

THE MODEL **HEALTH** **SHOW**

EPISODE 711

The Truth About Hormones – Weight Loss, Stress, & Individuality

With Guest Dr. Sara Gottfried

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SHAWN STEVENSON: Welcome to The Model Health Show. This is fitness and nutrition expert Shawn Stevenson, and I'm so grateful for you tuning into me today. When someone says, my hormones are out of whack, what on earth does it actually mean? Our hormones are key controllers of pretty much every facet of our health. These are metabolic messengers that are helping all of our cells to communicate. And on today's show, we have one of the foremost experts, a pioneer in the field of hormones and hormone health and hormone optimization. She literally wrote the book on this, one of her premier New York Times bestselling books is *The Hormone Cure*. And she's somebody who, over the years I've known for about a decade now, has been incredibly influential in my education and my ability to teach and empower people. And also working in my clinical practice for many years, helping to transition that information that she was sharing, to be able to help the people that I was working with as well. So, she's had a huge impact on my life and I'm so grateful to have her here at my new studio to share this incredible information with you today. And another really special fun fact about our relationship is that my first book, *Sleep Smarter*, which has become an international bestseller, translated in about 22 different foreign publications.

And it really helped to create this new movement recently, within the last 10 years to Sleep Science and Sleep Wellness, being a popular part of the health conversation. I'm very, very honored to say that. But our special guest wrote the forward for *Sleep Smarter*. And having her name tied in with a book from a new author hitting the scene back then, this is around 2015, was very special. And she saw something in me that has been since shared with millions of people. And I'm so grateful. And again, to learn from true pioneers in the field and experts on something like hormone health that influences every facet of our lives is priceless. And all we need to do is click play. And to get access to this information, we're living at an incredible time of sharing, of education, of empowerment if we're attuned to it. Because there's also simultaneously a lot of things that can disempower us, that can distract us. And so, tuning in to information like this is really remarkable and important. And I truly just want to say thank you for that and for being a part of this mission and this movement.

Now, we want to make this movement go global. We want to create conditions to where in our society today, right now, according to the CDC, 60% of American adults have at least one chronic disease. 40% of American adults have two or more chronic diseases. It is abnormal to be healthy. It is abnormal to be disease free in our society today. But we can change this. We can normalize health, we can normalize a healthy culture, but it's going to take for us to start where we are with what we have. We've got to take care of what's happening under our own roofs. We've got to take more control of the controllables. We can't change everything outside of our doors, but we do have huge influence over our own choices in creating a culture of

wellness in our families. And for that, I'm so excited to share the Eat Smarter Family Cookbook. This is my new book that I've been working on the past couple of years, and it's really zeroing in on social science and how our environment affects our food choices. How eating together with friends and family, especially for our children, impacts our health outcomes dramatically reducing the risk of obesity, disordered eating, chronic diseases, and so much more.

There are over 250 scientific references in a cookbook. This has never been done before, but of course in a way that's entertaining and engaging and fun and also beautiful. We really worked hard to create the most delicious, beautiful recipes that are a flavor explosion, but also something that incites beauty and engagement and empowerment. Because at the end of the day, that's what it's really all about. It's feeling inspired, feeling empowered to make healthy food choices, and to enjoy the process of getting and staying well.

No one should have to believe that suffering is the ultimate path to health, all right? I truly believe that joy and connection and pleasure is going to be the pathway to health that is sustainable. And now, with that said, in addition to that, within the Eat Smarter Family Cookbook, you're going to learn about over 40 of the most science backed foods for improving your family's metabolic health, brain health, sleep wellness, and much more. Plus, again, most importantly, you're getting a 100 recipes that incorporate these superfoods in the most tantalizing, delectable, satisfying way. And right now, when you head over to eatsmartercookbook.com, right now and preorder your copy of the book for a limited time, you're getting free access to the 2023 Family Health and Fitness Summit. This event, a ticket is \$297, and you're getting this for free. And some of the great experts on family health and wellness that you're going to be learning from at this event, hearing their personal strategies, how they've created a culture of health and fitness in their own households, is just some of the people, some of the experts you're going to get access to, Laila Ali, undefeated boxing champion, and also the winner of Chopped television cooking show twice, she could cook.

Alright, and she's really about that life and truly she's one of those people she has incredibly busy schedule. But she's managed to find a way to prepare healthy meals for her family on a regular basis. How does she do it? We're going to find out. Also, you're going to hear from Gabby Reese, Dr. Amy Shaw, Dr. Will Bulsiewicz, Dr. Daniel Amen, Shalene Johnson, and many other world-class experts on health, family, wellness, fitness, and so much more. Again, you're getting access to that for free when you pre-order the book. This is for a limited time, so pop over to eatsmartercookbook.com and take advantage. Plus, you're instantly getting entered into the 25K health and fitness giveaway, and you'll see the prizes that are going down over there when you go to eatsmartercookbook.com. All right, that and much more. On that note, let's get to the Apple Podcast review of the week.

ITUNES REVIEW: Another five-star review titled “Great Information” by TL Whiskers 24. “I love not only the information, but also the format. It's presented in a cohesive, fluid way. I love the guest and I often start following their social media and podcast.”

SHAWN STEVENSON: So cool. Thank you so much for sharing that over on Apple Podcast. And today's guest is definitely somebody that you are going to want to follow. Our guest today is Sara Gottfried MD and she's a leading researcher, physician, and New York Times bestselling author. She graduated from Harvard Medical School and MIT and completed her residency at UCSF, but it's more likely that she will prescribe you a continuous glucose monitor and a personalized nutrition plan than the latest pharmaceutical. Although pharmaceuticals have their place, lifestyle changes is her primary means of treatment for her patients. Dr. Gottfried is also the clinical assistant professor in the Department of Integrative Medicine and Nutrition Sciences at Thomas Jefferson University and Director of Precision Medicine at the Marcus Institute of Integrative Health. And now she's back here on the Model Health Show. It's been quite some time since I've sat down with my really good friend and somebody that inspired me tremendously working in the field of health and wellness.

