THE MODEL HEALTH SHOW

EPISODE 525

Natural Immunity & The Antiviral Properties Of Mitochondria

With Guest Mike Mutzel

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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. In this episode, we're going to be talking about the powerful connection between our mitochondrial function and COVID-19. It's some really, really eye-opening new data, and also, we're going to be looking at the undervalued connection between blood glucose dysregulation, and it's a link with COVID-19 as well. Plus, we've got some additional data looking at sedentary behavior in regard to COVID-19, and we're going to touch on this controversial subject of natural immunity. So, this episode is absolutely filled with vital and important information and it's coming from one of the smartest human beings that I know, and just grateful to have him as a part of my life and a resource to look to. We have a lot of conversations about these things behind the scenes, and this is important for us to have these conversations, to question things, to look at things from different perspectives and different angles. I see things that he doesn't and vice versa and being able to come to rational conclusions that can actually help our citizens, help our families.

Right now, a lot of people are experiencing a lot of infighting and a lot of contention among their own family members we're so divided right now, and it's so unfortunate. And so, we're even going to be touching on that a little bit in this episode. So again, this is packed with incredible information, and also speaking of this mitochondrial connection, these are these energy power plants in our cells giving off this cellular currency for our bodies to do processes in the form of ATP. This conversion process turning food into usable energy. It's a serious conversion process, it's like a foreign exchange with currency, like trying to convert some yen into some dollars or some pesos into some shillings alright. So, it's like this conversion process and this process, if we're taking again, like a certain foodstuff and trying to convert it into energy, it's a pretty arduous thing for our bodies to do and our bodies are miraculous in its form and in the capacity to do this. But there are certain things that actually bypass and accelerate this energy exchange or even being used by our cells directly.

One of those things is medium-chain triglycerides, a randomized double-blind study published in the International Journal of Obesity and Related Metabolic Disorders, placed participants on a reduced-calorie diet that included either supplemental MCTs or supplemental long-chain triglycerides or LCTs. After the data was compiled, it was revealed that a group who included MCTs, lost more weight, eliminated more body fat, and experienced higher levels of satiety. Again, you could be on the same diet, but these particular oils specifically, these medium-chain triglycerides can make a tremendous difference in our overall metabolic function and our energy. The MCTs that I use literally every single day is from onnit.com, they're sourcing things the right way, and they're making sure that you're getting an MCT oil that has the maximum

efficacy with no nefarious chemicals or anything of that nature. It's just 100% source... Again, sourced the right way, MCT oil go to onnit.com/model.

That's O-N-N-I-T.com/model, and you're going to get 10% off their original MCT oil, 100% MCT oil and they also have these incredible emulsified MCT oils. And actually, I've had both today in one drink that I made, I had the original MCT oil and in another drink that I made, I made a protein shake and added some of the emulsified MCT oil in there as well. It's like a coffee creamer, it's really awesome, tastes amazing, and it's something I always travel with as well. I absolutely love the benefits with these MCTs, but again, just getting it from company X, you're not going to get the same high-quality product to get these incredible results seen in peer-reviewed trials. So go to onnit.com/model for 10% off their incredible MCT oil and everything else that they carry, and now let's get to our Apple Podcasts review of the week.

ITUNES REVIEW: Another five-star review titled "the podcast I always turn to..." By Gabby Dee, "I've listened to Sean off and on for a couple of years. If I'm ever feeling down on myself, either mentally or physically, the Model Health Show always pumps me back up and motivates me to do better. Thank you so much for creating such an incredible podcast."

SHAWN STEVENSON: Awesome, thank you so much for leaving me that review over on Apple Podcasts, I appreciate it so much. If you get to do so, please pop over to Apple Podcasts 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. Mike Mutzel holds a Bachelor's degree in biology and a Master's degree in Clinical Nutrition, and he's also a best-selling author and host of the incredible High-Intensity Health series on podcast platforms, and on YouTube. Now he's back on the Model Health Show to share his insights. Let's jump into this incredible conversation with the amazing Mike Mutzel. Alright, my guy. Mike, welcome back to the show.

MIKE MUTZEL: Thanks for having me back, Shawn it's great to be with you. Yeah.

SHAWN STEVENSON: Yeah, so there's some big news that just came out regarding our mitochondria...

MIKE MUTZEL: Yes.

SHAWN STEVENSON: And COVID-19. Let's talk a little bit about that.

MIKE MUTZEL: Well, to me, I think it's a fascinating way to sort of connect the dots between exercise, insufficiency, obesity, all the metabolic syndrome, and its links with severe COVID outcomes and all that, but... Yeah, these scientists in Switzerland actually have been looking at the mitochondria and I guess it's been long known since 2010, which honestly, I didn't know

about any of this research. When you think about your mitochondria, we think about energy production, moving your muscles running, all of the creation of cellular energy in the form of ATP. But it turns out that on the exterior cell membrane of your mitochondria, which are if we think about you've probably talked about this in your shows before, but organelles, if we think about our house, we have different little tools in our houses, like furnaces and dishwashers and all of that.

Well, think about all your cells, you have many appliances in there and the organelles of the mitochondria are one of those appliances that help create energy because you can't directly... Well, you... Fats and carbohydrates have to get split down and to make ATP... Anyway, so mitochondria have these anti-viral peptides on their exterior cell membrane, and it's really involved in increasing levels of interferon. And interferon are really involved in the innate immune system, so that's part of the problem with severe diseases, people don't mount a sufficient innate immune system response. The virus can increase its viral load and cause all this collateral damage. Well, turns out that this is a critical part of our innate immune system and increasing all these downstream signaling pathways via interferon. So, to me, I think it's fascinating because there's a lot of free things we can do to support mitochondrial health. Everything from compressing your feeding window, intermittent fasting, walking, weight training, all of these things are available for most people, pretty accessible. Yet, we don't hear about them.

So, a lot of people want to know, how do you test for your mitochondria? There's not really, to my knowledge, a commercially available test, you might look at organic acids that can allow different intermediates indicating mitochondrial dysfunction. But if people have exercise insufficiency or the inability to properly exercise, you get really winded when you're taking out the trash or you're picking up your kid or whatever. That might be a subtle indicator that you have mitochondrial dysfunction, and so if you go into this situation, we're going into winter, as we record this, there's influenza, there's SARS-CoV-2, there's different pathogens. If you have mitochondrial dysfunction, we can't really expect your body to mount a sufficient innate immune system response to take care of that pathogen before it starts to replicate. It turns out that your mitochondria are also a target for these pathogens like they like to leverage the biomolecules within your mitochondria.

And so that's the thing. So, if you have dysfunctional mitochondria from eating omega-6 enriched diets, processed foods, you're metabolically inflexible because you eat a lot of sugar and refined carbohydrates that favor glucose oxidation. Then maybe you're going to have a tougher time with a pathogen. So, to me, I think it's just so exciting because again, we have accessible tools that are free, walking, fasting, eating better foods, all of that are accessible so we should be... This should be front-page news if you ask me.

SHAWN STEVENSON: Yes. I agree I agree. And it's because of folks like you that are making this news, and it just makes sense, this is getting back to things that are very logical. Our mitochondria are really these generators of our energy, our immune system requires energy, it's just a basic connective tissue right there, and so if we're having insufficient functions in that area, obviously we're going to be at a disadvantage. And so, if we're looking at... And also, I love this connection with the interferons, which is a critical aspect of being able to defend the body against viruses and the like, and I love the fact here that we can do something about this and just something very practical, which is...

I love that you mentioned, we don't necessarily have a test, but we do, which is paying attention to our bodies. We can probably notice if we're feeling winded easily if we're venturing into being overweight a little bit into obesity, or we're experiencing a chronic condition, having some auto-immune issues, that there might be something very likely, some deficiency happening with our mitochondria, right. So, this is again, nudging us into actually getting our citizens healthier.

