THE MODEL HEALTH SHOW

EPISODE 607

The Inflammation-Obesity Connection & How To Upgrade Your Brain Health

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SHAWN STEVENSON: You are now listening to the Model Health Show with Shawn Stevenson. For more, visit the modelhealthshow.com. Welcome to the Model Health Show, this is fitness and nutrition expert Shawn Stevenson and I'm so grateful for you tuning in with me today. This episode is packed with some serious brain food, we are going to be talking about what inflammation actually is and how it contributes to chronic conditions including obesity. We're going to be talking about a variety of ways that sleep impacts our health outcomes, we're going to be talking about some of the most overlooked health ramifications throughout the pandemic. We're even going to be talking about the shocking science around neuro-inflammation, so we're talking about inflammation in the brain, and it is a serious issue that's causing all kinds of metabolic problems to boot, so that's just scratching the surface.

We're also going to be talking about how do we optimize our cognitive performance, what is the nutrition around that, and also what is our brain actually made of? So again, lots of brain food, literally is packed into this episode it's a very, very special reversing the tables interview that I did for my friend Lewis Howes on the School of Greatness, and this episode was done in the midst of pandemic times, and so you're going to hear a thread of that and a thread of empowerment and directive on some of the things that we can really point our attention to, of course, you know how things have played out, but I think it's a really special moment and a special compilation of insights, science, empowerment, and all the things that we really need, now, more than ever.

So again, really, really excited to be able to share this with everybody. Now, when talking about nutrition for the brain, we're going to be diving in and talking about what creates the structure of the brain itself, but a little added thing right now is what are some of the historically proven. We're talking about utilized for centuries, utilized for thousands of years, as far as this category of nutrition that we call Nootropics, so these nutritional inputs that improve our cognition, and one of the simplest, most time-tested is so often overlooked, and I'm talking about culturally, this is something that a lot of cultures, they just had this built in its baked into the cultural recipe, I'm talking about tea time, I'm talking about having tea together. In The United States people don't do that. We have a Coffee right and that's wonderful. If of course, it's not littered with pesticides and low-quality sweeteners and artificial or whatever, we're not talking about that, we're talking about doing high quality stuff, but Tea is so often looked over.

Specifically, there's been a movement, a lot of love for green tea, and I love, shout out to green tea, shout out to matcha green tea, but I think Black tea needs to get a little bit more attention because it has a group of polyphenols found in higher concentration than anything else in black tea called Theaflavins and they appear to have some remarkable benefits on our

metabolism. Research cited in the Journal of functional foods revealed that black tea Theaflavins have the ability to literally shift human gene expression to a profile that favors lipolysis is the breakdown of stored body fat, but that's one thing, and it's found to support beta oxidation, which is burning that fat for fuel, so step one is getting the fat unlocked, that's lipolysis, that doesn't mean it's going to get burned, it can get re-absorbed down the line, but beta-oxidation is when the mitochondria is actually using the fat for fuel and it's getting dispersed into the environment.

It's no longer, you are letting it go, you're not losing the weight, 'cause we try to find stuff that we lose but we are letting it go. So really, really powerful, like how often do you hear about qualities like this shifting our genetic profile into a state that favors lipolysis and beta-oxidation with these compounds found in black tea. Also, to highlight this, the scientists at the University of Oslo in Norway conducted a double-blind placebo control study that gave participants, either three cups of black tea each day or three cups of caffeinated matched control beverage just to find out like is this or is it the caffeine, whatever, or is it something specific about the black tea, what they found at the end of the three-month study is that participants who were drinking black tea, lost significantly more weight and had a greater reduction in waist circumference.

Truly remarkable, but you also need to keep in mind, teas are one of the most contaminated things that's getting distributed in our world today, contaminated with toxic molds, heavy metals, microplastics, and most tea companies are simply not testing for these things, but not where I get my tea from, at Pique Life, they do a triple toxin screening for purity, USDA organic in addition, but again, they go an extra three steps with a triple toxin screen, in particular, if we're talking about black tea, check out their peach ginger black tea, or their breakfast black tea, so two of my favorites, and their patented extraction process to retain all of these vital nutrients, their patented tea crystals. There's nobody that does it, like Pique. Go to piquelife.com/model, that's P-I-Q-U-E-L-I-F-E.com/model. And you get 10% off all of their incredible award-winning tea flavors. Alright, 10% off store-wide, that's exclusive, and I mean that exclusive with the Model Health Show. Again, go to piquelife.com/model for 10% off. Now let's get to the Apple Podcast review of the week.

ITUNES REVIEW: Another five-star review titled "Powerful Conversations" by Wendy Nirvana. "Thank you, these are powerful and revolutionary conversations, and the podcasts are helping me understand more and better about human biology, our body and life. Thank you so much."

SHAWN STEVENSON: Thank you so much. Thank you so much for taking the time to share your voice over on Apple Podcast, I truly, truly do appreciate that very much. And on that note, let's get to our topic of the day. So, in this episode we are going to be hearing a powerhouse interview that I did for my friend Lewis Howes on the School of Greatness. Again, we're going

to be breaking down the science behind inflammation and really look at how is this impacting our health and wellness or epidemics of chronic disease or rates of obesity, and I think it's really going to blow your mind. In addition, we're going to be looking at some powerful facts about sleep and how it impacts different areas of our lives, from our cognitive performance to our literal physical performance. We're also going to be looking at, again, how do we actually build our brain tissue, what is our brain actually made of, and this is just scratching the surface on what you're going to learn today. Truly, truly powerful conversation. I think you're going to love it. Check out this incredible interview that I did with my friend Lewis Howes, with School of Greatness.

LEWIS HOWES: And I saw a recent stat I want to share with you. By RAND Corporation in 2014, nearly 60% of Americans had at least one chronic condition, 42% had more than one, and 12% of adults had five or more chronic conditions. I'm curious from your perspective of all the research you've done, why do more than 60% of people have chronic inflammation and these conditions. What's the kind of the root of this?

SHAWN STEVENSON: Inflammation is an underlying component of a myriad of different diseases, but we don't tend to think about it because inflammation seems like a ghost in the machine. It's like, ooh, inflammation, but it truly is... If you look at the root word coming from the Greek and the Latin, it means to set on fire, and so they're...

LEWIS HOWES: Inflame.

SHAWN STEVENSON: Right. And these are some of the outward symptoms we might think about, it's just like pain, swelling, bruising, burning, aching, those type of things, but there's a massive... The majority of the inflammation that folks are experiencing oftentimes go unnoticed, they're these little chronic low-grade fevers or little fires burning that are contributing to a lot of different metabolic disorders, and the reason that our bodies are doing it is really the inflammation is sending out a distress signal from different tissues to recruit and call in the immune system to support in defending against infections and repair. And the list goes on and on. Inflammation is actually not a bad thing. It's a healer, right.

If we would get a wound, we would never heal without inflammation, if we got an infection, it would be deadly without inflammation, it's an important part of our evolution and our health.

LEWIS HOWES: What's the difference between that and chronic inflammation.

SHAWN STEVENSON: Right. So, what we generally think about is acute inflammation, when we think about like a short-term intrusion, maybe an injury or an infection, for example, which the inflammation might last a few hours, even a few days. But if inflammation is lasting for a long

amount of time and also showing up in the wrong places, it can be devastating, and so now we're talking about chronic inflammation. And if we're venturing into chronic inflammation, we've got to look at what are the underlying components, what is creating the fire, what is throwing gasoline on the fire as well. And so if we take one of the conditions that you mentioned, so right now, here in the United States, we've got about 242 millions of our citizens are overweight or obese. 242 million...

LEWIS HOWES: Out of how many.

SHAWN STEVENSON: Right around 330,000.

LEWIS HOWES: 330 million?

SHAWN STEVENSON: I'm sorry, 330 million, 240 million.

LEWIS HOWES: So, 240 million are obese?

SHAWN STEVENSON: So, we're looking at somewhere in the ballpark of 70% to even upwards of 80% of the citizens.

LEWIS HOWES: How is that possible now.

SHAWN STEVENSON: Exactly, that should be the question.

LEWIS HOWES: How have we gotten this far?

SHAWN STEVENSON: Yeah.

LEWIS HOWES: Is it just food is too accessible, the wrong kinds of foods are too accessible to so many people now, the social media, is it laziness, is it... Why have we shifted from being a healthy nation, I don't know, probably 67 years ago to an unhealthy nation.

SHAWN STEVENSON: Yeah. It's really a perfect storm of all the things, so the first thing to look at and to ask is what's going on because our genes expect certain things from us, our DNA expects certain things to have healthy outcomes or healthy cell replication, healthy expression. And so, we've got to look at what are the things our genes expect of us. Our genes expect us to move, for example. We're the most sedentary culture in the history of humanity, in recorded human history, we're the most sedentary culture to ever exist right now.

LEWIS HOWES: All of humanity or just the USA?

SHAWN STEVENSON: Right, especially the US. We're the LeBron James, we're the king of sedentary behavior.

LEWIS HOWES: We're the Homer Simpsons, of...

SHAWN STEVENSON: Yeah, we're really leading the league in these things. And so that's number one. Also, our genes expect us to get adequate sleep, and this is something that we've talked about multiple times on the show, but this is... It's built into our evolution, and if you think about sleep it's very strange because you're incredibly vulnerable, you're unconscious, you'd think we might evolve out of it just for safety, but the thing is so many wonderful, absolutely amazing things take place during sleep that we just haven't found a way to replicate.

So even with the reduction of inflammation, which we'll talk about more, we have microglial cells in our brain, which is kind of the brain's immune system, and it's primarily active when we're sleeping to reduce inflammation, to clean out metabolic waste, and things of the like.

LEWIS HOWES: What would you say are the five biggest benefits of the greatest night of sleep consistently? What are the five main benefits that you get if you get deep REM sleep of seven, eight hours a night consistently, no interruptions, no light exposure, all the things you talked about in your other books, sleep smarter, what are the five main benefits that come from that versus interrupted sleep, four hours of sleep, staying up late with the phone, having coffee late at night, all that stuff, what's the benefits?

SHAWN STEVENSON: We'll just power pack, bullet point with these. Number one, and this is because our culture, we are... I always like to connect to something visceral and people we care about how we look.

LEWIS HOWES: Of course.

SHAWN STEVENSON: And so, nobody is...

LEWIS HOWES: You're younger looking.

SHAWN STEVENSON: Right. Nobody's waking up like, I want to look so old today, I want to get my George Burns on, I want to be as old as possible, or I want to feel bad today about the way that I look or and not waking up like I just want to look terrible and feel terrible today, and I've run... In my clinical practice, I never met one person, and people might argue these things and get into a... Because of our cognitive biases, I've never met anybody who wants to be unhealthy, every single person wants to be healthy. Now, with that said, this is where sleep really comes

into the fray, because over the years, me being a nutritionist, I really... Me being a nutritionist, I thought that food was everything, because it was for me, it was my bridge, but there's many paths to the goal. When you're sleeping, it is the most powerful anabolic state that you can be in, so it's just you're just teeming with what we call these "anti-aging hormones," the release of human growth hormone for example that really, it's also known as the youth hormone, and also within it laying the body composition and overall health and fitness.

Researchers at the University of Chicago did a very simple study, they brought folks in, and they wanted to see what would happen with their weight loss, they put them on a calorie restricted diet, and they wanted to see what would happen with weight loss when they were well-rested versus when they were sleep-deprived. And so, they put them under both conditions, and I love studies that do that, they put people under both conditions to see what would happen. And so, they allowed folks to get eight and a half hours of sleep in one phase of the study, and they tracked all their metrics, their weight loss, etcetera, and then they sleep-deprived them for the other phase, so they're used to getting eight and a half hours. Now they're getting five and a half hours, tracked all their metrics.

LEWIS HOWES: Same group?

SHAWN STEVENSON: Same group on the same exact calorie restricted diet.

LEWIS HOWES: Same calories, yeah, everything.

SHAWN STEVENSON: But when they were sleep-deprived, when they were sleep deprived versus when they were adequately rested, when they were getting enough sleep, they lost 55% more body fat, just by sleeping more.

LEWIS HOWES: Wow. That's crazy.

SHAWN STEVENSON: It doesn't even make sense, rationally.

LEWIS HOWES: Were they working out the same, or is it like no movement, what was it just like...

SHAWN STEVENSON: It's everything is the same.

LEWIS HOWES: The same.

SHAWN STEVENSON: This is what I love too, it's a ward study. So, they're under the conditions where they can track everything.

LEWIS HOWES: Wow.

SHAWN STEVENSON: Now, here's another part of the study I don't often talk about, is that they actually did biopsies, so they actually took...

LEWIS HOWES: The fat cells.

SHAWN STEVENSON: Fat cells to see what would happen with their fat cells under the different conditions, and what they came to the conclusion was that your fat cells actually need sleep too, because when the fat cells were not... When they weren't adequately rested, their fat cells actually became more insulin resistant, which would become like that should put up a huge red flag because insulin resistance is one of the classic signs is carrying more belly fat. So, the fat cells themselves looking at them versus when you're well-rested versus when you're sleep-deprived, your fat cells themselves become insulin resistant, and which is going to lead to downstream problems with your liver, lipogenesis, the creation of new fat, the list goes on and on. So that's just one point, one thing, so number one.

LEWIS HOWES: Yeah, that's number one.

SHAWN STEVENSON: Number two, the cognitive performance, and I love this study, this was published in The Lancet, and they wanted to see what would happen when physicians... They took physicians and had them to complete a task and tracked all their numbers, then they sleep-deprived them for 24 hours, which is not abnormal in the field of medicine, and have them to complete the same task, which is a simulation of different surgical type of simulation, they made 20% more mistakes doing the exact same thing, and it took them 14% longer to do the exact same thing.

LEWIS HOWES: Oh Wow.

SHAWN STEVENSON: Alright, so and this is a big problem in our culture, again, we mistake being busy for being effective. Right, and so that's the number two thing, the cognitive performance. Number three, and it parallels with cognitive performance is the health of our brain. And so researchers at UC Berkeley did brain imaging scans, and we talked about this before, but they actually looked at the sleep-deprived brain just again 24 hours of sleep deprivation, and the part of the brain that's associated with executive function, so decision-making, distinguishing between right and wrong, social control, so the pre-frontal cortex, the more human part of our brain, that part of the brain goes cold the activity of that part of the brain just literally, as we're more and more tired just shuts down.

