THE MODEL HEALTH SHOW

EPISODE 515

8 Clinically Proven Ways To Strengthen Your Immune System In The Age Of COVID-19

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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 at a time when immune system performance is of the utmost importance, there's not actually a lot of data, clinically proven evidence on how to actually fortify and strengthen our immune system, especially in the age of COVID-19. So today we're going to focus on eight clinically proven strategies to fortify your immune function, specifically looking at the peer-reviewed evidence on what we can do to actually defend the body from COVID-19. This is an important conversation. So instead of looking at things superficially and talking about theories, we're really going to dig in on the what to do and how it actually works, we're going to kick things off with some new data that was highlighted by researchers at the Cleveland Clinic.

They used artificial intelligence to search for hidden clues in the structure of SARS-CoV-2 to predict how it invades human cells and what might stop it, and one observation stood out for the researchers, the virus could potentially be blocked by melatonin. That's right, this glorified sleep-related hormone has some really remarkable effects in modulating and supporting the body in defense of COVID-19. So our number One strategy here is about sleep and the regulatory forces with sleep, including melatonin. The scientists noted that it essentially acts as a moderator melatonin acts as a moderator to help keep our self-protective responses from going haywire, which this appears to be one of the primary issues taking an asymptomatic or a mild case of COVID-19 into something severe, is our own body's response in an over-active immune response.

So, melatonin appears to be a moderator, helping the immune system to mount an appropriate response when interacting with this virus. In the recently published results, melatonin continued to stand out, and people taking it had significantly lower odds of developing COVID-19, and the data indicated that even if you contracted COVID, you had a much lower risk of dying from it, you had a much lower risk of severe symptoms when folks were utilizing melatonin. Other researchers noticed similar patterns; a study conducted by researchers at Columbia University found that intubated patients had better rates of survival if they received melatonin. This is not something you'll see on the news headlines right now, that something so inexpensive could have such a profound effect. And the lead researcher in the study believes that the real issue at play may not be melatonin at all, but the function it famously controls, sleep.

Additional research published by the Mayo Clinic shows that people who don't get quality sleep, efficient effective sleep, or don't get enough sleep are far more likely to get sick after being exposed to a virus. This is one of the foundational tenets about human function, our

sleep, our sleep quality is something that we've not evolved out of, because there's so many critical processes that take place during sleep that simply cannot be replaced.

A few of these contributing factors to this is that during our sleep, our immune system actually releases these proteins called cytokines. Now listen to this because we have this cognitive bias towards cytokines right now, so I'm going to open this up a little bit more. Cytokines, some of which actually help to promote efficient sleep cycles and improve our overall sleep quality, we're not hearing cytokines can do that. But this is also because certain cytokines need to increase when we have an infection or inflammation to help modulate the process, or when we're under stress, this process takes place as well, and sleep deprivation has been found to directly decrease production of these protective cytokines. Now on the other side, you've probably heard a lot of the news about these cytokine storms being one of the major side effects associated with COVID-19, an over-reaction by our immune system.

Well, again, it's important to note that there are an array of different types of cytokines, and they all have different roles from interferons to interleukins to chemokines, there's so many different types of these remarkable compounds. And by the way, again, these cytokines are proteins, at their basic place, they're proteins, and so what are proteins made from in our bodies, where do we get proteins? It doesn't just happen, where are we getting the building blocks to make these proteins? It's from our food, so we also want to keep that in the back of our mind today as well, that our food is literally creating our immune system, the food that we eat creates our immune cells.

Now again, some cytokines actually help to regulate our sleep quality, defend the body from cancer and actually keep inflammation in check while other cytokines are pro-inflammatory in their role. Inflammation has a role as well, it's not that it's all bad, because that inflammatory process is really calling on more immune system weapons to respond and get to this location of need, it's kind of like a signal that's getting set off in the body, but that signal can go too far, and these pro-inflammatory cytokines or the cytokine storm.

Listen to this, "A study published in PLoS ONE, the Public Library of Science One, found that sleep deprivation triggers the excessive levels of these pro-inflammatory cytokines. So now you can start to see how our sleep quality or lack thereof, can actually suppress the modulation, the production, and the activity of cytokines that actually help to regulate and improve our sleep can suppress that when we're sleep-deprived and when we're sleep-deprived, we're increasing the productivity, the activity, the production of pro-inflammatory cytokines stacking the cards against us. This is a primary tenet of human health, and the function of our immune system is dependent upon our sleep quality, yet this is getting no attention at all in major media and also from our public health officials.

So again, we should be questioning why is that? Primary thing, and we're going to circle back to one of the other major points that they are talking about, but they're leaving the sleep equation out of their conversation as well. But I also wanted to note that researchers in the aforementioned study stated that sleep restriction can lead to persistent changes in the immune system by promoting inflammation and increasing susceptibility to illness, that's their conclusion.

Now, sleep deprivation dramatically disturbs the systems that actually help to regulate our immune system, so the overarching systems including the brain and nervous system. One of the primary roles of sleep that we now understand today, only in recent, the last few years have we actually uncovered this, is the importance of sleep, in regulating detoxification, and one of those being detoxification specifically in the brain for our glymphatic system run by the glial cells in the brain. This system essentially is cleaning house from the trillions of processes that take place in a given day, and the metabolic waste products, those things need to get swept out of the brain, essentially. And so, the glymphatic system kicks into action. When we're sleeping, it's 10 times more active than when we're awake, to remove this debris from our system that can create a lot of stagnation and suppress, depress our cognitive function, the function of our brain overall, and our nervous system that again is in constant contact with our immune system, everything is happening in the same medium. So, when we're sleep-deprived inherently, our brain function is dramatically diminishing and by its very nature, dramatically diminishing the function of our immune system, that's just another one of the layers and connections.

But let's look at another connection between sleep deprivation and COVID-19. A recent study published in the British Journal of Medicine looked at the data from six different countries and uncovered that longer sleep duration, getting more sleep is associated with lower odds of contracting COVID-19. What the researchers uncovered was that for every hour increase in the amount of time spent asleep, it was associated with a 12% lower odds of becoming infected with COVID-19. So, if someone is regularly getting five hours of sleep, which is not uncommon in our world today, by any stretch of the imagination. Here in the United States, we've got about 115 millions of our citizens are regularly sleep-deprived, so again, this isn't an abnormal issue. So, if someone, for example, is getting five hours a night and they were to devote more to their health, devote more to their sleep, and they bumped this up by two hours a night, according to the researchers' data, this would decrease their risk of infection by 24%, just getting a little bit more sleep. If they were going all-star and trying to get eight hours of sleep, that would reduce their risk of infection by 36% according to their data.