MIKE MUTZEL: Totally, and it's interesting that you brought that up and I thought of something that I forgot to mention. Our liver and our gut have a lot of mitochondria, so your gut, your intestines are moving, and the motility and peristalsis, all the aspects of digestion, and so forth. So a lot of people have gut dysfunction, so that could be another potential indicator, but the liver is really enriched in mitochondria, and so a simple blood test, and I recommend blood work, and we can dive into some of the nuances here. The category of blood tests, the liver function tests, really common, AST, ALT, and GGT. So, any time you go to your doctor or a healthcare practitioner, or you just go to directlabs.com, or however, you get your labs. You should run a comprehensive liver function panel, it's just these three tests, but when they start to increase...

And these are just units, it's just international units per liter, so when they start to increase over 25 or 30, that is an indicator that your liver is accumulating fat. And that would be a suggestion that the mitochondria are unable to keep up with the demand of all the supply from insulin resistance. So that could be a proxy as well, so fatty liver disease would be an indicator of mitochondrial dysfunction specifically in the liver, so I encourage people to test for that for sure.

SHAWN STEVENSON: Yeah. That makes sense as well. So, you mentioned as well that one way to encourage healthy mitochondria function production is a little bit of intermittent fasting or restricting our feeding windows. We have those benefits with autophagy, obviously, but then there's another aspect, mitophagy, can you talk a little bit about that too?

MIKE MUTZEL: Yeah, autophagy is so fascinating to me, and I know it's an interest of yours as well, but if we think about... When you hear about autophagy on the internet, we think that it's just you turn on this switch and it's just this one... It's just this uniform process, but there's a lot of sub-types of autophagy and mitophagy is one of them. There's xenophagy, which is how you actually catabolize viruses as well, so there's all these different subtypes of autophagy, lipophagy, which is how you break down fat, so it's fascinating but anyway. So mitophagy is the process of taking those kind of rusty squeaky mitochondria that really are not... They're kind of old, so to speak, and they should be broken down into their constituents, and so mitophagy is this process that helps you break down those cellular components and proteins and membranes and so forth, that can be re-used to make new healthy mitochondria.

Well, it turns out if people are snacking all the time if they're not exercising if they have elevated of glucose and insulin from eating ultra-processed hyper-palatable food. Then those mitochondria never get that signal by way of mitophagy to undergo this healthy renewal process. And so that's what's really interesting, and I think this is why I'm such a proponent of exercise. I've personally benefited a lot from intermittent fasting and eating low-carb, but the people that are more physically fit can get away with fasting less to get a different... A more proportional increase in autophagy, so there was... Which is related to mitophagy, so there was one study that tracked interment fasting for 36 hours in overweight individuals who didn't exercise versus lean people who did exercise. So, they looked for autophagy initiation factors in both of those individuals doing muscle biopsies and so forth, and what they found is that, in the people that regularly exercised compared to the sedentary over-weight controls in 36 hours, there was like a 300% increase in autophagy initiation proteins. Which again are linked to mitophagy that we're talking about, compared to the individuals who were overweight.

So, your degree of so-called fitness amplifies the benefits of intermittent fasting, and that to me is pretty exciting because a lot of people hear about fasting, they think that "Okay, I got too fast for seven days." We're like, well maybe if you're morbidly obese to get the benefits of autophagy, but if you lift weights regularly, if you walk with your kids, if you go to the park, you go hiking. Maybe just a periodic 36-hour fast or even just an 18-hour intermittent fast can get to that same sort of beneficial autophagy and mitophagy-related processes. So, I'm a huge fan and we can dive into early time-restricted feeding and all of that and talk about some studies linked with longevity there, but... Yeah, I think it's super interesting because again, it's free, it's accessible, even if people don't have the means or the resources to go out and buy healthier food. If you just eat in a more confined short window, eight, six hours, then you can get the benefits by changing the substrates in your blood.

So, kind of the three hormonal sorts of the recipe to induce mitophagy or autophagy. Low blood glucose, low blood insulin, and high glucagon. And the way that we can increase, create this sort of hormonal cocktail that initiates autophagy is by exercising when we're fasted. So

just first thing in the morning, you have an early dinner, maybe you eat before six or seven, something along those lines. Go out and go for a walk or go do some yoga, like first thing in the morning, and that can deplete your glycogen, which will trigger this process by decreasing blood glucose, dropping insulin, and raising glucagon. And that recipe triggers the enhance... It sort of initiates the autophagy-related processes.

SHAWN STEVENSON: You're making it sound very simple, just like, Let's finish our dinner at a certain time, get some good sleep, wake up in the morning, do a little bit of exercise, then enjoy the rest of your day, have a little something to eat. It sounds very doable, and like you said, it's free to activate these systems, and I love the fact that this integrates... What this really marries with is these are the things that our genes expect us to do in the first place, we evolved having times of feasting and times of fasting. Now today, obviously, we don't have that built-in, and culturally, working with my sons, and my son, we were just talking about this. I'm teaching him in nutritional science class as part of his homeschooling program since the environment has kind of put us in this position. Now I get to really teach him the stuff that I should be teaching him anyways, that he should be learning in his educational institution, but it's nothing remotely close. And we were talking about... Because he was asking "Why do we eat these certain foods at breakfast in our culture?" I was like, "So what do people typically eat?" He's been to events with me, he can see what do people put out at the event at the hotel, it's muffins bagels, we've got...

MIKE MUTZEL: Orange juice.

SHAWN STEVENSON: Orange juice, we've got the low-fat milk, we've got pancakes, waffles, cereal, all of these very, very carbohydrate-dense, sugar-dense substances to start the day, right? And he's just asking why do... And I gave him an example, what if somebody eats some fish for breakfast or eats a salad for breakfast and he's just looking like what... That sounds so weird. I was like, "Why does it sound weird?" It's because of our cultural programming as to what we tend to eat at each meal, and also part of our cultural programming is the fact that we eat so frequently in our culture. One of the studies that I talked about in Eat Smarter, it just tracked a bunch of folks and found the average person's eating about 15 hours a day throughout that span. And simply by having folks to compress that eating window from 15 to 10 to 12 hours, folks, without restricting calories, by the way, lost weight became more insulin sensitive, improvements in leptin, the list goes on and on. Just by compressing that eating window, so this is really remarkable, and again, something our genes expect us to do, and I want to lean into this because again, the benefits are seen greater when we are more fit, when we're physically fit, active lifting weights, doing a little bit of walking. This is the part I want to lean into more because there's some more data now about exercise being an absolutely critical component of protection against this virus that's on everybody's mind.

MIKE MUTZEL: It's crazy. And again, this should be front-page news and I want to get to that, but just kind of dovetail off what you were saying with your son, it's amazing how... Our kids are sponges. So, speaking of this compressing the feeding window and snacking, we've been... Not formally as a way that you have yet, but just kind of tacitly through our own talking in the family dinner table and so forth, my daughter's nine. So, the other night we were coming back from doing something, we were mountain biking and whatever, and it was 8 o'clock, and I was like, "Man, I'm getting kind of hungry and asked, what do you want for dinner? She's like, "Dad, it's too late to eat dinner right now," and so she was trying to educate...

SHAWN STEVENSON: Wow.

MIKE MUTZEL: So, she's... They pick up on this stuff, so I think it's so important like, what you're doing, and we should all be doing this because the studies from the CDC actually just showed, and the Journal of the American Medical Association found that kids have gained... The rate of which obesity has been increasing doubled from... It was like January 2020 to just now. So, during COVID... And this is from the CDC, this isn't the Journal of Conspiracy Theories Research. So, because kids have been stuck in home not exercising, they are getting more and more overweight, and it happened, the categories of kids that were overweight were already obese, that they were the most severely affected by that. So, I think it's so important, especially because this concept of recidivism, meaning that if you gain weight, it's harder to take that weight, your body wants to maintain that metabolic homeostatic point, so it's really hard to lose...

SHAWN STEVENSON: Especially in childhood.