Let's dive into this conversation with the amazing Dr. Sara Gottfried. Dr. Sara Gottfried, one of my favorite human beings.

DR. SARA GOTTFRIED: Shawn, I'm so happy to be with you.

SHAWN STEVENSON: I've got so many questions to ask you, and we were just talking before we got started about this really interesting phenomenon. There are millions of people right now dedicated to getting healthier. But of course, they're thinking from a conventional mindset. They're dieting, they're exercising, they're follow all these rules, doing so many things right. That's what they feel to be right. And yet they're struggling to lose weight. There's a huge component that's not being addressed, and it has to do with stress. Can you talk about how excess stress and stress related hormones like cortisol can lead to more weight gain and even block our ability to lose weight?

DR. SARA GOTTFRIED: It's such a critical point. I feel like this was my story when I was in my 30s. So, I had a couple of kids, I was trying to lose the baby weight, and nothing seemed to be working. Like all the things I used to try in my 20s just wouldn't pass muster anymore. And what I realized was that I was a total stress case. I had what I would call now high perceived stress. So even if... If you looked at my life and you looked at, okay, I was a practicing physician and I was working long hours and I had two kids at home, and all those things. But there were a few pieces that I think are really relevant for our listeners. One is that I have a history of trauma. And I think that changes your stress response system, not just, I think it, I know it.

And I think that's really critical. Like we know this from the research that's been done by Rachel Yehuda at Mount Sinai, where she looked at the offspring of Holocaust survivors and also people who were in the 9/11 terrorist bombings. And she's shown how soul wounds can be passed on. So, it may not even be you, it could be that it's your parents or your grandparents or someone else in your lineage who's passed on this tendency toward metabolic dysfunction. And we can talk more about the research if you want to, but the two groups of genes that get affected in terms of how they talk to the rest of the body, when you've got toxic stress, are your metabolism and your immune system.

Really critical. And we know that from a study called Project Ice Storm, so maybe we could link to that in the show notes and talk about it if you want, but more, this garden variety stressor experience that people have. I think of it in two different categories. I think of kind of the capital T trauma, the things that all of us would agree are really traumatic, like surviving 9/11 or being in a car crash. And then there's these small T traumas that some of us, myself included, can get somewhat bent out of shape over. And that could be a breakup with a partner. It could be an email that you receive that upsets you. There's so many different things that fit into that small T trauma. And then the question is what's the downstream consequence of that?

And it's got a lot of downstream consequences. I mean, it affects the microbiome. It can give you increased intestinal permeability, leaky gut, it can stimulate the cortisol receptors in your abdomen. So abdominal fat has four times the cortisol receptors as fat elsewhere. So, if you're like me and you're in your 30s and you're, you're so stressed out and you're, you've got so much cortisol kind of floating through your blood vessels, it really stimulates that belly fat. And then it can block the production of a lot of the sex hormones that help you with metabolism. Things like testosterone and progesterone, which in women is really important for sleep and for soothing. But it's important in men too.

Then there's the effect on insulin, which you and I have talked about before. And a lot of people don't appreciate that it's not just what you're eating, that affects your dance with insulin, and then downstream what's happening with your glucose levels, which is probably the best way to really assess your metabolic health. But stress has a huge impact. Whenever I wear a continuous glucose monitor, I could eat an ideal hormonal specimen. But if I'm stressed, my glucose is going to be 10, 20, 30 points higher than it should be. And so really understanding the role of cortisol, I think is critical.

SHAWN STEVENSON: Now, this is another thing we don't think about in regard to our blood sugar. Even when we think of that, we generally put that in a pithy box of like food is going to influence that. But your thoughts and your perceived stress as well. And I noticed that too, wearing a CGM that my blood sugar is pretty adaptable, as far as like when I eat different

things. But one day when I was definitely running a little bit hot, I was... Had more stress than usual, that's when it went bonkers. The first time I really noticed that.

DR. SARA GOTTFRIED: You Run hot, Shawn, I don't think I've seen you run hot.

SHAWN STEVENSON: I mean, I've worked till, be able to channel my aggression. But yeah, of course that happens to me too. So, I just yesterday was looking at this really interesting paper, and first and foremost, when you're talking about these events, childhood experiences or events, you know these ACEs. And there's a lot of phenomenal research on this. And this particular paper, this was just published in 2019 and it was titled Adverse Childhood Experiences in the Onset of Chronic Disease in Young Adulthood. And finding that these traumatic experiences that also can get passed down, by the way, trans generationally, and there's another paper on that as well. Basically, there's alterations in our genes, but also non genomic aspects of how our cells are functioning. Basically, our sex cells in particular are getting altered, passing that information down to our kids. Possibly making them more adaptable or more suited to live in a hostile environment. So, more propensity towards being reclusive, more propensity towards being aggressive, more propensity towards holding onto more belly fat and fat in general, because you might need to hide. These are all evolutionary adaptations that in a way help us to survive, but not necessarily to thrive. And so, my question is obviously... Well, first and foremost, can you share what hormones actually are and talk a little bit more about, you mentioned ice and ice study. What was that Study?

DR. SARA GOTTFRIED: Oh, the Ice Storm.

SHAWN STEVENSON: The Ice Storm study. All right. So first and foremost, what are hormones and how does cortisol in particular you said there's up to four times more receptors in our belly fat for cortisol's bananas. How does cortisol number one on one side of the equation, what if it's elevated? And also, what if it's too low? All right. So that's a lot there to unpack. But first, what are hormones?

DR. SARA GOTTFRIED: So, hormones are like text messages in the body. They're these proteins that get released usually in one part of the body, and they go to another part of the body to tell it what to do. They drive what we're interested in. And that's classic endocrinology. The study of hormones, the one I can think of in particular is you produce thyroid hormone in this butterfly shaped gland in your neck. You've got thyroid hormone receptors on almost every cell in your body. And it's kind of like the gas pedal in a car where the thyroid hormone then tells your cells like how fast or slow to be in metabolism. So, it's a way of, kind of tracking the way that you burn calories and it's so critical for many different functions, growth, repair, etcetera. We also know that there's this thing called intracrinology, and that's as opposed to classic endocrinology.