LEWIS HOWES: With the lack of sleep.

SHAWN STEVENSON: With the lack of sleep, coupled with more activity in the amygdala, which is very much more primitive, driven by emotion, very much concerned with survival of self, and so that part of the brain just lights up like a Christmas tree or Las Vegas sign, you just came back from Vegas. So, these changes happen in the brain very quickly, and that leads into... Number three, reduced cognitive performance, so being able to manage our emotions, being able to manage our decisions, and then we'll go to number four, is going to lean into this as well with the brain function is... I talked a little bit about this earlier, during sleep is when your glymphatic system, which is the brain's waste management system.

LEWIS HOWES: Cleansing it all out.

SHAWN STEVENSON: It's 10 times more active when you're sleeping than when you're awake, and your brain is doing literally trillions of activities every second. And there's a lot of metabolic waste that takes place, and you have to have this cleansing system, this cleaning system, or you're going to have a build-up of things like amyloid beta plaque, for example, which that is strongly, strongly correlated with Alzheimer's disease, it's an inability of the brain to clean itself and also insulin resistance in the brain, we could talk about later, but we're wondering again, why are these issues going up, why is brain inflammation going up, these are the things. Are we getting enough sleep for the processes that normally just naturally want to happen. They do it on their own. Are we getting that? The final thing...

LEWIS HOWES: So, four is the cleansing.

SHAWN STEVENSON: Right.

LEWIS HOWES: Cleansing.

SHAWN STEVENSON: Cleaning. And so, this is associated with disease prevention of the brain, longevity of the brain. And number five, this is tough, there's so many different things that this can benefit, but I would say for me and you as well, we want to be able to perform, we want to be able to use our body and our mind to compete, to get out and to play, to have a good time. And one of the fun things that I talked about in my... In my first book, Sleep Smarter was research that was done on basketball players, collegiate basketball players at Stanford, and they found that simply by increasing the amount of sleep that they were getting, not training more, not doing anything else differently, this shaved a full second off of their sprint time... Just by increasing their sleep.

LEWIS HOWES: Wow.

SHAWN STEVENSON: They improved, significantly improved their free-throw shooting and their three-point shooting...

LEWIS HOWES: Wow.

SHAWN STEVENSON: Just by getting more sleep. Alright, and these are things that we just kind of on a periphery, you kind of know that, but at the same time, are we utilizing it? So, some of the greatest athletes in the world right now. Sleep is a part of their training, LeBron James. It's a part of his training. Usain Bolt, same thing, it's a part of his training. Now, Serena Williams, the list goes on and on and on. These things weren't taught to us when we were in high school.

LEWIS HOWES: No.

SHAWN STEVENSON: It was just like... Get up at 4:00 AM and lift. Just go... Just go run into somebody.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: You know what I mean. Make a play. Make a play. Right. You got to make a play.

LEWIS HOWES: Keep your head on a swivel.

SHAWN STEVENSON: But today, you know, it's really built into the system.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: Also, the strength training programs are built into this system, which is beautiful, because again, when we were in high school it was very, I mean, some stuff was starting to take place with folks being in the weight room, but it wasn't a big emphasis. Whereas now, if you look at different sports, like a good friend, which I'm... It's so weird for me to say this right now, it's just like the coolest thing. I've actually got chills. Ozzie Smith, all right? So, I had an opportunity to hang out with him...

LEWIS HOWES: St. Louis icon, man.

SHAWN STEVENSON: Icon.

LEWIS HOWES: Icon.

SHAWN STEVENSON: When I was a kid, my two idols were Ozzie Smith and Michael Jackson.

LEWIS HOWES: Wow. Yeah.

SHAWN STEVENSON: And I tried to wear the thriller jacket to school. And I got drove that was not a good look. But Ozzie Smith could be my role model. And I could just... I wanted to play, I wanted to compete and to play baseball. And so, I actually met him at the gym. And so, he was there, I think he was probably in his around, in his mid-60s, maybe at the time. But he was there getting strong, like, and he was one of the first, if not the first high level elite baseball players to really embrace strength training way back in the '80s. The reason that he did it funny enough, was he tore his rotator cuff. And he didn't want to be out like this was back in the day, where it's just like, literally, you do whatever it takes to get on the field. And he wanted to be there for his team. And so, he just tried had to find out a way to strengthen everything around it, because he didn't want to have surgery, he would have been out for a year at the time. And now you know, of course, surgeries have advanced tremendously since then. But so, he found that, that he strengthened everything in his shoulder, but also, he started throwing from a completely different arm angle. And still won 13 consecutive gold gloves.

LEWIS HOWES: That's crazy.

SHAWN STEVENSON: It's crazy. It's crazy.

LEWIS HOWES: Back-flipping at the same time.

SHAWN STEVENSON: Right? He's out there back-flipping with the glove on.

LEWIS HOWES: That's cool.

SHAWN STEVENSON: Yeah, it's so powerful, but it's a big part of what our genes expect is to... Is to be strong in some different domain. And we talked about this before the show, that translates over into our lives, as well, you know, so that strength, if you can train your body and your mind, because your mind is in play too, life gets a little bit easier, in many aspects, you know, like you feel more physically ready to handle whatever life throws at you. You know. And so, in that context, that final one is being able to perform at a high level, to recover from the training that we do. All the magic happens when you're sleeping.

LEWIS HOWES: Absolutely.

SHAWN STEVENSON: When you're up in the gym and training or you're out on the field competing. You're just tearing your body up. That's all-catabolic stuff.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: You get the anabolic reward when you go to sleep.

LEWIS HOWES: When I was interviewing Andrew Huberman, the neuroscientist out of Stanford, he was saying that even learning a new skill, it's like the neurons connect when you're sleeping. Like when I do Spanish class, sometimes I'm just like, I'm not getting this, you know, there's moments where my classes just hurt my brain. It's so challenging. But then I come back the next day or two days later, I'm like, oh, I've connected the neurons or it's like in your sleep, the things are moving and processing for you to really connect those things you're learning, those new skills, those challenging things. So, I think it's... And if I wasn't sleeping, I probably wouldn't connect the dots on a new skill. So, something to think about there as well. I'm curious about this, have you seen a study around, or any research around how our belief about our identity, how we view ourselves in the world, whether we think positively of ourselves, we have confidence, we believe in ourselves, or our lack thereof, we have a bad view of ourselves. Do you... Is there any research about how that affects the brain, our actual mindset of the brain and ourselves?

SHAWN STEVENSON: Absolutely.

LEWIS HOWES: Have you seen any of this?

SHAWN STEVENSON: The number one driving force of the human psyche is to stay congruent with the ideas that we carry about who we are. Every thought that we think, every action we take, is really correlated with who we believe ourselves to be. And this is why change can be so uncomfortable. When we start to think things that I don't think that way, or these are things that I don't do, our physiology... This stuff really gets hardwired into us. And so, it creates discomfort because we're literally going to start creating new neural pathways and potentially start to break down old ones and a mutual friend, Dr. Caroline Leaf. And I love her so much.

LEWIS HOWES: She's great...

SHAWN STEVENSON: And she's really brought to the forefront. And I talked a little bit about this in Eat Smarter, in my new book, and in how our thoughts really affect our biology, even how our food affects us based on our beliefs about the food.

LEWIS HOWES: Yes.

SHAWN STEVENSON: And so, one of the biggest things to really come from her work that unfortunately, it wasn't embraced, even though she's been in the field for 40 years, she really knows her stuff.

LEWIS HOWES: Crazy.

SHAWN STEVENSON: And has affected so many different lives. But it takes time for kind of collegiate training to change, for the books to change. But one of the big takeaways is, our thinking, your thoughts create your brain. Really, the process of thinking itself is creating your brain and we think that the brain is in and of itself, just kind of off shooting our thoughts. Now we can absolutely have just thoughts stored in our brain, but thinking is so much bigger. Our mind is creating our brain.

LEWIS HOWES: So, thinking is a part of the mind. Is that right?

SHAWN STEVENSON: Also, the brain as well.

LEWIS HOWES: It's both.

SHAWN STEVENSON: Yeah. It's kind of within the brain, then we start to create as she shares... I don't know if she did this with you, but she brings up the little trees...

LEWIS HOWES: Yes.

SHAWN STEVENSON: And all these things.

LEWIS HOWES: The branches, and this yeah.

SHAWN STEVENSON: Yes. So, we start to create these with the thought, little thought trees start to bear fruits, but we can supersede it. Your mind is bigger than just your brain. We tend to think that because everything is kind of up here, but our mind is in our toe as well. And our mind is just so much...

LEWIS HOWES: In our gut.

SHAWN STEVENSON: Yeah. In our gut. It's expansive.

LEWIS HOWES: I just had Dr. Emeran... Emeran Mayer on.

SHAWN STEVENSON: Yeah, yeah. My guy, yeah.

LEWIS HOWES: He was talking about the mind in the gut and how it's all connected to the brain as well, the gut brain, and the brain, and it's fascinating.

SHAWN STEVENSON: It's so fascinating.

LEWIS HOWES: The mind is connected throughout all... Throughout your body as well.

SHAWN STEVENSON: Yeah. So, for example, even our heart, within the gut, the human brain itself is just an absolute Universe of neurons, so it's like 84 billion neurons, right?

LEWIS HOWES: Wow.

SHAWN STEVENSON: I was thinking about human cells overall. So, we have about 84 billion neurons in the brain. We have about a 100 million in the gut, alright? So, these are this is like nerve tissue, it's like a massive mass of neural tissue in the gut, but the heart also has neurons as well. So, when it's called anybody can go to Dr. Google and look this up, it's called the heart brain, alright.

LEWIS HOWES: Interesting.

SHAWN STEVENSON: So, your brain... Your heart actually has this kind of ability to think and there's this electromagnetic energy that it's expressing, and there's a field also it's called a Tube Torus that's been monitored, that's expanding beyond our body to be able to see this. And if folks want to check out the work from HeartMath Institute.

LEWIS HOWES: HeartMath.

SHAWN STEVENSON: HeartMath Institute, it is phenomenal. I've been, you know, probably for about 10 to 15 years, connected with HeartMath Institute. It's just absolutely phenomenal.

LEWIS HOWES: So, there's a field around the heart...

SHAWN STEVENSON: Yeah.

LEWIS HOWES: Does that mean like quantum physics we're talking about or is this something else? What is this field? An energy fields.

SHAWN STEVENSON: We'll just... We'll keep it real, real simple first, which is if we think about the electrical energy that the heart is kicking off like when you... When you're in the hospital.

LEWIS HOWES: Mm-hmm.

SHAWN STEVENSON: Right? And you see the monitor, it's not reading the, the smoke coming off your heart, it's reading the electrical energy that's coming off the heart, right? So, we you got EKGs and things of that nature. So, we can read the electrical currency that the body is throwing off.

LEWIS HOWES: Wow.

SHAWN STEVENSON: Your body is just teeming with energy and there's even a form of energy that we generate, it's called Piezoelectricity, right? Just from moving, we're generating energy and electricity. So, just from a very simplistic level, the heart is kicking off energy that we can't see. That's the thing about it, right? It's emanating from beyond us, even our skin is emanating energy, we just see a certain spectrum of light as humans. We see a certain spectrum of energy.

LEWIS HOWES: How far does this energy go beyond the body?

SHAWN STEVENSON: So, the Tube Torus is from HeartMath Institute's data, and being able to measure it and monitor it, it can be upwards of... The last I checked around eight feet from your body. And so now this is getting into some freaky stuff, right?

LEWIS HOWES: Yeah. Give it to me.

SHAWN STEVENSON: I'm a very...

LEWIS HOWES: Give it to me.

SHAWN STEVENSON: I'm a very logical, analytical human, so seeing is believing for me. But then we get into... There's many things that are just... And also, I'm very open-minded as well, and there's many things that we don't understand. But when we talk about people being in your space and you picking up people's energy and interacting and that stuff is very real, you can pick up people's vibes.

LEWIS HOWES: Yes.

SHAWN STEVENSON: Bad vibes. So, we don't want to downplay that, because other... Other species of animals, they have that bigger connection, and we can, we can attribute like bees for example, in this "hive mind", but we throw that away when it comes to us.

LEWIS HOWES: Mmm.

SHAWN STEVENSON: And so, for me for years I've been seeking to find, how can I explain this to people to make sense? Because I'm a very solid thinker, I'm a very logical person and one of the things I came across, was Princeton University researchers. They found that they just took two strangers and they put them together, and they had them to just chat. And they found out within a matter of minutes, all they had to do is create some rapport and, in their brain, wave started to sync up.

LEWIS HOWES: Come on.

SHAWN STEVENSON: Their brain waves started syncing up just by having rapport and talking to another person, we start syncing up. And this is... This happens all the time.

LEWIS HOWES: And also, it sounds like if the brain isn't optimized through sleep, through nutrition, through healing the inflammation, the chronic inflammation, if that's not optimize, your mind is not going to be optimized.

SHAWN STEVENSON: Yeah.

LEWIS HOWES: You're going to be thinking poorly...

SHAWN STEVENSON: Yeah.

LEWIS HOWES: You going to be acting poorly. You're going to be tired, all these different things.

SHAWN STEVENSON: Yeah.

LEWIS HOWES: So, if you want your mind to be sharp, you got to make sure your brain is healthy and recovered and healed. Is that what I'm hearing you say?

SHAWN STEVENSON: It's true if we're just going to be again, looking at this from a very foundational simple principle. It's much more difficult to think the thoughts that we want to think when we don't feel well.

LEWIS HOWES: Right. And when we don't feel well, we start to think bad thoughts.

SHAWN STEVENSON: It's just... It just comes together.

LEWIS HOWES: It's hard...

SHAWN STEVENSON: It still comes together.

LEWIS HOWES: It's hard.

