It's force = mass X acceleration. So your body does all this math totally invisible to you to figure out how much you can pick up and wobble, because the wobble's going to increase the stress on the joint and it's terrified you'll hurt your joint, 'cause clearly if your joint hurts, either you won't get laid or a tiger will eat you and then it'll be the end of your species. Like that's the way bacteria think. They're stupid. So, they're holding you back and they won't grow because they're holding back 'cause you might hurt yourself. Now they're paranoid. So, what we do is I'm going to use my will power and I'm going to beat myself a little bit and I'm going to go do this press.

And sometimes we get injured, sometimes we don't. Well, what I do at Upgrade Labs got an AI driven machine that measures the force I can put out and then it moves very deliberately with no gravity involved. So, I'm pushing against a computer at a constant force. So, I stop pushing, there's no wobble, I can start pushing some more. So now all these little systems in my meat operating system that I don't see consciously, like, oh, I don't have to worry. So, they stop worrying and they turn on full power. And you can put muscle on at least three and probably five times faster than lifting weights using the AI driven cheat machine at Upgrade Labs. And the reason is very simple. These little bastards were afraid of gravity. And so, I pulled gravity out and said, "There now you don't have to be afraid. Now lift."

And yes, I did a 1600-foot pound squat that would've destroyed my spine if I was doing that with real weights, I wasn't. I was doing it with a winch attached to me. And yes, it flattened out

my Oakley combat boots. I had to throw them away. But you can put a load on yourself safely that isn't possible using weights and that very strong spike. Geez, that slope of the curve biology we talked about. Yeah. That strong spike. And then after that, "Okay, I'm going to go recover." And there's a variety of technologies that are built into Upgrade Labs to recover. But for people who read the book, one of the most effective things is something Cross Fitters have just intuitively known forever. You do something really hard, after they do something hard. Do they like skip rope or something?

No, they lay on the ground. The reason you lay on the ground after you do something really hard is that you want to return your heart rate and your system to baseline as fast as possible. And you can just do it 'cause you're exhausted. But even if you're doing high intensity interval training, the depth of the rest between sets determines how quickly you're going to adapt. So, you can do this using tech and you can do this using just techniques, even breathing techniques.

SHAWN STEVENSON: Wow, that's profound. This AI technology is very different from a Shake Weight. All right. You just mentioned the wobble. You've seen a Shake Weight, right?

DAVE ASPREY: I know. I'm just watching you mimic the Shake Weight.

SHAWN STEVENSON: Okay. Yeah. So, you mentioned earlier...

DAVE ASPREY: My sense of humor is seventh grade, I built that into my mitochondria.

SHAWN STEVENSON: When you mentioned the Russian athletes, for example, utilizing this technology early on. Of course, I had the imagery with Drago and Rocky and...

DAVE ASPREY: Of course.

SHAWN STEVENSON: He's being very high-tech thing. And then Rocky's punching the meat and that whole thing. Punching the meat.

DAVE ASPREY: I didn't even catch that one.

SHAWN STEVENSON: But here's the thing. It reminded me of another biopic that I saw years ago, maybe 20 years ago. It was Bruce Lee. He was using...

DAVE ASPREY: Oh, he was onto electricity. Yeah.

SHAWN STEVENSON: Right. And he was using this like on his chest.

DAVE ASPREY: I do it at least once a week.

SHAWN STEVENSON: Amazing. Amazing. He was so ahead of the curve. This is decades ago.

DAVE ASPREY: Bruce Lee was, he also did biofeedback and neurofeedback stuff. And yeah, he was far ahead of the curve, but if you wanted to neurologically perfect a pattern, you can just do it much more quickly with the electricity and also the right diet, which Bruce Lee was into. Here's another example of electrical stem and in the section on brain hacks where, okay, if you want your brain to work better, you could, I could just sit and meditate, or I could try to do stuff that works like crossword puzzles or maybe there's a better way. And my son when he was, I don't know, five maybe, I bought a ping-pong table. Dr. Amen said, "Dave, this is going to be the best thing for your brain. Ping-pong's amazing." So, I started teaching him ping-pong. And if you ever played with a five-year-old, it's not very challenging.

