THE MODEL HEALTH SHOW

EPISODE 475

The Shocking Connection Between Covid, Sedentary Behavior, & Obesity

With Guest Mike Muzel

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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 in with me today. This episode is powerful. We're going to be talking about some of the latest science regarding COVID-19 and its connection to activity and movement, sedentary behavior, exercise, obesity and more. And what we can start to do about all of this. So again, this is some of the latest evidence, and also coming from one of the smartest people that I know. This individual is a powerhouse and such a wealth of information and insights.

So we're going to be addressing some of the things that a lot of folks have been inquiring about in relationship to things like vaccinations and just getting a little bit of insight there. It's a very touchy subject, which is crazy because it shouldn't be a touchy subject. We should be able to discuss these things openly and honestly and really analyze the data, have healthy constructive conversations. That's what science really is, is being able to analyze data, have conversations. But, unfortunately today, of course, it is becoming very... This tunnel vision phenomenon... A very vanilla one-size-fits-all approach to everything. And even with the context of medication, drugs and vaccinations, things like that, it's just one size-fits-all. And every single person is different. Every single person's immune system is radically different from the next person. Every single person's metabolism is radically different from the next person. These are the things that are left out of the conversation.

So we're talking about with effectiveness, we're talking about potential side effects, we're talking about... The list goes on and on and on. These are the things that are not often looked at, and we're going to really help to open up this conversation a little bit. And it's such a... Again, much bigger topic, but most importantly, we're looking at the things that are most important. What does the data show? What are the most important dynamics of this issue that aren't being covered? As a matter of fact, not only that they're not being covered, but where the solutions really reside. So again, very, very excited about this episode. And, of course, our nutrition is a big part of this conversation. Our sleep quality is a big part of this conversation.

There hasn't been a sleep mandate, but we do know, and this is according to data published in the Journal of Psychoneuroendocrinology, that sleep deprivation directly reduces the production and performance of our natural killer cells, our NK cells, one of our most dynamic immune system weapons. And our natural killer cells are so effective that very early on in this experience with SARS-CoV-2... And this is back in April, the FDA was fast-tracking a drug to target our natural killer cells, because they were found to be so effective... Our NK cells, at killing SARS-CoV-2 infected cells. This is why children tend to have a much higher resilience, for example, is their very robust production and mobilization of natural killer cells.

We suppress it when we're sleep-deprived. Now, there's this term coronasomnia. It's one of the ramifications, one of the fall-out issues, where we already have a society that's sleep-deprived, 115 million Americans are regularly sleep-deprived. The data exists, and then you throw this on top of it where suddenly we're living Groundhog's day over and over and over again. And our regulation of our sleep consistency has just kind of gone out the window. But these are all issues that we can change, we can work on, we can improve. And the exciting thing is... Of course, there's a lifestyle parameter, there's an education parameter, but of course there are things we can do with our nutrition.

For me, last night included... I just had my favorite thing before bed, which is reishi. And it's because, published in, The Journal of Pharmacology, Biochemistry and Behavior, this renowned medicinal mushroom is able to significantly decrease sleep latency, meaning you fall asleep faster. It's proven to increase your overall sleeping time and increase non-REM deep sleep and REM sleep. That's pretty remarkable. And this is published in a journal that's focused on pharmacology.

But reishi... The thing is, when we talk about these kind of journals, these things have to be so effective that it shines even a little bit brighter than the pharmacological model. And so, reishi's been utilized for thousands of years. One of the top things in Chinese medicine, for example. And it's well noted for many different aspects, not just with sleep, but also our immune performance, our immune cell performance. A study published in Mediators of Information found that polysaccharides in reishi were found to directly enhance the proliferation of our T-cells and B-cells. I can go on and on. It's pretty remarkable, something super simple to add in. But the key is making sure that it's a dual extraction of the reishi. This is what you're not getting if you're going to Company X or these random reishi products. Four Sigmatic does a dual extraction. They do it the right way. And it's a simple, easy little tea packet, basically. You have your reishi elixir a little bit before bed. I usually have it maybe 30-45 minutes, maybe an hour before bed, part of the night time, wind down, relax practice. And you can have it maybe with a little bit of some healthy fat, maybe a little bit of MCT oil, maybe a little bit of some kind of low-glycemic sweetener.

Dress it up however you like. Some people just do their reishi straight, they do that straight-shooter. But this is one of the things that's very beneficial for our sleep quality, but also our immune system directly. And also, with our immune system being regulated and modulated by kind of an epi-controller of our immune system, is our sleep quality. It's hitting on both those notes. So check them out right now. It's foursigmatic.com/model. That's F-O-U-R-S-I-G-M-A-T-I-C.com/model. You get 10% off their reishi and everything else that they carry. Also, depending on how many different of their incredible medicinal mushroom products you get,

you can get even bigger discounts. So pop over there, check them out. It's foursigmatic.com/model. Now, let's get to the Apple Podcast review of the week.

ITUNES REVIEW: Another five star review titled, “So Good” by 555701. "Wish I had started listening sooner. One of the best shows out there. Even as a functional nutrition counselor, I still find I'm learning new valuable information from the show that I'm always excited to share with my clients."

SHAWN STEVENSON: That's just amazing. Thank you so much for leaving me that review over on Apple Podcast. I truly, truly appreciate it. And listen, if you're yet to do so, please pop over to Apple Podcast and leave a review for The Model Health Show. And on that note, let's get to our special guest and topic of the day. Our guest today is Mike Mutzel, and he's the founder of High Intensity Health. And he received his master's degree in Clinical Nutrition and bachelor's in Biology, and he's one of the foremost experts in functional medicine. He's also a best-selling author. And High Intensity Health is an incredible podcast and YouTube experience. And he's just one of the smartest people doing incredible work, and very, very excited about this conversation. So let's jump into this incredible, powerful discussion with the one and only Mike Mutzel. Thank you so much for hanging out with me, man.

MIKE MUZEL: My pleasure, thanks for inviting me. It's great to connect with you.

SHAWN STEVENSON: It's truly a long time coming. You've been somebody who I've really just admired so much for the data that you've been putting out and really bringing to light one of the most overlooked issues with all of this stuff we've all been experiencing for the past year plus now.

MIKE MUZEL: It's crazy.

SHAWN STEVENSON: And it's really addressing our underlying susceptibility is a big part of that. So can you talk a little bit about that? What are some of the things that you've really seen come to light that has made us as a culture so susceptible to this big issue that we're facing?

MIKE MUZEL: Yeah, well, first of all... Again, thanks for having me here Shawn. I was telling my mom earlier... Just a small side story. That you and I think on the same... And this is our first time meeting in person, but man, we think alike. And so it's great to connect with you on these topics because a lot of people are so stuck into what they hear on TV. Everyone is equally susceptible. Everyone needs to stay home. The only path forward is... Even this morning, I think new lockdowns are being talked about in early... Mid-April here. So... When this whole thing... Just a quick back story when it first started, the first 20 fatalities were just down the road from my house at this nursing home in Kirkland, Washington.

So I was really interested in like, "Okay, well... " ‘Cause I'd heard about Corona... December of 2019, we all were hearing about it. But the media wasn't really talking about it. And it was one of these things like, "Hey, if this comes over here and becomes a problem I care about... " I have a young daughter. I want to know how bad is this. I have... My parents are in their 70s. Anyway, I started to dive into the literature, and even back then, data from Wuhan and Italy showed that the super majority of hospitalizations and all that were in elderly people or people that had chronic non-communicable diseases, like high blood pressure, diabetes, obesity.

And I thought, "Hmmm, that's interesting." 'Cause I'm not hearing about that on the media. And so yeah, it just... And here we are over a year later. And that consistently comes up. And so when you and I started talking about this, we were conspiracy theorists, we were science deniers. But the science has really elucidated some of this data. Just the other day... I think it was Tuesday of this week, British Medical Journal, looked at 48,000 individuals in Southern California here from Kaiser, and found that people that exercise, they have a less... I'm sorry... People that don't exercise compared to people that do regularly exercise leading up in the six-month window prior to the outbreak. So this was in 2019, have a 2.7 or 2.9 times less likelihood of dying from COVID-19. I feel like that should be the message. How many more masks and how much more hands sanitizer, can we put on?

So to answer your question with that sort of back story, it just... What we have, and you talk about this in your book and have talked about this a lot, is chronic low-grade inflammation. Just is sort of like bandwidth, our immune system... That renders our immune system less responsive to deal with acute insults. Whether that acute insult is a laceration, or a trauma, or a burn, studies over the years have shown that overweight people, they don't recover from surgical procedures as well. If they need an orthopedic hip replacement or knee replacement.

If they get an infection, whether it's influenza or SARS-CoV-2, they just don't do as well, because their immune system... There's... We can dive into the nuances, I know you want to get there. The innate and adaptive immune systems so... Are sort of automatic. There's no memory in our innate immune system. It's just like it sees pathogens, antigen, it goes. There's this communication... The innate immune system needs to tell your memory side of your immune system, the adaptive immunity, that there's a problem, there's the virus, you need to ramp up antibody production or T-Cell immunity. That communication becomes... And just like if we have too many programs open on our computer, our computer starts to run sluggish.

So if people hitting on McDonalds, if they're going to Dunkin' Donuts in the morning. If they're chronically... Have this smoldering low-grade inflammation, there's this aberration in their immune system's ability to mount an appropriate response. And I think ultimately that's part of the problem, and then you see this viral load, and the endothelial dysfunction that you

talked about with William Lee and other people, is... That the pre-existing cardio metabolic risk factors. A lot of people have thick hyper-coagulable blood. And so then you add on this insult and it's just the straw that breaks the camel's back.