MIKE MUTZEL: Exactly. It wants to hang on. So, it's very unlikely that those kids will be spontaneously lean later in life. Anyway, so really important for parents, and I think this should be... Because we know that the collateral damage linked with obesity, especially starting out at that age where atherosclerosis starts, the formation of the narrowing of the arteries at age four, so really important stuff, but getting back to your question about exercise. This was considered a conspiracy theory that exercise could somehow improve outcomes when it comes to this current public health problem. And last time in April, when we were on the Kaiser Permanente study of 48,000 subjects show that regular exercise was linked with reduced odds of ending up in the hospital, ending up in the ICU, and even dying.

But since then, many more studies have come out in China, South Korea, one was 1.3 million individuals in the Swedish Army with a... They tracked objective strength out proxies and so forth from going back to the '50s, this study was super fascinating. So, they had all these objective strength tests and things like that, that for people in the military, and they retroactively then went back and looked and looked at that data and then found any

correlation with outcome when it comes to COVID. And the people that we're stronger and more physically active way back when they were like teenagers and in their early 20s had lower odds of dying and being severely impacted by COVID in Sweden. So, this was super fascinating. Another study in China, and this was early in the pandemic, but the paper was just recently published. It was 164 individuals, and what they found is when they were in the hospital, the researchers, they had this idea to conduct the studies, so they asked individuals, "How much do you exercise? And then how intense is that exercise?" So, exercise insufficiency was if you did not in terms of minutes per week if you do not exercise for at least 150 minutes per week in divided doses, and then the other proxy was less than 75 minutes of vigorous, intense exercise, throughout the week.

And what they found is that in the groups that recorded regular physical activity, 0% of them died compared to there was like 7% of individuals who recorded that they were inactive. The rates of death, the odds... The odds ratio was like 6.7 times greater in the people who are physically inactive compared to people who were physically active. And again, this should be front-page news because...

SHAWN STEVENSON: Yeah, that's a massive difference.

MIKE MUTZEL: Huge... But again, this was like, no, I don't remember hearing CNN or in any of the legacy media outlets talking about this. So, tons of data on exercise, and I think it comes back to mechanistically, and it's like, "Hey, well, okay, how does this work?" And we can then dive into how exercise shapes the immune system in this particular, it's really healthy, this part of your adaptive immune system called the T-cell. And it turns out that people that regularly exercise have lower percentages of senescent T-cells, and we can define all that sort of stuff in a moment. So that's one aspect. We know that the mitochondria are increased, we talked about mitophagy, and I don't know if I totally made this very clear, but exercise is one of the best ways to increase autophagy and mitophagy. So, when people think about autophagy like you mentioned, I just want to just button this up exercise is arguably one of the better ways to do it.

So, we obviously think about fasting first when it comes to autophagy, but various studies have shown that how we get the adaptations from exercise like, "Okay, you go crush it at CrossFit," right. Your muscles are burning, that recovery and those adaptations that help your muscles become stronger for the next workout session are mediated by this process of autophagy. So that's what's cool when you get sore, you're like, Alright, I know that autophagy is kicking in to help those damaged proteins recover and repair. So anyway, the mechanisms are fascinating, but to me, the T-cell, and this links with the immunity, because you said it eloquently, Sean, is our metabolism and our immunity are basically two sides of the same coin and they're interconnected. And that's why we see so many different diseases linked with diabetes were

insulin resistance from dementia, Alzheimer's, heart disease, fatty liver disease, cancer, autoimmunity, and as we continue to talk about the sort of immunometabolism model, which... Have you talked about this on the show? I don't want to like... Immunometabolism?

SHAWN STEVENSON: No.

MIKE MUTZEL: Alright.

SHAWN STEVENSON: Just talk about it.

MIKE MUTZEL: This is so fascinating to me, and it sounds confusing and intimidating, immunometabolism, but it's this idea that our immune system and our metabolic system are really two sides of the same coin. And so, if you think about someone that has an autoimmune disease or cancer. So, these are diseases that are dysregulated by the immune system. They're characterized by immune system dysfunction. If you give those individuals a classic metabolic support of drugs like Metformin, their conditions get better. The inverse is also true. You take a diabetic, type 2 diabetic that has inflammation, you give them a drug that helps reduce and affect their immune system, their diabetes gets better. So, we've been looking at medicine through this sort of compartmentalized spectrum, right. If you have a brain disorder, you go to the psychiatrist or the neurologist, if you have a cardiovascular issue, you go to the cardiologist, but it turns out that all these organs cross-talking to inter-communicate.

So immunometabolism, I think it's with COVID going on, it's a great time to sort of talk about it because it helps us better understand tangible ways to improve the health of our population and reduce vulnerabilities. Because if you become more metabolically healthy, you improve the resilience of your immune system, and one of the really interesting case in points about this, so we can go back to exercise and the T-cells, is there is a drug that's been used with great success when it comes to treating diabetes called Metformin. Metformin, I know people have this perception that drugs are inherently bad, there's one drug that you can pick that would be the one, in fact, a lot of people that are promoting longevity take Metformin maybe every other day or something, and we can dive into natural...

SHAWN STEVENSON: Prophylactic in a sense.

MIKE MUTZEL: Yeah, have you ever taken it by chance?

SHAWN STEVENSON: I have not, no. Of course, I've worked with many, many people taking metformin, and we talked about this with David Sinclair is kind of like the pinnacle of longevity research right now. And metformin is one of the things that's added to his regimen.

MIKE MUTZEL: Yeah, metformin and rapamycin which we can get into. But anyway, to me, it's fascinating. Well, that drug was actually developed to treat influenza. Which is crazy, so to treat...

SHAWN STEVENSON: What do you know? Stop it, Mike. Stop it.

MIKE MUTZEL: I was diving into this, and I was blown away, so that's what it was initially studied to be effective for, and then it turns out that it also helps lower blood sugar. So that to me, is just so fascinating. How mechanistically does its work and it turns out it affects the mitochondria, that's how Metformin works, and then we just talked about earlier about how the mitochondria are involved in the innate immune system response and interferons. So anyway, this stuff is really fascinating to me, so the take-home message, I think for people listening is we need to have better control over our blood sugar. So just going down to your local drug store, CVS or Walgreens, get a blood glucose meter, start to check in just like people check their bank account every day or they should. People check into their FICO score, their credit score. Why aren't you checking in on your blood glucose levels and also looking at your hemoglobin A1c levels, because these are now both accessible at home with little test, a little finger 29 gauge, little needle, it's not very painful? And you can check into these things, and once you're aware that like a lot of people think they're eating healthy, like, "Yeah, I have croutons on my salad, I have a little bread, but I'm pretty healthy." And then you look at your glucose and you're like, "Wow, my fasting glucose is 120 or 110. Okay, maybe I need to rethink and change my diet and lifestyle in a different way." Anyway.

SHAWN STEVENSON: I love that analogy of people checking their bank account and credit score. What about your metabolic bank account? Take a peek at that. That's so great. And there's so many powerful things there, I want to circle back to the aspect with the kids and what we're seeing, 'cause this is a particular passion of both of ours, and one of the reasons we're working so hard right now is to protect our children. And seeing this rapid increase in obesity in our kids like that so quickly, this is a demonstration of... Because this was one of the big things, propped up, can't get people healthier overnight. You can really mess people up overnight, and we can get healthier overnight, it's not going to be perfect, but right now we're really... The longer that this goes on, as you mentioned, this is kind of setting the template, it's going to make it much more difficult for our children to be able to reach and sustain a place of health by pushing them into these conditions that again, they're not choosing to be obese. They're growing up in these conditions, that is making this just a norm. So, thank you so much for bringing that up and talking about that, and I want to talk a little bit more about the T-cells and NK-cell in regards to exercise. So, what are these things do for us, the T-cells, NK-cell?

MIKE MUTZEL: Great question. So, the T-cells are part of your adaptive immunity, so when we talked about the interferon and the mitochondria as like a front-line part of your immune

system. Your immune system that's kind of bifurcated into the innate immune system and the adaptive immune system. So, the innate immune system doesn't really have much memory, it's either stimulated or it's not, so you get a cut or laceration, you get an infection. Your innate system is first on the scene, it's like an ambulance first responder, it's going to help recruit other cells that are necessary. But your adaptive immune system has all the memory, and so your T-cells are part of your adaptive immune system, and in fact, they're part of what helps us if we get... If people have had COVID like myself and hundreds of millions of people probably here in the US, what helps us sort of surmount an appropriate adaptive immune response is these T-cell, and they cross-talk and help create antibodies as well.