SHAWN STEVENSON: Because of our... So much of our biology is driving our lives, you know how we feel, but this is the thing. And everybody's seeing in this example, we can think externally of our biology, we can change our thoughts and change what's happening with our biology instantly, because every thought that you think has correlating chemistry that's released.

LEWIS HOWES: Really? Give me an example.

SHAWN STEVENSON: And also... So right now, right now...

LEWIS HOWES: If you think about your wife.

SHAWN STEVENSON: Yeah.

LEWIS HOWES: In a loving way.

SHAWN STEVENSON: So, I'm going to start releasing a little bit of oxytocin, a little bit of maybe a little dopamine, little serotonin.

LEWIS HOWES: In the brain?

SHAWN STEVENSON: Yeah, yeah.

LEWIS HOWES: Which then releases...

SHAWN STEVENSON: But it also depends on the thoughts, as well. If it's some sexy thoughts and it might be a little, get a little adrenaline or epinephrine produced.

LEWIS HOWES: Interesting.

SHAWN STEVENSON: Just that a little bit more aggression might come forward, it just depends. But also, if, for example, we have a thought where something bad is happening right now where we're thinking about, maybe we're worried about somebody that we care about, maybe they've been in some type of an incident of some sort. And but... Maybe we heard some news about it, but it's not true, okay. So maybe we heard that somebody that we love got into an altercation, right? And we're just like, really upset. Like, oh my God, I can't believe this happened. I can't believe whatever, and we can start to produce these chemicals associated with that stress. So much more cortisol, right? So, a lot of people know about cortisol, cortisol is not a bad guy, we've talked about this before.

LEWIS HOWES: Right, right, right.

SHAWN STEVENSON: It's a big part of our evolution...

LEWIS HOWES: Too much of it...

SHAWN STEVENSON: Too much?

LEWIS HOWES: Consistently hurts you.

SHAWN STEVENSON: Especially, chronically. So, we start to release all these neurotransmitters, neuropeptides.

LEWIS HOWES: Alright.

SHAWN STEVENSON: Hormones, all driving us towards worry, fear, anger, regardless of if the situation is real or not.

LEWIS HOWES: Right.

SHAWN STEVENSON: That's the wrong...

LEWIS HOWES: We make it up.

SHAWN STEVENSON: So, we can think, external, we can think beyond our current circumstances and change our biology. But if our biology is in a tough place, it's harder to keep trying to do that.

LEWIS HOWES: So, our thoughts shape our biology. Our thoughts shape our feelings which...

SHAWN STEVENSON: Absolutely. Your thoughts create your body.

LEWIS HOWES: Your thoughts create the body.

SHAWN STEVENSON: So now we get into...

LEWIS HOWES: Wow.

SHAWN STEVENSON: I'm going to bring her up one more time.

LEWIS HOWES: Yes.

SHAWN STEVENSON: Caroline's work.

LEWIS HOWES: She's great.

SHAWN STEVENSON: Yeah. So, we had a great conversation about that as well. And actually, an interview that I did with her, it came out recently and we got... We put our toes in that conversation a little bit more because this...

LEWIS HOWES: Wow.

SHAWN STEVENSON: Again, this is kind of difficult for us to think about today because we've been so inundated with the genetic dominant theory that our genes are controlling our lives. And now today, of course, I believe... Just about everybody listening has heard the term epigenetics at this point and how these... These are above genetic controls, like epidermis, like your skin, the outermost part of your skin. So, epigenetics is controlling your genetic expression, right? And so, humans collectively have got maybe 20,000, 22,000 genes collectively. But I think that that's going to play out in... And you're hearing it here first. I think that number is not quite accurate, but when they did the human genome project, that's what they discovered.

LEWIS HOWES: Right.

SHAWN STEVENSON: But why are we so different? It's because of the expression of the genes. There can be a thousand different outpicturings of one gene, and it could code or express what we would deem to be something negative. But even the negative things are trying to push us towards health. That our body is always adapting, trying to help us to survive...

LEWIS HOWES: Trying to realign us and saying, "This is not good. You need to pay attention to this and fix it."

SHAWN STEVENSON: Yeah. Even with obesity, our bodies are trying to save us...

LEWIS HOWES: How so?

SHAWN STEVENSON: They're just trying to save us. So, for example, when we bring in an abnormal amount of sugar, like the way that humans evolve, we didn't have access to sugar like that.

LEWIS HOWES: Right. Right.

SHAWN STEVENSON: If you come across a beehive or something like, you're going to risk getting stung to get some of that. All right?

LEWIS HOWES: Yeah.

SHAWN STEVENSON: But today we've taken that...

LEWIS HOWES: It's just here eating all day long, everything.

SHAWN STEVENSON: It's so remarkable. How... And this, for me, it's a very simple principle of biology.

LEWIS HOWES: When did we start getting sugar accessible in this country? When was... What year or decade was this? Where it was like, "Oh, sugar's available now."

SHAWN STEVENSON: Here's a beautiful thing, humans have... We've always had a hankering for sugar like through our evolution. We go towards, like I said...

LEWIS HOWES: Fruits and this...

SHAWN STEVENSON: Yeah. We'd go for those things, especially, but also is available for some cultures only certain times a year, for example. And so, you would rack up on it as well.

LEWIS HOWES: Yeah. Yeah.

SHAWN STEVENSON: And now this is an important tenant as well because... And there's a reason for this. The human brain itself, if we think about the blood-brain barrier that protects

the brain and only allows in certain things, certain nutrients, it only has gates for certain gases, like oxygen, for water, only certain nutrients get into the brain. The brain has its own exclusive diet, but there are a lot of sugar gates. Your brain will gladly confiscate... Harvard researchers uncovered this. Your brain will gladly sop up half of the sugar that you take in, in the meal.

LEWIS HOWES: You take 50 grams of sugar, 50% of that, 25 grams is going into the brain...

SHAWN STEVENSON: 25 going to your brain.

LEWIS HOWES: How's it... Where's it going? Is it go throughout all the brain? Does it go to a section of the brain? What happens? And it's just filtered throughout and you're just on a sugar high.

SHAWN STEVENSON: Yeah. So even that term sugar high, like, it sounds, it is kind of funny, but that's not funny.

LEWIS HOWES: Right.

SHAWN STEVENSON: It's not funny. Because what happens is, so there are these protein gates that allow the sugar to transfer over through the blood-brain barrier into the brain itself. And yeah, because many of the neurons run off of glucose. So, your brain is like, "Look, give me that, we got stuff to do. Well, let me take all of it." But what happens is over time, it starts to create insulin resistance in the brain as well. All right? So, this is one of the biggest issues facing our world today. And if we get into the conversation about inflammation, neuroinflammation, I believe is the most troubling issue that we're facing as a society. But it's a hidden overlooked issue because the brain is so protective. We don't really know that this is going on until oftentimes it's too late because the brain itself, when we talked about the symptoms of inflammation, pain, swelling, burning, the brain itself, doesn't have pain receptors. So your brain can tell you about pain in your pinky toe or pain in your neck, but pain within the brain itself, it doesn't have pain receptors.

LEWIS HOWES: What about like a migraine or something? Is that not...

SHAWN STEVENSON: Migraines are not the brain directly expressing pain. It has a lot to do with... Now, there is... This is a little bit more complicated. There are some offshoots of things happening within the brain with migraines. Let me be clear. So, let's just take the borderline... Migraines are different also. People who've experienced migraines, they know that it's different, but from a headache. But we'll just take that borderline experience, maybe like an acute migraine or a... Maybe a tough headache. What it really is, is the blood vessels that surround the brain, that surround your skull. All right? Not the brain, but that's surrounding

your neck and your shoulders. And so, muscle spasms and things of that nature can start to kind of cause restriction. Right? So, but there can be some electrical storms taking place in the brain, for sure. Right?

LEWIS HOWES: Interesting.

SHAWN STEVENSON: Anyway, so the brain itself doesn't experience pain. So, this is why, for example, you can have a brain surgery...

LEWIS HOWES: Not feel it.

SHAWN STEVENSON: And literally like, yeah...

LEWIS HOWES: You're awake.

SHAWN STEVENSON: You could be awake. Yeah. And it's just like...

LEWIS HOWES: That's nuts, isn't it?

SHAWN STEVENSON: Yeah. It's so weird.

LEWIS HOWES: Was there someone who was like playing violin on a brain surgery, they're like opened the head, and then just like... To see if she could still play or make sure that it's...

SHAWN STEVENSON: That's like some total recall stuff, man.

LEWIS HOWES: That's crazy, man.

SHAWN STEVENSON: I know, that was crazy.

LEWIS HOWES: Yeah. Something like...

SHAWN STEVENSON: Yeah, it's amazing, man. But these are really overlooked, simple principles, but going back to that tentative inflammation. So, if the brain can't experience the pain, how do you know when it's on fire? How do you know when it's inflamed.

LEWIS HOWES: In the brain, you don't know...

SHAWN STEVENSON: Yeah.

LEWIS HOWES: Until it's too late.

SHAWN STEVENSON: You don't know, but there are downstream symptoms.

LEWIS HOWES: I'm feeling this, my face, my arm, my back, like something, my gut doesn't feel good. There might be a...

SHAWN STEVENSON: And it's a constant superhighway of the brain-body connection. Right? So, these researchers at Albert Einstein College of Medicine, they found that neuroinflammation is a double-edged sword for nutritional diseases, metabolic diseases. All right?

LEWIS HOWES: What does it mean?

SHAWN STEVENSON: So, what that means is inflammation in the brain is one of the primary causative factors of obesity, and...

LEWIS HOWES: So, when you have inflammation in the brain, you're more likely to be obese.

SHAWN STEVENSON: And obesity is a causative agent for neuroinflammation.

LEWIS HOWES: So, they both hurt each other.

SHAWN STEVENSON: So, you're getting into this double-edged sword or vicious circle. And this is why, again, we tend to... Downplay or belittle people who are struggling with obesity, for example, and not knowing how many programs out there are telling you, we need to target the inflammation in your brain for you to get well, for your metabolism to heal.

LEWIS HOWES: Yeah, the work that Dr. Daniel Amen is doing, which is, he says the bigger the body, the smaller the brain, your brain starts to shrink. I think that's accurate if I remember, but it's like, and you want to really focus on both the nutritional side and the brain, make sure the brain is healthy and you can heal and recover a lot of the brain from what I'm learning from my scan that I took there, there are ways to optimize the brain, even if you've hurt it in a big way.

SHAWN STEVENSON: That's the beautiful part about us. And Daniel is a really good friend, if there's anybody who knows it's him, he has the biggest database of SPECT imaging scans. He's looking at the brain. He's not just making it up. And so this is a fact, I talked about this in Eat Smarter as well. He actually wrote the cover quote for Eat Smarter.

LEWIS HOWES: Nice.

SHAWN STEVENSON: Man, I'm so grateful to have a friend like him because he's just such a wealth of knowledge, but one of the really interesting thing is that as your waist line grows, your brain shrinks.

LEWIS HOWES: That's crazy.

SHAWN STEVENSON: Right? So, we see that, and particularly the grey matter of the brain is going to be inhibited.

LEWIS HOWES: So, what does that mean? Obesity impacts the quality of the brain, and what if 65%, 70% of Americans are now obese, that means they have smaller brains, which means they're not going to be able to perform as well, they're going to be more temperamental, they're going to be more mentally unwell, I'm assuming, have more mental health issues, potentially more depression or anxiety and stress and overwhelm based on obesity.

SHAWN STEVENSON: Yeah. You said it, man. This is where it really gets for us scary because we often, we look at the condition and we just like, me being in this field, I've been in this field almost 20 years, and we'll just say, if I got 30 family members, 28 of them are obese growing up, I grew up around that.

LEWIS HOWES: Obesity.

SHAWN STEVENSON: But for me, my genetic cars were a little bit different because I ate worse than everybody, but I had asthma, I had, of course, you know about the degenerative disc condition.

LEWIS HOWES: Yes.

SHAWN STEVENSON: So, I had advanced arthritis when I was just a baby, really I was a teenager.

LEWIS HOWES: So, you had other painful side effects than obesity by eating poorly.

SHAWN STEVENSON: Expressions. But my fat jeans kicked in.

LEWIS HOWES: Eventually after 25, 30 you start to be like...

SHAWN STEVENSON: Yeah, when I got to 20 and I stopped because for me also I was always very active as well, and so now I've got this chronic condition diagnosis, so-called incurable, nothing I can do about it, and now I was given a permission slip to do nothing, and so that's what I did. So again, I get in that state of learned helplessness.

LEWIS HOWES: Now, I'm going to ask something that might be controversial, there is a big movement of the accept yourself, self-love, no matter how big you are, small you are like just love yourself where you're at. And how do we love and accept people for where they're at without shaming them, but also encourage them to improve the quality of their health, so that their brain gets bigger and healthier, so that they can live longer, so that they can perform better because from what I'm hearing, obesity is not something that's going to make you live longer and healthier.

SHAWN STEVENSON: Yeah, I love this question, man, because the first thing is, I love it because this conversation is bringing to light the fact that we've been inundated with an idea of what beauty looks like. We've been inundated with an idea that thin is better for many years. We've been inundated with an idea that you've got to look a certain way, you've got to have a certain complexion, a certain eye color, whatever the case is, to be the epitome of what beauty is. And humanity is so beautiful, so diverse, so gorgeous, so magical. There's so much beauty and expression, and their culture is that or just thicker than a snicker by nature.

LEWIS HOWES: Yeah, right.

SHAWN STEVENSON: If you talk about folks...

LEWIS HOWES: Polynesian cultures.

SHAWN STEVENSON: Polynesian culture, for example, incredible athletes, and they just... Right out of the gate is going to be a little bit thicker, but that's beautiful. It can be beautiful, it can be healthy, it depends on your genetics, on how much weight you carry, how healthfully you can carry it, you maintain your insulin sensitivity, the health of your brain, the longevity. The list goes on and on. There are different... And this is one of the things that I really brought to the fold with Eat Smarter is your unique metabolic fingerprint, and a part of that metabolic fingerprint is honoring your genetics. Right?

LEWIS HOWES: Yes.