So, I started playing left-handed to increase my ability to use both sides of my brain and my body. And eventually it got to the point where, and he could beat me if I was playing left-handed. So, I switched back to right, and then it got to the point where he could beat me by the time, he was maybe nine, he could beat me right-handed. I said, "How to return that one serve, darn it." So, I said, "All right, I got this," and I got an electrical stimulation device, one that you can't buy anymore as a consumer. But it stimulated my motor cortex. So, I put on this like headset thing, it was called a halo neuro, but they just... They went all clinical. So, you can't it get anymore, and you'd get it wet, you'd put it on your head, and you'd run a small current across your brain, which would increase your motor cortex, the part of you that controls the movement of your body in space.

And as soon as I would do that, the ball would slow down, and I could return the serve. And then at first it was, "Daddy, that's not fair. You're running electricity, now you can beat me." And then it was, "Daddy, could you run electricity so we can play a competitive game." Okay. That's how powerful electricity is to talk to the parts of your body that are entirely invisible to you. And I'm hoping that readers of Smarter Not Harder come away. Just understanding you are not your meat. Your meat has its own consciousness, its own desires, its own agenda, and it is not yours. And it influences you in profound ways that are by design invisible to you, but you can influence it 'cause you're smarter than it, it's just faster than you.

SHAWN STEVENSON: I love it. I love it. I want to get a little bit more into the cognitive performance side, but before we leave the exercise portion, you talk about resistance bands as well.

DAVE ASPREY: Yeah.

SHAWN STEVENSON: Now obviously they're super popular. Resistance bands are having a moment.

DAVE ASPREY: For sure.

SHAWN STEVENSON: But I don't think we really understand the value, the utility value in having some resistance bands.

DAVE ASPREY: Resistance bands are awesome and it's because when you're fighting gravity, it accelerates at 9.8 meters per second squared at every part of the resistance curve. So, you're unlikely to be able to lift your max at the very end of a movement, right? So, you never can lift your max. Well, resistance bands don't follow the rules of gravity either. So, removing gravity from your weight training almost always improves weight training because your body doesn't hold back as much. So, when it feels a resistance band with variable resistance, the more expensive bands that have different layers so that you can actually shape how the resistance works, depending on where you are when you're stretching it, allow you to get more exercise in less time. And the body responds to the slope of the curve, "Oh, I turned on more muscle in less time, therefore I grew more quickly, as long as I got to recover quickly afterwards."

So, resistance bands are a very effective way to drive a muscle fully into exhaustion more quickly than you can with weights. And when you do that, you get more progress. Some of the studies I've seen show up to three times faster improvements. So, I do travel with a small resistance band, and it, strangely doesn't even matter very much which muscle you train because you get systemic benefits by training a muscle, to the point that, Charles Poliquin, who is, I would say one of the first-generation biohackers and a friend who passed, I dedicated one of my books to him. He's been on my show several times. He would talk about just traveling with a grip strength trainer as his primary... So just training your grip strength turns out has whole body benefits because the body says, "Oh, some part of me has to do this hard thing."

And those again, no gravity, there're spring-based, which is very similar to a resistance band. And that's by the way, a little hack. I don't think I even wrote about that part of it in Smarter Not Harder, but grip strength is one of the biggest predictors of your age. So, if you have a strong grip, you can actually say, "All right, this person has aged, this person has not aged." My grip strength on the meters tests out as being like an 18-year-old. And it's not because I've trained my grip strength lately, it's because my whole body's that way. And it's because I've run all this weird biohacking stuff for a while. So, I think it's possible for all of us to get systemic benefits from a small amount of training of even a specific muscle. But you're better off to, and I do talk about this in the book, to focus on big muscles because you need the metabolic sides of that.