So, this is what's fascinating to me when you turn on the media, we are all about antibodies, so antibodies, antibodies but it's really the T-cell that helps mediate the B-cell to make antibodies. They are really intimately involved in various aspects of aging and also the immune response. It turns out that our T-cell repertoire starts to decline as we age, and so there's this gland called a thymus gland, which is around anatomically near the thyroid, and we undergo this process, what's known as thymic involution. So, this thymus starts to shrink and shrink and again, it's very important because these T-cells regulate so many aspects of our immune system and health and longevity, and that's where they originate, in the thymus gland. Now, it turns out that the rate at which this thymus atrophy or involution occurs is variable based upon our lifestyle. So, if we start smoking cigarettes and we start drinking a bottle of wine every night, if we're not exercising, we're hitting up Chick-fil-A and McDonalds. The rate at which our thymus gland atrophies is increased or accelerated, and that leads to a functionally impaired set of T-cells called immunosenescence.

And so, these T-cells can become senescent. A senescent cell is a cell that should apoptosis and dies, but it doesn't, and so essentially, all of our cells have a finite lifespan. And as we age, we get more and more dysfunctional or senescent cells, and so this kind of differentiates... Helps us better understand chronologic aging versus biologic aging. So, we've all met 40-year-olds, and we go, "Dang, what are you doing? Like, you look great. You know, Sean, I want to know what you're eating. What you... " And then we've met people who are 32 and you think they're like 45. So that is the difference between biologic aging and chronologic aging. And I think this is important, and we've heard about this, where we see a perfectly healthy 40-year-old in the hospital, and we see the media talk about this perfectly healthy person, and we see the picture, and we're like, that to me doesn't look like perfectly healthy. They look a lot older than they appear to be. That is because they're biological aging faster, and these T-cells are involved in this aging process and senescent cells and so forth. So, when we regularly exercise, getting back to exercise and T-cell, we help to purge the percentage of senescent T-cell in our body and in our immune system, and we decrease that. So, exercise as a way to sort of take out the trash and get rid of these senescent T-cells.

Now that is very important because these senescent cells are kind of like... They're like bad kids, those kids that your parents didn't want you to hang out with, they cause you to do bad things, and so these senescent cells release... They have what's known as a senescence-associated secretory phenotype, it's a big word. I know, just understand that they're secreting almost like pheromones. I'm over-simplifying, but they're secreting like a pheromone-like molecule that causes your healthy cells become senescent too. So, you want to get rid of those cells and the way that you purge them. The way that you like hit the eject button or whatever the garbage disposal is by exercising and intensely. So, when you exercise intensely, you get some oxygen debt created, you deplete that glycogen, out go those senescent T-cells. So various studies over the years have looked at the percentage of senescent T-cells in aged individuals over the age of 65, in individuals who exercise versus don't. And there's a much lower percentage of a so-called dysfunctional senescent T-cells, and this is linked with better functionality as you age. What's interesting if you look... And this was early on in COVID, like in March of 2020, I had this hypothesis.

I was reading this research and I was looking at this and I'm like, this seems like there is... 'Cause you see these 50-year-olds with all these chronic diseases who are dying, I was wondering if biologic age is impacting this. There's been a load of studies that have come out that show a biologic age, which is how you assay this is partly by these T-cells and these senescent cells is a risk factor for COVID. So, if you have all these different chronic diseases, high blood pressure ages your cells, obesity, all these diseases help to accelerate the biological aging process and create this inflammaging situation. So, as you age, you actually become more inflamed, it's called inflammaging, it's not a made-up word, and part of that inflammation process occurs by way of the senescent cells. So, I know I'm repeating myself here at the bottom line is exercise, healthy whole food diet, and then we can get into NK-cell later.

SHAWN STEVENSON: Yeah, this is powerful, this really helps to explain why elderly populations have been hardest hit in this scenario, and also why children have not. Because that thymus gland is the immune system itself is so active and so intelligent, it's trying to figure out the world. I've been thinking of a lot of like you said, just kind of ruminating on these ideas very early on looking at these things, and if we take in a condition like diabetes, for example. I really consider it an advanced aging disease, an accelerated aging disease, because of the inherent inflammation. It's just making the body break down rapidly, and we see that this being one of the leading risk factors, obviously from severe COVID and death. But yet again, we're not doing anything about it. We have epidemics, this has been going on for decades now, and we've just let it happen, we've been sitting back watching it happen and trusting in the same entities that kind of helped to co-create the conditions where this is a thing to somehow fixing COVID. And again, and again, we're not actually addressing the thing which is getting people healthier.

So, let's talk about the NK-cell in regards to this as well, because this is something I've been talking about since the very beginning. I'm talking March, April, just taking people through some of the data, "Hey, here's a study, it was Appalachian State University is going for a short walk, 20 or 30-minute walk, you get an instantaneous boost in your immune parameters, most notably for those NK-cell, which appear to have some really good effects that protection from SARS-CoV-2."

MIKE MUTZEL: Yeah, again, this is part of the innate immune system, super important for health in general, but especially this virus and a series of studies have come out on this like you're talking about just exercise, forest bathing, all of that, even vitamin D. And so, this was an interesting study in South Korea. I think there was 200,000 individuals in this electronic medical record that was part of the study, and they looked at all these... Maybe it was more like 108 or whatever it was, a lot of people, and they found that there was a correlation with adverse outcomes when it comes to this virus. And also exercise levels in vitamin D levels with this critically important cell that you just mentioned, the natural killer cells. So again, this should be front-page news because the levels of vitamin D that are... If you go to your mainstream doctor and they don't know anything about integrated medicine, as long as your levels are like 32 nanograms per ml, they're going to be like, "You don't have a deficiency, so you probably don't need to take any vitamin D." But what this study actually showed it is that your levels from an optimal standpoint for natural killer cell activity, that's what they looked at, is the activity.

How functional are these important cells like to go out and like Pac-Man, they'll seek and destroy and kill the bad guys and so forth, infected cells and whatnot? So, it was about, levels were between 55 and 60 nanograms per ml on the vitamin D level, so and then also exercise, more wasn't always better. That's kind of interesting because we've seen on the media, "Oh, well, this marathon runner got really sick," like exercise, like anything in life exerts or adheres to this U-shape curve phenomena. So, there's a sweet spot where it turns out to be around the cumulative 150 minutes per week, 75 of those minutes, half of those should be moderate or pretty intense vigorous activity. To me, that was fascinating because, in these dovetails, it's perfect that you brought that up now because we've been talking about these T-cells in this thymic involution. As we age, our natural killer cells become even more important for the elderly because they don't have... Their T-cells are kind of weakened, so it seems that we really need to support these natural killer cells, especially in our elderly friends and family. Because they don't have the T-cells there to help, and that was an interesting part of that study that I thought was... I learned...

What's cool about this is we can continue to talk about these benefits, later on, laugh at COVID, but everyone's so interested in it right now 'cause they want to stay safe. And it just goes to show Vitamin D, you can supplement that for 10 bucks a month, go out in the sun... If you live

in or southern latitudes, so there's a lot of things that we can do, and it turns out that exercise and vitamin D, I really support this critically important cell type.

SHAWN STEVENSON: Yeah. We've got a quick break coming up, we'll be right back. Our microbiome plays major role in regulating our metabolism, literally playing a role in determining how many calories are absorbed from our food, for example. Our microbiome also controls so much about our mood with the vast majority of our body serotonin being produced in our gut. And our microbes interact with these enterochromaffin cells and enteroendocrine cells that produce our hormones and neurotransmitters in our bellies. And one of the biggest issues we're seeing today is gut dysbiosis, where friendly microbes are getting overrun by opportunistic bacteria. One of the few amazing sources of nutrition that's been found clinically to reverse gut dysbiosis is highlighted in a study published in the Journal of Agricultural and Food Chemistry.