So yeah... You and I have been sharing this message. People think it's controversial, but if we want to sustainably get out of this... 'Cause all of these solutions ultimately right now, for the most part, are unsustainable. We get booster shots. More vaccines... I'm not anti-vaccine. But it's like, we have 330 million people... To manufacture that many doses and then new doses under a good quality control, just... That's a logistical hurdle. We have kids that are out of school, they're on Zoom, they're getting more over-weight. They're learning bad habits. They're spending time on screens. These things have unintended harms. And so my message and your message had just been like, "Hey, look... " Just like we look at health and nutrition, let's look at the root cause of what's making people sick and what can we do to sustainably make them more resilient.

SHAWN STEVENSON: Yeah, I love that so much. And so one of the things that you just kind of paired together, there's even a dramatic decrease in effectiveness of even vaccines when we are in a state of obesity. Is that right?

MIKE MUZEL: I mean, studies have shown this way over the years. And... Now when you say that though, people get triggered because they think you're anti-vaxx and want their grandma to die. And that's not the case. We want people... So I don't know if it's worth talking about, but for example, I did anabolic steroids in my 20s. Preparing for that, I was like, eating real food, not drinking, not partying, 'cause I wanted to get the most... Like if I'm going to stick something in my body, I want to get the most out of it. And what I see people doing is they're unaware of the fact that if you give a vaccine to two different people, one who lives a healthy life and one who lives in unhealthy life, the responsiveness is going to be so much better.

And that person who lives a healthy life and exercise is going to get so much more immunologic protection from that. Because... We can talk about the different mechanisms by which these vaccines work with, whether it's micro-mRNA or these adenovirus vectors or whatever, ultimately it's your own immune system that is creating that protection. You're not just getting a surrogate immune system. Your immune system needs to recognize... This mRNA or adenovirus and mount an adaptive immune response.

And if you have this chronic smoldering inflammation, like we were talking about, from eating processed food, that's not going to going to occur. So people might feel that I'm so protected because I'm getting this shot, whereas they might have maybe one month of protection or insufficient antibody production in the post-vaccine window. So the reason why I brought up that story about the steroids is a lot of people that... We just need to realize like... I wish more

people would get behind the healthy living concept if they're also going to get the vaccine because they're going to be most protected from that. So to your point, multiple studies over the years with tetanus shots with hepatitis B vaccinations, with even seasonal influenza...

Now, here's the cool part about it, because a lot of naysayers will say, "Well, we don't have time to get people so healthy." Even just four weeks of healthy lifestyle change makes the influenza shot independent of any weight loss. Even if people don't lose a pound. They get the flu shot, or they do some lifestyle change before getting the flu shot, their post-flu vaccine antibody levels are significantly higher. This was... I'm sure everyone has been to the hospital and seen overweight nurses and things like that. In the hospital setting, there are some unhealthy people just 'cause the stress and lifestyle and so forth. And so they want those people to be protected, and there was a cohort of... In this one study of 60 women. They got the flu vaccine, scientists looked after and they didn't have protection from an antibody standpoint. So they had them do some lifestyle change and then measured it and it was significantly protective. So... Now, that message is not... I've never heard anyone that's promoting vaccines say, "You should also not hit up the Krispy Kreme offer." And that I think is... The science is there.

SHAWN STEVENSON: It's negligent. Really.

MIKE MUZEL: It is.

SHAWN STEVENSON: It's negligent. It's just... Again... But this is the thing that I think that we can easily miss is that this is normal for this system of medicine, which is we're still trying to treat a symptom and not address the underlying cause. We're trying to treat a symptom and not actually do the thing that is most effective, which is again, coupled with the advice to wear a mask, you can also say, make sure to get in your 30-minute walk today. Or coupled with all of the insane push to get vaccinated. I've never seen anything like this, remotely close. You can't even open up an app on your phone, and these companies are just like... But the thing is, again, you just mentioned the effectiveness is so much lower. Like we know this stuff. Study after study after study, if you're not getting yourself healthier... It could be, "Hey, get this thing, but you also need to get yourself a little bit healthier as well." We can package the messages together at least. But this part is left out; the get healthy portion, because it's always been left out.

MIKE MUZEL: Right. You bring up a great point, and that's what this whole pandemic has sort of exposed is the inadequacies and the un-sustainability of how we view medicine through the acute care model and not looking at the unintended harm of our interventions. Whether it's the treatments... If you look at ventilators, right? It was like 89% of people that went on a ventilator ended up dying. And the unintended harm with microbiome issues and hand sanitizer and stuff like that. So yeah it's... We need to... And this is something that Barack

Obama... If you look at the Affordable Care Act and some of that, precision medicine was a facet of that. And looking at people's individual biochemistry and genetics.

You and I have different genetics. Women are different than men and stratifying based upon risk, age, genetics, but now it's like this one-size-fits-all, everyone needs to wear a mask. Well, I've been exposed to SARS-CoV-2. I just re-tested my antibodies on Monday of this week, I still have higher levels than most people in the vaccination studies to the spike protein in terms of antibodies and antibodies to this nucleocapsid which is another structural element of the SARS-CoV-2. So it's like, why should I be wearing a face mask? If you've been exposed, why would you need to wear a face mask? Or if you've been vaccinated. So the nuances get lost in... I think that's a shortcoming of our public health communication lately.

SHAWN STEVENSON: That's called science. And that's the thing too, is that... So again, you got the VID, you got some of that fresh Seattle strain of the VID. And you... Can you share a little bit of your experience and then also just to lean into that a little bit more, because there's something that you said earlier, and I don't want to move past is... You mentioned one of the studies with effectiveness... Vaccine effectiveness in the hospital setting. And this is what we do. I'm actually going and just looking at the data and understanding it from the perspective of logic and science, and also working as a clinician for many years. And seeing the CDC's report. The biggest population of folks in any vocation, hospitalized from SARS-CoV-2 is hospital workers. Which is just like, "Well, of course, they're on the front line." But what is missed in the study is 90% of them had at least one pre-existing chronic disease.

MIKE MUZEL: Wow.

SHAWN STEVENSON: About 75% of healthcare workers hospitalized, were obese. Not overweight, obese. So there's this underlying susceptibility, it's clear and it's not getting addressed. And so we see far worse symptoms... This obvious. Far worse symptoms, whether you get an infection, and also far less effectiveness if we're talking about a vaccine, if you're not healthy as well. So again, the health component is still missing. So yeah, you got the Seattle VID and you shared... This is what I love about your work, man. Is that you share the data, you share the experience, but then you continue to reframe it and look at what can be done here.

MIKE MUZEL: Right, yeah. That was kind of the message going into it. And I wasn't trying to actually get exposed to this, but I also didn't want to put my life on hold anymore. Like I did the stay at home, stay safe for two weeks and everything, and then I realized like "Okay, we... “This was the initial goal going into this. And then I started hanging out with friends like everyone else, because social connections are a facet of health. If you strip that away, you exacerbate dementia and mood changes and everything.

So I went to a dinner party with some friends after Thanksgiving, and one of... We don't know who gave it to us. But I was supposed to film with my video guy, this was on a Saturday night, then I started to feel kind of weird on Wednesday. And so I just called him, and, "I said, Sam, I think I'm coming down with something. Maybe we shouldn't film just to be safe." 'Cause I know that his significant other is really worried about Coronavirus. Anyway, so I just thought I had a common cold. But to beat the common cold, I had tools. And we can talk about vitamin D. So I started to crank up my vitamin D, and my vitamin A.

I wore a face mask if I went in... My employees and everything like that, I said, "Hey look, I have a cold. I doubt it's the big cold, but just let's do distancing and masking and everything like that." Went in my infrared sauna three times a day, and the next day, I was totally fine. Right. So I thought, there's no way this is actually COVID. And then a week and a half later, I started to lose my sense of smell. And then my wife lost her sense of smell and we were like, "That's weird."

And then I called my buddy who we had dinner with, and they're like, "Oh yeah, we lost our sense of smell too." So then I got my antibodies tested. And they had a lot of upper respiratory stuff. Some of them are older than me, but some of the folks we were with don't exercise. So this was the interesting thing, even just in a cohort of six people, the folks that don't exercise regularly, didn't have the sauna... And again, this is... And of six, had worse symptoms than I did, which was kind of interesting. But there's a lot to sort of unpack there. But one thing that I think is sort of fascinating that a lot of people don't talk about is this loss of sense of smell and sort of a indicator of maybe mild cognitive impairment or pre-dementia.

Because there is some data showing that if you have Alzheimer's or memory loss, this olfactory, bulb and nerve tends to atrophy faster. And so I thought that was kind of interesting because some of the unhealthy people that I know that don't regularly exercise, what I mean, they still haven't regained their loss of sense of smell and months later. Like six or seven months. And so I started to wonder if maybe that that was like a symptom that, "Hey, your brain might be inflamed." Like you might be at higher risk later in life of developing mild cognitive impairment or dementia.

But anyway, so there's cool technology. I think a lot of people should test for antibodies. And there's now a T-cell memory... So it's hard... When you go to lab for request, you can get IgG to now the nucleocapsid and the spike protein. But there's this new T-cell test. And I'll put it... Give it to you so you can put it in the show notes where we can see if we have memory from our T-cells, which is great because then... 'Cause the antibody immunity tends to go away if you're not re-exposed. But the T-Cell immunity can last up to 18 years, at least, studies from 2003 have figured out. So to me, I think that's exciting. But again, this immunologic memory may be contingent upon your health going into it. So that's why it's like we got... We must double down

now on this healthy living concept, especially to get herd immunity from vaccines or prior exposure.