And that's where you produce hormones inside of a cell as needed, usually from DHEA. So, we've got those two different systems, but I think for our purposes, think of it as a text message that's being sent throughout the body. And with cortisol, you asked about, what's going on with cortisol? Cortisol I think of as the highest priority in terms of hormones in the body. So, there's hormones that you might think of. Things like estrogen, testosterone, DHEA, progesterone, those are not necessarily needed to live. So, you can get away without them. So, a lot of women who go through menopause, men who go through andropause and have low testosterone, you can still function, you may not function as well. But you can still function, they're not necessary for life. Cortisol is necessary for life, 'cause it controls your blood sugar, as we talked about. It also modulates your immune system.

And it's one of those hormones... It's the chief hormone of your stress response. And so, it's designed to help you if you encounter a threat like a tiger, to run or to fight or to, in the case more so for women, 'cause women have a different stress response, freeze or fawn. So, cortisol is the main actor behind the stress response. And what I see in my practice is that probably 97-98% of people have a problem with their cortisol, and they don't know it. It could be high cortisol, which was my story in my 30s. That was kind of the central problem that I had with belly fat and weight loss resistance. When I measured my blood level of cortisol, it was about three times what it should have been.

And I remember talking to a psychiatrist friend at the time, and I was like, Luann, Luann Brise Denno like, why is my cortisol so high? And she said, girl, every female physician I know has a cortisol, that's two to three times what it should be. It's just the nature of being in a stressful system. And then there are people who have low cortisol. They've gone through a phase of producing... Overproducing cortisol in response to their environment, and now they're in a state where they don't make enough. And so, there's this gap that they feel like they wake up in the morning and instead of jumping out of bed like I imagine you do and start dancing with Anne, they put their feet on the floor and they're like, oh, I don't feel restored. I need Sean's book. Sleep smarter. So, it's... And even for some folks, they have high and low cortisol within the same day. So, it's not just your level of cortisol, which is supposed to peak within 30 minutes of when you wake up and then gradually decline.

It's also what does the shape look like? What's the cortisol wakening response? What's your cortisol when you first wake up 30 minutes later, 60 minutes later? What's your diurnal cortisol? 'Cause cortisol's kind of like a flower, like a gazania that opens in the morning and then slowly closes. And a lot of people lose those patterns, which lead to more immune dysfunction, more of those chronic diseases that you mentioned associated with the ACE study. And I'm so glad you brought up the ACE study because you reach so many millions of people. And a lot of folks don't realize that some of those challenges that you and I had in our

childhood, even if we're quite resilient now as adults, they then map to 40 different chronic diseases as you get older. Whether that's mental health, depression, anxiety, post-traumatic stress disorder, or physical health like immune dysfunction, autoimmune disease, cardiovascular disease, all the most of the main killers in the US.

Yeah. And it's so obvious once we realize that our thoughts create chemistry. Yes.

SHAWN STEVENSON: And obviously again, you talked about this really interesting connection between cortisol and possible weight gain, but you also mentioned the thyroid earlier and the thyroid and cortisol have an intimate connection.

DR. SARA GOTTFRIED: Yes.

SHAWN STEVENSON: They're all along that HPA axis and so the thing that you said that is... I don't want people to miss is that our thyroid and associated hormones can essentially downregulate or upregulate our metabolism. So, we might be cutting calories, but your body's perceived stress or threats can downregulate your metabolism, it could slow things down. And then this is where people start to get into that self-defeating or learned helplessness.

DR. SARA GOTTFRIED: Yes.

SHAWN STEVENSON: Because there's like, I'm cutting the calories, I'm doing the exercise, but my weight isn't budging.

DR. SARA GOTTFRIED: Critical, critical point. So, there's all this interdependence between these hormonal systems, and I feel like you just described it perfectly. So, what we know with thyroid, for instance, is that if you're a stress case, like I was in my 30s until I became a yoga teacher, and started to meditate every day, which is really essential for those of us who have ACEs, adverse childhood experiences before age three, got to have a daily mind body practice essential, non-negotiable. So, when you've got high perceived stress, it can block thyroid function as you described. So, there's so many things that can do it. It's not just high stress, but cortisol is a big part of the story with how you up or down regulate your thyroid function. There's the role of nutrients, copper, zinc, selenium, iodine. There's the role of vitamin D, which is so essential for thyroid function.

And then there's this piece that I think is so important that the body has a few different brakes in the system. And by this, I mean, like a hand brake you have in the car. And one of the breaks is that if you're under a lot of stress, the handbrake that goes on with your thyroid is called reverse T3. So, you start to make more reverse T3, which blocks thyroid receptors if you're under a lot of stress. And what I see with a lot of folks, because I measure reverse T3 along with

a full thyroid panel and I measure cortisol, is that a lot of folks will go through a stressful situation, even potentially like low carb, reducing their carbs to a significant degree, that is perceived by the body as stressful. And so that can potentially raise reverse T3.

It's designed to be this emergency break that you use, like if you're in an intensive care unit. But what I see is that a lot of people have those small T traumas, those little slates that aggregate and lead to this toxic stress response that can lead to weight loss resistance, can lead to the thyroid not working the way it should, can lead to dysregulation of the cortisol. You said one other thing that I want to highlight that I think is really important. And you know how I like to nerd out with you. So, this is a nerd moment. I'll just call it out. So, I think of the control system for your hormones as the hypothalamic pituitary adrenal axis. So, you've got your brain kind of talking to your adrenal glands, that's where you make your sex hormones like estrogen, progesterone, testosterone, etcetera. But there's a bigger control system that we're still learning about. And that includes the thyroid, it includes the gut, and it includes the gonads. So, testes in men, ovaries in women. And so, the way I think of it is not just the HPA, I think of it as the HPATGG. So hypothalamic, pituitary, adrenal, thyroid, gonadal, gut axis. It's quite a mouthful, but that's kind of the bigger control system that we want to be thinking about.