It discovered that the traditional fermented tea called Pu'er may be able to reverse gut dysbiosis by dramatically reducing ratios of potentially harmful bacteria and increasing ratios of beneficial bacteria. Another peer-reviewed study, published in the journal Nature Communications, uncovered that a unique compound called Theabrownin found in traditional fermented Pu'er has remarkable effects on a microbiome as well. And the research has found that Theabrownin positively alters gut microbiota and directly reduces hepatic, aka liver fat, and reduces lipogenesis, which means the creation of fat. Pu'er is absolutely amazing on so many levels and is also a powerful adjunct to any fat loss protocol because it's been found to support fat loss while protecting muscle at the same time. And this was documented in a recent study featured in Clinical Interventions in Aging.

Now, the key is the source of the Pu'er matters a lot, and the only Pu'er that I drink uses a patented cold extraction technology that extracts the bioactive compounds in the tea at cold to low temperatures for up to eight hours. And this process gently extracts natural antioxidants in phytonutrients and preserves them in a whole bio-available form. And this is their purest way to extract the vital nutrients from maximum efficacy. This Pu'er is also wild harvested making it even more concentrated in the polyphenols that we see having benefits in those clinical trials. Also, triple toxin screened for one of the highest levels of purity tested for pesticide, heavy metals, and toxic mold, and making sure that it is not in your tea, which is common in most other teas.

This is why I'm a massive fan of Pique teas. Go to piquetea.com/model, that's P-I-Q-U-E-T-E-A.com/model and you get 10% off their amazing fermented Pu'er and all of their other incredible teas. These teas are in a league of their own. Their Pu'er is amazing, I'm a huge fan of their ginger tea as well. Go to piquetea.com/model. Again, you get 10% off everything that they carry, one of the best investments in your health, supporting your microbiome,

supporting your metabolism, it is absolutely amazing. Head over to piquetea.com/model, and now back to the show.

Early on, one of the first drugs that was being worked on and trying to fast track through the FDA, a lot of folks don't know this, but again, I mentioned this very early on, was a drug to target our NK-cell. And it was because the data was indicating pretty clearly that our NK-cell are very important kind of stand-out-ish aspect of our immune system in this scenario, and now this kind of all again been brushed under the rug, and now we're focused on antibodies, which is great. It's definitely part of the conversation, but even this conversation has been mutated into something very dogmatic, and we actually have real-world science on looking at natural immunity versus vaccine-induced immunity. Let's talk about that.

MIKE MUTZEL: This is so fascinating to me because the fact that the media and all the experts that you see on television really discounted natural immunity was to me, mechanistically, it didn't really make sense because... And again, I'm not an anti-vaccination person, but when you get the vaccine, it sounds like you're getting an exogenous immune system, you're getting the antigen, which is a spike protein for which your own natural immune system will make memory too. And so, the fact that we were saying, "Well, the natural course of infection where you naturally get this spike protein that you'll get, if you get the virus, that doesn't matter. It's only the immune system memory that's created when you get the spike protein that's made by way of a messenger RNA."

So that to me was pretty interesting that the fact that we discounted this, but now the outcome data is coming out with regards to the rates, the differential rates between re-infection from a previous COVID infection versus a breakthrough case after you've been fully immunized. And so that study, I think there's a total of 700,000 individuals, maybe it was more in Israel and so... And what's interesting about that particular study... Have you covered this in-depth on the show yet?

SHAWN STEVENSON: No. Please do.

MIKE MUTZEL: It's so fascinating to me. And so, this I think it was a game-changer in how we should view natural immunity with regards to green passes and health passes and vaccine passports. Because the rates of re-infection in individuals who had been previously exposed to SARS-CoV-2 prior to March of 2021, so they're accounting for when the Delta variant was circulating. It was a 13 times lower odds of re-infection compared to a breakthrough. So that was really interesting. And so, it sort of makes sense, mechanistically, we were talking offline. Why would this be? We know that these vaccines can reduce disease severity and reduce risk of being hospitalized and all of that, but again, the mechanism through which these vaccines are working is on a single antigen of the virus, which is a s or spike protein.

Whereas if you get the whole virus, you're getting the nucleocapsid, the envelope, you're getting the spike protein, and there's also these non-structure proteins called ORF1, ORF2... There's a lot of these anyway, so it's more robust and there's more redundancy, and so your T-cell and your immune system is making immunologic memory to more targets so that when your body when your immune system sees those targets when you're getting re-exposed, it's going to react. And what was interesting, since you and I last chatted in April, so I got infected in December of 2020. I've been tracking my antibodies every three months; my antibodies had actually increased since... From their baseline levels in December, meaning that I had gotten exposed...

Re-exposed and I didn't even know, I didn't get a cold or anything, and that to me, I think it's quite fascinating, but yeah, the study in Israel was really compelling because the rates of re-infection were exceedingly low even when the Delta variant was circulating. So again, the difference between all the different re-infection versus breakthrough infection studies that the CDC has been looking at wasn't really... That data was not collected when the Delta variant was predominant, whereas the Israel study started tracking data February 28th, I believe to August 15th of this year. And so again, we're talking about, I think in the unvaccinated group, yet previously exposed, there was at least 60,000 people in that arm of the study, and I think there was 400,000 individuals in the fully vaccinated arms of the study. And they got somehow infected or a breakthrough case between end of February and August.

Now, what's interesting about that is due to that data and other related studies, countries like the UK and Italy, and France are accounting for natural immunity. There was an editorial piece in the British Medical Journal that said, "Hey look, why is United States one of the few sorts of westernized, big medical innovative countries when it comes to medicine?" Why are we not acknowledging previous infections because the epidemiologists have correlated...? Have looked at the data and figured out... And you talked about this before, we can say on 95% confidence interval that there's been at least 95 million cases up to maybe 130 million cases. We're pretty sure, even though the confirmed cases are like, what? 45 million at this point, something like that.

To me like, "Well, that's like a third of the population." And then, why aren't we saying that these people don't need to... They're not immune until they have two doses or a booster or whatever, and it was interesting that this was in the British Medical Journal, actually questioning why the US and other countries like Canada, are not acknowledging previous infection, given the data that the odds of a re-infection are exceedingly low.

SHAWN STEVENSON: Yeah. That's not science to ignore that, and then also getting us to this point is because of our immune system to even be sitting here in these chairs as humans, to

negate that natural immunity exists is just... It's beyond, it's very difficult to even comprehend that we even have to have this conversation. So, to recap this: We've got... For folks who've acquired COVID "in the wild" and they've developed antibodies in a spectrum of immunity, have about a 13 times percent reduced risk of re-infection versus folks who've been vaccinated.

MIKE MUTZEL: Correct, yeah, the probability is just much higher for a so-called breakthrough case compared to a re-infection, and again, this is data in lar... We're not talking about 12 subjects here and 13 subjects here, we're talking about tens of... So, this data, and this is during the so-called Delta variant when it's circulating, so why are we not acknowledging natural immunity? I mean, that's the thing, it's like, now, there's all these false dichotomies going on where it's either everyone has to be vaccinated or you're an anti-vaxxer. There is some gray area right here, and so we're not anti-vaxxer by saying that we should account for natural immunity. If we think about... Like you and I growing up, Shawn, if our cousin or our brother had chickenpox, our parents were like, "Okay, you need to go hang out with your cousin or brother to get the chickenpox so that you're done."

SHAWN STEVENSON: Chickenpox party.

MIKE MUTZEL: Yeah, chicken pox party. But now the epidemiologist and so forth, and this was even in the journal Science, who did the review and broke down the data from the Israel study in August... It was August 20th, I think, when it came out, they were saying, "Hey look, we got to have caution here, we don't want a bunch of high-risk people go into a COVID party," But they essentially said in the conclusion like natural immunity is more robust and more long-lasting than vaccine-induced immunity. Now, what's interesting is Pfizer funded this recent research that came out last week in the New England Journal Medicine, and again, I'm not dogging on vaccines, I'm just...