What I'm talking about here, I'm not going to train you to have like the world's sexiest tricep right here. There are bodybuilders and fitness coaches and things like that. And if that's like your desire and your love and you want to look just amazing and cut, you're going to go to the gym and it's totally a good thing to do. I'll just put on your main muscle groups way faster than the gym. So, what I do at Upgrade Labs is I focus on like pecs, lats, quads, and glutes. And if you just do those, you've got your muscle mass, you've got your metabolic function, and after that you might go to a functional movement coach or you might optimize yourself for soccer or cycling or swimming, whatever your thing is. I just want the great majority of us to spend almost no time and walk around going, "I've got some junk in my trunk, my pants fit better, and I don't have high blood sugar anymore because I have junk in my trunk."

SHAWN STEVENSON: Yeah, yeah. Let's talk a little bit more about that specifically because muscle is one of the... The beautiful part about it is we can make more of it. And it is like this depot for blood sugar, you know?

DAVE ASPREY: Yeah.

SHAWN STEVENSON: It's like this huge metabolic advantage to carry more muscle on our frame. And again, we get to make it so it's one of those things that's going to help to keep our insulin sensitivity on point. It's going to help our bodies to better associate with glucose. There's so many great benefits to having more muscle.

DAVE ASPREY: There are, and there's probably an upper limit too. You know, there are, some things with bodybuilders, a lot of them are getting heart attacks in their mid 50s. So, if you have just balloon animal levels of muscles where you're absurdly strong, right? And it's like, wow, that's cool that you can do that with our body. It's actually incredible to me. And some of the best biohackers out there are bodybuilders because they look at the variables like, "I want to be in charge of my own body. I want to look and perform this way," and then they do it. And so, I've learned as much from the anti-aging crowd. Who're probably like scared of protein as the bodybuilders are like, "I have so much protein, I've fart death all the time," and like, I'm somewhere in the middle. But you can learn from both edges.

SHAWN STEVENSON: Fart death. That's new. That's new. So, I want to circle back now and talk about the cognitive side. One of the hack targets in the book is brain and neuro fitness. And you just mentioned running electricity over your head?

DAVE ASPREY: Yep.

SHAWN STEVENSON: So short of sticking a fork in a light socket, we don't want people doing that. All right? Or just haphazardly doing these things.

DAVE ASPREY: I just suck on batteries sometimes. And...

SHAWN STEVENSON: Of course, of course you do. Nine volt specifically, it's my favorite, salty. What are some of the things we could do to fortify and improve our mental, our brain fitness, our neuro fitness?

DAVE ASPREY: One of the simplest things is meditation, right? But actually no, you already talked about this in that when you meditated you also hummed or chanted. And I talked about breathwork. So even things like meditation, there's more benefits and less time. You can say, hurry, meditate faster. And maybe meditation's a spiritual practice. And I talk about faster spiritual progress in the very end of the book. But when it comes to cognitive stuff, there are tools you can use in addition to things like increasing your metabolism, which increases your brain function automatically. You can use things like brain tap, light sound goggles. And what those do is they put your brain in a very specific state so that it works better, right? And who would've thought that you could use electricity, or you could use, there's even pulse magnets you can run on the brain that will change the state of the brain.

And the fact that light and sound as inputs can drive the brain to specific states, that's incredible. But the biggest thing, and the one that I've put into Upgrade Labs is neurofeedback. For almost 10 years now, I've run a facility in Seattle. It takes entrepreneurs and celebrities and pro-athletes, and we hack their brains. We give them a brain upgrade over the course of five days. We've designed our own hardware and software for increasing brain performance with seven patents behind it. I don't talk about this company as much as people hear about Bulletproof and all that, Bulletproof's around like physical food-based, cellular enhancement performance. But what 40 Years of Zen is about is around like the very exalted states of high performance our brains are capable of and showing brains how to get there and doing it without psychedelics and all that kind of stuff.

