

EPISODE 321

The Top Ten Ways to Fortify Your Immune System

Shawn Stevenson: Welcome to *The Model Health Show*. This is fitness and nutrition expert, Shawn Stevenson, and I'm so grateful for you tuning in with me today.

This episode is incredibly timely. This time of year we start to see a big shift taking place in our culture. Right? The seasons change but we also see an uptick in folks getting sick.

And so what's going on? This episode is dedicated to the top ten ways to fortify our immune system. And this is really relevant any time of year, but particularly right now.

We're also going to seek to answer the question, 'Why do seasonal changes, particularly fall to winter, bring about more instances of things like cold and flu?' Alright?

So it's going to blow your mind when you find out what's really happening behind the scenes, so make sure to buckle your superhero utility belt up, get ready, because we're going to dive into it.

But before the show, we were in the studio talking about just some of the things we start to do when it starts to get cold outside.

We start to hang out a little bit more, right? Go inside, watch some movies. My oldest son, Jordan, was hanging out with his lady friend, his girlfriend, and they watched *Man On Fire*. Classic. Denzel Washington.

And he was like, "Dad, we have to watch it." And so I did, I haven't watched it probably since it came out, and wow. What an incredible- if you want to experience the whole spectrum of human emotions, then watch that movie. Alright?

And so we're watching the movie, and this is- basically the premise, he's kind of a reluctant bodyguard, but he gets connected to this little girl he's meant to protect, and she gets taken.

And so he goes through this whole crazy experience to try to avenge her, and at the end of the movie, I mean, I've got like- I knew in that moment, because I got this huge knot in my throat, like I knew in that moment that I'm the emotional, more emotional person in my relationship with my wife.

Because I'm about to pass her, like just- in my throat, right? Holding the tears in. I look back at her, it's like nothing. Nothing? You know?

Same thing with my older son. Of course they felt the emotion, but I just feel it more. But man, what an incredible experience.

This is one of the great things about this time of year, you know? Hanging out with friends and family, connecting, and there's also some incredible benefits to that, that you're going to learn about as well today. Alright?

So big shout-out to *Man On Fire*, and Denzel period. How good is he? Every role, he makes you believe- like it's a different person, and you're thrust into that universe. Incredibly powerful.

My video guy was talking about the movie *The Equalizer*. So he did that whole thing, and I mentioned to him that this is actually a remake in a way of a television show from when I was like a kid-kid and living with my grandmother.

That was her jam, *The Equalizer* television show, and there was two things that my grandma was- it was her TV time. *The Equalizer* and *Magnum PI*. Alright?

Tom Selleck, mustache, she's about that life. Alright? So Shawn, you need to go find something to do. Any other time, it's all about Shawn, but Tom Selleck and *The Equalizer*. So shout-out to those shows as well.

But I'm very, very excited about this episode because these are tools and strategies and insights that it's going to build on your education in a big way, but also very practical things that you're going to be able to take with you to utilize for yourself and your family to keep you guys well more frequently.

Now, everybody's going to get exposed to stuff at some point, and that's okay, but there's a certain format, right? So our immune system is kind of like there's a formatting program, and these things change over time.

And so how we're interacting and putting in new programs, taking things out as far as our nutrition is concerned, and also other lifestyle factors really determine what the hardware is going to do, in a sense.

So this is going to really build on your education, and also again, very tangible strategies.

And speaking of building on your education, recently we launched a \$2,000 scholarship program with the Institute of Transformational Nutrition, where I am on the faculty at the first nationally accredited health coaching program, and business school as well.

And it's so powerful to see all the new students who've come on board, and they're in the business incubator right now, because it doesn't matter how much stuff you know, right?

It doesn't matter how much stuff you know about nutrition, or about fitness, if you're not able to format that information and structure it in a way that can create a sustainable business.

So I want folks, if they're passionate about health and wellness, to be able to create a business around that, and that's the other part that I didn't get to learn when I was in school.

Not only did I get mis-educated with the nutrition portion, but I wasn't taught how to be successful. And there were so many things I had to go through to figure this stuff out, and I'm just cutting that learning curve for folks, and also just giving- literally giving them the tools and giving them access to the very best people in the world.

And that's why it's so exciting to me, and I'm so grateful to be a part of this movement, this transformation generation. And if you're not already enrolled in ITN, I highly suggest you pop over to www.TransformationalNutrition.com/model. Alright?

That's www.TransformationalNutrition.com/model, and we'll put a link in the show notes as well, and take the assessment to see number one, what you would qualify for as far as being a health coach, a master practitioner program, or just coming in.

Again, like you don't have to have any experience. You're going to get to learn from the best people, and so taking the assessment to see where you would land in the school, and also getting an opportunity to get access to one of those \$2,000 scholarships, because we have recalibrated the scholarship fund, and we have scholarships available right now.

Alright? So definitely pop over and check that out. That's www.TransformationalNutrition.com/model. And on that note, let's get to the Apple Podcasts review of the week.

iTunes Review: Another five-star review titled, 'Most Influential Person / Podcast in My Life,' by SwaggyNattie.