SHAWN STEVENSON: Yeah, yeah. Okay, so you heard the same things early on... Which was, again... I saw the data immediately coming out of Italy. I was watching press conferences, which was dubbed... I don't speak that much Italian.

MIKE MUZEL: Italian.

SHAWN STEVENSON: But ciao, everybody.

MIKE MUZEL: Yeah, Yeah.

SHAWN STEVENSON: But I was just like, "Okay, we're in trouble here... " Especially if this lands in the US in a big way, because of the susceptibility. And they were looking at somewhere in the ballpark was 88% of folks hospitalized... Actually no... Who lost their lives with COVID on the death certificate had one or more pre-existing chronic diseases. About 50% had two or more. And it's just like here in the United States, we are the sickest nation in the world as far as obesity, heart disease, diabetes. The list goes on and on. And initially, of course, there was this, "Well, we can't get people... Shawn, you're right." But we can't get people healthier overnight. Some of my colleagues...

And number one, of course, it's just like, first of all, that's not true. Second of all, we're doing that thing again where we are neglecting the most important thing. We're giving an excuse. And so I started to literally share data on, okay, this randomized controlled trial looking at just one night of sleep deprivation, for example, dramatically suppressing your immune function. Here's five things that are clinically proven to improve your natural killer cell mobility... Production and mobility. Just these five things. Going for a walk, what I mentioned earlier.

And that was Appalachian State University, just a 20-minute walk, it boosts your immune parameters. So there's all these things that can be done. But... And I was still like, "Okay, this is a tense battle here." But now we're over a year later, and the conversation still hasn't shifted. That whole can't get people healthy overnight thing that has... It's worn away. The only way that this is going to happen is if folks like you and I and everybody listening, really take it upon ourselves to number one, be the model. Take care of ourselves, our families, but also encourage this, speak up, talk to other people, share the data. And so that's what I want to ask you about now is... And one more piece here, viral shedding. If we're looking at when we're in a state of being overweight or obese... Can you talk a little bit about that dynamic?

MIKE MUZEL: Yeah. I mean, all that stuff, I agree with you 100% on everything that you mentioned there. But... There's no time for excuses. We've had time. And the sad part about that, before we get into viral shedding is the people that were overweight or obese going into it, studies have now shown that they're more over-weight and obese. So it disproportionately affected the very people that are most vulnerable. The very people who will get the least likely benefit from the vaccine. So that to me is kind of scary, but it goes to the other side 'cause I know you wanted to talk about glycemic variability.

So just real quick, there's now... And I'm sure you've worn one or know of them, the continuous glucose monitors. We now have data... People that were those during lockdown and quarantine, their blood sugar control dramatically worsened. So not only have we created this unsustainable mitigation strategy that we cannot continue to do because we can't make people unemployed and all that forever, but we've made the people that were vulnerable more vulnerable. And so that's what worries me is seeing right now, as we record this, Michigan, the Northeast are blowing up and they had 30% or more people have had at least one dose of the vaccine.

So I'm starting to wonder if we are seeing sort of the real time, side effects of our interventions. And that's why we need to double down on this message and keep spreading this word. So everyone listening, share this message because it needs to be heard. But... Yeah, the idea that we're all super spreaders was kind of interesting to me and that we are asymptomatic and carriers and everything like that was interesting. So I think it kind of goes back to this concept where we were talking about the innate immune system and the adaptive immune system.

And so when we say cut our finger or get exposed to a virus, what should happen is our innate immune system should mount the response and then slowly over time, the adaptive immune system should come in. But in people that are overweight or pre-diabetic, that communication is lost. So the virus tends to sort of replicate without any restrictions because there's dysfunction there because of chronic inflammation and poor diet and glycemic variability. And so not only that, but this receptor that the virus utilizes to enter into our cells. People have heard about this, the ACE2 receptor, it's not only found sort of in the lung tissue, in the cardiovascular system, it's found on fat cells or adipocytes.

So the more body fat you have, the more sort of repositories you have to enable this virus to get into your tissues. And so you have these overweight people who are... The viral load is a key problem. You and I are healthy. If you give us enough viral load we can overwhelm our immune system and probably die. Whereas if we just caught this naturally, we'd probably be just fine. So viral load is an aspect that sort of facilitates the trajectory of disease.

And so, yeah, the data shows, and more and more research... And this was actually from April of last year, one of the first papers in the Journal of Circulation showed that obese people not only have a higher viral load, they carry more virus and they shed more virus too. So you're like, "Who are the people that should be masking all the time?" And I don't want to pick on overweight people, 'cause there's a lot of external circumstances that cause that. But yeah, it's like if you're a lean person had a mild course of illness do you need to quarantine for 21 days or whatever? Probably it should be a lot shorter because your viral load was less. So to me, that's even more of a message to double down on this healthy living concept.

SHAWN STEVENSON: Yeah. And that's so powerful. So you already mentioned a couple of states that have a pretty high rate of vaccinations, at least the first round of a particular vaccine, and yet they're seeing cases rise. Paradoxically. And the funny thing is about situations like that, health officials are very good at mansplaining or explaining themselves out of that and not actually being rational about it. One of the big things that is pretty obvious, but overlooked is the fact that we're talking about more Northern areas for one. So if we're talking about the Northeast or even Michigan, for example. And this is so glaringly obvious. There's at least 15 studies looking at the connection between vitamin D deficiency and severe COVID infections. So let's talk a little bit about that. How does that play into this? Because you mentioned vitamin D... Actually, this is one of the things you jumped right on. Is that... I don't think it's a coincidence.

MIKE MUZEL: I don't either. Yeah, I'm with you 100%. If I were to put myself in their shoes, they just are not trained in that area, so they don't really know. And they might look at other states and say, "Well, Seattle, Washington is almost as north as Michigan," so... What's going on there? But clearly, the data with regards to vitamin D, and its independent association with outcomes is non-debatable at this point. Multiple studies all throughout the world have shown this. And this has been known, Shawn. And I know your listeners and you talk about this. This has been known in various other immune-related diseases from multiple sclerosis. There's a linear increase in disease severity as you go further North.

Influenza outbreaks usually don't happen in the summer months because of heat and vitamin D and all that. So yeah, the data is pretty unequivocal at this point. And people might wonder, "Well, how is it... “Because when you hear about a vitamin, people are like, "Oh, those are at the health food store it doesn't really matter." But if you actually look at the structural features of vitamin D, it looks more like a steroid hormone. And we have this endogenous Vitamin D receptor. So... There's not... Like if you take a folate or folic acid, there's not like this...

It does affect methylation, but what makes vitamin D unique is we have this own endogenous receptor that's found on a lot of various immune cells, your T-lymphocytes, your macrophages and so forth. And it's intimately involved with immunologic response metabolism. There's

data... The number one risk factor... Depending on the study you look at is hypertension and high blood pressure... You have age, obesity, hypertension, kind of fall right in there, then diabetes and all that. And we know that vitamin D affects this Renin-Angiotensin-Aldosterone System, the RAS system that is regulating our blood pressure. So it's not just like one mechanism.

I know you talk a lot about the microbiome and the importance of that. Several studies now have shown that when you take vitamin D, you improve diversity and stability of your microbiome. So this is one of these nutrients that obviously we should be getting from the sun and that the darker your skin is, you should be taking more. And this is where we stratify risk a little bit... Maybe it's not a one-size-fits-all. Like the RDA says, "Oh, 400 IUs per day." You're like... It depends on where you live and how much sun you get and everything.

And what's interesting about this, it's way easier to make 300 million doses of vitamin D, than it is to make... Vaccinations needed to be refrigerated at like negative 70 degrees. You know what I mean? Like we could be doling this out and it's not going to... The risk of harm or downside, there is virtually none. You can overdo it and absorb too much calcium, there's been cases of that. But I started selling vitamin D in 2006, and I worked with a medical doctor, Gerald Guillory who is big... He's a internal medicine guy. He started giving it to his patients. And we started to notice some really interesting changes. And just a small side story, we did this small study about 40 firemen, 'cause he was the medical director for this fire department. We randomized people to get placebo or vitamin D.

Just 4000 IUs, which is not much. And we have these subjective quality of life scores going into it. And then it was eight weeks after. Anyway, about 20 of these folks went on this cruise ship and a Listeria outbreak happened... That can happen on cruises or hotels. And every single person in the placebo group, they got really sick and they couldn't enjoy the cruise. Every person... So it was like a group of firemen... They're hanging out and everything. Everyone in the vitamin D group, they all started talking and they're like, "How come we're the only people that didn't get sick out of this... We're all rooming together, drinking, eating the same foods." And that... When we did, that was in 2008. So it's always just...

I like to share that story because this is not new. And we think because... Well, the SARS-CoV-2, it's a new virus, so let's forget everything we know because it's somehow new. It's like no immunology and infectious disease principles still apply, even though maybe humans have not yet been exposed to this. So I think that's part of the problem with people is they can't realize that we still need to apply these principles, but... Yeah, I'm a huge fan of Vitamin D, man.

SHAWN STEVENSON: Yeah. And you mentioned it too. It's the sunlight first is like... That's how we evolved. And sunlight, funny enough, it's like the most powerful natural virucide that exists,

but now Billy G's trying to black out the sun. You know, block it out a little bit, which is these things sound like a cartoon villain. Like, "Okay, I'm going to block out the sun." True story, we'll put a clip in here for you guys to see these.