So, at 40 Years of Zen I've been developing this tech, but I decided to roll this neurofeedback technology out at Upgrade Labs as part of this. So, when there's a local facility in your neighborhood, you'll be able to go in there and say, "Hi, I wanted to get some muscle or some cardio or some resilience or stress management." But why don't we just hook for 20 minutes, hook you up to a computer that will show your brain what it's doing? Because there's a meat operating system operating inside your brain. Your brain is the organ in your body that is most motivated to optimize and improve itself. In fact, it's not even motivated to optimize itself, it's just motivated to improve itself. Like optimization, no one really wants to optimize, what they

actually, they just want to improve everything, right? [laughter] So that's better. So, your brain's like, how do I improve?

But every nerve in the brain is pointing outwards. All the sensors are out here, and it has no self-monitoring things except for the fifth cranial nerve. It runs through your molars. So, your bite alignment has a small effect on your brain, otherwise it doesn't know what it's doing. So, when you plug yourself in at Upgrade Labs and you know it's we glue four little electrodes to your head with some paste and hook it up to our hardware. And then all of a sudden, every time you think a thought, every time you enter a new state, you hear a new instrument and beautiful three-dimensional sound and suddenly realize that's weird. If my eyes are closed and I sit here and I do this thing in my heart, I hear something beautiful. And if I do this, I'm thinking about my boss. You don't hear something beautiful. [chuckle] Right?

And suddenly you realize, "Wow, there's a physical sensation in my body that's correlated with my brain going into the states that I choose." And then you realize, "I can turn that on at will." And we see profound improvements in people's cognitive function, their happiness, their resilience by showing the brain what it's doing so it can improve. And you're a part of the circuit, but honestly, even if you weren't paying attention, your brain would still take that data and use it to improve itself because that's what we're wired to do. So, the brain wants to be stronger and better and faster, and the body wants to not die and not starve. And when you combine those two things together and you make the body more resilient, more powerful, better at making electricity that feeds the brain and then you give the brain better programming so that you can be a better person in the world. So, you can be kinder, and you can be what I talk about at the end of the book, which is really the goal for all of this.

And it's an advanced state called equanimity, and it's one that you actually, you live pretty strongly, from what I can see. In Buddhist teachings, in conscious teachings, there's three levels of attainment. And the first one is empathy. Just learning how to feel empathy for other people. And that's important. So, I can feel your pain, right? Maybe I can feel your joy, but I have empathy, right? The next step that is considered higher than that is compassion. Where, okay, I don't have to feel other people's emotions 'cause that's kind of expensive and painful. I can if I want to, but I have compassion. So even if I don't feel your pain or your joy or whatever else, I am wishing you well. And I'm doing it automatically and authentically and all the way through.

There isn't a little voice in my head going, "I wish him well, but I wonder how many downloads he's going to get versus how many... " Like none of that sh*t, right? So that's real, real compassion. But a state that's even higher than that, it's called equanimity. And this is the monk who can meditate in the middle of a hurricane. Nothing and no one can take him out of his chosen state. And that's why I named my first big company Bulletproof. It's that state of

high performance and that's why my new coffee company, which is called Danger Coffees, I want to make dangerous people, and danger is equanimity. When you get to choose your state and stay in that state, no matter what anyone or anything does in the world around you, you are the most powerful human on the planet.

It means that you can choose to be peaceful, you can choose to be kind, but who knows what you might do? You can do whatever is right and you can do whatever you choose. And that's the kind of peace that I want in the world where we're all incredibly dangerous and we choose to be kind. The other kind of peace is where we're all so tired, so weak, so downtrodden that we're peaceful because we're too tired to do what's right and we'll just be obedient and programmable. So, I am working very consciously to make everyone un-programmable so that we get to choose our own programming. And we just talked a lot in this interview about the meat operating system and all this stuff it's doing and how we can tell it what to do. As biohackers, we get to program ourselves and we also recognize foreign attempts to program ourselves and we laugh at them.