"Thank you, Shawn, for such an enlightening show. I have been listening to your podcast for over two years now, and it has completely shifted my perspective on what an ideal healthy lifestyle truly means.

I was suffering from gastrointestinal issues that would alter my mood and cause me to disassociate from my social life. I wasn't my energetic self for a while.

I sought out help from doctors, but no one had an answer. When I stumbled upon your podcast, everything made sense. I was so excited about this newfound information.

Now after changing my eating and sleeping habits, I rarely ever experience negative symptoms. I've never felt better. Thank you, Shawn, for being the light in my life."

Shawn Stevenson: That's so awesome, thank you so very much for taking the time to share that. It means so much to me. I truly, truly do appreciate that, and I'm sending you a big virtual hug.

And everybody, if you've yet to do so, please pop over and leave a review over in Apple Podcasts for the show, and let everybody know what you think of the show.

I just appreciate that so very much. And on that note, let's get to our topic of the day.

So today we're going to dive in and talk about the top ten ways to fortify your immune system, and I think it's very important to always start with a foundational understanding of what the heck we're talking about in the first place. Alright?

In talking about the immune system, what is it? What is the immune system? Well, to put it simply, the immune system- and this is from the Latin 'immunis,' which means free or untouched. Alright?

And the immune system protects the body like a guardian, in a sense, from harmful infections and illnesses and is essential for survival. That's probably the most important part of that.

Without a properly functioning immune system, you can't survive. And so it's kind of important. Kind of important.

Now it's made up of different cells, organs, and organ systems throughout the body. Alright? So your immune system isn't located just in one place.

We actually went into a deep dive into these organs and organ systems in a past episode; it's called 'The Secret Life of Your Immune System.' So we're not going to get too much into that today, and that's episode 166, we'll put that in the show notes for you.

Definitely a classic episode. You need to know that information. But today, what we're going to do, of course we're going to get into ten ways to fortify the immune system, but also we're going to talk a little bit more about the actual immune cells. So what are these immune cells?

So essentially, these are what we call the white blood cells, and these include leukocytes, lymphocytes, B cells and T cells, monocytes, neutrophils, several other factors as well.

And all of these are part of the immune system, that again, help to fight infection and defend your body against other foreign compounds.

One of the biggest things to know about the immune system is that it's highly intelligent. It's highly intelligent.

There are different types of white blood cells - obviously we just went through a couple of them - but these are involved in several different things like recognizing intruders, killing harmful organisms, creating antibodies to protect your body against future exposure from the same thing. Right?

Your immune system can learn. Super cool stuff. Now some of these immune cells are referred to as non-specific immune cells, and this is when something looks even remotely sketchy, and the immune system can just go and attack, eliminate.

Like the great poet, Notorious B.I.G. said, "Blast, squeeze first, ask questions last." Alright? So it's going and taking stuff out first.

And so that's one particular part of the immune system; non-specific immune cells. And by the way, I said 'sketchy.' Right? "If something's even remotely sketchy."

This is something the kids are saying now. Right? Stuff comes back around, right? Bell-bottoms came back for a little minute, for example.

And my son has been saying 'sketchy,' and like his friends say 'sketchy.' If something's kind of sketchy. I was like, "That's old stuff. You can't come up with a better-?"

But that reminds me, just again, like the nostalgia. And when he said it, it made me think of like Scooby Doo and Jinkies, right? And just like, "Looking kind of sketchy, Scoob." Right? He's outside the building, Shaggy is scared or whatever, and he's like, "It is sketchy."

And but anyways, things come back full circle, and just like the importance of learning about this stuff. Like for me, when I was in school learning about the immune system, it didn't land.

It had no connection to me as a person in my life, and so now this is what I really strive to do for you, is to help to connect this, and make sure that you understand this amazing system in your body, and to make sure that it connects. And also, this can trickle down and affect the people that you care about as well.

So again, non-specific immune cells, you've got those. You've got those in your superhero utility belt for your immune system.

But you also have some are specific adaptive immune cells, and also- so let's talk about these T cells really quickly.

T cells are very much responsible for directly killing many foreign invaders. Right? They're just like the front line go-getter type of cells.

Then we have NK cells, natural killer cells. These play a major role as well, and they function in a lot of the same ways as T cells, but these are playing a major role in host rejection of both tumors and also virally infected cells. So they're more differentiated, focusing more on viruses and cancer cells.

And then we have the B cells. Now this is really interesting. So we've got T cells, NK cells, B cells we're talking about right now. Your B cells are responsible for something called humoral immunity, and they produce the antibodies that 'remember an infection.'

And they stand ready, they stand by and guard in case your body should ever be exposed to that strand of this virus or bacteria again, and this is why we become essentially immune to certain things, and that's- largely responsible for that is our B cells.

How cool is that? So it's right there, it's like building up a wall like, "I know you. You're not getting in here." Right?