Bill Gates is backing the first high altitude experiment of one radical climate change solution creating a massive chemical cloud that could cool the earth. It's called solar geoengineering. And it's highly controversial. It would look something like this. Thousands of planes would fly very high and use nozzles to inject millions of tons of light reflecting particles into the stratosphere. It would create a thin chemical cloud of those particles around the whole planet blocking some sunlight from reaching the surface. It would mimic a giant volcanic eruption which we know cools the earth.

SHAWN STEVENSON: This is the new agenda, is to basically... And a means to protect us from the sun, to dim it's access to us. And then the immediate question is, what does that do to our ability to make Vitamin D?

MIKE MUZEL: Or grow food or whatever...

SHAWN STEVENSON: Right.

MIKE MUZEL: Yeah. What are the... Dude, that's a major... You're throwing a cog into an interconnected wheel, like "What's the unintended harm of that?" That is insane.

SHAWN STEVENSON: How does it affect insects? And how does it affect... A whole ecological cycle... Like the list goes on and on, but these folks like gung-ho. Like, "Oh no, this will totally work." To reduce global warming. So yeah... But this is the thing too, is that a lot of these folks who are making decisions that have the leverage to do these things don't really understand science nor are they often healthy themselves. And this gets into a conversation of personal choice versus conditions. And you mentioned this earlier, and I really love that you mentioned this because for a lot of folks... I come from a situation where we'll just say I have 30 family members and 28 are obese. Just growing up in these conditions, so, I know what that is, I know what that's like.

And I've never met one person in all my years of work, my clinical practice, my life that didn't want to be healthy. Oftentimes, there are these barriers, these psychological barriers. Part of it is learned helplessness, part of it is access, part of it is this belief that it's too hard or too complicated. It's not for me. But people want to be healthy, and you mentioned some folks are just like... The access there to... For example, get vitamin D or get whatever the case that is, access to healthy food. It's not always as simple. But... This is the thing that I want to talk to you about. 2019, four trillion dollar spend in our health care system, four trillion.

And then there was this really interesting study, it was like one trillion of dollars was effectively wasted And we have enough. We have enough. And we talk about this money invested, for example, with the vaccine it's free. It's not free, we're paying for it. So we of course, need to have not just for ourselves, but initiatives and demand for making health accessible because truly everybody wants to be healthy. It's just lacking education. Lacking access.

But the thing that I want to ask you about was... And I know it's... We've been touching on a little bit throughout, and I know a lot of folks have repeatedly asked about this. But... And it's such a hot button topic, unfortunately, where you can't today... Which automatically should put a red flag up for you if you can't openly discuss it, this vaccination. And so I wanted you to talk about this. You're one of the smartest people that I know in. One of the smartest people who are really looking at the data. So let's talk about this mRNA protocol and also what the other option might be.

MIKE MUZEL: But, it's a great question, Shawn. And I didn't know that over a trillion dollars, was just wasted and... It's crazy, man. Yeah, so again, I want to come at this from, I'm not anti-vaccine at all. Like you mentioned, I have obese people in my life that don't exercise, that don't do anything for themselves, whether it's knowledge, awareness, whatever... Motivation. They are the people that probably should take the vaccine but I'll share with you which one I think has the least unintended harm. So there's three different kind of delivery systems that are available right now... Well, we just heard that Johnson and Johnson this week was pulled. Maybe we can talk about that one. That one I'm least excited about, and I would not take that if it becomes mandatory or whatever. So what they're doing is they're taking a recombinant adenovirus. So it's just a standard sort of benign virus. They're engineering it so that it can't replicate, and they're inserting the spike protein DNA inside that adenovirus. So you get it injected to... Into your deltoid or...

SHAWN STEVENSON: And so they're using a virus to protect you from a virus.

MIKE MUZEL: Dude, it's crazy. But... It's funny that... Just a small side story. All the people that were like, "I'm only eating gluten-free foods. Avoid GMOs." They're taking a selfie with these sort of vaccines that they don't realize how much geo-engineering and genetics is going into this. But... Yeah, so this replication, defunct adenovirus gets into your own nucleus, which is where genomics and genetic expression happens. And it causes your own genes... Oh wait... It's giving you the genetic information to then make the spike protein. Which is the extracellular protein on the surface of the SARS-CoV-2 virus that enables it to get inside your cells. So to me, that seems like there's a lot of unknowns there. You're getting this virus... It's injecting DNA into your own cells. I don't like that idea.

And... So not a big fan of that. The other one that I actually, I don't think it's as bad. It's not yet available, it's in phase two, it's this Novavax which is this protein sub-unit technology. So essentially how vaccines work, some of these traditional vaccines is they'll give you an adjuvant to irritate your immune system. Like they tried to give it this to our children, hepatitis B when children are born, even though you get hepatitis from unprotected sex or IV drugs, but for some reason, the CDC wants children, newborns to get this. So in that vaccine is a bunch of aluminum to irritate your immune system, and then there will be this protein that's like hepatitis B antigen, so your immune system will remember that next time you're exposed. Well, this company... The drug is called Novavax, they're doing something similar where they've made this spike protein, recombinantly in a lab, and they have the saponin from a tree bark, so to me it seems that the cleanliness is probably the best out of all of them.

So you're getting this injected, you're agitating your dendritic cells and your antigen-presenting cells, you're giving them on a silver platter, this protein, subunit, the spike protein, and then your immune system is saying, "Hey, if we see that again, we will mount a response." So if that becomes available in the US, that would be the one that I think would probably... Like I said, I have immunity, not planning on getting the vaccine, but for folks that are elderly, for folks that have been smoking for 20 years, it might be a good idea. Now, the technology that's available right now, at least here that's been approved through this emergency use authorization is this micro RNA that's encapsulated in this polyethylene glycol nanoparticle, and we'll talk about that. So essentially, you're getting injected and you've talked about on the show epigenetics and you talk about it in your book, so I know listeners are familiar, but just in brief, you have genes that have DNA, they are transcribed into RNA, and then that is translated into the language of protein, and that's really the basics of genetics.

So you're getting this intermediary between protein and genes, this micro-RNA. And that micro-RNA is then, your own cells will make the spike protein. So people will say that it's transgenic and all that, that technology is not like genetic engineering because it... To me, because you're just getting this MRNA, messenger RNA that your ribosomes are making the spike protein, but there are short comings to this because if you or I naturally get exposed, there's non-structured proteins on the SARS-CoV-2 virus, there's a nucleocapsid, there's the envelope, and there's a spike protein. Our natural immune system is going to make memories towards all of these things. Now, what's going on throughout the world is there's lineages or variants that are saying, "I see what you're doing. Your spike protein antibodies are there, so we're going to figure out through mutations to get around that."

SHAWN STEVENSON: That's what viruses do.

MIKE MUZEL: It's what they do, man. So dude, and again, I haven't heard anyone talk about this, this is me, so I could be wrong, but I really think we're creating selective pressure to

further exacerbate these advantageous mutations where this virus will then have a better way to evade these spike protein antibodies in memory, because we don't have the redundancy, like I mentioned. I have nucleocapsid antibodies and they're actually quantitatively higher than the spike protein antibodies. So it's like we've sort of pharmacologically created this way to commercialize an immune response, but it has shortcomings 'cause it's not as robust and there's not redundancies. You got a question?

SHAWN STEVENSON: Yeah. No, I think it's just we have a lot of hubris to think that we can outsmart viruses, which are again... When you mentioned earlier, one of the technologies, bacteriophages, so viruses that affect bacteria, this has been used in treatments for quite some time, but at the end of the day viruses are really, we don't really even understand what they are. The top virologist in the world knows less than a fraction of a fraction of a fraction percent of all the viruses there are. It's the most dominant thing on planet Earth, there are more viruses than anything, and so they're... And credit, it's fascinating, but at the same time, the hubris to think that we can just do this thing, which is... The funny thing is, and this is what I want to ask you about, we're trying to implant a technology that makes ours cells believe that they are infected or make your cells to produce the spike protein, but is it the same as this virus? That should be the first question. "Oh, it's similar enough." Right. So why are they not using the virus itself?

MIKE MUZEL: That's a...

SHAWN STEVENSON: Riddle me that Batman.

MIKE MUZEL: Dude that would be the way... If you could somehow make SARS-CoV-2 just like they make the adenovirus vector replication defective, that would be the way to do it. But yet, why aren't they? I don't know. I mean, this is a really good question I have, I have... I don't know the answers to these man, but to me, it seems like it's short-sighted, and I worry about okay, if everyone's doing this and this virus figures out, "Okay, I see you spike protein... “We’re replicating so fast, we're going to make mistakes in our replication, we're going to mutate, we're going to figure out, so I worry what's going to happen like next winter. We may not see this in the summer, but because some people might be undergoing a viral infection, they might be exposed to SARS-CoV-2 then they get the vaccine, so it's already figuring out probably they see it and maybe it's killing some virus, but for others it's able to evade that and so the b117 variant is good at doing that, the other lineage, the b1.35 variant is also good at that.

And this is why health matters even more, because you need your innate immune system, this is the thing. So it's like the antibody response you and I get exposed to SARS-CoV-2, spike protein doesn't raise until day 14 of infection. We really need our natural course of immunity, and the way that we can make that more resilient is with healthy living, so that should be part

of the conversation, so... But just to finish off the micro or the MRNA versions, I think this again, to underscore healthy living. People that are unhealthy tend to have higher side effect issues with these vaccines, so if you have asthma or allergies or an autoimmune disease, some people do react to this nanoparticle sphere, the polyethylene glycol, PEG.