Now, keep in mind, this was an observational study, and unfortunately, this is some of the best data that we have on the subject, but the good news is that scientists are asking the questions. They are researching these things. They're running clinical trials. They're analyzing data to see,

"Hey, the things that our genes expect us to do to be healthy, to have a healthy functioning immune system, what if we do them? What if we go ahead and make sure that people are getting adequate sleep? See what happens, let's track when people are sleep deprived, see what happens," and share the data with, unfortunately, the scientific community is who's usually looking at this data, it's not getting into the hands of the public who need it most.

And this is why The Model Health Show is that bridge. This is why we operate as that bridge to make sure that we take this peer-reviewed evidence and all of the academic jargon that they use to make things unnecessarily complex, how do we make this make sense and actionable for people today? And I love the statement from Albert Einstein that says, "If you can't explain it simply, you don't know it well enough." And so that's what we strive to do, is to take these complex things and to make them to make sense for everyday folks, because this stuff doesn't have to be complex. Adding a lot of complexity creates more confusion, adding a lot of complexity, disempowers you. Adding a lot of complexity puts people in a position where they start to outsource their thinking to someone else.

So, with that said, we're going to look at one more piece that came from this particular study, again, published in the BMJ, the researchers found that participants with documented sleep problems had an 88% greater odds of contracting a COVID-19 infection. Wow! Almost 100%! 88% greater odds. Sleep matters, it matters, it's always mattered, but right now it matters more than ever for us to just put some attention into it because the regulatory force of our sleep far outweighs any other intervention that is being tossed around today. This is something our genes expect of us. Our bodies aren't necessarily telling us today that we're deficient in a new drug, but our bodies can tell us very quickly that we're deficient in sleep. So, as you've seen, sleep itself is a critical regulator of immune function, but melatonin itself plays a major part in calibrating the immune system.

A new observational study and which was published in PLoS ONE Biology, tracked the data of almost 27,000 people and found that melatonin usage is associated with a 28% reduced likelihood of a SARS-CoV-2 infection. Melatonin was an effective prophylactic, so protecting people for diabetics and other sub-groups as well, but one that jumped out in this study was melatonin use in African-Americans was associated with a 52% reduced likelihood of a positive laboratory test for SARS-CoV-2. And this was after adjusting for other factors like age, sex, smoking history, and various disease comorbidities, melatonin jumped out. Now, this isn't about running out to go and gobble up all the melatonin out there. We want to look at first how can we put ourselves in position for our bodies to do the thing that it's designed to do, which is to produce melatonin in copious amounts to help to regulate our immune system, our sleep, the list goes on and on.

Melatonin also has a well-established anti-cancer functionality as well. So, it's not just a force that regulates our sleep, that's kind of putting it in a box, a very small box when melatonin is a master regulator of our circadian system, our biological clocks. They're our clock genes that we have that have now been established. Melatonin is a regulator of our hormones, our endocrine system overall, our nervous system, very powerful. So just to haphazardly start take melatonin, maybe not be the best idea for a lot of folks but using it in an intentional way can be helpful. But number one, first and foremost, let's make sure that we're producing adequate melatonin in and of itself.

One of the primary ways that we're suppressing melatonin production is by being exposed to abnormal light. Harvard researchers have uncovered what, again this is passed around a lot today, a lot of people "know these things," but are you doing it? Are you paying attention to this? They established that the light coming from our devices, our televisions, our laptops, our smartphones, do in fact suppress melatonin in the evening and increase cortisol in the evening. Essentially, the researchers found that approximately every hour you're on your device, you're suppressing melatonin for about 30 minutes. And so, every hour we're on our device in the evening, suppressing melatonin for 30 minutes.

So, could this be one of the primary reasons behind our epidemics of sleep deprivation and abnormal sleep issues? It's definitely a big role player because again, in our evolution this is a very new thing. It's not to say we can't watch a movie or do some work or be on our phone, but we got to understand what are the side effects. This is new. Our biology has never been exposed to these things until recent years, and we don't know the full ramifications. So, it'd probably be a good idea to err on the side of a little bit of caution, having a little bit of a screen curfew in the evening, if melatonin is important to you, producing optimal melatonin, which is a master regulator of our health, maybe give yourself 30 minutes. Just start with 30, alright?

I'm not saying for you to, you know, get off your devices two hours before bed and sit there and twiddle your thumbs, because for certain, if you go from being on your phone, the last thing you do before bed is like look at your phone and give a little kiss goodnight, a little... And lay it down next to you, which is crazy in and of itself, the amount of people who actually sleep with their phone. I know it's not you. Well, I know it's a couple of people. According to the data, we're talking in the ballpark of maybe 40% of some populations, even upwards to 80%, if we're talking about teens, and so people are growing up with these habits and not understanding what it's doing to their health. So instead of doing that, and you suddenly try to be off your device for two hours in the evening, you're probably going to have really strong withdrawal. Alright, and so just start with 30 minutes, so it's a 30-minute screen curfew, allow your body to naturally produce. Because how melatonin, what the requirement is to produce melatonin in darkness, as the sun is going down if we were living in a natural environment, our melatonin would start going up, cortisol is going down, melatonin is going up.

But in our world today, we can manufacture a second day time by keeping these artificial lights on, beaming in our eyes and on our skin. So again, I love our tech. We couldn't do this without it. But we want to make sure that we are intentionally running these things and they're not running us. Alright, so that's one is having a screen curfew, really helpful for fortifying and supporting melatonin. Second tip is to make sure that we're getting some sun exposure during the daytime. That sun exposure actually helps to increase our body's production of serotonin, which serotonin is a precursor for melatonin. And also, sun exposure during the day has been found to dramatically decrease cortisol levels in the evening, which cortisol is really an antithesis of melatonin. If cortisol levels are kind of dominating, it's going to press melatonin down. And the opposite is true as well.