This reminds me of that movie *The Great Wall*. Is it *The Great Wall* with Matt Damon? If you haven't seen it, don't see it. Alright? It's not that good. It's not that good.

But you know, having that idea of having this wall up that's protective over your human organism, your biological spaceship that you're walking around in.

It's pretty cool. It's pretty cool to know that your body has the intelligence to do that.

Now also, we have these cells called macrophages. Right? Macrophages, and these are large white blood cells, and these are born from monocytes that I mentioned earlier.

And these have the ability to locate and actually eat particles such as bacteria, viruses, fungi, and parasites. So these white blood cells are like little Pac-Men in your system, right? Going through and gobbling up problems. Right?

Things that are recognized, these little ghosts that shouldn't be there, gobbling them up. Again, pretty cool.

So this is just looking at some of these different white blood cells, and hopefully get a little bit more of an understanding of what some of them are called, what they're doing.

And now let's kind of shift gears and look at answering this question, "Why do seasonal changes, particularly fall and winter, bring about more instances of things like colds and flus?"

Now listen to this; researchers at the University of Cambridge published data showing that the activity of thousands of human genes differ from summer to winter.

Alright? So your genes' activity, what your genes are actually doing, changes depending on the season it is. That should stop you in your tracks for a second, alright?

Because this is far removed from this idea that our genes are controlling our lives, that our genes are permanent and fixed. They found that just the seasons change, changes about a fourth of what your genes are doing.

Alright? We have upwards of 25,000 genes collectively as humans. This study found that the activity of almost a quarter of those genes, that's 5,136 genes out of the 22,822 genes tested.

So again, a fourth of our genes clearly are changing based on the season that you're in. Bananas in pajamas.

Now with this said, this seasonality - the researchers affirmed - also affects our immune system and the composition of our blood and fat tissue; these genetic changes due to the seasons.

And one of the researchers had this to say, "We know that humans adapt to changing environments. Our paper suggests that human immune systems adapt to show different seasonal variation."

That should tell you a lot right there. Just like what's going on with the seasons changing? Your genes are changing.

So that's one of the answers that's kind of hidden in this thing that's just in the back of our mind when they're talking about, "It's cold and flu season." Why? Why?

Alright? Our genes are changing. Now here's the issue; the goal is to support these natural changes to our immune system, and not prison shank our immune system because it's cold outside.

That's what we're doing, because our lifestyle is very different from that of folks who would more gracefully adapt to the changes in weather.

Alright? So I'm hoping to change the culture today of this cold and flu season with some of these enlightening insights like this.

So a big part of this - and we're going to continue to build on this - has to do with your genetic expression changing based on the time of year.

And what we want to do is support those changes with these top ten that we're going to go into right now.

Number one on our list of top ten ways to fortify your immune system is from this. Researchers at the University of Minnesota and at the Mayo Clinic found that glycosaminoglycans, like those found in bone broth, are able to influence B cell and T cell function, and macrophage activity.

There's something special about this bone broth. Something special.

Other research published in the journal 'Amino Acids' and 'The Journal of Neurochemistry' found that proline, which is in high concentration in bone broth, play significant roles in cellular detoxification and free radical scavenging.

Several studies have linked the substance chondroitin sulfate found in bone broth to both anti-inflammatory as well as immunoregulatory effects. Alright?

Tip number one is to add in some bone broth. Now this is something that historically as the seasons change, our ancestors would be doing more of this, making the soups and doing the broths, and that kind of thing.

But we tend to get away from that. We tend to get away from that. And here's some research I came across, thanks to Chris Kresser that says, "Scientists at the University of Nebraska sought to test this folklore," because drinking soup, the 'Chicken Soup for the Soul.'

They sought to test it, like is there any truth to this whole thing that drinking broth is going to be helpful? And so this was in vitro study and found that components of chicken soup were able to inhibit the migration of innate immune cells called neutrophils, effectively acting as an anti-inflammatory that could in theory reduce symptoms of illness.

"So whether this effect occurs in vivo - so like in the living human body - is still unclear from this particular study, but this preliminary data suggests that our ancestors may have been up to something."

Really cool. So it's interacting with human cells and seeing these neutrophils having this anti-inflammatory response when exposed to a potentially pathogenic organism. It's really interesting stuff.

And for me - and we'll put this in the show notes - this goes back to my conversation with Dr. Kate Shanahan not too long ago, who I had on the show, and she's just a powerhouse.

She was the official team physician / nutritionist for the Los Angeles Lakers - that's one of her cool things on her resume - and this was when Kobe was like- guess what? Kobe, he dropped sixty his last game.

He tore his Achilles, all this stuff, prior to this and her coming on board. Part of his healing process, he got into bone broth hardcore.

Like he would make sure that every city that they traveled to, they had the very specific instructions on preparing his bone broth. #secret.

And so having her on, she mentioned something. Because for me, it's always like are these nutrients- how intelligent are they in your body?

And so like that study was questioning like, "Okay, it works in a petri dish, but what about in the human body?" And so Kath Shanahan cited some information on the show where the study was done using something called radio labeling.