SHAWN STEVENSON: And so with that said, shifting the culture right now to honor our diversity and our variation of what beauty looks like, and not having this idea that having some body fat is something that's wrong or ugly, that's an absolutely terrible thing. The other part... And it's

not even a but, it's and so we have that, that acknowledgement, and we have to understand that if you have insulin resistance, you're pre-diabetic or you're diabetic or you have heart disease, or you have neuro inflammation, that we're talking a little bit about, you have allergies and asthma, list goes on and on and on, advanced arthritis, all these different conditions, all these underlying things that can take place, this is going to, in many ways, destroy your quality of life, and we want you to be healthy and a unique expression of what beauty is.

LEWIS HOWES: Yes.

SHAWN STEVENSON: That's it.

LEWIS HOWES: You don't have to be perfect and have a six pack and have a certain amount of body fat, but you got to live a long time if you want to live happy and healthy and not feel these kind of mental health issues as well. This will help that if you're healthier physically. Right?

SHAWN STEVENSON: Absolutely, because that goes hand-in-hand with all the other things that we're seeing as a society where we're losing so many people prematurely. We're losing lives, but not just that, not just the actual loss of life, but the loss of life while people are still living.

LEWIS HOWES: What do you mean by that?

SHAWN STEVENSON: When we fall into these places, I lost my grandmother, the love of my life, the love of my life.

SHAWN STEVENSON: My grandfather, her and my grandfather were an entity, you know? And so, we just had some friends over yesterday and they were like, "You guys are the only married couple that we really, that we know that are like... " And I'm just wondering how we have what we have my wife and I, when I didn't have any examples of a healthy married couple. Like, I just pretty much never seen it, never saw it. But I lived with my grandmother when I was a little guy, when I was between the age of about, we'll say 4-8 years old. So, it was very formative, and for me, that was my earliest memories and they're an entity and they, and I'm sure they had disagreements, but they never, I never, all I saw was love.

LEWIS HOWES: Wow.

SHAWN STEVENSON: All I saw was them like his arm around her and just affectionate. She loved him literally to death. And so, he ended up having multiple open heart surgeries. And he was, you would think again, he was hunting. He was foraging, very like outdoor guy, but he was living under chronic stress in the city. He was a country boy. Right? And so he was, in this

environment, but also when he first, when he was noted, like, okay, you've got a high blood pressure. He also was a very angry guy, you know? Well, he dealt with anger.

LEWIS HOWES: Yes.

SHAWN STEVENSON: But not towards us, but just to his conditions that he came up around. So now this is very important. The physician based on his preliminatory blood work, which again, I wish I could have been there and to be able to intersect this, it was like, "Okay, you got to cut the fat. You need to switch out that butter and start to have this partially hydrogenated vegetable oil," which was Country Crock. It was the first time I saw Country Crock was in my grandmother-grandfather's house. And he went from having some blood work issues to having a heart attack.

LEWIS HOWES: Oh man.

SHAWN STEVENSON: To having open heart surgery, to him dying early. And...

LEWIS HOWES: Was he obese, or no?

SHAWN STEVENSON: No. He looked incredibly fit.

LEWIS HOWES: Wow.

SHAWN STEVENSON: But that was his card.

LEWIS HOWES: Do you think it was more stress or the nutrition?

SHAWN STEVENSON: Primarily stress I feel. The stress and then also the nutrition that was added in on the recommendations of...

LEWIS HOWES: Didn't help.

SHAWN STEVENSON: Right. So, we're going from something that's "natural," that humans have been having for centuries to something that was brand new and invented. You know, and all the fat, I remember my grandmother getting him like the low-fat peanut butter. And I remember, once I got older, I went to their house, I looked at it, it said "Fully hydrogenated vegetable oil," in the peanut butter, and so it's like it's basically exposing it to more hydrogen to try to create, to extend the shelf life of it. It kind of makes like a, in a strange way, vegetable oil plastic out of it, in a sense.

LEWIS HOWES: Yeah...

SHAWN STEVENSON: But anyways, so bottom line is this, and I'm glad I got a minute to talk about this because it's tough to talk about, but she was around for a while. She was there at my wedding. I felt like she stayed.

LEWIS HOWES: Wow.

SHAWN STEVENSON: I felt like she stayed to make sure that I was in good hands, you know?

LEWIS HOWES: Wow.

SHAWN STEVENSON: But shortly after that, she died from an overdose. She was depressed. I didn't know.

LEWIS HOWES: Really.

SHAWN STEVENSON: And you know, with the story goes, I don't know if she did it on purpose or not, but you know, she took her medication and she died.

LEWIS HOWES: Shortly after the wedding or?

SHAWN STEVENSON: Yeah. It was not too long...

LEWIS HOWES: Couple months or something.

SHAWN STEVENSON: Maybe a year later.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: But you know, I lost, and I lost the love of my life outside of my wife to depression. And you know, when he left here, like really her identity was so tied to him, she loved him so much.

LEWIS HOWES: Man.

SHAWN STEVENSON: Yeah. So, when I'm talking about this stuff, but also her health was going down as well. And I'm just now really starting to hit my stride and understanding this field and helping a lot of people. And I didn't know, like my grandmother had diabetes, she had this, she had this, that issue. She had like the whole pill cabinet.

LEWIS HOWES: Oh man.

SHAWN STEVENSON: And for me growing up in it, it was normalized, and yet we're treating symptoms. And so, when we're not in a good state of health the depression, it is just, it's more, it can be more invasive.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: It can be harder to deal with. They come together. So...

LEWIS HOWES: It's hard to deal with.

SHAWN STEVENSON: My point is...

LEWIS HOWES: It's hard to get out of it.

SHAWN STEVENSON: Yeah. My point that I want to share is when we're venturing into these outward states of inflammation, because even our fat cells themselves are an inflammatory factor. They're, essentially, they're putting out a distress signal that's letting your body think in a sense that you're infected, and the fat cells themselves are creating inflammation. Right? If we talked about that again, that systemic chronic inflammation, it's just literally checking all boxes for a bad event to take place, whether it's depression, which depression now we've got sound data on it having an inflammatory component, depression, heart attack, stroke, dementia, the list goes on and on and on. And a big catalyst for this about 400,000 people die each year from obesity related conditions. And it's just a footnote.

LEWIS HOWES: Is that like they have type 2 diabetes, or they give stress or they have heart attacks because of obesity or what are those main...

SHAWN STEVENSON: Right. So, these are comorbidities. So, these are comorbidities.

LEWIS HOWES: They're obese, but they die from something else.

SHAWN STEVENSON: Right, right. But that's there.

LEWIS HOWES: 400,000 people every year?

SHAWN STEVENSON: Every year. Yeah. Yeah.

LEWIS HOWES: You think if they weren't obese that they wouldn't die?

SHAWN STEVENSON: The obesity is, it's kind of fueling the flames of the inflammation. For example, it's fueling the flames of the metabolic dysfunction.

LEWIS HOWES: Right. So, you can still look healthy and die of a heart attack. You hear that sometimes where it's like...

SHAWN STEVENSON: But today it's the exception, not the rule.

LEWIS HOWES: Right.

SHAWN STEVENSON: The majority of the time it's related to being overweight and obese.

LEWIS HOWES: It's probably with stress or some type of like inner stress. Maybe you don't look unhealthy, but inside, you're not able to deal with anger or resentment or stress or shame or whatever it is.

SHAWN STEVENSON: Your thoughts are creating chemistry in your body.

LEWIS HOWES: Man! Crazy, isn't it?

SHAWN STEVENSON: It is. It's powerful, man. It's powerful. But this really ties in well with this topic of cognitive function.

LEWIS HOWES: Yes.

SHAWN STEVENSON: Because we talked about neuroinflammation, but specifically the researchers were indicating hypothalamic inflammation. So that's inflammation, the hypothalamus is, it's really been considered the master gland of the human body.

LEWIS HOWES: Where is it?

SHAWN STEVENSON: In many instances... So, it's in your brain.

LEWIS HOWES: Okay.

SHAWN STEVENSON: It's in your brain, but... So, I think the best description is the hypothalamic pituitary adrenal axis. So, we've got this HPA axis and there's so many other glands upon that axis, even the thyroid. And so, the hypothalamus is kind of like in the boss's office in a sense.

But I would argue that it's not necessarily the boss because everything is working together, but the reason that it's considered a master gland is that the hypothalamus integrates your endocrine system, the production of all your hormones with your nervous system, which is like sensing your environment, your internal and external environment...

LEWIS HOWES: Wow.

SHAWN STEVENSON: Based on that data, that feedback, integrating the two. And your hypothalamus is also controlling even calorie absorption, it's in constant contact with your gut, and so the vagus nerve is linked up here as well. And so based on your assessment, your brain's assessment and also your gut of your caloric needs, how much energy you have stored, your brain could tell your gut to increase the absorption of calories from the food or decrease the absorption of calories from food.

LEWIS HOWES: Wow.

SHAWN STEVENSON: And so, we talked about this last time, about these...

LEWIS HOWES: So, wait, your brain can tell your gut when I'm eating all these calories, "Don't absorb these calories, just let them go out."

SHAWN STEVENSON: Yeah. Essentially, it can down regulate it, but it's not going to be like, you can just eat a donut and you don't absorb anything. You know what I mean?

LEWIS HOWES: That'd be amazing. Could your mind actually do that though? Do you think the mind...

SHAWN STEVENSON: Anything is possible. Anything is possible.

LEWIS HOWES: Could control and say I'm going to have 1500 calories right now, there's ice cream and donuts and nothing is going to be absorbed in my body. It's going to go out through me and you just... You just decide and declare, "No, it's not entering my body."

SHAWN STEVENSON: Didn't you fire walk?

LEWIS HOWES: I did, yeah.

SHAWN STEVENSON: Do you see what I'm saying? I did it too.

LEWIS HOWES: I think it's possible. I think it's possible.

SHAWN STEVENSON: And actually, a friend of mine, she stepped on a coal that was not in the fire pit and...

LEWIS HOWES: Burned herself.

SHAWN STEVENSON: Yeah, Jamie Masters.

LEWIS HOWES: She wasn't in the right mindset problem.

SHAWN STEVENSON: Right. She wasn't... She just accidentally, it was right there, just kind of sitting there for a minute and burned her. But anyways, and we walked across that stuff, man. So hypothetically, it could happen, but here's the thing, let me just dive in a little bit deeper on what it looks like. Alia Crum out of Stanford at the time, when she conducted this study, she wanted to find out how our thoughts affect our digestion, how our thoughts affect how we assimilate nutrients.

LEWIS HOWES: Give it to me.

SHAWN STEVENSON: Alright? And this is called the milkshake experiment.

LEWIS HOWES: Oh, I love a milkshake. I love a good milkshake.

SHAWN STEVENSON: [laughter] So they blended up a batch of milk shakes, and they were all somewhere around 380 calories, and I detailed this in Eat Smatter a lot more, so it might be 360, but I believe it's 380 calories. Now, all the milk shakes are exact same amount of calories or the same level in the same containers that they're passing out. Now, here's the thing, they take it, and now they put labels on them that they are different amounts of calories on one set of...

LEWIS HOWES: Shut up.

SHAWN STEVENSON: On one set of milkshakes, they put that they're 180 calories sensible milkshakes.

LEWIS HOWES: Right. Right.

SHAWN STEVENSON: Right. And then on others, they put that this is a 620-calorie indulgent milkshake.

LEWIS HOWES: Oh my God. But they're all the same calories.

SHAWN STEVENSON: They're all the same. They're all the same.

LEWIS HOWES: This is fascinating.

SHAWN STEVENSON: And so, here's what happened. Well, I think we got to get a little bit of the kind of endocrine biology here with basic satiety hormones, so leptin and ghrelin. So, leptin is a major satiety hormone, it makes us feel satisfied, we feel... In our body, we're not ravenously hungry. When leptin is level and also leptin sensitivity is a whole other conversation. So, we got leptin satiety hormone, then we have ghrelin, which is a bonafide hunger hormone. But it's more than that, it's more than that. It's also has to do with metabolic rate and other things too, but basically when ghrelin levels are high, it's driving us to go eat something. I think about it like the ghrelin gremlin. Don't feed him after midnight. You know what I mean? [chuckle] So the ghrelin gremlin. Now, with ghrelin levels going up, that's going to drive us to eat, but when they're going down, it's going to make us inherently feel more satisfied.

SHAWN STEVENSON: So, here's what happened, the people who were given the indulgent milkshakes that were, again, they were... The same, but they thought they were higher, their ghrelin levels went down three times lower.

LEWIS HOWES: What do you mean, they were less hungry?

SHAWN STEVENSON: Their ghrelin levels... Their hunger hormones went down three times lower than what they actually consumed.

LEWIS HOWES: Their desire to be hungry went down.

SHAWN STEVENSON: Right. It went down three times lower.

LEWIS HOWES: That's crazy. Okay. Just 'cause they thought they were having a lot of calories.

SHAWN STEVENSON: Yes. They thought that they were having something indulgent that was very calorie dense. The people who had the ones that were labeled 100 calories sensible shake, their ghrelin levels barely budged. It just stayed there...

LEWIS HOWES: It's like they were having a glass of milk, and they were just like, I need some more...

SHAWN STEVENSON: It's like they had water.

LEWIS HOWES: Water, wow.

SHAWN STEVENSON: And they're like soon after they're going to be...

LEWIS HOWES: Pour back-up. Yeah.

SHAWN STEVENSON: Because they believed that the calories were lower in that particular item.

LEWIS HOWES: And I wonder if you believed you had 680 calories, would you actually add on... Is it a half a pound of fat? Or like a half a pound on the scale?

SHAWN STEVENSON: This is getting into the metabolic effects because it's not just about calories, and we talked about this last time. There are these epi caloric controllers. And I detail all of them in Eat Smarter, I detail them, but we talked about how the type of food itself controls how your body holds on to those calories or, burns the calories off. We also go through how your metabolism works, how the process of fat loss actually works, like where does that go? We talked about all that last time. But so, there's these epi caloric controllers. One of them is your brain, for example, but also beyond that is your beliefs about what you're eating because it's going to change the hormonal cascade, right?