So, there's just a couple of real-world, simple, free tips that we can utilize and also using some protection on our screen, so getting yourself F.lux on your desktop and laptops, that's F.lux. It's a free app that kind of pulls off the most problematic color from your screen, you could set it at a certain time, you can set it to your time zone. I've been using it for, I don't know, probably at least eight years I believe, seven, eight years. So, we got F.lux. It's built into many of the phones today. If you've got night shift, for example, and on Androids and other phones, you can download apps that do a similar thing as the iPhone. So, this is getting more and more attention today, but the question is, are we doing it.

So those are some simple adjuncts with melatonin. Just don't block your body's production of it, number one, Captain Obvious. Alright? But we also don't want to negate the fact that seeing the clinical role of melatonin in the research might be something for folks to think about, especially if they're trying to get on a healthy sleep regiment if they're changing time zones, those types of things. Or if they just need a little bit of assistance if they're not in a great state of health, maybe adding a little bit of melatonin can be a great intervention. But we want to make sure that we're doing it in the most efficacious way possible. Ideally, we want to make sure that if we are using melatonin that it doesn't have any binders, fillers. They add these nefarious ingredients that are in a lot of supplements. We want to make sure that you're getting your supplements from companies that do stuff the right way. They're going the extra mile to make sure that they're not delivering toxicity along with the good stuff that you're trying to get.

And also with melatonin, it's a great idea to have something that's in liquid form, and the one that I use, and I travel with it. So, I don't often use melatonin, but except if I'm changing time zones, that kind of thing. It's actually been found to help to reset and recalibrate the circadian clock in helping people to get back, kind of locked in, in their time zone quicker by having a little bit of melatonin. So the one that I use is an instant melatonin spray. So taken sub-lingually, you spray it under your tongue, that's what I do. And I just hold it there for a little bit and it's

going to get absorbed rapidly through the tissues in the mouth. There's going to be a little bit leftover, but if we're just swallowing a bunch of capsules we might lose some in the digestive process. But this is why I love the instant melatonin spray from Onnit, again, no binders, no fillers, no nefarious ingredients. And it's easy to travel with, and it's pretty inexpensive too. So, pop over there, check them out, especially if you're going to be utilizing melatonin utilize this melatonin. It's the best. Go to onnit.com/model, that's O-N-N-I-T.com/model. They're also going to hook you up with 10% off their incredible instant melatonin spray. Again, that's onnit.com, O-N-N-I-T.com/model.

Now, we're going to look at again, this is one of the clinically proven ways to fortify your immune system in the age of COVID-19. This next part, this is still with sleep, because this is important, is looking at the mandated intervention right now in the role that sleep actually plays in its effectiveness if done again in an efficacious manner. If that was really about health, this would be paid attention to. A review of multiple studies published in The American Journal of Infection Control titled, Lack of Sleep Can Jeopardize Vaccine Effectiveness, highlights yet another component of real health that's ignored in our current culture.

The study, along with several others, this isn't the only one, suggests that vaccine effectiveness against infectious diseases may be impaired significantly in sleep-deprived individuals. To take this a step further and look at some specific numbers, researchers at the University of California, San Francisco, UCSF found that sleep-deprived individuals who were sleeping less than six hours per night were over 11 times less likely to be protected by a vaccine than those who got adequate sleep. Not two times, not five, 11 times less likely to be protected by this particular intervention. No study is perfect, of course, but these numbers should be at least a little bit unsettling and spark more advocacy around sleep wellness. But that's not the case right now. And that's why we have to make it the case. Because it's hardly getting a word from health professionals, from people who are out here recommending get your donut, get your injection. They're not talking about sleep; they're not talking about the fact that you can dramatically depress your response to this intervention if you're not sleeping well. And wonder why we're having the problems that we're having right now. Things aren't working out. Things aren't working out.

But again, we got to keep in mind, the media charades are making people point the finger at each other and not looking at the lack of integrity in the interventions themselves. So, one of those interventions critically important, our genes expect from us, every single cell in our body, our DNA expects to function normally. Every single one of our immune cells requires adequate sleep. So that's number one on our list.

Now, we're going to move on to number two on our list of eight clinically proven ways to fortify our immune system in the age of COVID-19. And the next one is the connection between

dehydration and COVID-19. A collaborative analysis conducted by researchers from Arizona State University, Harvard Medical School and UCSF, detailed how suboptimal hydration in the weeks before contracting COVID-19 is a significant risk factor for severe outcomes like death. That's severe. The review analyzed experimental, clinical, and epidemiological evidence that suggests that chronic suboptimal hydration in the weeks before infection might increase risk of COVID-19 mortality in multiple ways. They looked at the impact of dehydration on several mechanisms affected by COVID, like vascular endothelial growth factor or VEGF, aquaporins, these protein channels that enable movement of hydration in and out of the cells, and the sodium-potassium pump that literally helps to drive our overall cellular function. They analyze all these things.

Now, the next part of the analysis, and this is critically important to know, is how SARS-CoV-2 is able to enter into human cells in the first place, and this is through angiotensin-converting enzyme 2 or the ACE2 receptor, which has been identified as the primary receptor that SARS-CoV-2 utilizes for viral entry. Now, the study states "Chronic sub-optimal hydration in the weeks before exposure to COVID-19 may conceivably result in greater abundance of ACE2 receptors in the lungs, which increases the likelihood of COVID-19 infection with our lung epithelial cells being preset for exaggerated immune response, increased capacity for capillary leakage of fluid into the airway space and/or reduced capacity for both passive and active transport of fluid out of the airways." Now, the question should be, how on earth can dehydration lead to severe outcomes from viral infections like COVID-19? Well, it's important for us to really understand that every single one of our immune cells are functioning in a water medium, it's all based on water. Your immune cells themselves are made from the food that you eat and the water that you drink, it is the primary component that's making up the system itself, so this shouldn't even be a far stretch.

The beauty of this is that researchers are asking these questions, researchers are paying attention to these basic tenets about human health, one of them being, we require optimal hydration for optimal immune function. In the report, they also postulate how the cytokine storm is linked to dehydration as well. It seems like from the media's perspective and from so-called health officials that this cytokine storm is this haphazard thing, we don't understand anything about it, we don't know any foundational tenets, cytokines are proteins. That's what they are. You know what proteins are made of? They're made from food, they're made from water, that's the structure of them themselves, this is the basis of the very thing that we're looking at, if you don't understand that, how are you even going to understand the activity of it? So that's number one. Number two, these things are not happening without a causative agent, that immune response, that cytokine storm, it's an over-reaction, well noted, well-established over-reaction by our immune system, but our immune system in a way is trying to protect us, but it's about promoting an adequate response and not going too far. And water plays a key role in that intelligence.