So they're taking the compounds found in bone broth, and basically making them radioactive so that you can see them on a scan, and they were giving them to these arthritic mice that they had severe arthritis.

And they saw through a scan that these compounds found - like collagen specifically - literally went to the damaged / inflamed part of these mice physical bodies. Alright?

So it has an intelligence in the body. Like it knows where to go and to be used. So I think that's really cool and really fascinating.

So here's a big component that just is a simple add-in, is that bone broth contains an abundance of minerals, as well as over fifteen different amino acids and proteins like collagen, and gelatin, and the exact nutritional content, here it's important, it varies based on what you're using.

Is this chicken? Is this beef broth? Whatever the case might be. The cooking time, the cooking method, all of those things are going to influence the nutrients and the total nutritional content of the broth. Alright?

And you can make your own obviously, but there are so many companies that are providing bone broth, and you can get it fresh like from different places that are popping up.

Last time that I saw this, I was actually with Drew Manning when I was in Utah, and he took me to this- I guess this is one of their favorite restaurants, and they had the bone broth on tap basically. Right?

But for me, it's hot outside. Everybody there - it's probably five other people - everybody is sipping on their bone broth. I didn't get it for me, but then there's a natural inclination, it started getting a little chilly, I felt more inclined.

We're going to talk a little bit more about this a little bit later and listening to our bodies to have the bone broth. Or you can buy it frozen, you can have it delivered to your home.

Many different ways to go about it, but this is just one. This is just one thing. It might not be the thing for you, but it's really fascinating science behind it, so I want you to keep that in your back pocket. Alright?

So let's move on. So we're going to go onto number two in the top ten ways to fortify your immune system this time of year. That's specifically why I mentioned the bone broth.

Number two. Now, question for you. Have you ever noticed that the flu season- cold and flu season tends to come around in conjunction with the time of year people spend indoors the most?

It's the time of year that we're inside the most is when we happen to have this flu season take place.

Researchers at Georgetown University Medical Center found that the blue light spectrum from the sun's rays are capable of boosting the activity of infection fighting T cells.

Sun exposure; we need it for a properly functioning immune system. This time of year, for a lot of folks listening, it's not as easy to get outside. It's cold, and the sun is even at a different place for us, and so the rays aren't even hitting us the same.

But we definitely should be a little bit more inclined to do our best to get some sun exposure during the winter months, if at all possible.

And even still, the strength of the rays of the sun, again, are not as effective at triggering this production of something important, and that's what number two is, and it's this compound that plays a big role in this immune health, and it's the role of vitamin D.

Alright? Vitamin D, also known as 'the sunshine vitamin,' and this is critical to the health and strength of your immune system.

Now I don't know who named vitamin D, I don't know why they did that. It's a hormone. Alright? It's not a vitamin, but it plays an important role in bone health, and hormone function, and in your metabolism, among other things.

Listen to this. Research published in the 'Journal of Investigative Medicine' found that vitamin D can modulate the innate and adaptive immune responses directly. Modulating your immune response.

Deficiency in vitamin D was found to be associated with increased autoimmunity, as well as an increased susceptibility to infection. We're not getting sunlight, we're not producing vitamin D. You need that to produce the vitamin D.

Now let's take this a step further. This is also a big solution for folks, 'Just get the flu shot. Did you get your flu shot?' They're giving out flu shots like those samples at the mall, like when you walk through the food court.

They just like- they almost put it in your mouth. Like just back off, buddy. I'm not into that. Right? I'm not into that food, nor a grown man feeding me like I'm a man baby. Right?

But they're just handing them out everywhere you go. Flu shot here, flu shot there. Is it really that effective, is the question. And also, are some other things more effective? And that's really what we're going to talk about.

Randomized double-blind placebo controlled study, AKA this is the gold standard of clinical trials. In this study published in the 'American Journal of Clinical Nutrition,' it was found that vitamin D supplementation lowered the risk of getting the flu by 58% for one of the most prevalent strains of the virus at that time.

That's bananas in pajamas right there. Alright? You'll generally see somewhere in the 30% range for the flu shot, for some strains. Some strains, it's like 90% ineffective.

But hey, this is just to have the information, to do your homework, to know what works best for you. This is not a bash against taking that plan of action. This is a pro, 'Hey, you might want to look into vitamin D supplementation, because it's kind of important.'

Now with vitamin D supplementation, it's important to know there are different types. There isn't just one vitamin D, there isn't just one B12, there are many different forms of these things.

And with vitamin D, we're looking for specifically cholecalciferol. That's D3. That's the one that's much more readily absorbed by the human body, and more potent than vitamin D2, which is ergocalciferol, and this is the actual form - D2, the less effective one - that's in multi-vitamins.

So you can get that out of here, alright? Let's go for the D3, and so make sure that you're going for vitamin D3 from a reputable source. There are so many out there, and also keep in mind that D3 is fat soluble.