SHAWN STEVENSON: Yeah. Thank you for saying that. The next thing I was going to reference is that even when we're testing a hormone, for example, we cannot look at that thing in isolation.

DR. SARA GOTTFRIED: Yes.

SHAWN STEVENSON: None of our hormones are operating in a vacuum and all of these powerful metabolic stations in our bodies are deeply connected and interacting. And so, we tend to identify like my adrenals are whatever, dysfunctional, but it's just like your adrenals are a part of a much bigger system. And the conventional thinking is, we got to try to hammer away and address that broken piece. Where in reality, this could be something upstream or downstream that's actually causing the issue. And so, if somebody is wanting, for example, to get a beat on their cortisol, again, understanding it's not operating in a vacuum, how can we actually test our cortisol?

DR. SARA GOTTFRIED: So, cortisol is interesting. I always start with blood work. So, blood work is the universal language of most clinicians. So, I like to start with blood work. The problem with cortisol in the blood is that you're measuring total cortisol. You're not looking at free cortisol, which is what's biologically active. It's what's coursing through your veins and affecting distant organs like your belly fat. So, what I like to do is salivary or urinary levels of cortisol. So, what I do with my professional athletes, with my executives, with my everyday folks that I take care of, is I measure usually salivary cortisol first thing in the morning, that

cortisol awakening response or CAR for short. And then I look at typically urinary cortisol through the rest of the day. So, when you first wake up around noon, 4 o'clock in the afternoon and before you go to bed. So that's the way I recommend testing it. Saliva is really the best when it comes to cortisol. Other hormones, there are better ways of measuring it than in saliva, but that's what I recommend. You also asked me about the Ice Storm, Project. Ice Storm, should we talk about that?

SHAWN STEVENSON: Yes.

DR. SARA GOTTFRIED: Okay. So, I get so excited about some of these things. So, Project Ice Storm is a natural disaster that occurred a little more than 20 years ago. So, this happened in 1998 in Canada, a really remote part of Canada. So, they had an ice storm that occurred, and people were isolated in their homes. So, it was the dead of winter. There was freezing cold temperatures and people were without power for weeks. And so, folks for the most part were under incredible stress, they were really cold, they didn't have heat, they didn't have food. So, they were highly stressed for a couple of weeks. And they took the women that were pregnant in this community during this ice storm and then they looked at them 20 years later to look at the offspring of these women that were pregnant. And that's where they found that the sets of genes that were affected the most by that stress of the ice storm were metabolic genes and your immune system genes. So that's where we got to this idea that, okay, the offspring really struggle with their metabolism. Their weight is higher than women that weren't pregnant, who were pregnant in other locations. And so, it's really important to understand that it's not just that you feel like you're pushing a rock up the hill with trying to lose weight and weight loss resistance. There's all these other factors that we want to consider.

SHAWN STEVENSON: Wow, that is bananas.

DR. SARA GOTTFRIED: It is bananas.

SHAWN STEVENSON: I love when researchers ask these questions and look into things like this. There's so much data available everywhere, and so I really want this message to be driven home for everybody, to feel more empowered, not to be kind of disenchanting by this but to be empowered and understand like, yes, our food matters. Yes, your exercise protocol. Sleep, yes.

We've got a quick break coming up. We'll be right back. Did you know that there's a spice in your spice cabinet that can very likely improve your insulin sensitivity and help you to burn more fat? This spice has been utilized for 1000s of years. And now today, we've got tons of peer-reviewed evidence showing how incredible it is for so many aspects of human health. I'm talking about the renowned spice, turmeric. A turmeric is actually in the ginger family, but it

has its own claim to fame today. And researchers at the Department of Neurology at USC found that one of the active ingredients in turmeric, curcumin is able to help eliminate amyloid plaque in the brain, slow down the aging of our brain cells, and also help to remove heavy metals and reduce inflammation in the brain.

And by the way, in talking about its impact on body fat, turmeric has been found to both improve insulin sensitivity, reduce blood fats, and directly act upon our fat cells. And to take it up one more mental notch, research published in the Journal of Ethnopharmacology points to turmeric's potential to reduce both anxiety and depression. Turmeric functions like a Swiss Army knife for human health and benefits. And today, more than ever, people are going beyond the casual curry and doing one of the most remarkable teas that you're going to find and that is having a turmeric latte. And my favorite turmeric latte, my favorite turmeric drink is coming from Organifi Gold. And this is because it also has other bio potentiators that make turmeric work even better in the human body. I'm talking about cinnamon. I'm talking about ginger.

And also, here's the thing that makes Organifi Gold so remarkable. It also has some medicinal mushroom Reishi. Which according to research published in Pharmacology Biochemistry & Behavior, they found that Reishi was able to decrease our sleep latency, meaning that we fall asleep faster, was found to improve our overall sleep time, and also improve our deep sleep time and light sleep time. So, our REM sleep and non-REM sleep. Pretty remarkable. So, I highly encourage you to check out this incredible Organifi Gold blend. Go to organifi.com/model, that's O-R-G-A-N-I-F-I.com/model. You'll get 20% off the incredible gold blend, as well as their green juice blend, their red juice blend, and actually storewide. So definitely take advantage of this and make yourself your own turmeric latte. I love the turmeric blend, the Organifi Gold with some almond milk or milk of your choice. Warm it up if you're feeling spicy and it's one of those things that really helps to add another layer to your health and wellbeing. Check them out. Go to organifi.com/model for 20% off. And now, back to the show.

One of the most remarkable things about us as human beings is our ability to adapt to circumstances. And these stressors, big T or little T, can add up and create alterations in how our bodies are functioning. And so, if you've been really doing well and in working on these different pieces but you can't seem to crack the code for yourself, and this is tough though because a lot of times and myself included, we don't acknowledge the stress that we're under.

DR. SARA GOTTFRIED: That's true.

SHAWN STEVENSON: Right. And so, we might, "Well, I'm not stressed. I'm not stressed at work." No, no, no. No. We have an overall stress load. And this can be even your diet stress. That can go in as a piece of the equation, your environment stress, relationship stress. You can have

even kind of like a psychological or spiritual stress and not feeling like I'm connected or on purpose or all these things are added. Exercise is a stress, right?