That's the thing, water has intelligence, it literally becomes life on Earth, it literally becomes us. That's how powerful it is. And this is not being discussed, these basic tenets about health that actually keep us robust and healthy and resilient aren't being discussed, but we're going to continue to make sure that we're knocking down the door to ensure that these critical tenants of human health and immune function are not only understood but become the norm. In the report, the researchers stated that the hypothesized hydration effects suggest strategies for reducing COVID-19 risk, such as one; Public Health recommendations to increase intake of drinking water. Drink more water! When have you heard that one time on the news? One time by a public health official, number one. Number two; they recommended hydration screening alongside COVID-19 testing, sounds like a good match. Can we do that at least?

When folks are getting delivered this new medication, giving them a recommendation to also make sure that they're getting adequately hydrated because it's the very basis of our immune function, and also, they noted attention to hydration holds potential to reduce COVID-19 mortality and disparities via at least five pathways simultaneously. So, what is the intervention here? Drink water proactively makes it a ritual. I'm a big proponent of first thing in the morning when you get up, taking an inner bath, we take an external bath to get ready for the world or an external shower, but isn't the inside more important? Health is from the inside out. And when we're sleeping, that's likely the longest time that we're going without hydration for a lot of folks, and there's a tremendous, I'm talking again, trillions upon trillions of metabolic processes taking place that are accumulating waste, there's a lot of metabolic waste that need to get removed from our system.

And you'll probably notice in the morning, urine is more concentrated, and we're helping to flush this metabolic waste out when we drink water to start the day plus, we get this added benefit seen in peer-reviewed evidence of something called Water-induced Thermogenesis, where we get this metabolic boost from simply drinking water. And the study, the one that I'm talking about, 17 ounces was that barometer. So, drinking somewhere in the ballpark when you first wake up in the morning, within that first 20 minutes, ideally, somewhere in the ballpark of 15 to 25 to... That's where I'm at, 25, maybe even 30 ounces of water, depending on your make-up, depending on your needs, just start your day by getting your body hydrated before the business of the day takes over. Another tip, make sure that you keep your water with you, you can't drink what you don't have, get yourself a water bottle that you like, keep it with you at all times. Use that as your number one protective metric, it's the thing that literally makes up the cells of your body, makes up the cells of your immune system, we need to give water a lot more respect.

Now if that didn't make you thirsty enough, we're going to move on to number three on our list of eight clinically proven ways to fortify your immune system in the age of COVID-19. And

number three is sunlight. A study published in the Journal of Virology affirmed that sunlight or more specifically, UV radiation from the sun is the primary natural virucide in our environment. Killer of viruses, cide means to kill. So, this is already established, but now we've got a new study looking directly at sunlight and COVID-19. In the study titled, Simulated Sunlight Rapidly Inactivates SARS-CoV-2 On Surfaces. This was published in the Journal of Infectious Diseases. The researchers simulated sunlight, and they found that it rapidly inactivated SARS-CoV-2 that was suspended in either simulated saliva or culture media on surfaces. Pretty remarkable stuff.

Again, scientists are asking these questions, "Hey can UV light, can sun exposure has an impact on reducing the infectious nature of SARS-CoV-2? Is there anything else? Is there something helpful in our environment against this thing that has created so much unrest in our society today?" Now, getting sunlight would require you to go outside. Alright now there's been a massive wave of fear about even going outdoors, and I talked about this literally over a year ago, because the data exists, but these are not the messages that are getting promoted. Messages of logic, of rationality of real health in major media and by our public health officials, but that's why mediums like this are so important.

So, if we're going outside, what's the risk of contracting a SARS-CoV-2 infection outdoors? Well, again, I shared this over a year ago, scientists at the International Laboratory for air quality and health at Queensland University of Technology stated, "Outdoors is safe, and there is certainly no cloud of virus-laden droplets hanging around. Firstly, any infectious droplets exhaled outside would be quickly diluted in outdoor air. So, their concentrations would quickly become insignificant, in addition, the stability of the virus outside is significantly shorter than inside, so outside is really not a problem, it's safe to go for a walk and jog and not worry about the virus in the air."

This message of rationality in curving fear during the time when so much fear is being propagated and helping to eliminate the fear of just going outside and getting fresh air and not being worried about people walking by you on the street, suddenly affecting you with SARS-CoV-2. This message of rationality and peace and logic, again, it's not a part of the societal norm as far as what's in popular media, but trust and believe there are millions upon millions upon millions of people who are abiding by this science. There's only one type of vanilla, one-size-fits-all tunnel vision science as being spoon-fed to our citizens right now, but in reality, there's a vast array of peer-reviewed evidence demonstrating from all sides, a wealth of different "science," but for me, and what I would implore you to do is like, let's look at where is the majority? What's the majority of evidence say? Whether it's an inconvenient truth or not, and utilize our insights from there, because literally here we are, well over a year and a half later, and literally, I just went for a walk a couple of days ago, and I'm just walking down, this is very open-air wide block, I'm walking down and a woman is walking along with her friend,

they're chatty Cathys. Chatting it up, and they see me, boom! Mask on. Boom hit the grass. They're in the grass, alright?

We're outside. Is that based on logic? Is that something that's actually rational for a human to do? Because what they're doing, especially if I'm not aware of my own psychology, it's telling me that I am something to fear, it's telling me that I can hurt this person. It's telling me that they don't trust me, just to be in the same... To breathe the same air. Now again, there's a very complex situation going on, on our planet today that can breed some irrational fear, but here we are again, I live in LA. We're still doing this? We're still with the mask outside when you see somebody. Are you kidding me? How has it worked out for us? The mask compliance here, contrary to popular belief, top in the country, towards the very tip-top of the country, but even with the interventions, the cases still skyrocketed. We've done master classes on the effectiveness of masks and I'm the biggest proponent. I was going to the data to find out what are the best masks, one of the most efficacious uses, but the data showed that the story was so much different from what was being propagated in the media.