So for your body to utilize it in the most effective way, ideally it's going to come packaged with some high quality fat. So it might be virgin olive oil in the supplement and/or when you're taking the vitamin D3, make sure that you're consuming it with a meal that has some high quality fats in it.

Alright, so let's move on. So make sure, check out vitamin D3, during this time of year specifically when you're not getting access to as much sunlight. But still if you can, get some access.

Do your best, alright? I know it can be complicated, but this is another reason, get outside the processed air that we're just chronically breathing in during this time of year.

Get outside, get some fresh air, get a little bit of sunlight. Your genes expect you to do those things. Also, look into D3 as a supportive mechanism to fortify your immune system during these seasonal changes.

Alright, let's move onto number three. Number three, and this is the second and final vitamin directly that I'm going to talk about in these top ten ways to fortify your immune system, everybody knows your friend, my friend, your mother's friend, vitamin C.

Vitamin C. There's a big misconception out there about vitamin C though. You've got to know this. Research indicates that it actually has very little effectiveness once you're already sick.

That's the big thing. "Oh take some vitamin C. You're sick? Take some vitamin C." Very little effectiveness. However, it's a great add-in when it comes to preventing getting sick in the first place.

In five clinical trials, people who were exposed to extreme physical stress - and who isn't these days - were able to cut the number of illnesses they contracted in half by supplementing with vitamin C.

Now the key here is to be proactive with it. So if you know, "Okay, there's this change of season taking place. Let me up my vitamin C intake. Let me do a little bit extra here."

Now, when you know stress is coming, especially even with that. Not just the season change, but if stress is ahead, you know potentially maybe there's some sleep deprivation ahead, or like a big work load, or something stressful going on, it's a good idea to take a little bit more vitamin C.

So that's a nugget to take with you for the rest of your days, okay?

So what are some good sources? Obviously people think of citrus. Right? We think of vitamin C because of the marketing. The marketing with the orange juice.

I grew up- my mom, if there was one thing that she would get for me personally- well actually, there was three things that are coming to mind now.

One thing, my mom worked at Magic Market, alright? So this is like a 7-Eleven pre-requisite. I don't know, it was like a pre 7-Eleven.

So she worked at Magic Market, and she worked the overnight shift, and she would bring me back - when I stayed at her house over the weekend - I would get baseball cards. I still got a few of them. Okay?

The baseball cards, but let me get that gum. Let me get the gum in the baseball card pack. I need that, right? So she'd do that.

Also, when she would get donuts, she'd always make sure to get me a sprinkle. Made me feel special, right? One sprinkle is going to be in the bunch, it's Shawn's. Okay? Give me something. Give me something small, let me know that I matter, right?

And the third thing is orange juice. She would do the half gallon. So they come in these little- basically a half gallon jug, it looked like a gallon jug that milk would come in, but it was the half gallon smaller bad boy, and I would just knock those down like- it was crazy. It was crazy.

Getting that vitamin C. But guess what? That's just a tremendous- like an insane amount of sugar that I was consuming. Insane amount of sugar.

And the same thing for the rest of my family, the same thing for people all over the place right now, who are consuming orange juice for breakfast, this pasteurized orange juice.

The pasteurization process is destroying upwards of 80% of the nutrition in it, right? It's like denaturing the different compounds in there. It's a totally different thing, right?

And it's something that because it's from a produce, or a fruit source, it can't withstand that processing as much as you would see with more of an animal source, for example.

But here's the thing; oranges themselves, great source of vitamin C. Lemons, love lemons, much lower glycemic. Limes, tangerines, you've got grapefruit. You've got the grapefruits.

Now, these foods are great, but not much stronger than many other classes of foods. For example, one cup of broccoli has 168% of your RDA vitamin C - your recommended daily allowance - while a cup of oranges has 128%.

So 168% versus 128% of your RDA. Broccoli is a bad boy when it comes to that vitamin C. Alright? I know you've probably never heard of anything like that, but broccoli is a bad boy, alright?

You've got to be careful coming around with your daughter with broccoli.

Food first, remember that. Keep that in mind. Remember that vitamin C is water soluble, so cooking the pants off of it can lose a lot of the vitamin content, alright? Another thing you've probably never heard before; cook your pants off.

During the seasonal change, I think it's something that a lot of us should be supplementing as well, not just food sources, because a lot of these food sources - like we think about fruits - they're not in season at this time of year.

So this is something I encouraged when I was doing clinical work, the patients I was working with, as well as myself. You know what I'm doing, what I'm doing right now, what I'm taking? I'm taking ViruTech. Right?

ViruTech, which is a combination of vitamin C, selenium - super important for the immune system - as is zinc, which is in there as well. Alpha lipoic acid, and these are these biopotentiators, right?

Alpha lipoic acid makes vitamin C work better in your body. So that's in there as well. Quercetin, which whenever I say it I think of Kirsten Dunst. Quercetin is in there, and also allicin.

This is an essential amino acid. This means that your body can't make it, you have to get it from your diet. That's one of the most important amino acids, if not the most important amino acid, for regulating and supporting your immune system.