There's some data on it, I can give it to you for the show notes. But that in and of itself is immunogenic, people are making antibodies to that. So you have people that have multiple sclerosis and they have high risk factors and then you're giving them another thing to react to, so you do hear people getting side effects and it may not even be from that spike protein from the RNA, it could be from the polyethylene glycol. So again, healthy living should be equal in terms of its emphasis from our public health measures.

SHAWN STEVENSON: Yeah, it's just so important. So good man. Now, another thing that I just want to put on people's radar is the way that we would interact with the virus in a natural evolution of our response and adaption to it, is we have multiple facets of our body that are interacting with it. So we're tasting it, this is like your mouth and your nose are... There are immune cells there that are sampling it and getting to know it and communicating, and the same thing goes for your gastrointestinal tract, the list goes on and on. But now we're aggressively, very unnaturally, putting it in into your arm, for example, bypassing all the natural metrics of interaction. How many pieces of the conversation of your immune system are lost, and this is just a logical question, and also when you...

So I want people to think about that a little bit. And I also want to think about, I want folks to think about... You mentioned earlier that this isn't necessarily something that can go upstream and change your genes, for example. But if folks know anything about epigenetics, everything that we're exposed to is influencing our genetic expression, everything, everything and this is the top science, everything else filters down, but yet there's been this massive delay still in college textbooks changing and standard of care changing, but epigenetics is the leading science, which is, we are not just under this genetic control. If we've got the genes for fill in the blank, it's going to happen.

Whereas, we know that there are almost infinite combinations of genetic expressions, so we've collectively as humans, we've got what? 22,000 genes collectively, but tens of thousands of different combinations and expressions based on what we're exposed to. This is an epigenetic influencer, we don't know the long-term ramification. What could this mean for? This is the other part, and this is really the big thing and the place to be Captain Obvious is, we've never seen anything like this before. There's been such a ground swell of manufacturers demand that we've bypassed all the normal policies of safety and testing that usually take years upon years upon years upon years to make sure, to a degree that they're safe. But even with that, recalls

every year, thousands of drug recalls every year that were deemed to be safe after years of testing.

This is normal, that's how it is. And so now, to say that with certainty, we know what's going to happen, we don't know. Every person doing this, you are taking a substantial risk, you are taking a risk. Now it might be a calculated risk that you weigh yourself based on your perception of threat with this virus, but that gets back into the conversation of how susceptible are you really? Because even folks, we've talked about the susceptibility factors being chronic, pre-existing diseases, but even then, still a lot of folks don't have any symptoms who are obese, who do have hypertension or they don't have severe infections to the degree we see, and this term wasn't even used before, which is survival rate. We got to take out... Can you just talk a little bit about that?

MIKE MUZEL: I'm with you 100% on all this stuff, but let's first talk about the epigenetic thing. And I'm so glad you mentioned that because I've been thinking about that and I've been trying to have that conversation with people, and they're kind of like, either they don't understand epigenetics or they... So that is the thing that we don't really understand is like RNA, micro RNA causes epigenetic changes in addition to methylation groups on histones and all of these things, which are the intricacies of how our DNA is sort of compacted. So what epigenetic affects is these new proteins having or their delivery system having on genetic expression, short-term and long-term?

So these are huge unanswered questions, man, and the fact that people who... Like Portlandia type people who said like, "Well, I'll have the grass fed beef, but what was the cow's mom's name?" You're just willingly just going in head first with this, like you said. But the risk of... Your chances of dying, especially if you're under 65, is infinitesimally small. Now, of course, that increases with risk factors and so forth, but even the study that I was telling you with Kaiser Permanente with exercise, 48,000 subjects were tracked, the chances of hospitalization, and that was a wide cohort of people, was only 8%. The media has made it out to be because they focus on the number of deaths. If we telescoped in on the number of deaths from suicide, number of deaths of heart disease, 3.7 times more people died in 2020 from cancer and heart disease combined yet we're doling out foods and chemicals that directly create heart disease and cancer every single day and people eat the stuff with their own volition.

So yeah, this idea of survivability and all that, it's really interesting to unpack that. But the relative risk for most people is pretty small, if we're being honest. The risk of having a severe outcome... And actually, it follows this 80/20 principle if we think about our life. We spend 80% of our time with 20% of the people in our life. When we go out to dinner, 80% of the time we go to the same 20% of the restaurants. Well, if you look at the people, 80% of people that get exposed to this are just fine, it's the 20% of those people, and then it applies the flip side. The

20% who go to the hospital, about 80% of them are totally okay. So it's a small, very small percentage. So yeah, in that risk analysis that you mentioned, "Should I get the shot or not? Should I double mask or should I stay home?" We really need to be doing more risk analysis for people, so hopefully that helps.

SHAWN STEVENSON: Yeah, and this is... I'm so grateful to have you here because we could talk about this stuff, because both you and I, I'm not anti-anything, I'm just pro logic. I'm pro science, I'm pro looking at all parts of it, and I'm pro acknowledging my biases. I have a bias towards things that my genes expect me to do. The longest, from what we know, just basic things, my genes expect me to move, my genes expect me to eat real food, once we start to stray away from those things we're going to have symptoms of disease and disorder, it's very logical. So anything that doesn't fit in that paradigm I have a bias that pops up, but I'm able to check it because it's just like, "Okay, I know that, but maybe this thing is this effective. Let me investigate it and have an open mind and open heart for it."

However, in this situation, you just mentioned what folks are eating, there's entire fields of this and this is what I really was wanting to push forward in Eat Smarter is nutrigenomics and nutrigenetics. We know this stuff already, but every day folks don't know and, this is the big part, most clinicians don't know about this, because folks don't realize when they're saying, "What type of degree does somebody have?" That they're being indoctrinated in a certain way of thinking, and if anything doesn't fit within that model, it's automatically negated or ignored. Like you literally, I know a lot of people feel this, you share a piece of data and it's just like people literally can't even see it, like, "No, it's not true. It doesn't fit into my model of reality." And it's a protective mechanism, nobody wants to feel like somebody's lying to them, and so this gets into the conversation about, even though the threat...

There is a threat, absolutely. I had on an epidemiologist who is not only a epidemiologist, but somebody who's worked with multiple states in creating the health policies for their states, and he's also run several organizations himself. So I was like... He's also in the thought process of how is shutdowns of business and the economy, how do all these things play in? And one of the things that he shared with me that any epidemiologist worth their salt would know is that once we have... He was actually okay with the fact that people were getting tested. He knew... Because the thing is like, we're testing healthy people, "What is this going to do to the numbers?" But for him it was just like, once we have all these numbers, it's going to make the fatality exponentially lower. But what he shared with me is that once we have a certain number of confirmed cases within a population, so like right now I think in the US, how many do we have?

MIKE MUZEL: Over 20 million.

SHAWN STEVENSON: Maybe 30.

MIKE MUZEL: Higher, yeah, probably.

SHAWN STEVENSON: On average, any epidemiologist would know, there's 10 to 15 times more folks who've actually contracted the illness, so now, what does that do to the number? It just puts it in perspective. Now, with that said, I think the reason that we're so on hyper-alert, and this is the obvious thing is, "What are we being inundated with? What are all the messages telling us?" And there are people who are on the frontlines and they've seen some terrible things, the vast majority of people are okay. There hasn't been a survival ticker, there hasn't been a no symptom ticker, it's only just talking about cases and deaths without context even. So can you add in a little bit there, because I think that that's one of the big issues to traverse, to move past in weighing this out, like, "What is the actual threat here and what is the potential downside of doing this very experimental thing that's never been done before, in human history?" Let's give some consideration.

MIKE MUZEL: I'm with you 100%. What I like to do is just look at common sense numbers throughout the world and just look and say, "Okay, well what's the case fatality ratio in various countries in Africa? What about India?" What... Because we know that as a population, obviously there's outliers, people like you and I and everyone this room, we're healthy, we make intentional choices, but a lot of people don't, those people are more susceptible, but even then, if you think about it, there's... Just do very simple math. 330 million people in the US. Okay, how many people died in 2020? It was like 370,000 from SARS-CoV-2. 90-plus percent of those people had multiple chronic conditions, two or more chronic conditions, and it was like 80% of those people were over the age of 65. The life expectancy in the US is 77 years old. So if we look at the... Loss of life sucks, death sucks, absolutely, but we can't stop the entire world and scare everyone into living their life all the time.

We need to focus on quality adjusted life years, this is what epidemiologists talk about. So, "How can we maximize the quality adjusted life years and what is the potential of your quality adjusted life years if you don't have disease?" If you're free of hypertension, you're not overweight, you're not diabetic, your risk of actually dying is really, really small. So I just think that should be the message and you can reduce that probability by making healthy living your part-time job, walking to work, going out, spending time with your kids. There's multiple facets of that, so that's where I like to look at.

And if you look at India, they just had a cricket match, it was like India and UK, and the stadium was completely packed, I mean you would have never seen this in a state like California or something like that. And you're like, "Well, how are they able to do that?" And some of these people in India have... They don't have the technologies that we do. There's multiple

generations in a household, but what are they doing? They have healthy, diverse microbiomes, they're eating real food, they're making their food from scratch at home, they're spending time in nature. So it's like we should be able to look at... They don't have the healthcare access or technologies that we do, likewise for various countries in Africa, same thing where the case fatality ratio is like less than half of what it is here in the US.

And you hear in the US, "Well, it's people of color and all that," and you're like, "Well, obviously, there's more melanin in Africa than there is quantitatively here in the US, so what are the people of color doing in Africa differently than in the US?" And then should we address communities that are more susceptible? Let's put community gardens in there, let's get the Jack in the Box and all the subsidized cheap food out of there, 'cause obviously that's exacerbating the problem.