DR. SARA GOTTFRIED: It is. It's a hormesis.

SHAWN STEVENSON: So, this can be a hormetic stressor. Or it can be tipping you into a place depending on what type of exercise you're doing. And there are so many other factors that we still don't understand. We're still uncovering or learning about in our field. But the most important thing is proactively having a stress management/processing practice. You said it's non-negotiable. When you said that, I was like, "Let's bookmark that moment." Non-negotiable practice for yourself.

DR. SARA GOTTFRIED: Especially for those of us with early trauma. I sometimes use myself as an example, not because I think I'm so great, but because...

SHAWN STEVENSON: You are.

DR. SARA GOTTFRIED: Well, that's debatable. But I had parents who divorced when I was really young. I was a year old. And I've never had a relationship with my father. And so that counts as an ACE, an adverse childhood experience. So, my ACE score is about six, which is pretty high. I've had some psychiatrists who count it as seven. It's debatable. But the point that I want to make is that when you have these early childhood experiences, and they occur so early, you get this kind of trigger response with stress. You go into these automatic responses that often do not serve you really well. They might serve you if you've got that tiger chasing you, but they don't serve you when you're trying to stay married. They don't serve you when you're trying to parent.

They don't serve you when you're trying to lead an organization. And so, the more that we can really slow down that process, and maybe even heal the way that those adverse childhood experiences affected us, the better. So, I'm not saying that's the magic bullet for weight loss. What I'm saying is, you deserve, we all deserve to know about some of the ways that we can clean up the residue of adverse childhood experiences and adult adverse experiences, too. And so those daily mind body practices, for sure. I meditate for 30 minutes every morning, no matter what. But also, there's things like psychedelic assisted therapy, that has been shown to make a gigantic difference durable in terms of post-traumatic stress disorder. And I feel like a lot of my patients, even if they don't meet criteria for post-traumatic stress disorder or PTSD, they have partial PTSD, or they have what's known as sub-threshold PTSD. And what I think is so promising is that many of these sacred medications that went underground in the '70s and '80s.

Now we know from large, randomized trials, they can really help us with the way that these toxic stressors and trauma get lodged in our system. So, we've talked a bit about how it affects cortisol. And you made this point that I think is critical, which is, it's bigger than just cortisol, of course. My next book is about the pine network, the psycho immuno neuro endocrine network, and how trauma affects it. So, we all know about the mental health effects of trauma. We're quite conversant, there's lots of books about that. But I think a lot of people don't connect the dots to physical health, to the weight loss resistance, to the autoimmune disease, to the dysregulation with their hormones, as we've talked about. So, I think it's important that we look more broadly, especially with physical health.

SHAWN STEVENSON: This is one of the biggest issues with our system of health today is that we've removed the mind out of the body piece and they're really inseparable. This is so silly, silly humans. But in reality, we've got to address all these pieces. And again, this is about empowerment and realizing that you have some agency here. And essentially, what I'm hearing is like being able to proactively feed ourselves some safety signals start to... Because even food, it's a signal, it's information. And so, by having these practices, where we're allowing ourselves to process stress, how often do today especially, we might have gone through something... We'll just say a small T, or a couple, and they're just kind of building up. But rather than having time to process and really restore ourselves, allow our physiology, our mind, even that HPA access to turn down a little bit if it's running hot, rather than having times for restoration and healing, we seek out some temporary relief. So, we're stressed. And we're like, "Let me jump on my phone to de-stress and scroll on social media." And then other parts of our brain, and our physiology is just lighting up, like... I'm going to say like a Las Vegas stripper sign. I don't know why that jumped into my head.

DR. SARA GOTTFRIED: We can work with that.

SHAWN STEVENSON: It's just like lit up girls now. And we're not really realizing that's not real restoration. That's not real processing. Allowing our mind and body to heal and to process. Because the thing is, I really feel that the human body is, we are deeply and immaculately designed to do that. If we create the space for it, your body knows what to do. If you just give it an opportunity.

DR. SARA GOTTFRIED: It's a magnificent point, because I think you're also the same and tell me if this is right, that we have to personalize it.

SHAWN STEVENSON: That part. Yeah.

DR. SARA GOTTFRIED: I think that's such a part of this conversation because what works for me in terms of working in a positive way with my adverse childhood experiences may not work for you. Not everyone wants to sit and meditate for 30 minutes. That just doesn't work. They'd rather dance, or they'd rather have sex and orgasm. There's so many different ways that you can work with your stress response. And I think it starts with an awareness of how toxic stress might be lodged in your system. And I want to call out here Nadine Burke Harris, Dr. Harris, because she is the one who really taught me about adverse childhood experiences. She's got an incredible book called *The Deepest Well*, and she's a pediatrician, and also the surgeon General of California who really learned how to incentivize physicians in California to be asking about ACEs.

And so, she tied it to reimbursement, which I think is so important. So, this awareness of your own adverse childhood experience. And I hope maybe we can have folks Google the ACE questionnaire so that they can assess that, or we can link to it. So, knowing your own ACE is so important. And then to understand that it's not just your ACE score is bad, good luck with that. It's that we've got all of these ways that we can work with it. And then to personalize it so that you cannot let that trauma continue to live on in your body and continue to maybe harm your relationships and affect your connection to meaning and purpose and the way you work out at the gym, the way you take care of yourself.

SHAWN STEVENSON: Yeah. Because we're making adjustments, oftentimes unconsciously, to protect ourselves.

DR. SARA GOTTFRIED: Yes.

SHAWN STEVENSON: And that's an admirable thing. And when we're doing that, and it is limiting our ability to experience joy, to experience good health. We've got to dig a little bit deeper sometimes and address these things. For example, I had no idea that I had PTSD. I just reserved that for like war. But in reality, and this was years ago it really struck me that, I'm... Just being a child and being woken up in the middle of the night to hear people fighting and hearing glasses broken, tables being broken and chairs and all this stuff, and all this violence taking place in my house and hearing gunshots outside and the sirens and all these different things. And I realized because I didn't acknowledge it, because it was normal to me.