All of that is in ViruTech - that's ViruTech - ViruTech formula, and these are from all-from earth grown food sources. So I highly recommend ViruTech.

I get it from Onnit, alright? So go to www.Onnit.com/model. That's www.Onnit.com/model. Definitely, especially during this time of year, or just to have on hand when you know stress is on the come-up, that ViruTech is something special.

Even check out the reviews. Just check out the reviews on the page. So www.Onnit.com/model and then go to the supplements tab, check out ViruTech, and get yourself some.

And here's the cool thing about Onnit. They have this keep it money back guarantee. So it's not just money back guarantee, but you keep the product too.

They're not going to ask you to send back- "Send me those two pills back. You don't like it? Send those two pills." No, you keep it and if you're not happy with the product, they'll refund your money.

And so for me daily right now, I've been doing the ViruTech- probably we'll say five out of seven days. And I'll just do that- I'll do it cyclically, you know?

I'm not just going to hammer that down like a daily thing all year long, but especially if I'm traveling, I up that. If I know that stress is on the come-up, I up the ViruTech. And just with the season change right now, that's what I've been doing as well.

And another thing that I love from Onnit, and that I use daily-daily is the emulsified MCT oils, which are shown to support and defend against pathogenic organisms in your gut.

How powerful is that? Because guess what? When we talked about your immune system isn't in just one place, it's primarily located in your gut.

Scientists are saying that upwards of 70% to 80% of the immune system itself is located in the human gastrointestinal tract, and it makes sense because this is kind of the front line of everything, that interface between your body and the environment. So it would make sense.

So, pretty cool. So head over, check them out, www.Onnit.com/model. That's www.Onnit.com/model. The emulsified MCT oils are delicious, alright? Coffee, tea, they're delicious, add them in. And also the ViruTech, definitely check that out as well.

So let's move on to number four on our list of the top ten ways to fortify your immune system. Number four, this one comes as a result of several studies, but I'll just share a couple of insights here.

This was published by the Mayo Clinic and it showed that people who don't get quality sleep or enough sleep are far more likely to get sick after being exposed to a virus.

This is one of the most important factors for supporting our immune system, and these top ten ways to fortify your immune system in no particular order, this one is definitely- if we were ranking, it'd be right up there at the top. Alright?

Number four is to make sure we're getting optimal sleep. And this is because obviously again I just shared that, but have you noticed that sleep doesn't just affect whether or not you're getting sick, but it affects how quickly you recover?

Have you noticed that when you get sick, your body- you tend to sleep more. Have you ever thought about that? Like your body just goes into like sleep mode, and you're sleeping more because that's where you're really recovering.

You're producing this incredible array of immune factors during sleep that really support the healing and accelerated healing at the end of the day of your getting better. Right?

So there's a few factors contributing to this. During sleep, your immune system releases proteins called cytokines. Okay?

So during sleep your immune system releases proteins that are called cytokines, and these cytokines, some of which actually help to promote your sleep quality.

So some of these cytokines help to promote your sleep quality. Now certain cytokines actually need to increase when you have an infection or inflammation, and when you're under stress as well.

Alright, so these cytokines are kind of these inflammatory agents that are going to the site of an infection and calling the troops in, and getting the natural killer cells, and the B cells, and getting people.

They're like, "Hey there's trouble over here, guys. Let's go." Right? These cytokines, they're helping to promote sleep just in a general sense, but also when you have an infection these are going to increase during sleep to help to promote a speedy recovery.

So sleep deprivation can actually decrease the production of these protective cytokines, and that's the full story right there. Alright?

Sleep deprivation is going to decrease the production of your cytokines, leaving you more likely to get an infection, and also the recovery once you get an infection, if you're not getting high quality sleep, you're not going to heal as quickly. Right? Really powerful stuff.

Also, the production and activity of infection fighting cells in antibodies are reduced during periods when you don't get enough sleep.

So why is this happening? Why is this actually happening? Researchers at the Albert Einstein College of Medicine published fascinating research regarding the circadian rhythm of the immune system itself.

Okay, this is cool. Your immune system is heavily influenced by external cues, i.e. your body in relationship to time and the environment.

Light and dark cycles, for example synchronized functions of the suprachiasmatic nucleus, which then controls the function of the HPA axis.

So that's the hypothalamic-pituitary-adrenal axis, which then controls the release and suppression of hormones and neurotransmitters, which controls the activity of immune-related glands, organs, organ systems related to the immune system like your liver, your lymphatic system, the thymus gland, bone marrow, and more.

All of these things are controlled on a circadian rhythm. Super important, alright? So your immune system itself has this circadian timing. It's always looking for a rhythm, it's looking for a flow, and so being off with our sleep can throw that whole thing out of whack.

So by the way, I mentioned bone marrow, so this research indicates that your sleep cycle, or your circadian rhythm with your immune system can influence your bone marrow.

Why does this matter? Most of your white blood cells are made in the bone marrow. That's really weird, right? Like these immune cells that we've been talking about, it's coming from your bone marrow.