This is literally, I'm just, I'm the messenger, telling you what the data said, that after six months, the efficacy has dropped to 20% in the vaccine, and that's not 20% for risk of death or hospitalization, that still is fairly high in terms of preventing the odds of that happening. But preventing the fully vaccinated individual after six months, the efficacy is about 20% for catching COVID. So, you're like, "Okay," so we have data from other parts here in the US, Israel, other parts of the world, and here's what's even crazier, Shawn is going back to the MERS outbreak in 2003 and the first SAR-COVID outbreak. We know that those individuals have natural immunity, T cell immunity, from almost over 20 years ago, and this data is not new at all, this has been published in 2020. People have just gotten so sort of convinced that natural immunity doesn't matter, that it's a new virus, so it will sort of not behave like any other virus in nature.

It's just going to be so different 'cause it's new, but again, we have data showing that these T-cells that we've been talking about, they're impacted by exercise, our diet, and so forth. They are important because it seems that your, if you had high levels of antibodies all the time, your blood would be pretty thick and viscous, and you would be at a higher risk of getting a stroke or a heart attack. Your antibodies naturally decline, but that's why your T-cells are important because they are there to tell when you get re-exposed to say SARS-CoV-2. Your T-cell are going to yell at your B-cell and your plasma cells, "Hey, make antibodies." So, they are the communicator.

Now, here's a problem, is we have not helped people improve the functionality of their T-cell, so let's just say... Let's just pretend for a moment that these vaccines completely block COVID-19 transmission, you're never going to transmit the disease if you... We should be also encouraging people to do things to make the vaccines more effective. That's been my qualm with this as well. And it goes back to some of the drugs that we talked about, metformin, there were several studies in a drug called rapamycin, which is a known longevity enhancer. That actually improves the efficacy, that's been shown to improve the efficacy in individuals get... Elderly individuals getting an influenza vaccine.

So, we have so many ways, knowing this data, that after six months, efficacy of the vaccine has dropped to about 20% in terms of preventing an overall infection. Shouldn't we... Why were we recommending or endorsing tacitly that people get donuts after they get the shots? You're like, "That was just not a good public health campaign," and I know the government wasn't necessarily endorsing it, but the media was. Was saying, "Hey, here's a little pro bono thing. You go get your shot; you get free donuts."

SHAWN STEVENSON: Yeah. Here in LA, it was the biggest coercion/incentive, which is you get free food at McDonald's, burgers, fries. There's a massive lottery as well that took place, they gave away like $100 million in gift cards and lottery and all these different things, and not looking at education and actually, again, how do we... If this is going to be an effective adjunct, what do we do to actually make sure that it's effective? Listen to this. So, this is from UCSF, pretty close to us. UCSF, they found that sleep-deprived individuals sleeping less than six hours per night in their study were 11 and a half times less likely to get protected by a vaccine, and those who got adequate sleep.

MIKE MUTZEL: That's front-page news.

SHAWN STEVENSON: Here's a donut. How about we get some coaching on basic premises of human functionality? Which is you need to sleep, sleep is when your immune system is doing, scientifically speaking, a butt load of things to fortify your health, and 11 and a half times, that's a massive difference. So, these are the things that I have been talking about. And by the way, I

pulled this up because I wanted to show you, and we'll put this... Or maybe we won't put this up on the video, just in case, but they just change, and I don't know if you've been paying attention to the changing the definitions of things. Like in the dictionaries, like the online dictionaries and such, but in the Miriam Webster dictionary, it was just changed anti-vaxxer. The definition was changed from "A person who opposes vaccination" to "A person who opposes vaccination or laws at mandate vaccination".

MIKE MUTZEL: Oh my gosh.

SHAWN STEVENSON: Because for me, I'm pro-science, I don't care what the interjection or the adjunct is, I don't care. So, it's not inherently being anti-vaccine, but the mandates around these things, abandoning logic, and ignoring things like natural immunity, where is the science... And this is what I want to talk to about, false dichotomy and having these conversations with folks because that's what science is. It's looking at the data and having rational logical conclusions. Well, we've got, as you mentioned, countries that are backing off on mandates around that and really honoring natural immunity because it exists, and as a matter of fact, it's very likely more robust.

There are some studies showing, "Hey, maybe it's kind of similar," but the majority of high-quality data that we have shows that it's more effective and it just makes sense because it's providing a spectrum of protection versus just targeting the spike protein in an artificial kind of response. So, let's talk about this false dichotomy because I know a lot of folks are having a difficult time having these conversations with family members, with friends, and we're in a tough situation. Where again, jobs are forcing folks to be vaccinated even if they've had a COVID infection, which is not really even logical, so what's the point? What's the point of forcing this upon somebody? Is this about actual protection or is it something else?

MIKE MUTZEL: Yeah, this is really... It's an important question because it's breaking up families, relationships, spouses, people have different opinions about what they should do for their children, and I think the... Again, if we want to be science-based about this, the Journal of the American Medical Association, or maybe it was Archives of Internal Medicine, one of the two show that the people that are most likely to have side effects from the vaccine are the people who had also been previously infected, so you're like, "Well, you're having a much higher probability," and I'm not saying these vaccines are going to cause you to grow three arms, but we do know that side effects are complication linked with immunizations.

Particularly these ones, you're like, you're basically telling that person that you're denying that their immune system has any memory to this virus, and then you're increasing the odds at which they're going to have a side effect as well. And the side effects are not totally benign, some people have died, some people have had embolic or clotting events. Some people have

had neurologic stuff, and so that's kind of... Again, if we're going to be science-based about this, and I think a lot of people have just been convinced it's a similar false dichotomy with the face masking thing, where it's like, if you don't wear a face mask, you must want people to die. It's creating this weird network tribalism thing where people identify more with what they disagree with, so it's kind of this phenomenon, and there's been some video circulating about this, and I think it's really disappointing, honestly, I think it comes from the media being so dishonest, saying...

And again, I will tell you the data is pretty clear that these vaccines do reduce risk of dying, the data has shown that, and I know there's some conflicting data there. And I looked at the data in Israel and all of that, but they do not block transmission, that is obvious. The CDC's own study from every week, and I encourage anyone of my video listeners and all that to check out the CDC's Morbidity Mortality Weekly Report, MMWR. They always put out interesting things like the obesity and kids and all that, and there was an outbreak over the Fourth of July and somewhere in the Hamptons. And that occurred in 73%, like 73% of people that tested positive were fully vaccinated in that, and that literally, that MMWR was what led to the renewed face mask mandates throughout the US.

SHAWN STEVENSON: Look at that.

MIKE MUTZEL: Right, look at that. I feel like no one... People are like they watch CNN, and they hear about, "Oh, if you don't get vaccinated, you must want people to die," but the CDC's own study shows that it doesn't completely block transmission. In fact, if you look at the rates of hospitalization, there are six people from that outbreak, so to speak, in the Hamptons. Five of the six were fully vaccinated that ended up in the hospital. So, you're like, "Well if you just took someone who woke up from a Coma through all of COVID and so they didn't have any emotional connection or skin in the game and you shared with them this MMWR. They would be like, "Well, why are we mandating vaccines for people?" And again, I'm not saying that people shouldn't get immunized, especially if they're higher risk or they're elderly probably. But clearly, we're being told something that may not be totally true. It's sort of like the double masking when you're out walking or hiking. You're like, what are the odds of getting outdoors transmission? It's like 1 in 10000 or something crazy. It's infinitesimally small. So, it's this identity, it's like this religion like you're part of the tribe, if you do this thing.

So, I don't know where we go from here. And so, what I've been doing because personally, my wife is Canadian and all her family is Canadian and the only sort of network news they get up there at CNN and so I know my in-laws are into everything that's going on from a mainstream medicine narrative standpoint. And so, my mother-in-law will not let my wife go visit her and I keep... We've already had COVID. We've tested our T-cell, t-detect.com is how you test it. We tested antibodies. We all have that. But she's like, "No, that's not sufficient for me. We can't

have you do that. We need you to get immunized." And she's like, "Mom, I've already, you know." Anyway, so it's creating this weird conversation, it's straining relationships. It's tough.