LEWIS HOWES: Gosh. It's crazy. So, give me an example. If I believe what I'm eating is high in calories, has lots of sugar, is bad for me and I think this is really bad for me.

SHAWN STEVENSON: That's terrible.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: That's terrible.

LEWIS HOWES: So, don't... When you're eating this and say, "This is horrible for me, I keep eating the donuts," what should you be doing when you know you have something that's not the healthiest, but you're enjoying the sugar and the cheese...

SHAWN STEVENSON: That's the thing. That's the beautiful part about it.

LEWIS HOWES: Enjoy it.

SHAWN STEVENSON: Like for me, being in this space and where I found, I think a really great lane where we saw so much success with all the patients that we're working with is because nothing's off-limits, nothing is... We can't... We get into this giving food morality, where something is bad, and if you're eating a food that's bad, what does that say about you as a person? Right. So, I'm eating this bad food, I must be bad.

LEWIS HOWES: Oh man. I can't control myself eating this and I'm bad.

SHAWN STEVENSON: We get into these really complex psychological...

LEWIS HOWES: Shaming ourselves.

SHAWN STEVENSON: Yeah. So, the best thing...

LEWIS HOWES: When you're going to eat the not optimal foods...

SHAWN STEVENSON: Just enjoy it.

LEWIS HOWES: Just enjoy and say, "I'm going to enjoy this. I'm going to have fun, taste good."

SHAWN STEVENSON: The best time to eat something that we would consider like a treat or like, we'll just say pizza or...

LEWIS HOWES: Ice cream...

SHAWN STEVENSON: Cake or donut. Yeah.

LEWIS HOWES: Is when?

SHAWN STEVENSON: Is when we're feeling good, but we tend to do it when we're feeling bad.

LEWIS HOWES: It's so true. It's when something's not going well [chuckle] in a relationship or it's something at work. We're like, ah, I just want to...

SHAWN STEVENSON: It tends to compound the issue, but also, they can be, if it's done with intentionality, it can be a part of the healing process. That's the thing too, because again, we get so black and white with stuff like, you shouldn't be doing this, shouldn't be doing that. It makes us, humans we don't like rules in a sense, like it makes us want to rebel against the thing.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: You know? And so, it can be a part of the process, but we have to maintain integrity, because for example, carbohydrates, it's really interesting that, and I actually did a masterclass on this on my show recently talking about natural clinically proven ways to increase serotonin production in our bodies. And so, serotonin is a, it's a dual hormone and neurotransmitter. So, it has multiple impacts on our endocrine system and on our nervous system. But serotonin is noted to be like this feel-good vibe to it. Like when serotonin is optimized, like a lot of antidepressants target serotonin.

LEWIS HOWES: Okay.

SHAWN STEVENSON: They're selective serotonin reuptake inhibitors. But it's not making you produce more; it's just trying to reduce the metabolism of it so it stays in your system longer in a sense. But that's a whole other thing. So bottom line is this, carbohydrates actually increase serotonin levels.

LEWIS HOWES: Makes you feel better.

SHAWN STEVENSON: In a sense. Now this isn't 100% true across the board, but it's seen in peer-reviewed evidence, that having a little whack of some carbohydrates can actually increase serotonin, make you...

LEWIS HOWES: Or French fries, little, you know?

SHAWN STEVENSON: Yeah. Make you feel, get a little bit, a hit of feeling good. So, but we have to put that in its proper place. We've all experienced this, but we think it's the sugar high. It's not just that, it's what it does to your neurochemistry. It's what it does to your hormones. That's really, it's so much deeper...

LEWIS HOWES: What do carbs do to your hormones?

SHAWN STEVENSON: Well, it depends on the type of carbohydrates.

LEWIS HOWES: The quality of carbs. Yeah.

SHAWN STEVENSON: You know what I mean.

LEWIS HOWES: And what time of day and everything.

SHAWN STEVENSON: Yeah. So, but let's be clear. I mean...

LEWIS HOWES: Doesn't your brain run on carbs? Like doesn't it run on like sugar and carbs.

SHAWN STEVENSON: So, this goes back to, and I think this is an important place for us to get here is that, the brain, as I mentioned, the blood-brain barrier has a tremendous amount, I think about the blood-brain barrier being like a massively complex toll booth. And at each of the tolls, there's like the best security guard in the world. Like Dwayne, The Rock, Johnson, or like whoever people want to put in their mind. Maybe somebody really tough. Maybe I don't know, The Hulkster. You know, I've been watching these A&E, have you seen any of those?

LEWIS HOWES: I've heard they're amazing. The wrestling documentaries?

SHAWN STEVENSON: Yeah.

LEWIS HOWES: I got to watch these. Yeah.

SHAWN STEVENSON: So maybe it's macho man. Maybe he's at the toll booth, but he's, they're only allowing certain things into the brain's very exclusive area. Sugar has speed passes to get into the brain. As I mentioned, Harvard researchers have affirmed, your brain will gladly confiscate half of the sugar you consume in a meal. Alright? Now with that said, what is the blood-brain barrier? How does this play into the inflammation, the cold complex? So, the blood-brain barrier, it is something that is basically around the blood vessels. It's made from endothelial cells. So very similar to our cardiovascular system. Alright? So, we have the endothelial cells, but the difference with the blood-brain barrier endothelium is that it is massively higher in mitochondria. So, these are these energy power plants in all of our cells that are kicking off ATP. Alright? So, these are like the metabolic nuclear power plants in our cells.

LEWIS HOWES: Right.

SHAWN STEVENSON: So, your blood-brain barrier has a tremendous amount of these mitochondria. That's another reason it's so hungry for energy too, to protect your brain. It's running on a lot of energy. It's taking the energy to do that. So, we've got the blood-brain barrier, but your blood, the blood-brain barrier is one of the major issues that's getting targeted and broken down by the way that we eat today. So now stuff is getting into the brain that shouldn't be there.

LEWIS HOWES: Really.

SHAWN STEVENSON: So now the question is what is causing the breakdown of the blood-brain barrier? I'll give you a few of those things.

LEWIS HOWES: Yes.

SHAWN STEVENSON: And creating more inflammation in the brain. One of them, as we already talked about is sugar. Rampant amounts of sugar, and I don't, I want to be clear, I'm not trying to demonize sugar. And some people might like, "You should demonize it." It's a part of our culture and we don't want to make it so that something is inherently terrible and this treacherous thing and something else other than is the best thing. So, it's, we know that sugar is not ideal for human consumption, this heavily refined processed thing. We know that, okay. That we can look at things as good and not so good. It's not so good. Alright? Now with that said the amount of sugar that we're consuming, it can actually kind of create this insulin resistance taking place in the brain is, like I mentioned before, and create neuroinflammation and break down all surrounding tissues, and also cause a big fit for the microglial cells in the brain, the brain's immune system.

LEWIS HOWES: Wow.

SHAWN STEVENSON: So, what takes place is it's even systemic. So, diabetes with the rest of our body can cause also off shooting insulin resistance in the brain as well. But the brain itself, our neurons can begin to become insulin resistant. And so now we've got this sugar just kind of roaming free in the brain and tearing up stuff. Alright? So that's a big, big problem. So, sugar number one, number two, alcohol.

LEWIS HOWES: Yep.

SHAWN STEVENSON: Alright. Now, again...

LEWIS HOWES: Now you're going to upset a lot of people.

SHAWN STEVENSON: I'm not saying people can't drink, but we just have to be, we have to be aware of this, that specifically, and there's a lot of peer-reviewed evidence on this now. Alcohol is a known neurotoxin.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: And so, what it does is it is able to actually cross the blood-brain barrier. It's one of those things that can cross the blood-brain barrier which a lot of stuff can't get into

the brain. It's able to cross the blood-brain barrier. And one of the first things that happens though, is the release of endorphins, is it makes us...

LEWIS HOWES: Like sugar.

SHAWN STEVENSON: It makes us feel good.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: So, we know that alcohol is a well-established neurotoxin, but we don't see it like that, it's socially acceptable.

LEWIS HOWES: Very socially acceptable.

SHAWN STEVENSON: But a significant amount of people actually pass away each year from alcohol poisoning, and they can be perfectly healthy and just have a little bit too much. And it can affect the parts of the brain that are responsible for breathing, that are responsible for... Beating your heart, these are some of the ways that we can die from alcohol poisoning. Now, it's very unlikely, it's highly unlikely that that will happen, but we just got to keep this in place, and as a matter of fact, this was published in the BMJ, one of the most prestigious journals, the British Medical Journal. They found that even moderate drinking can have these very similar effects to accelerating brain shrinkage.

LEWIS HOWES: Well, this is what Dr. Daniel Amen has in his brain scans that I think there was 80,000 brain scan and a test. Don't quote me on that, but that's what I remember where it's like, he showed the brains without alcohol and with. And I think all of them were smaller, I think or something like that, like some were way worse than others with moderate alcohol, maybe it's like once or twice a week, one or two glasses a week or something, shrinkage of the brain, and I'm going to find the exact stat of what that is.

But I mean, it's like, if we know this information, why do we keep doing it to ourselves. And maybe we don't know the information, and that's why we just think it's socially acceptable and we're going to be with our friends, we're going to have drinks, and one turns into three, turns into five, and then we can't wake up the next morning, but why do we do it over and over again? I've never been drunk in my life, and I'm not saying you're... I have nothing against people drinking, but if it's hurting the brain, if you're doing it consistently more than once or twice a week, if you know it's going to hurt your brain why continue to do it?

SHAWN STEVENSON: Yeah, that's a great... You just brought it up, which is, I don't think most folks actually know. We don't know on... We might know on a superficial level, but with people,

we haven't had the same amount of education in these things, where it's a part of the culture as much as ignoring health. We're just in an unhealthy state period.

LEWIS HOWES: Right.

SHAWN STEVENSON: So, in this study they actually use MRIs and uncovered that really moderate drinking over long-term causes significant brain shrinkage, specifically the hippocampus, which is the memory center of the brain. Now, it appears that the amount of shrinkage in the study appears to be directly related to how much a person drinks.

LEWIS HOWES: Right. So, if you drink once a week you should be fine.

SHAWN STEVENSON: Yeah, even a couple of times a drink, so moderate drinking would be... Even that can get into the category of, we'll say even four to five nights a week, one to two...

LEWIS HOWES: One glass of wine or so.

SHAWN STEVENSON: Servings of alcohol, depends on what it is, right? But for some people, that might be too much, but for some folks, most of the data, what we do know is heavy drinking, right. But even moderate drinking, we've got to be mindful of our brain, we've got to take that into consideration.

LEWIS HOWES: I mean listen, I'm not here to shame anyone 'cause I eat probably more sugar than anyone should have in my lifetime, and that's my vice, it's something that it's like on the weekends, like on sports...

SHAWN STEVENSON: You just murdered the cookies. We were just at the house.

LEWIS HOWES: Murdered the cookies man. I murdered your cookies. And what did I have like seven, eight cookies I don't know, so it's like... I'll give myself a couple of days where it's like, okay, this is what I'm going to do. And I don't beat myself up for it 'cause I know the rest of the time; I'm not doing that. So, some people might do that to alcohol and that's fine, sugar is going to hurt me or create more belly fat, it's going to be harder to get rid of the belly fat, all these other things, and I'm aware of it. So, it's like, how can I continue to optimize, how can I continue to let go of that habit and replace it with something more powerful and empowering for the greater version of myself, for my vision, for my health and happiness, and when I have it, enjoy it, but don't do it too much.

SHAWN STEVENSON: But that's the secret too, man, is that we also had an abundance of real food as well. So, at my place is where you first like... You tried guacamole recently prior... Previously.

LEWIS HOWES: Right, I've had it once before with a friend and I was like, "Wow."

SHAWN STEVENSON: Yeah, you just dabbled in it, but now...

LEWIS HOWES: Dabbled, but yours... I like ate a lot of it man.

SHAWN STEVENSON: Yeah, you got that guac in you man.

LEWIS HOWES: I liked it. Your wife made it amazing though, it was like, I don't think I can have normal guacamole. I think it's got to be seasoned the right way.

SHAWN STEVENSON: It's in Eat Smarter.

LEWIS HOWES: It's so good.

SHAWN STEVENSON: So, growing up the way that I did, I didn't know what avocados were. Like I had no idea until I was in my 20s.

LEWIS HOWES: Hotdogs and burgers, and hot pockets.

SHAWN STEVENSON: Yeah, honestly, man, I ate fast food everyday. As long as I had $2 at least every day, when I was in college, but it also is just in the environment. The closest thing to me was a liquor store then Lee's Chicken, Domino's, McDonald's, Burger King, Dairy Queen, Chinese food restaurant. But this was like bullet proof glass, they're not cooking good stuff for you... RVs, Krispy Kreme, Jack in the Box. This is all within a mile radius of my house, and that's not even all of them, Papa John's. I can go on and on and on.

LEWIS HOWES: Yes.

SHAWN STEVENSON: In multiple directions, there wasn't a gym around me. I didn't... That wasn't a part of the environment. Being from Ferguson, Missouri, that's where I spent my entire time in college, and also just even when I got married, we were still in Ferguson, Missouri, Ferguson-Florissant for the majority of my adult years actually, I was in Ferguson-Florissant. And so, we just didn't have... We weren't exposed to what health looked like, the first time when I found out that the Whole Foods existed, it's so far away from me, but and there was only one in all of St. Louis by the way.

LEWIS HOWES: Now you live three blocks from one.

SHAWN STEVENSON: In LA, you can literally throw a rock and hit a Whole Foods.

LEWIS HOWES: I know.

SHAWN STEVENSON: It's crazy. I'm not used to this.

LEWIS HOWES: It's amazing, right.

SHAWN STEVENSON: It's wonderful, it's wonderful. It's upgrading, but the thing is also we can get into this conversation of being fashionable and being about real health. Because there are some definitely, some challenges on what real health is here in this city as well. But anyway, that's a little sidebar.

LEWIS HOWES: Sure. So, sugar, alcohol, which is a neurotoxin. What's another thing that increases neuroinflammation.