Pretty, pretty profound. The body is just amazing. And so your sleep, by the way again, is tied directly to the function and health of your bone marrow.

So that's one piece of this with the sleep equation, it's supporting the immune system directly, but also just to talk about this really briefly, is the role that sleep plays on-

So the lymphatic system that we talked about in a past episode is kind of where the secret life of your immune system is taking place outside of the gut, and all these immune-related organs, these lymphatic organs.

This lymphatic system is like extracellular fluid, just bathing your cells and tissues, taking metabolic waste and pathogenic organisms, washing this stuff out.

There's a lot of different roles, but this lymphatic system, you have four times more lymph than you have blood, however it doesn't reach directly to your brain.

Now your brain is very, very picky in what it allows to get access to it, and what it has. So what does your brain do? Because there's a lot of cellular activity and metabolic waste taking place in your brain.

Your brain has its own kind of closed system called the glymphatic system, and so the lymphatic system is what your body is using, it's kind of extracellular waste management system.

Your brain has its own glymphatic system which is a little shout-out to the glial cells that essentially help to run it.

Here's why this matters in the context of sleep. During sleep, your glymphatic system, this cleaning system for your brain cells, is about ten times more active than when you're awake.

So when you're asleep is when your brain really has the opportunity to clean house, and now we're seeing research indicating that issues linked to things like Alzheimer's are tied to an inability of the brain to detoxify itself.

Right? So this cleaning system, this protection for the brain, a big part of that is taking place during sleep, alright?

So multi-faceted thing here with keeping us healthy because guess what? Your brain is controlling a lot of the things that your immune system is even doing.

Keeping our brain healthy, we need to make sure we're getting high quality sleep. Obviously follow the tactics in 'Sleep Smarter.' If you have not read 'Sleep Smarter' yet, definitely highly recommend it.

Pick up a copy, and these strategies in there are twenty-one clinically proven strategies. These are going to be essentially relevant all year round, but for now as we're talking in the context of the seasonal change, I want you to pay a little bit more attention to the environmental cues.

Right? The environmental cues. What happens during this time of year for a lot of us, right now in the US is shorter days, longer nights. Shorter days, longer nights.

What do you think our ancestors would be doing? Because we are not nocturnal creatures, alright? And just if you want to argue that, go out on a safari.

We call it a safari, but just go out in the wild with your human senses, where they've got the big cats, alright? Or they've got the creepy crawlies.

They can see you, you can't see them, alright? Our senses are tied up to- and then the color spectrum that we can see for daytime. Right? We're not nocturnal creatures.

Of course we can stay up late and have fun, alright? But we're not hardwired to do that. So our ancestors would seek shelter. We would hang out more- do the hunting and gathering, and the fellowship, and all that stuff during the day, at night seek shelter. It's dangerous. It's dangerous out there, okay?

And so keep that in mind. And so during the winter months, it's really a call from the environment to maybe- maybe get a little bit more sleep. Alright?

Maybe turn in a little bit earlier, maybe sleep in a little bit later. Right? It's okay to change our schedule based on the seasons.

As a matter of fact, according to this data, that's one of the most healthful things for us to do, and I've actually noticed this.

If we're giving people the opportunity to just kind of abide by this, my youngest son Braden, he tends to sleep more during this time of here. He just naturally is wanting to sleep longer, right? He's wanting to stay in bed. The sun isn't coming up.

And so pay attention to environmental cues, do your best to get some sun exposure. That's going to be another powerful implement here because innovations in clinical neuroscience found that getting adequate sun exposure during the day can help you to sleep better at night. And it's one of those things that helps to reset that circadian rhythm, alright?

And also creating a sleep sanctuary for yourself, and we'll put an episode in the show notes, just kind of a master class on creating a sleep sanctuary, alright? That good rest, recovery is prevalent and everlasting. Alright?

So let's move on to number five here on our list of the top ten ways to fortify your immune system.

Number five is to exercise. Exercise. It's another time because it's not nice outside, we're not getting out, we're not walking, we're not moving, we're getting more cooped up, and this can have a hazardous effect on what we're experiencing as far as our immune system.

Our lymphic system that we've been talking about that's carrying a lot of these immune cells around your body relies heavily on the pumping action of movement.

Because unlike your circulatory system, your immune system does not have a direct pump, right? It doesn't have- like your circulatory system has the heart. This does not have a direct pump.

The pumping action for moving this lymphatic fluid happens through moving and breathing, specifically deep breathing. And isn't it cool, even when I thought about it just now, I took a little bit deeper of a breath. Right?

It's part of our autonomic nervous system, and so it's happening whether or not you're thinking about it, but what's different about humans is we can jump in and take control of this thing that's on the same track as your heart beating, that's digesting your food.

Those are autonomic nervous system things, but you can control your breathing, and I think it's an evolutionary advantage because it helps us to relax, to switch off that fight or flight sympathetic tone, and to literally activate and turn on that parasympathetic activity in our body.