But then the other argument is people will say, "Well, you don't want to get this virus at all because of the chronic, long-term effects," and all that. And I can understand that but those chronic, lingering, long hauling effects really are people that have health issues going into it, that already have autoimmunity that could be improved by their diet and lifestyle. So I think either way, you can have an argument with the most vaccinated, mask proponent and still both agree that healthy living should be the path forward. It's sustainable, it's accessible to most people, and we should be allocating those funds, like you talked about, to these communities that don't have access to real food and exercise or a sauna, what can we do to help them instead of just say, "Shot, shot, shots. More shots." Because...

SHAWN STEVENSON: You sound like Little Jon.

MIKE MUZEL: Yeah, right. Yeah. So I don't know the answers to all these public health issues, but I think we also need to look at what's sustainable with this. And these face masks, it's funny to see all these environmentalists pivot towards like everyone should face mask, and then you see these things in the ocean that...

SHAWN STEVENSON: It is bad. It is really bad. It's not good. And this is... I think the most glaring example of all of this stuff is highlighted by the CDC, which is who they direct their stuff to, if you post something, "Stay up to date with the CDC." People aren't really looking at the data on the CDC. And their most recent report, which just blows my mind. 94% of the folks who lost their lives with COVID on the death certificate, had an average of 3.8 pre-existing chronic diseases and/or co-morbidities. Now, and it's right there on the site but that leaves it at 6% who were "perfectly healthy". And you just mentioned something about the folks that are experiencing oftentimes severe infections, long COVID, yes, predominantly, these are folks with these pre-existing conditions, but there is... The percentage is so small, but that's who the media likes to put on the news and that really needs an asterisk by it, because this definition

of what is health, and what is perfectly healthy in our culture is an absence of a diagnosis, and also not understanding basic human biology and physiology, which is, even if I'm the healthiest person in my city, if I'm sleep-deprived or if I'm really stressed, like I'm worried about something with my family, I'm worried about what's going on in the world.

Now, there's a lot of studies coming out about the psycho-somatic effects of COVID, I can suppress my immune function dramatically and I can increase my susceptibility to contracting the infection and my outcome, just like that. It doesn't matter if I'm "perfectly healthy", that's just an absence of a diagnosis. So any of us can get sick from anything, and most often it's from something we're already carrying around with us. And I want to talk more about that, and we're going to do that right after this quick break, sit tight and we'll be right back.

When I was in high school and college our big sports performance, game day meal was mostaccioli. Alright, mostaccioli consciousness, mostaccioli performance and wondering why we're over on the sidelines yawning and waiting for the next play and cycle back in again. Of course, you get hopped up, you get the adrenaline going, you do your performance, but what if there was something better? Not just for game day, but for practice days as well, because how you practice is how you perform and so if you're dedicated to true sports performance, your nutrition really does matter. And now we have things that have clinical evidence, peer reviewed, controlled trials that show the efficacy of things that have been utilized for centuries.

In a study published in Medicine and Science in Sports and Exercise tested 30 healthy athletes for six weeks to record the effects of Cordyceps medicinal mushroom on their performance. The group that added Cordyceps to their daily regimen had twice the oxygen uptake of the control group. This oxygen is essential in supplying nutrients to your muscles, preventing fatigue, and preventing the build-up of lactic acid. Another study done by the same group also showed a 9% increase in aerobic activity from utilizing Cordyceps. For myself personally, my pre-workout go to is Shroom Tech Sport from Onnit and it's because it was a subject of a double-blind, placebo-controlled 12-week clinical trial performed researchers at Florida State University. And they found that utilizing Shroom Tech Sport as a pre-workout showed a direct increase in bench press reps by 12%.

They also found an increase in combined bench press and back squat reps by 7% for the supersets, and also were found to parallel the earlier study with a cardio performance increase by 8.8%, almost 9% that was seen in the earlier clinical trial. If you're not utilizing Shroom Tech Sport definitely check it out. Go to Onnit.com/model. That's O-N-N-I-T.com/model for 10% off. It's a world pre-workout and pre-life supplement to use. Onnit.com/model. Now, back to the show.

Alright, we're back and we're talking with Mike Mutzel. Before the break, we referred to these opportunistic microorganisms, we have... Everybody has an array of them. And my first question that I think we should ask is like, "Why? Do they do something good for me maybe?" Is it just like we're painting it like these are bad bacteria, these are good bacteria, bad viruses, good viruses. Or does everything play a role and I just don't understand my place in this and I'm just going to outsource my thinking and my health to somebody else?" So that's a lot in a nutshell, and this is leading to this other conversation you hyped.

I'm so pumped, I want to ask you so many things. But you mentioned our excessive response in being, sanitizing everything and hand sanitizers and the impact that it has on our microbiome. Our microbiome isn't just in our gut, we have an array of bacteria that live in and on our bodies that protect us from pathogens, that protect us from viruses, so you've got some data on the effectiveness of hand sanitizers that you shared recently too.

MIKE MUZEL: That to me is crazy, seeing all... It's mostly parents that are forcing it on to their kids, and so, yeah, this was a study actually, it was a Canadian pediatrics journal, I can't remember the exact name of the journal, but I'll give it you for the show notes and they actually showed that there was a correlation between homes, how much sanitizer they bought and used within the household and childhood obesity. So there was... Independent of other factors, so higher childhood obesity, and then they did some gut microbiome analysis on the children and found different species, and there's a bunch of different species, that are correlated with obesity and sanitizer use. So like you said, we are living microorganisms, you and I have created this microbiome cloud as we're talking, right? And so to think that we're just going to constantly put this stuff on our hands and be free of all pathogens forever, I think it's just short-sighted, and again, not looking at the unintended harm.

So you have these parents that are concerned about the media or whatever, they see the death ticker and so we have this... Just small little side story. In my neighborhood, 'cause schools were closed in Washington, so we did this pods thing which was a local group with five or six kids, and I started to ask my daughter, "Well, so were you guys playing outside?" It was this mom, bless her heart, really nice lady and she said, "Yeah, Dad but before we went outside, we had to put on a sanitizer and then we went and played outside and then we had to put on sanitizer again, and then we had to wash our hands." And I'm like, "Wait, wait, wait how many times were you doing this a day?"

She was like, "Like six or seven." I'm like, "Well, why didn't you tell me this earlier?" So you add that up, maybe once, that's not a big deal one day. If you do that, three, four, five, now we're at 13 months in, what are the issues with that? And these things are transdermally absorbing, it's not just...

SHAWN STEVENSON: Where do they go? They get... They just disappear because your skin is sucking it all right up.

MIKE MUZEL: Man, so I worry about this stuff because you know, the developing microbiome really sort of... Obviously, it changes in real time, if we go eat McDonalds or we eat healthy, real food, it's going to change. But children's microbiome, it starts to become more stable when they're young, right? And it depends on all those inputs, so I really worry about that. So I just would encourage parents and everything like that, if you're worried about your kids, just run some hot water or do something along those lines, but yeah we got to start to think about the consequences.

SHAWN STEVENSON: Right. The study that you shared, it was Science of the Total Environment, so we'll put them in the show notes for everybody. The title of the study was COVID-19 and Frequent Use of Hand Sanitizers, Human Health and Environmental Hazards by Exposure Pathways. And the craziest thing is, this is one of the things that it bothers me a little bit is the "unintended consequences" or surprising consequences. This isn't a surprise, we knew these things would happen. And full disclosure, my wife, when she... When COVID landed here, she went and she got the family-sized hand sanitizer, and I'm just like, "Babe, do you remember who we are? Let's just slow... Pump the brakes a little." But she felt it like, "This is what everybody's doing, we really need to make sure we're killing the germs," and so I just immediately just went and pulled up some of the data on these things and even lawsuits from these various companies for basically making false claims about what they're able to do in the context of viruses, for example.

Which viruses are so much smarter than the hand sanitizer? Now they're whatever kind of shell they're encased in. Some hand sanitizers do break through some types of viruses, but it's still this very myopic thinking about our relationship to our environment and not understanding we are all of that stuff. We have 400 trillion virus particles in and on our bodies that we know about, and not to mention the microbiome, all the fungi we carry around and the bacteria, the Archaea, the list goes on and on. We're just a walking, talking microbe factory ourselves. So the question is, "What are we doing to the ones that are protecting our skin, for example?" And what the data is really leaning towards is we're actually creating a situation where we're more susceptible to assimilating something through our hands because they're not even protected, they don't have the layer of protection anymore, 'cause we burned that off with all these crazy chemical hand sanitizers. It's the wildest thing.

MIKE MUZEL: And beyond that too, and driving the formation of Staphylococcus and different Clostridia that are resistant to sanitization, and so we're creating super bugs. And so, yeah, it's just crazy to me that, like you said, I think humans, we learn through observation and so if you go to Costco or you go to Whole Foods and you see people just freaking out buying all this

stuff and hand sanitizer you think, "Well, gosh, maybe I should be doing that too. I'm an irresponsible mother if I don't buy this," so I can see of people getting into it, but you need to realize, like you said, we're... We've lost sight of the fact that our host is modifiable. Our being, we can make our immune system resilient by our choices, our mindset, our sleep. And going back to what you were saying, there's yeah, 6% of people or whatever that didn't have a diagnosed co-morbidity, they could have just had this weird window of opportunity.