SHAWN STEVENSON: Oh, man. Yeah, that's so heartbreaking. So heart-breaking. My wife's best friend, her father isn't talking to her because she hasn't been immunized and she's literally the healthiest person in the family by far... And again, it's not about being anti-vaccine, it's just like, "What's the right choice in the scenario based on my immune system, my COVID exposure, all these other factors?" And it's just like, "Get the vaccine or else," which, how are we even in this place? Truly, we started off like, "You know what guys, let's be careful about this. Social distance, wash your hands," to, "Get this vaccination or you're going to lose your job," or "Get this vaccination, or else... " Fill in the blank. And for our government to literally force companies in our society today to fire folks, to have to face litigation themselves or fines if they don't abide by this new government mandate. And the thing is, and this is a very simple principle, this is new. It's not like this has been around for a few years. We have a lot of long-term safety data. As far as that's concerned, we literally have no idea because in a sense it is changing how our cells operate and most instances, some long-term side effects.

When most drugs hit the market, it's on average, and we'll put a study up for everybody who's watching the video, it's on average about four years later when the drug is finally acknowledged to be problematic and recalled, right. Four years, on average. That's on average. And so, the false premise here is that people know exactly what's going to happen and literally nobody on planet Earth knows what's going to happen, nobody. We can hypothesize, we could say things look good so far but if we're being honest about the data, things don't exactly look really good. There are a lot of very concerning things we've never seen before, myocarditis in kids, to such a degree that it's actually being acknowledged. And also, I just did a little piece that as of this recording, I've put it out everywhere and I went and actually analyzed the vaers database, which is unnecessarily complex in and of itself, and I brought forth this thing that's been talked about. Tens of thousands, hundreds of thousands of women with abnormalities with their menstrual cycle, and that was getting brushed under the rug, getting censored per usual. But some really great scientists, again, they're just like, "I'm not anti-vaccine. I went and got vaccinated but this thing happened."

And I talked to some other female friends, scientists, and they were like, "Wow, that happened to me too." And so now, per this recording, the NIH has just launched... I don't know if you saw this, they just launched a big fund and providing almost $2 million in funding for research to investigate the abnormalities with menstrual cycles for women who've gotten the COVID vaccine because it's a big deal. The question is, why did it take over a year for it to get acknowledged? Because this was happening very early on in the campaign. So, it's great that people are asking these questions but it's because of mediums like this and people really speaking up and forcing the conversation because the entities that are controlling these

things, they would brush it under the rug per usual. So yeah. And here's the question that I want to pose you and this, again, it's just a hypothesis. What could be happening where we inject something into our arm and it's affecting our heart or it's affecting the menstrual cycle? What is the underlying mechanism for that to even be a thing?

Well, it's interesting you bring that up because there was that study that I sent to you in Bristol University. Some scientists asked this very question which I think... Let me just pause before we dive into it. I think, honestly, this topic is so radioactive for even scientists to ask the question about, what if the spike protein is not as benign as we think it is? We've assumed that it's just this benign sort of extracellular antigen and it's just hanging out on the SARS-CoV-2 and it doesn't cause any pathology or disease. It's totally benign. But what if it's not benign? And I honestly think that scientists will get their funding cut, they'll get censored, they'll get ostracized from the medical community or research if they even ask this question because this question was asked by this group in the UK. And what they found is that this spike protein, it actually... So, there's like 28 or 26 different S proteins, or spike proteins, on the extracellular or part of the SARS-CoV-2 virus. That's what enables it to latch on to your cells like in your airway epithelia, the endothelial cells in your lungs, and in your heart and cardiovascular system. And that's what enables the virus to go in and take over your cellular machinery and replicate and so forth.

Well, it turns out that there's hydrolytic, or there's enzymes that snip the spike protein off the virus and that's found... The spike protein has been found in the urine. It's been found in the bladder. In the whole blood, it's just circulating. It's going around. So, the scientists were like, "Okay. Well, what does it do?" And they looked at different human hearts, so they looked at cadaver hearts. They took out different cells and they found that it alters the function of this critical cell in your entire circulatory system and microvascular system known as this pericyte, and it's also found in the brain as well. And so, this pericyte is sort of like, the best analogy that I created through, I'm not an expert in this field but it's sort of like a janitor or a housekeeper within your cardiovascular system. It's helping the endothelial cells like if they get damaged, helps to repair them, and helps to remake connections. And so, this pericyte gets totally dysfunctional through this so-called CD147 mechanism, it's more complex. But it triggers this intercellular signaling cascade of an inflammation, that is the spike protein does, in this critically important cell known as the pericyte, which is a really...

It's like mortar and the bricks of your cardiovascular system, essentially. And so, you asked the question, how are 17-year-old kids getting myocarditis after this vaccination? What is going on here? How are people getting strokes or blood clots in their brain? Or what's going on with the menstrual? It seems that one of the mechanisms could be this inflammatory induction and changing the functional activity of this very important cell type that is found in the heart, in your micro-vessels throughout and the capillaries and so forth, and also in the brain. And again,

to me, I thought that study would have been referenced like 100 times. So many people would have been like, "Okay, we got to dive into this. Let's put a pause button especially on low-risk individuals." But no, it hasn't been referenced once. And what was interesting, and I know you've done this, you'll reach out to a scientist or an author on a paper, they're super excited 'cause they're in their research lab, they're publishing this stuff. They get back to you, usually, right away. I send two emails to this group, and I didn't hear anything back and I was just wanting to know more like, "Hey. Maybe could we chat?" And I heard, it was crickets.

Again, I'm totally speculating here but I honestly think this topic is so radioactive because of the potential implications if it turns out, 'cause this is the platform or the delivery system for all of these currently available immunizations. If it turns out that there is some iatrogenesis or unintended harms that weren't really fully thought through, that could be a bad situation. So, I don't know. That doesn't mean that no one should ever get the vaccine. I'm just saying like, "Okay, if this is true, why don't we recommend people exercise beforehand? Make sure that if they have increased blood thickness or they have a family history of clotting or hyper-coagulation type events, they're at higher risk for stroke, maybe they should maybe do some things beforehand. Go on blood thinners, do something to maybe augment the potential side effects that are known here from a mechanistic standpoint. Things come to mind like going in the sauna, exercising, walking.

I find this with a lot of my male clients that I've worked with over the years, thick blood. So, hemoglobin and hematocrit are common blood tests that you find on your complete blood count, CBC, and in most men, because they're not menstruating, their blood is really thick. And so, if maybe a family member or a friend that you know of that's going to go get vaccinated, maybe they should donate blood ahead of time so that their blood may be might not be so thick and prone to coagulate if there is this off-target complication with clotting, potentially. Again, these are things that you have to step back and go, "Okay. Well, is this too complicated of a public health message? Is that why it's not being discussed? Is it just ignorance? Is it just that the system is not as efficient as we think it is?" Like you said, we should be encouraging exercise and sleep to make these things more effective.

If people are going to go down that road, we should be doing things that are practical to reduce the potential downsides afterward. I'm sure you've gotten this question, "Hey, my employer is making me get this. What do I do? How do I detox?" And so those are some things that I would suggest is donating blood, making sure you're going in a sauna, 'cause therapy improves microcirculation and improves the vasodilation. So that could be something very helpful. Obviously, get a good night's sleep and not eat foods that are going to induce coagulation so fried fruit, processed foods, have a low glycemic index diet. Treat this like you would treat any sort of event that you would do that's important to you like maybe you don't drink for a couple

of weeks beforehand, making sure you're walking. Doing all these things leading up to it to make it more effective, number one, and also reduce potentially any downsides.

SHAWN STEVENSON: Yeah, this is so great. Yeah, of course, I've been flooded with that question as well and as you mentioned, this topic is so radioactive is such a great term to put with it. And for both of us, I know it's bordering on insanity that we are in a situation right now as a culture in 2021 where we are not allowed to have these conversations on many of the biggest platforms where people are conversating. Many of our interactions as humans have traversed over into this space where the conversation, natural immunity, for example, is censored on Instagram, for example. Just being a rational human being, I don't think that has any place in the domain especially... I mean, I believe the average person should be able to have their voice heard and to have these conversations and you just to be able to have the wherewithal of like, "Okay, that sounds crazy. Getting vaccinated and now they've got one butt cheek is bigger than the other," whatever. Which is not to say it's not possible, but to just have something that's like a one-off or just a crazy thing that somebody says, just to have some logic and be able to discern that for yourself as a human.