SHAWN STEVENSON: Love this so much. So, if we could, on the cognitive side, we've got... Obviously you've really helped to usher in education around fats and the important of that.

DAVE ASPREY: Oh yeah.

SHAWN STEVENSON: Is there any other nutrients we can pinpoint specifically for the cognitive side?

DAVE ASPREY: Yes. There's two categories in nutrients that I talk about in Smarter Not Harder, that really we've kind of missed the boat on in the world of biohacking and even just at the normal vitamin aisle or whatever store you go to buy vitamins at. And what I'm looking for is things that have the highest return on investment, the least amount of work and the most benefits, and the two that really stand out are minerals and fat soluble. So, on the mineral front, every cell in your body to make energy and to build muscle and to do all the things we want to do, it requires minerals. And our diet is devoid of minerals these days because our soil has been overused and we aren't having animals' poop back on the soil to replete the minerals. So, you might think that your broccoli or some kind of plant has minerals in it, but it probably doesn't.

And if it does have minerals, they're probably bound up in mineral blocking agents so that you can't use the minerals 'cause plants really don't want you to eat them. So yes, spinach has iron, but it's only 1.7% available and it comes with oxalic acid. So maybe spinach isn't how you get your iron. But in the book, I talk about macro minerals, and these are things like calcium, magnesium and potassium and sodium and you need those. But there's trace minerals, things

like zinc and vanadium and chromium and copper. And then there's ultra-trace minerals which are present in very, very small quantities in the earth's crust, but they're useful in a few very specific types of biological mechanisms and probably a bunch we don't know about. So, we know that people who live in areas with large amounts of minerals available that they typically live longer.

And I know that that's what your bones are made out of, that's what your cells run on. So, Danger Coffee is called that because it's full of trace and ultra-trace minerals in addition to lab-tested coffee so that when you drink it, you're getting a dose of minerals in a specific form that can enter cells. And in the book, I guide you through which minerals are important, how to get your minerals, because when you do that, every biohack, including the cognitive ones work better. If you go out there and say, "I'm going to buy this expensive neutropic," and I'm all over expensive neutropics. But if you're going to buy that before you have your minerals, it's not going to work very well. If you're going to go do your whole-body vibration before you have your minerals, it won't work very well. So, minerals are critical for every biohack to work better. And if you do that, everything works better.

The second thing that's in the book is vitamin DAKE, D-A-K-E, and that's a name that I made up and it's one of the formulas that's a part of the Upgrade Labs vitamin stack. But what it contains is vitamin D3, which I've been all about for the entire time. I think every biohacker knows about that and most people have heard about it. But that's not enough because you also need vitamin A, which is animal-based vitamin A or retinol, not Beta-carotene, plant-based vitamin A doesn't work. And vitamin D and vitamin A work together. And then you must have vitamin K2 and even a little bit of K1, but K2 is most important. So D, A, K and E. So, when you take your fat-solubles and you do that with minerals, the fat-solubles tell the minerals to go into the cells and to stay in the cells. So, if you get your fat-soluble vitamins and you don't have your minerals, it doesn't work. And if you get your minerals and you don't have fat soluble vitamins, it doesn't work. So, the two most important things you can do for your brain and to make every biohack and everything else in your life work better is you need to have vitamin DAKE and you need to have minerals. Do that, everything is awesome.

SHAWN STEVENSON: Love it man. So amazing. Thank you so much for sharing all these insights and there's so much more in the book, Smarter Not Harder. So literally right now I want you to run and grab, pre-order your copy so you can get access to all of the incredible bonuses. Dave has this tendency of over-giving, all right? Over-delivering, so where can people...

DAVE ASPREY: Just go to daveasprey.com or anywhere you like to buy books. It's Smarter Not Harder. And what you're going to find is that every minute you spend reading the book gives you many, many, many more minutes back in your life. And that's the goal, it takes thousands

of hours to write a book, you and I don't work on stuff like that without having a really good reason to do it. So, this book is worth your time.