Some of those people could have never... I know a lot of friends that haven't been to a doctor or had blood work in 20 years, so you can't tell me like, "Oh, I'm free of everything." You don't really know if you haven't had your blood work, you don't test your blood pressure at home, you don't test your glucose. So there's some of that, but there probably were some healthy people that were stressed out, that weren't sleeping, that just broke up with their girlfriend or boyfriend or whatever, lost their job, and they reduced the resiliency of their host response, so we don't know all those stories.

SHAWN STEVENSON: Yeah, so true, so true. In this context, and I think that it's not even a think. Right now, the big part of the conversation in health and wellness and even in conventional medicine is moving towards things like circadian medicine, moving towards a focus on the microbiome and gut health and all that stuff, it's growing rapidly, the data on that. And so us getting a better understanding of how all this stuff is interconnected and how it's working together, and not having this very black and white like, "We got to kill everything. Kill all the viruses, kill all the bacteria," that's like a self-fulfilling prophecy.

It's like we're literally killing ourselves by doing that because we are those things. Now, this is... What will come up for a lot of folks like, "Shawn, are you saying to not wash my hands? Are you saying to not use the hand sanitizer and just go raw? I'm just going to go raw hand to mouth with my food, Shawn?" No, I'm not saying that. I'm saying to use a level of intelligence in interacting with these things. If I'm at a conference and I'm shaking a bunch of hands and now I'm going to go get some chips and dips, maybe I'll throw a little sani on there if I can't get to the bathroom and just wash my hands.

I'm one of the people, I've been talking about this for years and now I'm seeing so many of my colleagues... And that's the thing about the internet, folks oftentimes don't know where something comes from, but I've been talking about this for years. But I really repackaged the story of Dr. Ignaz Semmelweis, who was the physician who really came forward about washing hands and reducing infant mortality and reducing the mother's mortality during child birth, if we wash our hands. When he came forward with this and he did a controlled trial in his clinic, seeing this, seeing the midwives who didn't go and tinker around with dead bodies like physicians would and then come and give birth, he saw, "Wow, the babies are surviving far more frequently when it's the midwives giving birth, helping with the child birth." And he's

like... He analyzed, "What is the difference? What is the thing? Oh, cleaning... Their hands aren't contaminated."

And so he brought this data forward, he proved it in his practice, he got destroyed in his field. His colleagues just wrote him off as though he was completely insane. He was making them feel like what they've been doing is wrong, that they're somehow negligent. This couldn't be the case. "We've done this forever," and he really just fell out of favor. But now he's seen as this pioneer many years later, and that happens so frequently. And I'm telling you right now, it's happening with so many things, where we have a model that's existing thinking it's right and the truth is far different. And so I've been pushing that story out and re-packaging it for people to understand that, "Yes, there's a context where you watch your hands, but we can go too far," which is the tendency for a lot of...

Especially it's the American way, it's the American way, a little is good, more is better. And then we get into a place where there's many reports of this, there's folks overdoing it and damaging their hands, cracked skin, raw skin because of being neurotic about it and it's because of the fear, so we have to have a healthy bit of awareness and caution, but at the same time, not going to a place where we're hurting ourselves with something that's very abnormal.

MIKE MUZEL: You bring up a great point and then also adding context to it. Yeah, you're at a conference, you're touching a lot of hands, totally makes sense. Your kids go play in your backyard, they're probably fine and that bacteria could be good. But I love that you bring up the story of Semmelweis because that is so timely and apropos and a lot of people don't remember that. Like, this guy was a quack for suggesting the hand washing.

SHAWN STEVENSON: Right. Conspiracy theorist.

MIKE MUZEL: Think about that. So I know a lot of people have these strong beliefs about the effectiveness of, fill in the blank, sanitizer, masking whatever, but you're like, "Well, it's healthy to question things because the status quo could be wrong and so we shouldn't totally ignore someone or some idea," but like you said we all have biases and I think that's just part of being human, but it's good to explore, "What are you missing?" And look at the counter evidence.

SHAWN STEVENSON: Right. And also pay attention to where the data is coming from, because one of the things early on and I don't like to say people's name on the show, calling them out as like... I feel like it's like a diss track. I'm not even going to put you... I'm not going to make you famous in my song, and shout out to cannabis and LLs, and shout out to Beanie Sigel and Jadakiss and Jay Z and Nas, right? When you say somebody's name in the record, it means something. But it was just so remarkable to me that Mr. Fauci was like, and we got to play it for everybody so you can hear it. As a matter of fact kick to the tape, play what he said.

What are the things that you could still do and still approach normal? One of them is absolute, compulsive hand washing. The other one is, you don't ever shake anybody's hands, that's clear. I don't think we ever should ever shake hands ever again, to be honest with you.

SHAWN STEVENSON: So he said that we should never shake hands again, that's clear. We should never shake hands again. That behavior is now proposed to be extinct, like we're done with that. Hand shaking is over. And to jump to that extreme of being that afraid to touch another human being, and this is the person responsible for communicating the vast majority of folks are tuned in to what he says and it's gospel. And just basic levels of understanding of human biology and how inappropriate that is, not just on a...

If we're talking about the exchange of information, but just on a psychological level of fear and how twisted that idea is because... And you mentioned this, this is the truth. When we are around other people, it's like a light workout for our immune system, you're interacting with their data, we are sharing, like you said, clouds of microbes, and this would be going on whether you realize it or not. But once humans became aware of it, we start to drill in like, "Okay, we found the root of sickness, it's this thing, it's this microbe," but then it wasn't this thing. Then we find another thing and another thing and another thing, and we keep isolating and I promise, I know it's going to happen we're going to find out that viruses have viruses. There's going to be some virus has an STD on their taint and that's the root...

We finally discovered the root of all human illness, but it's always been the same thing, which is it's the environment that it exists in, in the first place. So you did the most incredible work around Fauci's advice, it just bring me so much joy. Through all of this, it can be pretty intense and pretty polarizing, but this is when I knew you're my guy, we've got to link up and we got to play a little bit of you as Fauci for everybody.

MIKE MUZEL: Let's talk about best practices with the face masks, what you need to do is you take your face mask and you roll it up, you touch it, you're always touching your face mask, what you want to do is put your face mask in your pocket, okay. You put in your pocket, you touch it, you get your hands all over it, it's really important that you bring your phone into the commode with you, I know you do this, when you are taking a crap, you're taking a piss, you're on Instagram, you're touching your phone, you wipe your bum, you wipe your pee, you touch your phone, you put your phone in your pocket, you get your face masks all over the phone, you make a peanut butter and jelly sandwich with the mask and your phone.

Now, before you leave your house, okay, 'cause the house, you should always be in your house drinking alcohol and watching pornography and whatever else you do, before you even leave your house, I recommend this, this is what I do when I'm at a baseball game, whatever, and

now what you do is you touch the phone, you get the fingers all over you, rub it all over your face, once again, you want it in your nose and the masks. Then what you do, put on the masks, I make sure to rub my nose and get all the viral particles from my fingers after touching my rear end in my nose. That's the key. You want to get it everywhere, in your eyes, your nose, your mouth, your ears, everywhere. Okay?

So, once you do that, then you put it on, even if you're, you're checking your mail, you wear your mask, you want your neighbors scared out of his goddamn mind, when you see your neighbor, they got to be really scared, talk about the virus, talk about the cases, talk about you can't wait until there's a vaccine. When you go to the grocery store, you see someone jump out of the way, if you need to run into an aisle, to knock over, break your ankle, it doesn't matter. Social distancing and face masks are so important, that's why we mandated them in July and June, not in March when everyone was dying from the virus.

So, you're talking about it, you're scared out of your mind, and then what you do is after your neighbor sees you wearing the face mask, then they're going to be scared and reminded that there's a big bad virus because the media, they're catching on, the people are catching on, they realize that the infectivity ratio is only 0.02%, which is pretty low in contrast to side effects, of the vaccine are 50% of users. Okay? We need you scared out of your goddamn mind.

Look, I'm 77 years old, we got a blockbuster vaccine in the pipeline. I've been trying to make a vaccine since the AIDS outbreak in the '90s, wear your mask, and make sure that if you see any health gurus talking about things like Vitamin D, probiotics and meditation or breath work and sauna therapy, they are bunch of quacks, you need to listen to me, because I've been involved in infectious disease management forever, that's why there's a vaccine for AIDS, that's why we gave the Wuhan laboratory $11 million, and then we pretended like we didn't know how this thing was transmitted, we didn't know the case fatality ratio, the infectious fatality ratio, none of that.

So trust me, wear your mask, put your mask in your front pocket, touch the face all over the place, and social distance. Okay. Now that we covered everything, I'm thankful that you watched this video, thanks for hitting the Like button and we'll catch you later, bye now.

SHAWN STEVENSON: Now, the thing that jumps out for me the most is the Fauci voice, he's got the work done on his voice, he saw the top plastic voice surgeon.

MIKE MUZEL: Did... He had a little collagen or something in there? Or...

SHAWN STEVENSON: Yeah, he got that new voice, he got famous, he got him a new voice, but prior to that, he sounded like one of Marge Simpson sisters.

Whatever. No, but that's Marge. But the sisters was very... But the data coming... So what do you think about this concept of having this person who's like the governing force, who is disseminating all this data and the congruence there, because again, I don't like to drop names, but I think it's important because this is... It's become a part of our popular culture to reference and to see him as having some solutions and answers for all of us through this process.

MIKE MUZEL: Yeah, he's like the front man and the face that we're supposed to trust and everything. Look, people make mistakes. You and I probably said things on our podcast that we wish we could take back, but when you repeatedly make mistakes and sort of change your tune, that's kind of a problem for me. So I don't know, I think it is good to have a front man or someone that is the consistent go-to person, but the fact that that person, if they are going to be the sonic one on the end-all, then they can't make so many mistakes along the way.