And it took even far into adulthood for me to realize like, no, that's not normal. And that was still in me, and it was causing or contributing to being hyper-aggressive or being reclusive and really being cautious about trusting and all these other things that I struggled with that was limiting me. Because little did I know, and I would've never thought this even 10 years ago that the most valuable thing in my life is my relationships. I wouldn't have thought that that was a thing. It didn't come in the package of what success was and how my framing or what I saw on

TV, I guess. But truly, and for me to have really valuable and healthy relationships, I have to trust.

DR. SARA GOTTFRIED: Yes.

SHAWN STEVENSON: And I had a problem with that because of this PTSD, because of the environment that I was surviving in. And again, it served me, it kept me alive. But being so self-centered is going to block me from really being able to foster healthy relationships.

DR. SARA GOTTFRIED: There's so much I want to say in response to that. First, I want to thank you for sharing the vulnerability because I think so many people look up to you. And the more that we can talk about vulnerability, the better it, as Brene Brown talks about, it leads to wholehearted living. And I so appreciate that about you. The second point is that when I first met you more than 10 years ago, and you were talking about your spine and your athleticism and how, I think you had an x-ray or some sort of imaging of your spine and the doctor said to you like, you have the spine of a what, 70-year-old.

SHAWN STEVENSON: 80-year-old.

DR. SARA GOTTFRIED: 80-year-old And I want to connect those dots because I feel like so much of that experience of growing up in a home where there's violence and there's that fear that comes up when you're lying in bed and listening to this, it leads to this broth of high cortisol that can... It's a wear and tear hormone that can really rob you of bone strength. And it's something potentially that may have affected your bones. And I'm so glad that you were able to turn that ship around. And then the third point I want to make, and I'm thinking of Anne here 'cause I just adore Anne so much and I want to have lunch again with her like we did last time I was in St. Louis. I saw a meme on Instagram. So, I'm just going to call out this meme I saw yesterday that I loved. So instead of you're the average of the five people you hang out with the most, it was a meme about how you're the average of the five nervous systems that you hang out with the most. And I read that, and I was like, oh, [chuckle] wow. That's intense.

That's intense because you want to be thinking about that you, in terms of your primary relationship, what's the nervous system like for that person? Is there some additional healing that needs to happen so that you both have this way together where your nervous systems are the best they can possibly be? And yeah, I think about that for parenting and my daughters, it's just... What I love is that it really gets me to think about how can I have the kind of nervous system that supports the people that are in my tribe? How can I be the best that I can possibly be? So, I just wanted to make those points in response to what you were talking about in terms of the trauma that you experienced as a child.

SHAWN STEVENSON: Yeah, thank you. And that's my wife Ann, and yeah, it is that just, that's a game changer. The average of the five nervous systems. What... It is true. It's true.

DR. SARA GOTTFRIED: I feel like I should credit somebody. I don't know who it was. So, whoever you were, thank you.

SHAWN STEVENSON: Thank you. Shout out to tag the... Whatever. Wow, that is profound. You know think about that, and just even there's kind of a closer proximity or understanding that when we think about our children and what we are passing on, and it can, again, if we think that we've... I know a lot of parents think about, especially if you've gone through stuff like trying to not mess Your children up, but.

DR. SARA GOTTFRIED: I got to give up on that. I'm just going to pay for the therapy, Shawn.

SHAWN STEVENSON: It is, what it is. It's just like, let me try and mess them up a little bit less.

DR. SARA GOTTFRIED: Yeah.

SHAWN STEVENSON: But in reality, it's just being alive as a human being. You're going to go through stuff and it's equipping people with tools to be able to, again, process, manage, overcome the adversities. And we are going to be passing down templates or dispositions unknowingly, because it's just, it is, what it is. And if we feel like we've passed down negative things or we've picked up negative things from our parents and grandparents, we've got to... I want to share this, when I was studying that ACEs paper that I mentioned earlier, I was looking at this paper as well, like, what can we do about this? And we'll put this study up for people that are watching on the YouTube version.

This is published in Neuro Psycho-Pharmacology. The title of the paper, I've referenced this before on the show, but it's so important to understand, is potential of environmental enrichment to prevent transgenerational effects of parental trauma. So, they're looking at factually parents, grandparents, great-grandparents passing on these traits of trauma and stress to their offspring, ending up with you. And what the researchers uncovered was that enriching experiences right now can change what's happening with your genes, what's happening with your sex cells, and what you're passing off to your offspring. So, what do these enriching environments look like? That should be the question. And you said the word earlier, it's personalized.

DR. SARA GOTTFRIED: It's personalized and it's... One of the things we know from the ACE research is that if you had someone in your life, a grandmother, a family friend who was able to hear you and see you, that the ACEs have less of an effect in terms of your future risk of

chronic disease. So that's something that's not measured in the ACE questionnaire. And I think it's so important. I think for instance, with my own situation, I had a grandmother who would pick me up from school who was, the kind of person who was just humming and singing and dancing through her life. She had such a sweet disposition. She taught me how to fish and garden, and she just was a ton of fun. And she let me be the intense little girl that I was. So having a figure like that in your life is so critical for what you're talking about, which I would frame maybe as post-traumatic growth as opposed to post-traumatic stress disorder.

SHAWN STEVENSON: Ooh. Yeah.

DR. SARA GOTTFRIED: So post-traumatic growth is so critical. And I want to call out one other thing, which I feel when I'm with you, and maybe you feel it with me as well. For some folks who go through traumatic experiences, they become fiercely self-reliant. I think there's a lot of entrepreneurs that fit this camp. A lot of folks who, sometimes have a challenge in relationships because they had to kind of build themselves up and they had to do it on their own without maybe the parental support that they most needed. And so that self-reliance is a great thing in terms of survival, but then it can backfire, especially in middle age, which we're defining as 40 to 65. So, it can backfire in relationships, it can backfire in terms of emotional intimacy. It can backfire in terms of how you go about, as you said, being honest and transparent about what your stress situation really is. So, in some ways, you got to measure it to really know what it is at an objective level, especially for people like me who are so self-reliant. I'm a terrible historian. Like, you can ask me questions. How are you doing? Sarah, are you stressed? No, I'm great. I meditated this morning. I'm good. I'm good. I want to go to the gym with you, Shawn. So, there's that self-reliance that can sometimes get in the way.