I think that's part of the problem that we've gotten to where we need this parental figure in the form of our government and social media platforms to be the parent and tell us what's true and what's not. That's a problem in and of itself but I think we've devolved in our ability to think critically as humans in the first place where I can see where they would sort of deem that to be appropriate, but even that still is not appropriate. Especially people who are credible scientists. What we do, I literally just am looking at the data and what I do is I'm going into it understanding we both have cognitive biases and I'm aware that I have a bias and I'm checking them at the door. I'm going in and looking for things to counter what I believe to be true so that I can come to a comprehensive understanding and then share that with everybody. Some stuff right now is so wrong. It's so total opposite of what people are being force-fed that that's when I bring in the humor, that's when I bring in the agitation in it because I just feel it in my spirit like this the data. It clearly shows like 90% of it says this.

Yes, there are some things that... Because you could find data that proves just about anything but it's having the heart to say, "You know what, I'm willing to be wrong. Let me go and look at this and put my bias to the side and look at this as a rational human being." And then from that place also, I think this is important too, is to have compassion in this time where there's so much infighting. People are being very illogical and there's so much distance taking place where family members are fighting with each other, and people are... One incredible person, again healthy human being, her business, her life is built around health. She's been friends with a couple of girls for 10 years and she just found out that she can't come to their wedding. She was in the wedding, now she's not because she's not vaccinated. Or there was another example where there's a vaccinated table that can't dance on the dance floor if you're not vaccinated.

All of these things it's just like, Is this logical? Are we actually being logical or are we being CNN-minded? And it's not just CNN, every major news outlet does this where they make us hate each other.

And also, we've talked about this multiple times here on this show and I'm going to pull back from playing it again but, the technical director at CNN, Charlie Chester, was caught with his own words saying that they're purposefully using fear for ratings. They're purposefully using fear to keep people glued to their televisions and this is why they have the death toll ticker on CNN, which I couldn't believe when I first saw it. I was like, "How is this even socially acceptable that we are relenting human lives to these numbers, this ticking number?" And he said in the segment that... You know what, I got to play it. I'm going to put it in this episode. We're going to play it for you guys.

COVID? Gangbusters with ratings, right? Which is why we constantly have the death toll on the side, which I have a major problem with, how we're tallying how many people die every day. 'Cause I've even looked at it and been like looked at it and been like, "Let's make it higher." Like, "Why isn't it high enough, like, today?" It would make our point better if it was higher and I'm like, "What am I rallying for?" That's a problem that we're doing that.

How about you guys at CNN show the recovery rates on the death tolls at least.

Recovery rates. Who's had it? And then...

Recovered.

Recovered. Because that's not scary. I don't see how that... I would imagine that's why they don't do it. Yeah.

That's what I figured.

If it bleeds, it leads. Yeah.

If it bleeds, it leads. I like that.

I think no one ever says those things out loud but it's obvious based on the amount of stories that we do. Like the fact that we have a segment called The Good Stuff, which is a feel-good thing, but it's a dedicated moment at the end to almost like be the ice cream to alleviate everything that you've been through. Like something sweet to end it with 'cause everything else is like doom. And the only people that we will have on the air, for the most part, are people

that have proven track record of taking the bait. I think there's an art to manipulation that I think a lot of... I think some people have figured it out inherently.

Like with the media or just in general?

In media and in just conversation.

SHAWN STEVENSON: So, he said in that segment that sometimes he would see the numbers and he would think, "We need to get those numbers higher. We need to have more deaths on the screen. We need to get those numbers higher." And he confessed it. That's wrong. I shouldn't be saying that. That's really wrong but that's the nature of the business. And also, him having the premise that when she asked him why don't we have a recovery ticker showing how many people are okay, he had to stop and think about it for a moment. He's like, "That's not scary. If it bleeds, it leads." He said the thing that we already know but this is somebody who's one step below the director of the station saying that we're purposely using fear. My biggest issue is fear without context. Give some context here, okay. These negative things are happening but what about all the good things that are happening. Let's have some context so people aren't having irrational fear to where even if... For example, with your wife, she's had COVID, her antibodies, all the metrics are that of somebody who's probably more equipped to being safe around her parents. And it's just like, "Well, no, you got to get this thing because they said you got to get this thing."

So yeah, man. I'm so grateful to have this conversation with you and to have you on. You're somebody that I reach out to when we have these conversations and if you could, let's offer a little bit of insight, just a little bit more, dig in just a little bit deeper on what people can do right now when they are feeling that they're kind of cut adrift or they're being ostracized. Like a good example is your family, your wife. How do you deal with a situation like that that can be really heart-breaking?

MIKE MUTZEL: Yeah, that's a great question. I don't know that I totally know the answers to that because it's really tough, but I just visualize 'cause I thought like, "Okay. Well, Deanna, how hard would it be just to go maybe get one dose." I just threw it out there as I had but how would you feel? And so, I would encourage people to do this exercise. And so, when we both close our eyes, and I was like, "I will be so pissed. The nurses getting the needle, I would be just... I would feel like crap." And she's a chiropractor so she's working with people, and she's heard the stories of the female patients who are experiencing some challenges with their menstruation and all that, and they say to her, "I just want to get this thing out of me." That's what they've said. Those are their words. And so, it's just like, you know what, then we just have to stick to our values and know that that's probably being sort of, sounds weird but, may be

transmitted to us from a higher power and we need to just stick to the core. And the good thing is there's a lot of people, find people who you can talk to.

That's, I think, the hardest part for people is they do not have someone they can talk to about these things and share frustrations and just share stories. And so, find your tribe or your group that you can bounce these ideas off. This time will pass like any other. The cool thing, or the bad thing, about the media, they're onto the next. Right? Once people are done here and about it, they're going to pivot to something else, the climate or whatever and so this time will pass. Eventually, enough people are going to get this that they're not going to have a lot of leverage, I don't think, over us is my hypothesis. If we think about the mortality rate of say the 1919 flu, it's way worse than this and that was a two-year deal. So, I don't foresee this going on for 10 years, maybe into the winter of this year, and then probably we won't hear too much about it. But yeah, I think just stick to your values and find your tribe.

SHAWN STEVENSON: That's great advice. Very simple and practical, listen to your heart, pay attention to your own values, and don't beat yourself up if you have relented in any of these instances because it takes a superhuman. Let's just be honest, it's very simple but it's not necessarily easy at a time like this so have compassion with yourself first and foremost. And I think more than ever, this is the time to listen to your heart, to stand for your own values, as you mentioned, and to connect with amazing people like you. So, I'm grateful that you're in my life and can you let everybody know where they can get more information about you, where they can check out your show, your incredible show as well.

MIKE MUTZEL: Sure Shawn. And again, thank you so much for having me on and it was so awesome to connect with you. I think just on Instagram, we started sharing some stuff and then you reached out to me, and we have similar values and that is helping our kids, and so that's why we're doing what we're doing. But grateful to be here and thanks to everyone for listening. My YouTube channel, which is where I post most things, is High-Intensity Health so if people are interested in learning more about fasting, exercise, and all that, they can check that out. I appreciate that.

SHAWN STEVENSON: Awesome. My guy, Mike Mutzel. I appreciate you, man.

MIKE MUTZEL: Thank you.

SHAWN STEVENSON: Awesome. Mike Mutzel, everybody. Thank you so much for tuning in to the show today. I hope you got a lot of value out of this. Make sure to share this episode out like crazy. And of course, tag me. I'm @shawnmodel on Instagram and tag Mike, he's @metabolic_mike on Instagram, and let him know what you thought about this episode. We've got some powerful masterclasses and special guests coming up very soon so make sure to stay

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