So, I implore you to make sure to check out and if you're watching this on YouTube in particular because you won't be able to see this documentary that I did anywhere else, go to themodelhealthshow.com/maskfacts. Again, that's themodelhealthshow.com/maskfacts. So, the documentary film is there, and also all of the studies, you actually get to go through and see them for yourself, especially today, seeing is believing. So again, are we operating on logic? Or are we operating through fear? And what can we do to help to abate this fear and help to dissolve it in our population? Because we know that fear is also one of the biggest risk factors. According to a study published by the CDC, over 540,000 test subjects, COVID-19 patients, studied over 800 US hospitals found that the second leading risk factor for death from COVID-19 is anxiety and fear-related disorders. What's happened with our levels of anxiety and fear the past year and a half? They have skyrocketed, and it dramatically suppresses our immune system function should we come in contact with all manner of infectious diseases, it's suppressing our body's response.

So, I just wanted to share that piece to implore you to, if you can, make sure that you get an adequate sunlight in a safe and smart way, of course. But it's of the utmost importance. It's one of the things, again, our genes expect us to get sunlight. Without the sun, there'd be no us, we wouldn't have life on this planet. So, it's enabled us to be the humans that we are today. It isn't suddenly this bad guy, where outside is bad, that's just illogical, and this doesn't mean you got to go and go to some massive events and things like that if you're uncomfortable with it. But going outside and walking at this point, let's just put on our... Let's put on our logic pants, alright? Let's put the logic pants on and go out and get some fresh air. Now, it's not just the sunlight itself, but the researchers in another study looked at the UV ability to deactivate SARS-CoV-2, but also its ability to increase our production of vitamin D.

There's a research that's published in the Journal of Investigative Medicine, found that vitamin D can actually modulate the innate and adaptive immune responses, and deficiency in vitamin D is associated with increased autoimmunity as well as an increased susceptibility to infections, but now we've got a plethora of studies specifically looking at vitamin D in COVID-19, a peer-review study published in Scientific Reports took a set of people with confirmed cases of COVID-19, who had no symptoms at all. This was group A and tested their vitamin D levels versus a group of people with COVID-19, who were suffering from severe symptoms, this was group B. Here's what they found; the scientists uncovered that the people with severe symptoms were significantly more deficient in vitamin D than the people without symptoms. The researcher stated that "The fatality rate was high in vitamin D deficient group B, vitamin D level is markedly low in severe COVID-19 patients, inflammatory response is also high in vitamin D deficient COVID-19 patients, this all translates into increased mortality in vitamin D deficient COVID-19 patients." There are also nearly 20 more peer-reviewed studies affirming the connection between vitamin D deficiency and COVID-19.

Including a study published in the BMJ, they found a COVID-19 ICU risk is 20 times greater in people who are deficient in vitamin D. So, there's a myriad of evidence right now to affirm this connection. And yet another study and this one affirms that vitamin D isn't just helpful in prevention, it can also be helpful in treatment, A randomized placebo-controlled study gave patients with SARS-CoV-2 short-term high dose vitamin D for seven days and gave another group of SARS-CoV-2 patients a placebo. What the researchers uncovered is that a greater proportion of vitamin D deficient individuals with SARS-CoV-2 infection turned SARS-CoV-2 negative faster with a significant decrease in inflammatory biomarkers when they received high dose vitamin D3 supplementation, alright. So, in this study, they used 60,000 IUs a day for just a short stint, just a few days, but this is another intervention, again, very inexpensive, very powerful, and more and more data are affirming its effectiveness, but I want to point us back to the beginning of this which is first and foremost sunlight. If we're looking at our natural biological function, our interaction with the sun is how we produce optimal levels, tailor-made for us, of vitamin D.

So, we do have some evidence affirming some supplementation. Yes, but let's do what's real and natural first and if we're living in a position where we're not getting adequate exposure to sunlight above the 37th parallel, here in the United States, for example. And by the way, make sure to check out the Vitamin D master class that we did, breaking all this stuff down in-depth, and also we're talking about various foods that have Vitamin D, and also again, this is a place for supplementation, but vitamin D is a fat-soluble really steroid hormone, and the medium that a lot of Vitamin D supplements use is really crappy oxidated, nasty rancid oils, it's just not good. So, providing the Vitamin D we're looking for with some low-quality adjuncts, and that's just not okay. So, for my vitamin D supplementation, looking towards again, that sprayable

liquid format onnit.com/model, they're melatonin they're vitamin D, it is top-notch, and they're putting it in an MCT oil, a high-quality MCT oil instead of this crappy, like soybean oil that a lot of products are using it. So definitely things to add to your superhero utility belt onnit.com/model, if you're interested in vitamin D supplementation. But most importantly, going outside and getting some adequate sun exposure.

Next up in our eight clinically proven ways to fortify your immune system during the age of COVID-19. Number four is exercise. A study conducted by researchers at Kaiser Permanente Medical Center in California tracked the exercise habits of nearly 50,000 COVID-19 patients, it revealed some eye-opening evidence. After analyzing their exercise habits over the two years prior to the pandemic, it was revealed that the people who consistently were inactive were almost three times more likely to die from COVID-19 than people who consistently exercise, and now we have a new study, and this was published in the British Journal of Sports Medicine, and what they uncovered was that number one, they found that regular exercise has a notable protective effect against contracting a COVID infection in the first place. Number two, even stronger than that benefit, regular exercise appears to slash the risk of severe COVID infections. Number three, regular exercise dramatically reduces the risk of death from COVID-19 as well, they did a good job at accounting for other confounding factors, but again, no study is perfect but this should be absolutely eye-opening for us to dedicate some more research too, and to empower our citizens.

Now what's interesting about this study is that they tracked the benefits of different types of exercise, aerobic exercise, and strength training exercise as well. The strength training had benefits in reducing rates of infection and in reducing rates of severe symptoms that they noted, while aerobic exercise showed an even greater benefit in reducing rates of infection, severe side effects, and reducing the risk of death, but the combined engagement of consistent strength training and aerobic exercise together outperformed them all and made the risk of severe COVID infections absolutely plummet.