SHAWN STEVENSON: Another one, and this is really interesting, and this is very timely for this, what I was actually going to lead into was right now, being aware of what real health is in the prevention and susceptibility to viral infections. Viruses can damage and break down the blood-brain barrier, create inflammation in the brain, listen to this. So, this is published in the peer-review journal, Trends in Microbiology, found that viruses can directly disrupt and damage the blood-brain barrier, but here's what I wanted to share with you, and this is new, I just... I'm sharing this for the first time. This was published in the International Journal of Molecular Sciences, and they found that there's a troubling discovery recently that SARS COV-2 is able to interact with the blood-brain barrier and enter the brain itself.

LEWIS HOWES: What does that mean? How do you get it out of the brain?

SHAWN STEVENSON: That's the thing. Once it gets in there, it doesn't even matter. What are the downstream effects of that? So, this virus is able to make its way to basically traverse the blood-brain barrier somehow, maybe the blood brain... And this is for me, I will always think of a meta-perspective, like who are the... What are the samples, right? What is the state of health of the person? What is the blood-brain barrier health. How is it able to traverse the blood brain barrier and get into the brain, or is it just this... This virus is this particularly nefarious, you know what I mean. And so, the question is, what do we do about this? In defense, we have to be as healthy as possible, we know that even though the marketing around this is that this particular virus is indiscriminately hurting people, but I think maybe we shared this when I

talked with you last... I'm not sure, but I think it's an important point. I've got many family members and friends who are in the healthcare industry and even working on the front lines, and we tend to think that, of course, number one, they're going to be hardest hit, it would be obvious if you think about it.

LEWIS HOWES: Go around it all day long.

SHAWN STEVENSON: Right. And they're... These are just absolutely amazing folks, however, what folks don't realize, and we can maybe put people, the link to this in the show notes for people, because this is what I do, I'm a research scientist. Almost 20 years in this space. If you go to the CDC side and you look at who is actually being affected because with healthcare workers, it is the biggest vocation being affected, if we're talking about job for job by SARS COV-2, but what's not shared and what's on the CDC site is that nine out of 10 of the healthcare workers hospitalized with COVID-19 had at least one pre-existing chronic disease. It's not two out of 10. It's not five out of 10. Nine out of 10.

LEWIS HOWES: Nine of the 10, had a pre-existing chronic...

SHAWN STEVENSON: Yeah, at least one. So, it's not indiscriminate, okay? Because we've got... At this point, people have got the PPE. There's still a susceptibility, and the other part is about 75% of them were clinically obese, and it's right there, the CDC is where people, if you post anything, talk about... It's getting directed to the CDC, but most people are not analyzing the data on the CDC. I love it, I love it. But also, it's highlighting again, the thing that's not getting addressed, which is, let's get our citizens healthier. When are we going to talk about helping to reduce this epidemic, these multiple epidemics. Pandemics is epidemic expanded kind of multiple places.

LEWIS HOWES: What is the epidemic, is it neuro-inflammation? Is it obesity? What is the main causes your mind that is hurting us?

SHAWN STEVENSON: We have an epidemic of chronic disease, period. We have epidemics of, for example, an average of 630,000 people die from heart disease every year here in the United States.

LEWIS HOWES: 600,000?

SHAWN STEVENSON: 630,000.

LEWIS HOWES: Die from a heart disease?

SHAWN STEVENSON: Heart disease.

LEWIS HOWES: And what causes heart disease? Stress, obesity, neuro-information, what else?

SHAWN STEVENSON: It's a complex disease. It's the number one killer.

LEWIS HOWES: That's crazy.

SHAWN STEVENSON: But here recently, and this is a... Unfortunate thing is that this is a footnote. It's not even talked about. 2020 when SARS COV-2 was the headline, almost 700,000 people died from heart disease, it jumped up significantly.

LEWIS HOWES: Really? 'Cause of stress.

SHAWN STEVENSON: Because of all things, all of it. Absolutely. Stress, disconnection from family. We're eating worse than we ever had prior to the pandemic, because I was there, I was analyzing the numbers right out the gate, the first couple of months, I was looking at process food companies, I was looking at their profits.

LEWIS HOWES: All that probably spiked.

SHAWN STEVENSON: One company was about to go out of... One of the big ones was about to go out of business. They were filing for bankruptcy, COVID saved 'em. Gyms closed, people weren't exercising, people sitting around the home...

LEWIS HOWES: You're getting post mates, so you're getting Uber Eats or whatever it is delivered to you all day.

SHAWN STEVENSON: We are now far worse. We are now far sicker and more susceptible to viral infections than when it all started. Because we still have not focused on health, and we can do all the superficial treatments, we can do the distancing, we can do fill in the blank. But we also, because we were in fear, because people were so influenced by what the quote experts were saying, they could have also said, this is an important time for you to really make sure that you were getting your sleep because your sleep is a primary controller of your immune system, even with medical interventions and people taking an array of drugs, whatever type of drug they might be, whether it's an oral medication, an injectable, and their ability to actually prevent the disease dramatically goes down when people are sleep-deprived.

LEWIS HOWES: When they're sleep deprived, wow.

SHAWN STEVENSON: Because your immune system, it's largely regulated. The vast majority of our immune system is taking place, is located in our gut, for example, and one of the things that we've noticed is that there's even a changing of the guard that takes place with our microbiome, even as the day goes on, the microbiome is so easily influenced by small things. If you sneeze, your microbiome is going to make a shift, but when we're sleep-deprived, there are some really negative things that take place, and one of the studies that I actually mentioned is they took test subjects and they wanted to see what would happen when they just crossed a bunch of time zones and see what would happen with their microbiome.

And so, they took stool samples, had them poop in the little nacho basket, that's how we do it. And we could send you one in the mail, and you can send it in and get a stool sample done, but they took stool samples, and they analyzed their microbiome cascade, because one of the things that we know today is that there's a microbiome cascade that's associated with obesity, insulin resistance. So when people in my clinical practice, they can get a stool sample done, I can get the report, I can have a high probability of knowing what their body composition is just based off their bacteria, whether or not they're obese, and so we know this now, and so what they did was, and these are healthy test subjects, and then they have them cross a bunch of time zones and they re-test them, so it was like a 10-hour time difference, and they found that the bacteria basically get this kind of very strange jet lag and their bacteria cascade started to shift more towards one that's associated with obesity and insulin resistance, just in a day.

LEWIS HOWES: By traveling across time zones?

SHAWN STEVENSON: Just in one day.

LEWIS HOWES: So, what should we do when we travel...

SHAWN STEVENSON: Because also, I didn't mention this, their sleep is disrupted as a result...

LEWIS HOWES: They're not sleeping because of it, so their sleeping less.

SHAWN STEVENSON: Right. So, their sleep is disrupted as a result, but the good news is just by them getting back onto a routine within a couple of days it normalized. So, we can get better but we know how quickly we can... Things can go wrong. And this is another big part of this equation because there was a lot of pushbacks happening in the beginning. Even with many of my friends and colleagues who are just at the top level of the health space of like, "Well, we just have to do these superficial things because we can't get people healthier overnight."

LEWIS HOWES: Oh man.

SHAWN STEVENSON: And here we are, we're going on two years here soon. We're about a year... We are over a year...

LEWIS HOWES: Year and a half, yeah.

SHAWN STEVENSON: And a half into this. And the conversations has not shifted to getting... What are some of the clinically proven things, simple things people can do to fortify their immune system and help to reduce their risk of chronic diseases, because we know that is the number one thing.

LEWIS HOWES: What are those things. What are those...

SHAWN STEVENSON: It's the number one risk of these, risk factor...

LEWIS HOWES: Sleep, healthier foods, fasting, intermittent fasting?

SHAWN STEVENSON: I'll give you an example.

LEWIS HOWES: More water? What's the...

SHAWN STEVENSON: Based off peer-reviewed evidence. So, researchers at Appalachian State University, found that simply just going for a short walk.

LEWIS HOWES: In nature, or just?

SHAWN STEVENSON: Instantly just anywhere. Just go for a 20–30-minute walk, boost your immune parameters most notably for neutrophils and also natural killer cells.

LEWIS HOWES: Wow.

SHAWN STEVENSON: It's a temporary boost...

LEWIS HOWES: Yeah, yeah, yeah.

SHAWN STEVENSON: But what if you're doing this consistently, like America make sure that you... You wash your hands, socially distance, but also make sure you get in your 20-minute walk today, America.

LEWIS HOWES: Right.

SHAWN STEVENSON: We can create an absolute transformation in our culture because people will do it.

LEWIS HOWES: Get 1,000 steps, 10,000, get 1,000 steps in, right? Something.

SHAWN STEVENSON: If this is framed as a way to help you to defend your body from this nefarious condition which it is. We know that the biggest susceptibility... I'll share this with you as well. And this again, it was on the CDC site. 90, over 95% of the people who passed away with SARS-CoV-2 on their death certificate had an average of four pre-existing chronic diseases and or comorbidities. Four.

LEWIS HOWES: Really? 95%?

SHAWN STEVENSON: Over 95% at an average.

LEWIS HOWES: Had four pre-existing conditions?

SHAWN STEVENSON: And or comorbidities. So, it's not just pre...

LEWIS HOWES: What's a comorbidity?

SHAWN STEVENSON: So, this is... It could be, they have SARS-CoV-2 but then they also have influenza. They have SARS-CoV-2 but they also have pneumonia. So, these are all comorbidities.

LEWIS HOWES: Gotcha.

SHAWN STEVENSON: But we know that at least one pre-existing chronic disease across the board is included in that.

LEWIS HOWES: Now. What about the chronic disease...

SHAWN STEVENSON: But what we focus on though, unfortunately is just the people that are perfectly healthy.

LEWIS HOWES: Right.

SHAWN STEVENSON: So less than 5%.

LEWIS HOWES: And showcasing these people and be like look, this person died too.

SHAWN STEVENSON: And so, we don't talk about the underlying issue which is again, getting people healthier. But here's the thing too, which... The perfectly healthy aspect, that's all still going to be debatable because you and I can be as healthy as we want to be, if we are in a state where we're really stressed, we're in fear. We are in a position where we are sleep-deprived temporarily. Our immune system can absolutely get trampled on. And it's going to increase our risk... Our susceptibility to viral infection.

Got a quick break coming up, we'll be right back. Neuroplasticity, the ability of the human brain to grow and adapt and evolve, really to unlock our super-human capacity is driven by our experiences, our practices, our activities, but also our nutrition. Fascinating new research published in the journal Neuron found that magnesium. This key electrolyte is able to restore critical brain plasticity and improve overall cognitive function. Again, neuroplasticity is the ability of our brain to change and adapt. Now, this is one key electrolyte, but it works in tandem with other electrolytes like sodium. Sodium is critical for maintaining proper hydration of the human brain. If you didn't know this, the human brain is primarily made of water. We're talking somewhere in the ballpark of 75%, upwards of 80% water.

It's so important because just a small decrease in our body's optimal hydration level... What's noted in the data, just a 2% decrease in our baseline hydration level can lead to dramatic cognitive decline. Helping to sustain and maintain proper hydration levels in the brain. Sodium is critical in that. And also, researchers at McGill University found that sodium functions as a "Off-on switch" for specific neurotransmitters that support our cognitive function and protect our brains from numerous degenerative diseases. Right now, the number one electrolyte company in the world is delivering a gift for new and returning customers. With each purchase of LMNT, that's L-M-N-T, the number one electrolyte in the market. No binders, no fillers, no artificial ingredients, no crazy sugar, and sweeteners. My friend's son was just over at our house, and my son, my oldest son, Jordan, was training them, taking his teammates through some workouts. And we open the freezer and there's a bottle of Gatorade. There's a bottle of Gatorade in our freezer. And my wife is like, "Whose is this?" 'Cause we know we don't roll like that. We don't mess with the Gators alright.

SHAWN STEVENSON: We don't mess with the Gatorades. And we knew who it was. It was one of his friends and he came and he's like, "Well, at least this is the no sugar kind." And then I go through some of the ingredients with him, and I find those curve balls of like, here's where they're sneaking in these artificial ingredients and things that the human body has no association with. But he's taken a step in the right direction by being in our environment, so you know what I did. I put the LMNT in his hand, alright? Make sure that he's got the good stuff the very best stuff. And also, this is backed by peer-reviewed data and a huge body of evidence. And we're talking about the folks at LMNT. That's L-M-N-T. Go to drinklmnt.com/model. And

you're going to get a special gift pack with every purchase, whether you're a new or previous customer, we're LMNT. So again, this is a brand-new opportunity, free gift pack with every purchase over at LMNT. Go to drinklmnt.com/model. And now, back to the show.

LEWIS HOWES: This is what I mentioned to you about when I was a kid growing up, my dad wouldn't allow us to... He would turn the TV, or he would mute it, if there was ever medical commercials on, if there was ever drug commercial, things like that, or alcohol. He actually would mute or turn the channel so that we wouldn't be susceptible to all the different messaging of the medical industry if you're feeling this, if you're feeling this, you need X, Y, and Z medicine, and he really believed that, that was causing a lot more fear in us kids when we would consume and watch this commercial, this messaging, this influence over and... 'Cause there's pretty much every other commercial was like a drug commercial, from what I remember. 'Cause he was always turning it off.

He was always turning the channel 'cause he wouldn't want us to be consumed by fear. What about the chronic disease if that's even considered that of fear in the country and in the world, when you could be as healthy as possible. But if you have fear in your mind consistently thinking, I'm going to get this, or how am I going to protect myself. What about eliminating fear? How do we do that?

SHAWN STEVENSON: I love you. This is why, like this is going right to... Listen. I have not shared this yet. This is from the CDC, and so they were looking at almost 5 million, 4,899,447 hospitalized adults, and 540,667 patients with COVID-19 of whom, 95% had at least one underlying medical condition, but let me tell you the strongest risk factor for death, when they actually contracted the virus. The strongest risk factors for death, and this is according to the CDC, and these for folks listening and even watching, some of this stuff seeing is believing. So, we got to put this in the show notes for people to be able...

LEWIS HOWES: So, you can see the actual notes from the CDC.

SHAWN STEVENSON: You can see the study.

LEWIS HOWES: Yeah.