SHAWN STEVENSON: There have to be an integrity.

MIKE MUZEL: Yeah, and if you look at that person, he's really ultimately like a politician, and so there's a lot of... It's all obfuscated and blended and it's hard to tease out, okay, what's politics? And then he's tied to the industry, I've been in the industry, so, I understand that people can rub each other's backs and everything like that, and has his solutions... Do they really work? Did the two weeks to flatten the curve, did it really work? No. Maybe...

SHAWN STEVENSON: Flatten the curve? It's got more and more curvy.

MIKE MUZEL: Right, and the masking thing, like he said, no, don't do it, then you do it, then now you need two.

SHAWN STEVENSON: But then he also said that, the reason that he said don't do it in the beginning, he lied purposefully, so that people don't get them so he can save them from healthcare workers. He said that he lied.

MIKE MUZEL: So let's unpack that. Let's say he really didn't know about the fact that the British Medical Journal had looked at non-surgical face masks in 2014, so you're telling me the guy that knows everything about virology, the most trusted Infectious Disease expert in the world, doesn't know that non-surgical face masks that we can all make at home that everyone ended up doing. He didn't know about that study, but we knew about? You know what I mean? So it's like... Then he kind of covered... He said, "Well, these facial coverings, I guess they work too, and I didn't know about those," and it's like, "Dude, come on, you don't have a team of people that are able to present to you alternative solution?"

So I find that "oops" intentional lie to help us hard to believe to be honest, I don't know what you think about that. But then it's like, so what else is he lying about? If someone lies to you once, you're like, well, because he keeps changing up the number of people that need to be infected to achieve this herd immunity concept.

SHAWN STEVENSON: The goal post keeps moving.

MIKE MUZEL: That's to me, that's tough. And I think any time, say if you were to build a house like this, you wouldn't only trust your contractor, you would have an interior designer, you would have other people in different specialties to add some checks and balances to what's going on like, "Okay, well, if we put this staircase there, what does that going to do to the integrity of the roof or the whatever." So I think we need other experts besides sort of myopically thinking... And he's not concerned about joblessness, he's not concerned about kids, 100 million people under the age of 21 being stuck at home on computer screens. What is that going to do? So, that's where it's like having an expert that is just looking on a single track, I think there's multiple shortcomings to that.

SHAWN STEVENSON: Right, we need more voices not echoes. And this... Again, at this point, what you think is logical, and I think that one of our fallacies is we think we're so advanced now, that we're far past the times of Ignaz Semmelweis and we would never do anything like that, but truly, we didn't have experts really in the fold talking about what are the mental health ramifications of this situation of the lockdowns? Are we going to end up losing more lives long term with the economic shutdown, then we'll be saving, theoretically? All of this was based on theory, so we've done, after again and again and again and again experimental interventions.

All of this was a new experiment, all of it, from the lockdowns to the closing of businesses, economic shutdowns, social isolation and quarantine. The quarantining of healthy people has never been done before, new experimental vaccination that again, we have never, ever had something so quick come to market, and it's supposed to be something that stops the most deadly virus in our time. It's a big deal, it's a big deal. It can have an impact, and the long-term ramification, you don't know, we don't know. So much of this masking, public masking, going outside... Right now, we can go outside and everybody in my neighborhood outside walking around has a mask on right now, over a year later, and the end isn't in sight.

And so, all of these things are experiments, and the question that we really need to ask is, did we flatten the curve? Did it work? Did any of these interventions actually do anything that we can see in data? And what you shared with me is that if you look at the data, state to state, who've had mandates versus those who don't, what do you see in the numbers?

MIKE MUZEL: It's hard to provide a compelling, consistent argument that mandatory masking does much of anything. So, what you see when people say, and you know this data way better than I, so, I shouldn't even be talking about this. But there is a difference between healthcare workers applying a face to a recovering, and Sally Smith going to Whole Foods and Starbucks and taking the face mask on 17 different times and touching her phone. So, this is the unintended harm of like, you shake your hand, you buy this, you touch this, and then you touch your face.

When I was filming that, one of the Fauci videos that I made, I just thought it would be funny to... It was the only way that you can make fun of our situation without getting censored if you add satire to it. But I didn't tell you this, but I gave myself an eye infection by touching the mask, so, I was exaggerating the eyes, and I actually...

SHAWN STEVENSON: Oh my God.

MIKE MUZEL: Dude, it was so swollen and messed up and people were like, "You're lying, you got... "'Because I have chickens in my backyard, "Your chickens gave it to you, or your dog." I'm like, "No." And I slowed it down the video and I touched like my cornea and I gave myself a nasty eye infection from... Because I was touching the mask like this, and then it went like this, so it's like we are exhaling all of our virome and microbiome and all this onto this mask, and to think that it's going to save humanity, and it's... Like we should be treating this... If you were really vulnerable, like you should be washing that thing, you should be cleaning it out, you shouldn't be touching it off and on, off and on, have it dangling from your ear, all of this stuff. Anyway.

SHAWN STEVENSON: The chin diaper.

MIKE MUZEL: Yeah, yeah.

SHAWN STEVENSON: Shout out to the chin diaper. And so with that said, even the context, especially with children, kids literally putting an apparatus on their face, there's a natural human response. It's kind of like this reflex to get things off of our face, and kids are touching that mask 100 times a day, easy, just the adjustment, the... They're just kids, they're touching everything in the first place, and it's going to make it more frequent and they are touching everything, so it just... Again, it's not really been from a place of logic, I would love if this stuff was effective, I'd be the biggest proponent in the world.

But again, just look at the results. I just want people to think about that. Just look at the results, look what's taking place. You know, there's a recent study that came out, and this was in one of the top economic journals, just compiling the data. And the question was, why aren't people in Texas dying? Here we are now, it's been a month or whatever the case has been since they've

opened up and we see far worse numbers again in states that still have very strict mandates and lockdowns. And again, we can use our logic and see, be able to have a proper risk benefit analysis.

And the last thing I want to ask you about, man, again, this has been incredibly enlightening, we've talked about so many different things. I want to ask you about what do you want to see done? What do you want to see done that we can make this one of the greatest times of learning and change in a positive way in human history? What are the things that you really want to see done for our communities?

MIKE MUZEL: Yeah, that's a great question. It's been awesome to riff like this Shawn. I think our kids are really vulnerable, so that's where adults... We all have access to so much information with Instagram and YouTube and podcasts, so there's really not a lot of excuses for adults unless you have multiple jobs and there's life circumstances, but what I would like to see done is treat our kids, make sure that they are less vulnerable from the school foods to the movement that they get, to the social connection.

I really, really worry about our youngsters because I see kids... It's one thing to see a 90-year-old woman move across the street, but I'm seeing kids, when I walk my daughter to school, which is only two half days a week, which is a joke, but anyway, I see little kids avoiding me like I'm some like, like I'm going to make them really sick, and I see them reaching for the hand sanitizer, I see... My daughter has some girl in her class double masking. She's eight years old. And the resiliency of their immune systems and all that is there, the risk of them transmitting is much lower, their viral load, all of that.

So I really worry about... A year for an eight-year-old is one eighth of their life, and if they've been told for one eighth of their life that "humans are bad, you can't touch anything," what sort of epigenetic effects will that have? Or their developmental issues, and we know there's this key window for sports and development and all that. So, I think we really need to double down and think if nothing else, what are the side effects that we're doing to these kids, man, because they are going to be our future. And we already know that we're pretty unhealthy, and if we're unhealthy, we're feeding our kids unhealthy food, they're going to be way more unhealthy, talk about bankrupting the healthcare system, or our military.

There's a lot of concerns there. At the end of the day, I just want to leave the planet better than it was when I was here to do what I can. And as parents, we all need to do that, and as community members we need to focus on the youngsters, man, and I do worry about them.

SHAWN STEVENSON: Yeah. Perfect, perfect. Can you let everybody know where they can follow you or they can check you... You got to follow him on Instagram, just let everybody know where they can follow you and get more information.

MIKE MUZEL: Sure, yeah, I appreciate that, Shawn. So Instagram is metabolicmike, metabolic_mike, and then I'm pretty active on YouTube too, High Intensity Health, so yeah, just grateful to everyone tuned in, hopefully they enjoyed it, but like I said, if anything that we said challenged people, I think they need to dig deep and ask themselves, why? What content are they consuming that's caused them to sort of believe something that was... Then when we talked about it irritating to them, because there's definitely a lot more out there that people aren't hearing about that they should.

SHAWN STEVENSON: Awesome, Mike, I appreciate you so much for hanging out with us.

MIKE MUZEL: Thank you, buddy. Pleasure to be here.

SHAWN STEVENSON: Take care. Thank you so much for tuning in to the show today. I hope you got a lot of value out of this. This is a conversation that needs to continue and talking about the different dynamics of this current situation in regards to our susceptibility to infections, our overall state of health and disease here in our culture, and also these conventional treatments for these issues. Are we continuing to just miss the mark by having this pharmacological model where we're just trying to treat symptoms of a thing? Or is there a better way?

Now, all of these things matter, everything has its place and has its value, but I think you are well aware that the scales have been tilted so far in the direction of treatment of symptoms and the ignorance of the underlying cause of susceptibility, the underlying cause of disease, that platforms and movements like this exist to swing it back in the direction of what's real, and you are part of that. So, if you've got a lot of value out of this episode, please make sure to share it out with your friends and family, and you can tag me.

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