SHAWN STEVENSON: Absolutely. And like you said, writing a book, especially of this magnitude, it's a labor of love...

DAVE ASPREY: Oh yeah.

SHAWN STEVENSON: You know, to say the least, and I've been saying this and I'm going to change this around now in this moment, but I've been saying that writing a health book is not healthy. You know, it's not that great for our body, for our biology to be, you know, all the research that goes into it and the writing process, the whole thing. But there's something to be said about joy and this kind of counterbalance and creativity and all the things that help to bring us back to homeostasis and that recovery and all the things. There's this component that we don't talk about enough and it's happiness, it's feeling on purpose and also community, being able to share this with people that you care about.

DAVE ASPREY: Right.

SHAWN STEVENSON: And like you said, your mission is right now, and I love this so much, is to make us dangerous.

DAVE ASPREY: Yeah.

SHAWN STEVENSON: Make us more dangerous as a species, so we're less controllable, so that we're more empowered. And these are just a few of the things that I really admire and appreciate about you.

DAVE ASPREY: Thank you. I'm working on a system-wide upgrade for humanity. And I know that our meat operating system is wired to support each other and support our species, and yeah, we can be warlike and savage and that's what happens when we let fear take over. But when you do your hacking right, fear does not own you anymore. And that makes you really dangerous because you're conscious and you're in charge all the time and you're dangerous to people who want to rule you with fear. I'm not going to do that.

SHAWN STEVENSON: Let's go, my guy, Dave Asprey, Smarter Not Harder, go and pre-order the copy right now. And thank you so much for hanging out with us.

DAVE ASPREY: It's been a pleasure, my friend.

SHAWN STEVENSON: Dave Asprey, everybody. If you're like myself, you're somebody that loves to challenge yourself. You love to push the limits of your body, your mind, and your performance, and that is a wonderful thing. Absolutely. But we have to have an easy on-ramp for people. We need to create more connectivity, invite more people in, and to start to see some better results in our society at large. We have a situation where so many people are struggling with metabolic health and with chronic illness, we can't make this stuff too hard, too complex, and make the barrier of entry such a high bar. And so, this is what I really love about Dave's message with this new project, is what are the things we can do to really get leverage that are things that really just about anybody can take advantage of. We're talking about vibration plates, for example.

All you got to do is stand on it. That's it. Just stand on the vibration plate and you get all of this cellular benefit taking place, let alone doing a few squats on the vibration plate or doing a plank as he talked about. So, there are these different technologies that are available today that can accelerate our results in a way that few things can. And also, we're looking at what are some of the things we can do if we don't have access to those things or we don't have access to those things right now. What can we do at home to start to garner some of these benefits that don't take much time and we don't have to really; really do the typical thing we see in our society where we have to go so hard and really challenge ourselves. We can do things in a safe, intelligent, productive fashion.

And so again, this is important right now. So not just the information and using it for ourselves, but sharing this with the people that we care about. So please share this out with the people that you love. You can of course share this on your social media. Take a screenshot, you can tag me. I'm at The Model Health Show on Facebook, and of course you can send this directly from the podcast app that you are listening on. And by the way, if you're listening to the show, come watch us, come hang out in the studio with us over on YouTube. We're going to have exclusive YouTube content that you're not going to see anywhere else. So, make sure that you're subscribed to The Model Health Show. All right, we're just getting warmed up. We got so much in store for you, incredible masterclasses, world-class guests, so make sure to stay tuned.

Take care, have an amazing day. I'll talk with you soon. And for more after the show, make sure to head over to themodelhealthshow.com. That's where you can find all of the show notes. You can find transcriptions, videos for each episode. And if you got a comment, you can leave me a comment there as well. And please make sure to head over to iTunes and leave us a rating to let everybody know that the show is awesome, and I appreciate that so much. And take care, I promise to keep giving you more powerful, empowering great content to help you transform your life. Thanks for tuning in.