In one cohort of the study, people who regularly strength-train and regularly utilize aerobic exercise had a 27% lower risk of contracting COVID-19 in the first place, and nearly a 60% lower risk of severe COVID-19 symptoms. The scientist cited several reasons why consistent exercise appears to be so effective in protection against COVID-19, one is enhanced immune surveillance, and this is the process by which cells of the immune system look for and recognize foreign pathogens. This is highlighted by increased immune defense activity and metabolic function by enhancing immunoglobulins, anti-inflammatory cytokines, neutrophils, T cells, B cells, and natural killer cell subsets. Number two, the research has indicated that consistent exercise reduces systemic inflammation promoted by the recirculation of immune cells that modulates an anti-inflammatory and antioxidant state through multiple pathways, and

number three, they found that consistent exercise improved regulation of the immune system and it delayed onset of immunosenescence, that's what seen most notably with advanced age is the degradation, the gradual degradation of the immune system, but exercise has a protective effect against that.

So those are were the three reasons that they could uncover why is exercise so remarkable when it comes to defending the body against COVID-19. So that's number four on our list, how do we take advantage of this simply having a couple days a week, where we do a little bit of strength training, and doing a little bit of aerobic exercise, maybe the same day or another day, but just mixing it up giving our body some beneficial hormetic stressors that help to activate all these powerful immunological responses and fortify our body against all manner of infectious diseases. And so one of the most notable ways of getting some of these benefits is seen in walking, this is via researchers at Appalachian State University found that simply going for a short walk immediately boost our immune cell parameters, most notably for our neutrophils and natural killer cells, which are very effective at killing SARS-CoV-2, infected cells, specifically those natural killer cells. So really simple stuff. And again, if we're seeing a system that is truly acting in integrity when they're mandating people to take a new drug when they're coercing people, or sorry, when they're incentivizing them with fast food, with money to do this, they could be... If they were operating from ethics and integrity, also make sure and advise them to make sure to get a 20-minute walk in each day.

This is going to dramatically improve your immune resilience, dramatically. If they can use their authoritative power, that authority figure perspective that so many people are caring that they have the answer and use it for good, with things that are clinically proven, we're talking decades of research and also, not just decades of research, but millions of years in our DNA, our DNA expects us to move, and when we don't do it, disease happens. So very simple tenets to add into the mix here more than ever, I want you to get stronger physically, mentally, spiritually than you've ever been, so that you can face the challenges ahead with ease and grace, get stronger, make sure that you're activating, taking advantage of this powerful player when it comes to fortifying your immune system.

Now we're going to move on to number five on our list here of eight clinically proven ways to fortify your immune system in the age of COVID-19. Next up is a nutrient, you know them, you love them, vitamin C. Alright, shout out to vitamin C. Vitamin C is obviously a major player in immune system function, but what's the mechanism? Well, a major part of vitamin C's performance is the reduction of infection-oriented inflammation. In a study cited in the journal PharmaNutrition investigated the impact of vitamin C in relation to the cytokine activity associated with COVID-19. And they found that vitamin C is effective by inhibiting the production of the cytokine storm. I don't got to make this up, I don't want to make it up if this wasn't true, if this didn't exist, I care not. But it exists, and unfortunately, when people talking

about essential nutrients at the beginning of all this madness, they're getting demonized, they were getting... I had to whisper, I don't know who's listening, getting censored for simply talking about basics about human functionality.

But the key here is, is it any old vitamin C that's going to get this kind of results, and we've got to look at what actually has peer-reviewed evidence as far as its effectiveness when it comes to vitamin C because there's many different types of vitamin C, is it a synthetic one-lane vitamin C adequate? Or is it botanicals that have a myriad of different forms of vitamin C and other bio-potentiators is that where it's at? One of the most potent vitamin C-dense foods in the world demonstrates the this same anti-inflammatory performance, specifically in the endothelial cells, the endothelium is what is actually getting damaged when we're talking about the SARS-CoV-2 virus. And having on Dr. William Lee out of Harvard, really breaking that down for us and talking about how when they had the opportunity to actually look at samples, look at cadavers and see what was happening, what is the underlying mechanism of breakdown, and it's the endothelium. This is really a cardiovascular damage, and this is also why COVID is being found in the brain, for example, being able to interact with that endothelium in the blood-brain barrier and find its way in all kinds of places that it shouldn't be.

So, looking at that connection specifically, this vitamin C dense food, a study published in the journal Diabetes, Metabolic Syndrome and Obesity, found that amla berry, it's called Amla Berry, A-M-L-A berry significantly improved endothelial function and reduced biomarkers of oxidative stress and systemic inflammation in some of the people who are most susceptible to SARS-CoV-2, being patients with type 2 diabetes. Really, really cool stuff there, but what about comparisons again, of synthetic vitamin C versus botanical vitamin C's like amla berry. Well, another botanical source of vitamin C, the highest source of vitamin C in any food ever discovered is camu camu berry. C-A-M-U C-A-M-U.

And what you're going to find is that there's about 700% of your RDA of vitamin C with just under a teaspoon of camu camu berry, but let's look at it versus synthetic vitamin C. A study published in the Journal of Cardiology had 20 male smokers consume camu camu berry daily over the course of a one-week study, and found that it led to significantly lowered oxidative stress and inflammatory biomarkers like C-reactive protein, for example, that's elevated in SARS-CoV-2. But what's more is that there were no changes in these biomarkers, no improvement in the placebo group who received ordinary vitamin C tablets. So the stuff that you'll find out at the check-out, at the gas station. For the researchers, this indicated that the combination of other antioxidants from the camu camu berries had a more protective antioxidant effect than standard vitamin C products alone. That combination of camu camu berry, amla berry, and acerola cherry is my third favorite is together in one formula.

For years, I would get them all separate and you got to deal with what kind of other fillers and ingredients, now I've got all of them in one source, no binders, no fillers, organic done the right way from Paleovalley. That's where I get my vitamin C supplementation. I use it regularly, especially during this time, we're getting in the cold and flu season, have a little bit of extra insurance with our health at times like this. This definitely needs to be in your superfood cabinet. Go to paleovalley.com/model, that's P-A-L-E-O-V-A-L-L-E-Y.com/model. You get 15% off, they're giving you 15% off their essential C-complex, got some other stuff there as well.

I just had some of their snacks actually right before the show today, pop over there, check them out, paleovalley.com/model. But also hear here, in five clinical trials, people who were exposed to extreme stress, and who isn't these days, we're able to cut the number of illnesses they contracted in half by supplementing with vitamin C. The key here is that it's much more effective as a preventative metric rather than once somebody is getting sick. So having it proactively, vitamin C, again, slashes the risk of contracting illnesses in half in this particular study. This was a meta-analysis of five clinical trials. So that's number five on our list of clinically proven ways to fortify your immune system during the age of COVID-19, we're going to move on to number six.