SHAWN STEVENSON: Oh, my goodness. Post-traumatic growth. Oh my gosh, that's so true.

DR. SARA GOTTFRIED: I didn't come up with that. We got to credit someone else there.

SHAWN STEVENSON: Still. Oh. All right. So, and here's the thing. I mean, it's 2023. It's going to be a lot of stuff that's remixed.

DR. SARA GOTTFRIED: Yes.

SHAWN STEVENSON: You probably said it better. No disrespect. All right, so this is really pointing to an opportunity for me. I'm seeing. I haven't shared this before, but maybe it was like, I think maybe eight or nine years ago, but I had this random pain in my back. And structurally everything looked great, it looked perfect according to the physician that I was seeing. And I went to see on a recommendation this physician and yeah, they saw my paperwork and they saw structurally everything looks good. I don't know, it seemed for me as

this phantom pain. And they did a physical assessment of me. And then she said this thing, and again, I've never shared this before, outside of my family, she was looking at my spine and she was like, you don't know your father, do you? And I'm just like, what the, what? How do you, and so because of the... I don't know what it was, I didn't... I was trying to get out of there to be honest.

And I don't know. My biological father I've never met him. And what she went on to say was like, I was lacking a feeling of stability and structure and support that would come from this parental figure. And within about a week, again, I was dealing with this pain for maybe like two weeks within, I'm sorry, not a week, but maybe it was like three or four days. Something hit me, like a moment of insight that I had this stability that I had developed in my life, but I didn't want to acknowledge it. I had this amazing wife, now I have this amazing mother-in-law. I have even amazing men in my life. Mentors who I didn't... I still saw myself as like the get it on your own. The resilient guy, put the weight of the world on my shoulders. I don't need anybody. Like it was still there and running the ship. I was taking steps unconsciously to try to change that perception of reality. But when I accepted like I have people who literally have my back, my back stopped hurting.

DR. SARA GOTTFRIED: Yes. Yes.

SHAWN STEVENSON: And that is when everything changed in even how I was working with other people and realizing truly pretty much every physical symptom or condition has an emotional component to it.

DR. SARA GOTTFRIED: That's right. Well, you just beautifully illustrated the psycho-immuno-neuroendocrine system at work. And I so love you sharing that story. Thank you. It made me so misty just imagining you hearing that about stability and you grew up without a father because that's what fathers are meant to do. They're meant to protect us and give us that stability and give us that feeling that you can accomplish whatever you want to accomplish. And you and I both grew up without fathers without that stability. We had to do it ourselves. And it's a lot of stress to do that, especially when you're so young and you don't know why this is happening, why it's all put on you. So I so appreciate you sharing that. And there's so many people who've got chronic pain, not the acute pain that you described, but they've got chronic pain as a result of the PINE system being disrupted.

And I think that's such an important point. I also want to call out that, although I've never met my biological father, I grew up with a stepfather who is one of the most important men in my life. And I had a gap, where I didn't know him. But there are these ways that we can show up for our kids. There are ways that we can show up for people who have a trauma like you, and I

experienced and can remedy some of that challenge that we experienced. And so, it's never too late to address it.

SHAWN STEVENSON: Yeah.

DR. SARA GOTTFRIED: We're learning more and more about how do you create the environment for post-traumatic growth.

SHAWN STEVENSON: Yes. Yes. And no matter where you are, or even the relationships you have right now, this is part of the gift of technology today, it's like virtually having people in your life. Mentors. And same thing, I had a stepfather that stepped into the picture. And this can lead to a whole other thing, if you have parents and then there's some form of dysfunction, is being able to process. And what really created freedom for me because that violence that I experienced in my household, with my mother and my stepfather eventually being able to love and accept and really latch onto the gifts that I got from that situation. So, this individual with an incredible work ethic and a staple figure of discipline and also a provider. So, I'm just like, okay, I love all those things.

The other things I'm going to let go of and not run my psychology. Because that's another thing that we get caught up on is like what we might've had somebody but then they were dysfunctional or emotionally unavailable or whatever the case might be. And it's kind of like, this is a summation of a Bruce Lee quote, but taking on and absorbing what is valuable to you and discarding what is not. And that's really been a tool for me as I worked through stuff that I didn't know was bothering me. Because we have this romantic idea about what parenting should be. Even our parents should be a certain way, even same thing with our kids. Same thing with our relationships. It's like a Barbie and Ken type of... I don't know what's the new movie's about, but it's just like, it's supposed to be this kind of like picture perfect whatever. And 99.999% of relationships are not like that. And recently my stepfather passed away.

DR. SARA GOTTFRIED: Sorry to hear that.

SHAWN STEVENSON: And it was for me, such a moment. Even when I came to back to St. Louis and I saw my family and we were at the funeral home. It was such a feeling of celebration and joy and gratitude. And I was able to express that and provide that. And the energy shifted in the room and helping my little brother and sister even to reframe and to start to see that they get to choose a story. And I'll say one more quote here, Nelson Mandela, resentment is like drinking poison, expecting it to kill your enemies.

DR. SARA GOTTFRIED: Yes.

SHAWN STEVENSON: And carrying these things that are unknowingly a lot of times hurting us, but sometimes we know the thing, but we latch onto it because it makes us feel safe in a weird way. This resentment, this aggression. And so, I just want to add that piece there, that regardless of your circumstances where you came from, you have the ability to ultimately what it boils down to is reframe things. Change your perception. But you need to give yourself space. You need to give yourself time to process whatever that might look like for you. That might be meditation, that might be a yoga practice, that might be dancing, that might be filling that space, that five closest people to you. This could be even virtually with people who remind you of how capable you are to change. And so today you are doing this for a whole different guild of human beings. You're working with the Philadelphia 76ers basketball team.