SHAWN STEVENSON: The strongest risk factor for death, number one was obesity, which we've already talked about, number two was anxiety and fear-related disorders, number three was diabetes with complications.

LEWIS HOWES: Oh my gosh. Fear anxiety-related issues. Wow. That was the number two reason for death.

SHAWN STEVENSON: Number two.

LEWIS HOWES: Based on the CDC.

SHAWN STEVENSON: Number two, risk factor.

LEWIS HOWES: Risk factor.

SHAWN STEVENSON: Associated with death.

LEWIS HOWES: Oh wow, risk factor. Okay. Man, and how much of that has to do with the brain and mindset.

SHAWN STEVENSON: Nobody's talking about this, what happened during the past year and a half, has our fear levels gone up or down?

LEWIS HOWES: In general, up.

SHAWN STEVENSON: Exponentially. And this gets into the place of ethical information with the media and some folks might have seen some of the exposes done on some of the news organizations getting caught on a hot mic, for example, and admitting that they're putting the dead toll...

LEWIS HOWES: Right, the CNN, I think there's something.

SHAWN STEVENSON: Yeah, I shared that. I would think the first person, I packaged it up. Now, I didn't do the report though, but I just created like this viral thing because I did some of the science behind what was happening as well. So, they admitted to putting up the technical director, yeah, the death toll ticker on their taking human lives and turning it into a death toll ticker.

LEWIS HOWES: The anxiety, you see that go up every moment...

SHAWN STEVENSON: He admitted to doing it because it drives fear, and it keeps people watching.

LEWIS HOWES: Oh my gosh.

SHAWN STEVENSON: He admitted with his own mouth, and also one of the things I put into the culture very early on, I also had the counter-balancing thing, which is like, we can... I want to be informed, but we don't have to be inundated. Also share the recoveries. Let's have a recovery ticker, let's have people who have asymptomatic who might have contracted the virus, but they're not sick and they're okay, their immune system did what are supposed to do, let's have that ticker as well. And I put that into culture. And the person who was capturing the data, she asked him that, why don't you have a recovery ticker as well, he's like... He thought about it for a minute, he was like, "Well, that's not scary."

LEWIS HOWES: That's not scary, people won't watch. And we need to make money.

SHAWN STEVENSON: That's it.

LEWIS HOWES: We're trying to get eyeballs.

SHAWN STEVENSON: If we get down to what it's really all about in the corporate interest now, because news isn't news anymore, it's entertainment, and a lot of folks don't realize that nearly every... Practically every major news station shares at least one board member with a pharmaceutical company.

LEWIS HOWES: That's crazy.

SHAWN STEVENSON: And the pharmaceutical industry invests billions of dollars every single year into media. Billions of dollars. What are they going to do? Are they going to recommend... Have me on, which I've been on all the major news networks. But people aren't tuning in for that. They're not tuning in to hear me talk about drinking water and getting sleep, you know what I mean? But I still do that stuff just to plant some seeds, but truly people are tuning in to be inundated with fear, catch the sports and the weather. And he also shares that they also, 90% of the content that they do is around fear, fear-based content, but then they have a one nice story, he says at the end, and he said this was with his words. He was like to be a little bit of ice cream at the end of the pain.

LEWIS HOWES: Oh my gosh.

SHAWN STEVENSON: To help to alleviate the pain, but we're about to hit you with more of it. And this is the thing.

LEWIS HOWES: It's why I don't watch news. I don't watch the news. I might flip it on for a moment to be like, "Okay, what actually happened here." But I can't consume it for hours, otherwise, it just makes me feel sick, it makes me feel sad, depressed, frustrated, and I think

I'd rather be informed and educated and be able to take action on what I need to do personally in my life, or if there's a cause that needed support from a place of mission and purpose and intention as opposed to reaction. Fear, anger, and reaction, and I think a lot of people have responded with reacting out of a place of fear as opposed to responding from a place of mission, love, solutions, community. And I think if we can start to shift that, we'll just feel better all in all.

SHAWN STEVENSON: This is all really pointing to one of the most important takeaways from this conversation, really just in our world today, period, is how...

SHAWN STEVENSON: We might think that we're controlling the way that we think, we might think that we are making decisions based on logic, but we have very primal programming as well, and we're very influenced by the world around us. We're hard-wired because it's a defensive mechanism, it's helping us to get to this point, we have to be aware of threats. But the way that we live today, it's not normal threats. We're not in threat of starvation...

LEWIS HOWES: It's psychological threats.

SHAWN STEVENSON: Necessarily in our culture, we're not in... You don't have to worry about a tiger out there. What it really is, it's a lot of manufactured fear. Not to say that there aren't real world threats...

LEWIS HOWES: Right.

SHAWN STEVENSON: But the vast majority of people are safe...

LEWIS HOWES: We're safe.

SHAWN STEVENSON: But you would never know that if you ever turn on the news. And so now, here's the problem, is that when we're exposed to these things, we take it with us. This was published in the International Journal of Behavioral Medicine, and people were instructed to watch just 15 minutes of the news. And they were actually tracking their mood disturbances, tracking their metrics, and they ended up having increased levels of anxiety and mood disturbances. But that's nothing, here it is, the most shocking part is, even after distracting them with another activity, after watching the news, they were not able to return to their baseline levels of mood. They picked up that anxiety...

LEWIS HOWES: They carried it.

SHAWN STEVENSON: That mood disturbance, and they took it with them.

LEWIS HOWES: Wow.

SHAWN STEVENSON: That's the thing that we don't really think about is that it really does, especially if it's... It gets deep driven, it starts to change our chemistry, it changes our biology, and it also can change our brain because we're thinking thoughts when we're seeing that stuff. How thinking and things, thoughts really get created is, it's like taking something that you don't know and connecting it to something that you do know. So, a fear thought, a strong fear, is going to connect with a lot of other fear, instances that you have already in your filing cabinet.

LEWIS HOWES: Yes. Other fears, it's going to stack.

SHAWN STEVENSON: Yeah, it's going to start stacking. And this is... We tend to see this happen, like if we play this out in relationship context, if you get into it about one thing, it gets tied to all the other problems that you have with the person. It's this... It's one of the... But we can use that for our good as well and understanding how we learn stuff. And even how I teach, I like to take something that people might be aware of and then connect it to something that is new. So, in Eat Smarter, I take people through teaching them how the fat loss process works by giving an analogy of going to the movies, you know what I mean?

But on the other side, if we're not aware that this is taking place, that we're getting this exposure of fear, it's changing our neurochemistry and our perception of everything is getting... It's coloring the way that we see the world, and it's connecting to all the other fears that we have, not all the other fears, but other fears. Especially when we're talking about imminent death for what the media perceives, the reality is very different. Now, this is something that we definitely need to be aware of, be cautious of, because even the origin of it is complicated. We're still... There was a time where even if you talked about the origin being other than what was disseminated in the beginning, people were getting censored and all this crazy stuff. And we're not having logical, rational conversations about science. That's not science. Science is open, science is constantly looking, and this is the key, this is going to sound absolutely nuts. And a big reason why I feel that I'm in this space at this level is because I'm willing to be wrong. Like I'm coming into it, actually, I'm coming into it...

LEWIS HOWES: Hoping you're wrong.

SHAWN STEVENSON: Yes. I know that I have a cognitive bias, I know that I've cognitive biases towards what humans have done the longest. And so, if anything comes up against that, right, for me, it's just like, Okay. Well, humans have been eating real whole foods for countless centuries and thousands of years, and a Twinkie... Now we got a Twinkie, right?

LEWIS HOWES: Yeah.

SHAWN STEVENSON: Just like, Well, maybe the Twinkie... For me, my cognitive bias is that Twinkie is probably not ideal, but I could be wrong. And I'm open because this Twinkie might, it might have unlocked some genetic whatever dormant thing where now we're like, I don't know, we can teleport or something.

LEWIS HOWES: Right, right.

SHAWN STEVENSON: I am open to being wrong, but my bias is there, but I have to come into it with my bias and look for the ways that I'm wrong. It's hard to do, but it's like a muscle, eventually you get to a place where it's beautiful, it's like a joyous thing. And also, when you embrace that, funny enough, you don't end up being wrong as often because you're taking a meta perspective, you're looking at all the pieces. And so, what I tend to share from is like, what does the majority of evidence say? And this is a big thing too, and I'm glad I get to talk to you about this and share this. Just about every single thing you can find that has peer-reviewed evidence on it, you could find something that says the opposite.

LEWIS HOWES: Sure. So, it's like a documentary that shows veganism is the way, and then it's like, Well...

SHAWN STEVENSON: Carnivore is the way...

LEWIS HOWES: You only eating meat and liver is the way. It's like there's science and proof and evidence on both sides of the extreme, right?

SHAWN STEVENSON: And each person, each front person, for it, is going to believe wholeheartedly that their way is the right way.

LEWIS HOWES: Absolutely. And they're going to find the evidence that backs it.

SHAWN STEVENSON: And oftentimes, they're not trying to be hurtful or nefarious, that's the thing we have to come into it with a little bit more compassion for our teachers as well, because... And I know a lot of these guys as my friends and colleagues, but there's degrees of that by the way, but also, they've seen, the majority of time they've seen incredible results with patients they've worked with, and they're trying to save lives. And it might sound absolutely hair brained and crazy to these other people over here, but that's where they're often coming from it from, coming from that place. Not to say that it's 100% true, but here's the thing, I

know that there's also a lot of people that are doing their thing and they're not getting the results that the other people are getting.

LEWIS HOWES: Right.

SHAWN STEVENSON: And this is because we're all so unique, there is no one human diet. The only thing that we know for certain is a human food, is breast milk, everything else, we're just experimenting with. You know what I mean? And even... Oh, this is a good segue actually, because people are so... We're inundated with these ideas, for example, like saturated fat being so terrible for you. Human breast milk, there's a massive amount of saturated fat in breast milk. It can be upwards of 30% to 50% saturated fat for building that baby's brain. Now, as we get older, our gates for saturated fat from our food, like I said, we have the blood-brain barrier, the gates that allow in saturated fat actually go down. But also, breast milk has a significant amount of cholesterol also, and when there is a disruption with cholesterol synthesis for babies, from their nutrition, this can lead to long-term degenerative neurological disorders. Cholesterol is incredibly important. So, this gets into this conversation of these three primary fats that the brain is made of, that I don't think a lot of people realize...

LEWIS HOWES: Three fats?

SHAWN STEVENSON: Yeah. So, we've been talking about inflammation, but the underlying thing is, really looking at, what are the sustainable materials that don't allow for fires to take place in the first place?

LEWIS HOWES: So, three good fats to help the brain?

SHAWN STEVENSON: Three fats, these are three types of structural fats, I'm going to share with you. This is different from dietary fats specifically, but we can get the foundational elements from our dietary fats.

LEWIS HOWES: Got it.

SHAWN STEVENSON: So, the human brain itself is primarily water, which we got to come back and talk about this right after. It's upwards of 79% water, 80% water potentially, it's the most water-dominant organ next to your lungs. It is a water-based organ, so water really matters. But if the dry weight of the brain, so water excluded, the brain is upwards of about 60% fat. We're fatheads. What, and some people realize is, a lot of people who are versed in health and passionate about health know this already, but what people don't typically know, the very small amount of people know, what are those three fats?

The number one, these are not in any particular order, but there are three. The first one I'm going to share is phospholipids. Okay. Phospholipids, it's one of the primary structural fats that the human brain is made of. Phospholipids give our brain cells shape, they give our brain cells strength, they give our brain cells elasticity, and these are very important characteristics. We want our brain cells to be strong and robust to be able to handle damage, also to be able to generate and support a lot of energy. We want them to have an adequate shape to allow the functions to happen. We don't want brain cells like our brain cells might have...

They got the glio... These are astrocytes or something. We might, maybe we can talk about this in a minute, but we've got some cells in the brain that might look like this star shape, but then this brain cell over here is like, I don't know, looking like an M&M, and it's just not a peanut M&M, it's just like not matching up to the structure that would create robust health. And then also the elasticity, we want the brain cells to be adaptable. And so phospholipids help to support something called signal transduction, which is the brain cells being able to talk to each other, which is kind of important, so phospholipids. Now, phospholipids...

LEWIS HOWES: What are the foods that support...

SHAWN STEVENSON: Sure, sure. I'll share that, but I want to share one specific thing because dietarily speaking, bringing in from our diet phospholipids, there's a randomized double-blind placebo controlled study, and I map it out in Eat Smarter. This is like the gold standard of clinical trials, because we got a specific implement in order to seeing what happens, randomized double blind placebo-controlled study found that the inclusion of phospholipids helped to improve attention and reaction time when people were under stress.

LEWIS HOWES: Wow.

SHAWN STEVENSON: So, they put them under acute stress and phospholipids helped them to perform better. So, they noted subjectively, also reduced participation anxiety, with the inclusion of phospholipids.

LEWIS HOWES: Wow.

SHAWN STEVENSON: Alright, so this is some really cool stuff, but these are structural fats that the brain is actually made of. Where do we get them? Phospholipids are made primarily out of Omega-3, DHA, and EPA, and I'll talk about that in a second, but we can also get them directly from certain foods. You're going to find them in fatty fish, you're going to find them in egg yolks, you're going to find them in oats, you're going to find them in foods like Spirulina, you're going to find them in fatty cuts of just different fatty type foods as well, so fatty cuts of things

like beef, for example, if it's grass-fed, and I don't want to get into a place of like what's better, plant version or animal version, I just want, I'm just sharing where you can find...

LEWIS HOWES: Sure.

SHAWN STEVENSON: These phospholipids.

LEWIS HOWES: Nuts as well, or no?

SHAWN STEVENSON: Yeah, certain nuts. Also, soybeans, and for some people, like soy is going to be like the absolute Joker or Thanos of this situation, you know it just depends on the... I'm just sharing where they are and please understand, even with the conversation of soy, I did a full description and break down of the science around soy in the book, what we've done with soy is not what's been done traditionally, people never ate soy dogs, soy ice cream, soy sandwich slices, soy nuggets and like...

LEWIS HOWES: Soy fish.