Number six, this is critically important right now at fortifying our immune system, is proactively managing our stress, proactively having stress reduction modalities in our life. We have to get parasympathetic. The That sympathetic dominance is the fight or flight nervous system is just habitually running and just creating this cascade of chemistry because our thoughts create chemistry in our bodies that are cortisol-driven, which cortisol isn't bad, but it's just when it gets into this chronic state, it's changing the way that our cells replicate, it's changing the way that our immune system functions. And again, as mentioned, this study will put it out up for everybody to see if you're watching on YouTube, published by the CDC, an analysis of over 540,000 COVID-19 patients from 800 US hospitals. They found that the number one risk factor for death from COVID-19 is obesity, well established, doing nothing about it, of course.

But the number two, second leading risk factor for death from COVID-19 in this massive analysis, the second leading risk factor was anxiety and fear-related disorders. Again, I talked about this back in April 2020, early, you can go back to check the track record, April, May, I was saying, "Hey listen, all of the fear that is getting propagated is going to create a significant suppression of our immune system function, at a time when we need our immune systems functioning at their best level." Do we not understand how our mind and our thoughts influence dramatically control our immune system at this point. I thought we had this down, guys. I thought we knew this. And so I was talking about this and sharing the data, but look how things have unfolded, turns out second leading risk factor for death, anxiety fear-related disorders. I didn't want this to be the case, but I could see this coming from a mile away, I could

see it coming. We're not respecting how our bodies are designed, how our minds are designed in fortifying and supporting human health. And so if we're constantly inundated with fear, that's going to dramatically suppress our immune system function. This is well known, so we have to take back control of our minds. And also, in this instance, proactively engage in stress reduction strategies.

And what does that look like? Again, parasympathetic. So, para is from the Greek root word meaning to one side of or side by side. So, it's operating, we've got the sympathetic fight or flight, then we've got this parasympathetic, rest and digest, but this is... It's one or the other. You're not doing both. Alright, these are side by side. And so, we want to get more parasympathetic more often. How do we do this? Well, one other piece here I want to share with you, this was a study published in the peer-reviewed journal Stress and Health, found that there's a significant correlation between the capacity of individuals to deal with stress and their natural killer cell activity. Folks who don't cope well with stress, have significantly lower natural killer cell activity. So again, this isn't theoretical, this is a fact.

So, what do we do? Well, right now, more than ever, we've got to really get in touch with being more human more than ever, despite what the media is telling us, we need to be more human, we need to have fun. We need to connect. We need to laugh. We need to express ourselves; we need to express our heart, we need to have healthy conversations. There's so much negativity that you can easily be a part of, we've got to balance that stuff out. As a matter of fact, I would implore us to make this the dominant thing. So, for example, researchers at Brigham Young University conducted a study of IBM employees and found that simply sitting down for a family meal helped study participants to reduce tension and reduce stress from their long work hours at the office. We know this, but the data indicate it as well.

So, getting together with family, sitting down for a meal together, this is a place, it's a unifier, the dinner table or the lunch table, having lunch with somebody. I just had lunch with a friend yesterday. Shout out to Nick Ahmed from the Arizona Diamondbacks. Two-time Gold Glove winner. But what a great time. Sit down, connect, have some great food. It's just as good for the soul. Another study. What else can we do here? So simply eating meals together and talking, hanging out, this study was conducted by researchers at Indiana State University School of Nursing found that laughter is able to reduce stress and improve natural killer cell activity. Use this. You have permission to use this. Connect with people who make you laugh, who make you feel light. I know it's a lot of dark and dreary stuff to check out. The top podcasts out there have to do with murder. That's like the most popular thing. I'm like, I'm educating the masses, empowering people, education. Murder is the most important though. It's crazy. If you're super into the murder podcasts, no disrespect, but we've got to have some balance here, we got to have some joy, we got to have some laughter. We got to give ourselves

permission to watch funny movies or follow people who make you laugh, give ourselves permission to have some joy right now. We need it for the health of our immune system.

Also, other clinically proven strategy that helps to modulate stress to activate that parasympathetic nervous system is massage therapy. So that was all super weird for a minute. People probably, if they even allowed massage, they were massaging with some rubber gloves on and they got a ski mask on. It's just like, "I don't know if I should be here." Whereas today maybe it's changed a little bit, but you can get a private massage at the crib, if you've got maybe your significant other, you got kids, they could do a nice little foot massage, hand massage, whatever the case might be. It helps to incite the release of endorphins, it's really oxytocin driven. All these beneficial hormones and neurotransmitters get released when we have human touch. So those are a few clinically proven strategies. You know what that is for you. What makes you feel good? What helps to reduce stress? It might be even some of the stuff we already covered, getting some sleep, going outside, getting some sunlight, all these things go together.

Alright, we're at number seven here on our list of eight clinically proven ways to fortify your immune system in the age of COVID-19. Number seven is to fortify your gut health. A study titled, Enteric Involvement of SARS-CoV-2: Implications for the COVID-19 Management, Transmission and Infection Control, published in the journal Virulence demonstrated that SARS-CoV-2 is at least partly an enteric infection, meaning that it has to do with the gut and the significant ACE2 receptor is expressed in the intestine significantly suggesting a particular vulnerability here to SARS-CoV-2. So that's just one. We're looking at specifically relationship to SARS-CoV-2 and our gut health.

Another paper, this was published in the journal Gut titled, Gut microbiota composition reflects disease severity and dysfunctional immune responses in patients with COVID-19. The researchers uncovered that hospitalized COVID-19 patients consistently had lower levels of immunomodulatory bacteria coinciding with higher levels of inflammation. They were missing protective bacteria in their gut, which... Could that be making... This is what's not indicated in the study, is that making them more susceptible to severe infections or is the infection getting rid of their beneficial bacteria? I believe it's the former where they're coming into a pre-susceptible state because of the damage that we're doing to our microbiome today with abnormal food consumption, the consumption of pesticides and herbicides and rodenticides, chlorinated water.