DR. SARA GOTTFRIED: Yes.

SHAWN STEVENSON: Which is crazy amazing. And they have this huge competitive advantage now having you. And so, my question is, I want to ask you about this, is you are now exposed to a different level of human performance. So, what have you learned from this situation and what are you doing working with these players that's helping to take them to another level?

DR. SARA GOTTFRIED: So, appreciate that question Shawn. And the players that I have the honor and privilege to care for, have been my favorite clients of all time. And not just because of their physical majesty, of which they have in abundance, but because these players that I work with have a way of being in the world where there to serve and they really take that mission very seriously.

And there's something about maybe, we've got LeBron playing until his late 30s. He's still going strong. There's a limit, an upper limit on how long people do well in the NBA. And so, I think that creates deep presence with these players. I so appreciate that. I mean, I most of 'em are calling me from their cars when they're driving home from the practice facility. And so, they've got their car and they're talking to me as they're driving, but there's still this deep presence and there's this desire to have no ceiling on their performance, no ceiling.

SHAWN STEVENSON: Yeah.

DR. SARA GOTTFRIED: And that's what I hear from them. Like Dr. G, that's my basketball name, Dr. G. Dr. G, help me, help me be the best player I possibly can. Help me be the best brother on that court. Help me lift up the team because this is unselfish basketball. And so, I've learned a lot of things about how the cortisol load that these players have where they're playing so hard for two to three hours a day, especially during the season and especially during playoffs. They're going so hard that they've got increased intestinal permeability. Many of them have leaky gut, some of them have metabolic dysfunction 'cause they've got family history of

diabetes. And if they're not matching their fuel to their genetics, if the environmental gene interaction isn't working to their advantage, some of them have pre-diabetes.

And you might say, well if they're playing 40 minutes night, it doesn't really matter if their glucose is high. No, actually it does. So high glucose is associated with oxidative stress. It can damage those blood vessels. A player may not see it when they're 32, but you can bet that they do when they're in their 50s and their 60s and they start to get diagnosed with high blood pressure and maybe their brain is not quite what it used to be. So, one of my jobs is to really look at that gene environment interaction. So, I do genetics and even though genetics don't, it's not... It doesn't predict everything.

It's not diagnostic, it can tell us about 40% of performance, capacity, injury risk, and recovery. So that's really critical. 40% in terms of looking at an NBA team. And then we do biomarker testing. We look at 1000s of biomarkers related to inflammation. And I can tell when a player went to Chick-fil-A.

And I'm going to call 'em out on it. So, we've gotten these players to the point where they each have a customized smoothie that they make each morning. I ask each one of them to drink water with electrolytes when they first wake up. And then to make a smoothie that's really designed to address their detox pathways or their oxidative stress pathways or their methylation pathways. We're filling those micronutrient gaps that we find on nutrition testing.

We're healing the leaky gut 'cause that's just kind of the nature of the level at which they play. And then also doing everything I can to support them psycho spiritually. 'Cause they're under a lot of stress. Some of these players are straight out of the draft. I had one player who was 21 when we first started working together, and he posted this publicly, but I loved it. After our first couple of sessions, I said to him, what'd you do this morning? What's your morning routine? He said.

I got up, I meditated. I called my mom, and then I made the smoothie. You told me to drink, and that just felt like, it doesn't get any better, Shawn.

SHAWN STEVENSON: Yeah.

DR. SARA GOTTFRIED: It doesn't get any better. It's beautiful.

SHAWN STEVENSON: Yeah. Oh man, you tend to rub off on people.

DR. SARA GOTTFRIED: Well, they're magnificent to start with and.

SHAWN STEVENSON: Yeah. And so are you.

DR. SARA GOTTFRIED: So much fun.

SHAWN STEVENSON: Listen, there's so much more in store for us, and I can't wait to have you back on again. As you mentioned earlier, you're working on a new project, you're working on a new book, so we're going to keep an eye out for that. And of course, welcome you back here to share with everybody. And for now, can you let people know where they can follow you, where they can get more information and just be more in your universe?

DR. SARA GOTTFRIED: The best way is Instagram, so I love hanging out on Instagram. So that's at Sara Gottfried MD. And then my website is the same, so saragottfriedmd.com. So those are the two places I would say, in terms of interaction. It's really Instagram.

SHAWN STEVENSON: Awesome. Listen again, fun fact for everybody. You are one of the first people. You really changed my thinking when it comes to understanding hormones and whole-body impacts, and this was again, about a decade ago. And so, I just appreciate you so much for being a light and being a great teacher and being somebody who's been testing and crafting things and staying on top of the data and being able to package things up to share with us. And also, your audacity to stretch yourself as well. Because I know a lot of this stuff can be uncomfortable when we are pushing the boundaries of things. And so, thank you for being a pioneer, really in this field. We need you.

DR. SARA GOTTFRIED: Oh, Shawn, thank you so much. I mean, it's been so delightful to develop our friendship and to support each other over the years, and it's just the deepest honor to still be in conversation with you and to have it deep in and grow with time.

SHAWN STEVENSON: Yeah.

DR. SARA GOTTFRIED: Thank you.

SHAWN STEVENSON: Oh my gosh, the honor's all mine. Truly thank you for coming by and hanging out with us, Dr. Sara Gottfried, everybody, thank you so very much for tuning into this episode. I hope you got a lot of value out of this. Dr. Sara Gottfried, truly one of my favorite teachers in this space. Highly recommend following her and staying up to date with her work. She's always sharing incredible insights on her Instagram page, so definitely go and follow her there. We've got some more masterclasses, world-class guests that are going to blow your mind, 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 themodelhealthshow.com. That's where you can find all of the show notes. You can find transcriptions, videos for each episode. And if you've got a comment, you can leave me a comment there as well. And please make sure to head over to iTunes and leave us a rating to let everybody know that the show is awesome, and I appreciate that so much and take care. I promise, to keep giving you more powerful, empowering, great content to help you transform your life. Thanks for tuning in.