SHAWN STEVENSON: All of that, all of this heavily refined processed soy, it's more used in cultures, if you look at Okinawa, for example, it's a little bit more of a condiment, in a sense, used to make various things. But oftentimes, also, it was fermented whenever it was used primarily too, so that's a whole other conversation. So...

LEWIS HOWES: Phospholipids is one.

SHAWN STEVENSON: Phospholipids, but these are some dietary sources you can directly get phospholipids, but as I mentioned, they're primarily made of EPA and DHA, these are two types, docosahexaenoic acid and then eicosapentaenoic acid, so DHA and EPA.

LEWIS HOWES: Okay, cool.

SHAWN STEVENSON: Okay. And so, DHA and EPA are two of the most important, these are two of the most important... Like today, I want people to proactively get yourself an EPA and DHA supplement, specifically DHA...

LEWIS HOWES: It's that important for your health.

SHAWN STEVENSON: The reason for this, dude, listen to this, and again, working with Daniel Amen over the years and gleaning some of this information, but the American Journal of

Clinical Nutrition had folks who included some DHA supplementation, and just within a matter of months, they dramatically improved their memory.

LEWIS HOWES: Wow.

SHAWN STEVENSON: Explicit memory, so like remembering events and things like that, and also they were able to improve their reaction time, just by increasing the DHA. Now, here's the other part in the Journal of Neurology, they used MRIs to actually look at the brain, and they found that people who had the lowest intake of DHA and EPA had the highest rate of brain shrinkage.

LEWIS HOWES: Oh, man.

SHAWN STEVENSON: Alright, so what they found the number is less than 4 grams a day was associated with accelerated brain shrinkage. Okay. 6 grams and up had the most shrink-proof brains, so DHA, EPA specifically. So where do you get that? Fatty fish, salmon, salmon roe, but also with phospholipids, same thing, eggs, egg yolks. And I learned this from Lisa Mosconi, neuroscientist. And again, I love her because she's looking at the brain and not just like guessing, but she shared with me that in the egg yolk itself, there's 10,000 milligrams of phospholipids per 100 grams of product.

LEWIS HOWES: Wow.

SHAWN STEVENSON: It's the most power-packed source of phospholipids, but then also, she shared with me that DHA and EPA, you're going to find far more in the fish eggs than in the fish itself.

LEWIS HOWES: Caviar.

SHAWN STEVENSON: Caviar, salmon roe.

LEWIS HOWES: Yeah, right.

SHAWN STEVENSON: So, it's not, again, this is not to say to go out and drop a heavy buck on some caviar and be like, I don't know, Lifestyles of the Rich and Famous, but, and for some people, that might be the thing.

LEWIS HOWES: That's the phospholipids. What's number two?

SHAWN STEVENSON: So, EPA, DHA, so fatty fish, salmon, mackerel, sardines.

LEWIS HOWES: Gotcha.

SHAWN STEVENSON: We've got...

LEWIS HOWES: Oh, EPA and DHA is two?

SHAWN STEVENSON: Right. And phospholipids too.

LEWIS HOWES: Although that was more. Okay, so...

SHAWN STEVENSON: So, DHA and EPA make phospholipids but we can always get that from our diet.

LEWIS HOWES: Okay Cool.

SHAWN STEVENSON: So, and I'll just rattle off a couple of other ones for the phospholipids, because this is important to like, also for folks that are vegan, we've got to include everybody.

LEWIS HOWES: Yes.

SHAWN STEVENSON: So, from there, most of the peer-reviewed studies are done using fish oil, now that there's a little bit of controversy there, but I just want to make that clear that most of these studies are done using fish oil, so we can also... From here krill oil, so K-R-I-L-L, krill oil that might be a viable option for folks that might be on that borderline with vegetarian, and It's a microscopic keyword, microscopic shrimp. This is what Wales are consuming, for example, to create their massive brains, but the reason krill oil can be so remarkable is that it's high in astaxanthin, which helps protect the DHA and EPA and keep it from oxidizing. So, it's really bioavailable.

And we have peer-reviewed evidence that it works, the step from there that's truly vegan is an algae oil. So, at minimum, I want folks to get that like today, because again, if you're not getting in DHA and EPA, your brain is going to have accelerated shrinkage...

LEWIS HOWES: Oh man.

SHAWN STEVENSON: Alright?

LEWIS HOWES: Okay.

SHAWN STEVENSON: It is that important for the structural integrity of our brain... When I was running my clinical practice, I knew how important Omega 3's were. We'll just say 15 years, 15 years ago, people are coming in, I'm getting everybody on... Chia Seed Oil, Flaxseed Oil, Hemp Seed Oil I'm getting like, we got to get Omega 3's in everybody, but I was missing part of the story that is ALA. It's not DHA and EPA, the plant version does not, it's not the structural components of the brain.

LEWIS HOWES: Okay.

SHAWN STEVENSON: But it's so important your brain, your body can convert some ALA into EPA and DHA, but you can lose upwards of 90%, 95% in the conversion process.

LEWIS HOWES: Wow.

SHAWN STEVENSON: So, you're going to have to be shoveling the Chia Seeds and Hemp Seeds all day to meet your needs, and it's just not, it's not viable.

LEWIS HOWES: Yeah, yeah. Okay.

SHAWN STEVENSON: So, this is why algae oil is so important, and of course, I love Chia seeds and Flaxseed, all that stuff you can add that stuff in, but don't be mistaken that it's the same thing as DHA and EPA because it's not...

LEWIS HOWES: Okay.

SHAWN STEVENSON: So that's number one is these phospholipids, and number two, I want to share with everybody is something called sphingolipids.

LEWIS HOWES: How do you spell that?

SHAWN STEVENSON: That's S-P-H-I-N-G-O lipids.

LEWIS HOWES: Lipids, got it, Okay, so it's the second part of, the second fatty part of the brain.

SHAWN STEVENSON: Second type of primary fats found in the human brain.

LEWIS HOWES: Okay.

SHAWN STEVENSON: So, we've got phospholipids, sphingolipids. Sphingolipids really function as building blocks for our cell membranes, okay, so this is the membrane around all of

ourselves, and by the way this isn't just for our brain, it's also our entire physiology, these are important, but they're merely for the brain...

LEWIS HOWES: Right.

SHAWN STEVENSON: Especially for the brain. Let me say that. So, the cell membrane if we go back to like biology class, which I hated by the way. Alright. I was not passionate about science until I had to figure stuff out for myself, but we're taught that the nucleus is the brain of the cell. Alright, this is where all the... Where all the intelligence is, but working with cell biologist, Bruce Lipton, Dr. Bruce Lipton, who's like the person who really impressed epigenetics into popular culture, he shared with me very early on that in his lab, he was just doing...

He was removing the nucleus from cells and the cells just keep doing stuff, they keep operating, they do a lot of their same functions without their so-called brain, right? So, it's called a enucleation. So, if that's the brain of the cell, why does the cell not die? If I take your brain out, you're dead.

LEWIS HOWES: Right. Right.

SHAWN STEVENSON: That's it, that's the end of Lewis's story. You know what I mean? So, it's not as cut and dry. The membrane, there's a brain in the name a little bit, but the membrane has a lot of intelligence and it's working and constantly assessing the environment and sending data to the rest of the body, I mean the rest of the cell, all the internal mechanisms. So, there's a lot of intelligence in that membrane and that membrane, a big part of that is sphingolipids. Alright?

LEWIS HOWES: Okay.

SHAWN STEVENSON: So, now here's where this plays out, Sphingolipids can literally change the architecture of the cell... Of the brain cell. So, what that means and why that is so important is what it can help, it can adjust the cell so that it can do things a different way, and that's important, like what if you need to... What if you have an injury? How does your brain come back, your brain can find another way it can adjust, because of sphingolipids are a big component of helping to adjust the architecture for the brain cells to still do processes.

LEWIS HOWES: Right.

SHAWN STEVENSON: Right? So that's sphingolipids. The other big role that they play is in actually, cancer prevention, because they're regulating cell replication, so cells are supposed to replicate to the Hayflick limit, and this is kind of one of the ways that we look at it but cancer

cells go replicating indefinitely. So, sphingolipids help to regulate and check cell growth, and in particular, we're talking about in the brain, so thank you sphingolipids for that.

LEWIS HOWES: There you go, okay.

SHAWN STEVENSON: Alright, so that's the second type. But sphingolipids also help to make... Dietary sources: Eggs, butter, yogurt, eggs again, man. Eggs are there again, cream, beef, funny enough, rice and sweet potatoes as well, have some interesting amounts of sphingolipids, alright, so those are a few sources dietarily, but sphingolipids are used to make something called Sphingomyelin. Now, this is going to be important for you as an athlete, or what I'm about to talk about now.

SHAWN STEVENSON: So, Sphingomyelin. So Myelin is the protective sheath around our nerve transmissions, so what that means is, as we do a behavior, so the first time that you throw the hand ball, there's a certain way that you did that, and over time you got better and better and became more automatic where you can do it from all these crazy angles, you could do it diving, you could do it behind your... Between your legs and all the flossy stuff that you do, so... But the thing is over time more as you're doing the thing.

More and more myelin is getting laid down over that nerve transmission, basically insulating it and making it fire faster. Alright, so this is how Steph Curry, for example, the first time he's shooting a basketball versus what he can do today, he's laid down more myelin where the nerve transmission is automatic, and he can do it from all these different... Anytime, anywhere, right? So same thing with swinging a golf club, it's not... Practice makes perfect. Its practice makes permanent. Alright, so the more you're doing this thing, you're laying down more myelin alright, so it's really, really important for everything, not just for athletic performance, but everything that we do...

LEWIS HOWES: Sure.

SHAWN STEVENSON: Sphingolipids help to make sphingomyelin, but myelin is combined... The sphingomyelin works with the other, the third type of fat that the brain is primarily made of, which is cholesterol, right, so cholesterol is the third one.

LEWIS HOWES: Okay.

SHAWN STEVENSON: And this is another...

LEWIS HOWES: Of the brain.

SHAWN STEVENSON: Yes, it's another dirty word, apparently in nutrition, unfortunately, because things have become so black and white, but cholesterol is so important for the brain, that the brain actually makes it itself... The brain is the most concentrated area of cholesterol of anywhere else in our body, about 20% of our cholesterol is located in our brain, it's just making it on demand because it's so important, and cholesterol is actually... If we... For me, I'm like, well, how the hell does the brain do it? If it's making it's own cholesterol... How does it do it? It's the astrocytes. I briefly mentioned them earlier, there are these star-shaped glial cells, and they can be connected to like two million different synapses for different neurons, and just they're making some magical stuff happen, but anyways, with these astrocytes are... They're one of the places that we are, that we believe are primarily making cholesterol for the brain.

LEWIS HOWES: Wow.

SHAWN STEVENSON: Because it's so important, and so obviously building blocks of cholesterol we can get from our food, but as I mentioned, your brain is primarily making it itself.

Why does this matter? Last piece is cholesterol is a big component. It's primarily working with your myelin, and if you're not... This is all seen in like MS, for example... There's issues there with the myelin sheath, so this can lead to different health issues, but also can improve our performance when we have the building blocks to make these compounds. So, I know this was a lot, but just understanding these different three types of fats, how important they are for making up our brain, our brain is made of this stuff. We got to get out of the politics about which food is better than the other, what dietary framework and just look at what have human's been doing the longest, what does our brain require, what are the foundational elements for that, and just focus on what's best for us. Experiment, have fun, share, teach, have a good time, and let's get our families healthier.

LEWIS HOWES: Make sure you guys get a copy of this. Get a few copies give it to some friends, spread the message of health, wellness, all the good stuff, Eat Smarter, Shawn, you shared your three truths in the previous episodes, so if you guys want to see Shawn's three truths, check it out there, but your final before I ask your definition of greatness, want to acknowledge you for constantly showing up, man, you're one of the most dedicated researchers I know in this space, constantly obsessing over the research, the science, finding the holes and the information out there and then giving us the answers.

So, this thing is chalked with pages of cliff notes at the end with all the research as well, citations and everything, so make sure you guys check this out again, appreciate you for always showing up, man, and being a... Being a representation of the way... Your background, the way

you look, your attitude and how you kind of attract more people to this information as well, so I appreciate you. My final question. What's your definition of greatness?

SHAWN STEVENSON: My definition of greatness is just going off of what you just said, being the model, being the example, the greatest example that you can give, the greatest way to teach is being it...

LEWIS HOWES: Absolutely.

SHAWN STEVENSON: Because when you walk into a room, you are a demonstration, you change that energy in the room that you walk in, as we talked about earlier with that Tube Torus, so being the model and you can help to uplift and bring a light into dark places and also, as we grow ourselves, we become less influenced by the negativity around us as well, I know you've noticed that.

LEWIS HOWES: Yes.

SHAWN STEVENSON: In your evolution too, so you can really become impermeable to a lot of the craziness that's going on, so really work on yourself, build yourself up, become the best version of you, and let that speak and speak volumes of you before you even step on the scene, so that's... For me, that's the definition of greatness is being the model, being the example, and also accepting that you don't have to be perfect in being that example, just being process, just be working towards getting better.

LEWIS HOWES: That's it man.

SHAWN STEVENSON: Because there's always going to be somebody who is at a more trying place than you are right now. So just being that example, because just one person, if you're just five steps ahead of somebody with your health, you can help and reach a hand back and lift that person up.

Thank you so much for tuning into the show today. I hope you got a lot of value out of this. If you did, please share it out with your friends and family, you could share this on social media, take a screenshot of the episode, you could tag me, I'm @shawnmodel on Instagram and Twitter. I pop in and do a tweet every now and then and I'm at The Model Health Show on Facebook, and definitely check out my friends' epic show, The School of Greatness, one of the very best shows out there on the podcast platform. Absolutely love Lewis. And again, I hope that you got a lot of value out of this episode, we've got some powerful master classes and epic world class guests coming up for you very, very soon, so make sure to stay tuned. Take care.

Have an amazing day, and I'll talk with you soon. And for more after the show, make sure to head over to the modelhealthshow.com, that's where you can find all of the show notes, you could 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 this 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.