Chlorine is a very strong antibiotic. Now there's a place for it but is that something we want to be consuming two gallons of a day because that's a nice amount of chlorine we're going to be taking in if we're drinking typical tap water. So, getting a water filter that is actually effective. We've done masterclasses on water, by the way. This is not the time for it, but just making sure

we're getting some high-quality water that doesn't have... It's not ripe with chlorine and avoiding nefarious things in our food. The data clearly indicates this that the consumption of processed food actually helps to exacerbate the proliferation of opportunistic bacteria as well.

So how do we do this in the age of COVID-19, fortify our gut health? Avoid the things that damage our gut health first and foremost. We don't need to have a magic pill or magic thing, just don't bring the things in that tear stuff up in there. So, this is of the utmost importance because we see that SARS-CoV-2, COVID-19, is at least partly an infection of the gut. This is where our immune system, the majority of our immune system is located in our gut as well. It's not an accident. Just get our gut health together. How do we also fortify on the other side besides avoiding things that damage the gut? We also bring in a diversity of food because one of the ways that we increase the diversity of gut bacteria, beneficial gut bacteria, we have to bring in diversity of different nutrients because every single food function as a probiotic in some domain. When you're eating a real food, you're eating that food's microbiome as well and creating more diversity. So, when you eat an avocado, you're eating the avocado's microbiome. When you eat a blueberry, you're eating the blueberry's microbiome. The list goes on and on.

So it's what's indicated in the data and we've talked about this on the show as well in the peer-reviewed evidence and I talked about this in my latest book, Eat Smarter, that increasing diversity of our foods helps to increase diversity of our gut microbiota and reducing rates of obesity, reducing rates of chronic diseases and infections, infectious diseases as well. It's one of the simplest things that we can do, we can put more attention into that. So that's number seven here on our list. Now we're at our final one of our eight clinically proven ways to fortify our immune system in the age of COVID-19. And this is particularly important for me, this is something that I'm doing every day and I'm sharing this with you.

I'm including some immunomodulators in my nutrition, immunomodulators. So, what that means is, it's something that helps to shift the immune system in a proper direction. So sometimes the immune system is running too much, too actively, hyperactive, so we've got this cytokine storm. Immunomodulation can help that response to bring it down to a safe level. If the immune system is under responding, immunomodulators help to bring up that immune response to an appropriate place. And so, what are some of the most effective immunomodulators seen in the peer-reviewed evidence? Well, one of the primary, and this is the one, I'm doing this every day, I'm utilizing medicinal mushrooms again with a clinically proven benefit with mountains of peer-reviewed evidence. One of those, and this is published in Mediators of Inflammation, in the journal, Mediators of Inflammation, uncovered that the polysaccharides found in the medicinal mushroom Reishi was able to enhance the proliferation of our T-cells and memory B cells as well.

That's kind of important. This is another thing that's been talked about, natural immunity, and also the memory of our immune system, having long-term immunity, and our immune system being able to recognize and remember an infection and continuously defend our bodies from that. What if we had things that we can bring in through our nutritional profile, to help our bodies to do that thing more intelligently? And they've been used for thousands of years, it wasn't created a few months ago, thousands of years of documented use. Also, Reishi is found to help one of our other tenets here, which is to significantly improve sleep quality. A study published in the Journal, Pharmacology, Biochemistry, and Behavior, found that the renowned medicinal mushroom Reishi is able to significantly decrease sleep latency, meaning you fall asleep faster, increase overall sleep time and increase non-REM, deep sleep, and REM sleep as well.

Yes, please. Reishi is the deal, just about every day I'm making my youngest son, he loves his Reishi hot cocoa from Four Sigmatic. It's a dual extracted Reishi, it's the best period. Dual extracted, so you're actually getting all these beneficial compounds that you're not getting with company X, who's only doing one extraction method, but he loves his Reishi hot cocoa. Have a little almond milk with it, or maybe a little bit of high-quality fats. Or there's a Reishi elixir that's great to have before bed, it's one of my favorite things to do in the evening.

Definitely, something to add to your superhero utility belt now, more than ever. And also, Chaga, Cordyceps, Lion's Mane, there's so many other remarkable medicinal mushrooms. And in particular, if we're looking at Cordyceps and we're looking at Chaga, take Chaga for instance, multiple studies indicate that Chaga is able to significantly improve the activity and effectiveness of our natural killer cells. Also, it's probably the highest antioxidant substance discovered that humans have consumed for, again, thousands of years, and it has been found to increase superoxide dismutase in the body, which is a natural antioxidant enzyme produced in the body that plays a significant role as a free radical scavenger. Essentially helping to act as a "Bodyguard protecting our DNA from damage and helps reduce the workload placed on the immune system." Again, yes, please. So we've got Chaga in a wonderful organic coffee combination with Cordyceps, which is great for the lungs. A lot of great evidence on the benefits with Cordyceps and the lungs, or you can get the elixirs themselves, whether it's Chaga, Cordyceps, Lion's Mane, etcetera.

Head over to foursigmatic.com/model. That's F-O-U-R-S-I-G-M-A-T-I-C.com/model. You're going to get 10% off all of their incredible medicinal mushroom formulas, their elixirs, their coffees, hot cocoas, definitely check them out. One final study, a randomized eight-week study conducted with 79 adult test subjects supplementing with Cordyceps, led to a significant 38% increase in activity of their natural killer cells. Again, this is one of our immune system weapons that help to protect our body against infection, the list goes on and on. Again, I'm sharing these because these are things that I do and these are things that are simple. These are of the utmost

importance, we don't have to do all of them, but we definitely need to do at least a few of these things.

We covered the importance of simply getting more access to sunlight, we covered the importance of hydration in the peer-reviewed evidence linking dehydration to severe outcomes from COVID-19. We covered the importance of maintaining healthy sleep quality. We covered the essential nature of vitamin C again for many years, touted as critical for immune function, why not now? Why suddenly isn't this being talked about? We covered the critical need right now for us to help to modulate our stress and some strategies for that. And also, we talked about fortifying our gut health. So, these are the eight clinically proven ways to fortify our immune system in the age of COVID-19. We went through a tremendous amount of peer-reviewed evidence today, and you can get access to all the studies at the modelhealthshow.com. And of course, make sure to check out the YouTube video so you could see some of the studies as we're going through them.

I appreciate you so much for tuning in to the show today. We have got some powerhouse shows coming up very soon, some new masterclasses, some incredible guests that you don't want to miss. Take care. Have an amazing day and I'll talk with your soon. And for more after this 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.