And so there was a study published in the journal 'Sports Medicine' citing that during steady state exercise in humans, lymph flow has been shown to increase to levels of approximately two to threefold higher than at rest.

Another study conducted at Appalachian State University found that walking - specifically walking - caused short-term boost in immune parameters, most notably for neutrophil and natural killer cell counts in the body.

Wow. You get a boost to your immune system, just go for a walk. Incredible. Incredible. So make sure that even when the seasons are changing, make sure we incorporate a movement practice.

Maybe we're not getting out and doing whatever, like you were maybe going to the track or something like that, going hiking, alright? But just get out and go for a walk.

Make sure that we're incorporating some things just to support our immune system. Alright?

So some of the most effective exercises for supporting your lymphatic system are walking, swimming, yoga. Let me see you do that yoga. Stretching, mobility work, rebounding using the little mini trampoline. It's called rebounding.

I don't know why it's called rebounding necessarily, but whenever I hear the name, I do think of Dennis Rodman. And so but that's just in my own mental Rolodex.

But the mini trampoline, and it's one of my favorite tools. I use my rebounder several times a week. NASA- so these are little rocket scientists say that rebounding is probably the best form of exercise for humans.

Alright, so let's move on. So that's number five on our list, let's move onto number six on our list of the top ten ways to fortify your immune system.

Number six on our list is to stay hydrated. This would seem like Captain Obvious, but if we're not out in the sun and sweating, we might have a tendency towards not drinking as much water.

Your body still requires- this is like the second most important nutrient source outside of the air that you're breathing is water.

Here are just some of the things that water is responsible for in your body. Maintenance of your DNA, kind of important. Facilitating processes in your mitochondria, so the energy power plants in your cells, kind of important.

Building blood cells and immune cells. Your blood is over 90% water, and it's the system used to transfer oxygen and nutrients throughout your body.

Also building the lymphatic fluid that we've been talking about, making digestive secretions, regulating your body temperature, maintaining cerebral spinal fluid, plus water in our bodies is like responsible for these information super highways that are moving hormones and neurotransmitters throughout your body, helping your cells all communicate with each other.

So all of these things point to the fact that water is critical in maintaining the health of our immune system, and seeing a drop maybe even 5% of our ideal hydration level, we can start to see damage happen to our immune system, and our immune cells specifically.

And so just make sure that we're being adamant about getting the proper hydration for ourselves. The general tenet that I use is recommending for folks to drink half of their bodyweight in ounces of water each day.

And so a 200-pound person would target 100 ounces of water. 150-pound person would target 75 ounces of water. But I do generally put the cap at 100 ounces. So if somebody's 250, 275, whatever, 100 should be solid.

But keep in mind this is going to depend on your activity level as well. So you might need a little bit less or a little bit more depending on what you've got going on, but this is a good barometer. I think it's a really sweet spot for a lot of us.

So that's number six. We cannot overlook this one because without water, this whole conversation about having an immune system is just going to be null and void, alright? So make sure that you're staying hydrated, especially during this time of year of transition.

Alright, number seven on our top ten ways to fortify your immune system, number seven is to actually condition yourself to the cold. Condition yourself to the cold.

What do I mean by this? We've got these ideas in our culture of like bundle up, you'll catch a cold. Right? My mom would tell me that, "Bundle up. You might catch a cold."

How do you catch- how do you catch a cold? Or another thing that we would say is- if somebody's sick, they're under the weather. They're under it.

That's really difficult to do, to get under the weather. Very, very strange thing. But it's these fears of our environment, it's the fear of cold.

Is it justified? Because even- here's the thing, they even call it a cold. Right? They call it a cold, even though a lot of times you're actually running hot.

And so it's a traditional kind of statement but largely unproven theory based on a time when folks would get sick during prolonged times of exposure to cold.

And in reality, by the way, any viruses, bacteria have seasons themselves when they are kind of prevalent. Like they're the groundhogs coming out at certain times of the year as well.

And so this is from Harvard Medical School, and from their health publishing, and this says, 'A group of Canadian researchers that has reviewed hundreds of medical studies on the subject and conducted some of its own research concludes that there is no need to worry about moderate cold exposure. It has no detrimental effect on the human immune system.'

Alright? We can stop being afraid of the cold. In fact, it may just be the opposite, cold might just be helpful.

Research cited in the 'North American Journal of Medical Sciences' found that daily brief cold stress can actually increase both the numbers and activity of cytotoxic T cells and natural killer cells.

Getting cold exposure helps your T cells and natural killer cells to work better. Talking about catching a cold, right? Actually getting exposure to the cold can help your immune system to function better. So daily brief cold stress.

Another study published by the Academic Medical Center in Amsterdam found taking a hot to cold shower, so a contrast shower where you're doing a hot and you're doing a cold, every day slashed absences from work due to sickness by almost 30%. That was in one trial they did.

The researchers studied 3,000 men and women aged eighteen to sixty-five who were told to do the contrast shower where they're taking a hot shower then doing cold shower for up to ninety seconds done in the morning.

The results published in the journal, and this is the 'Public Library of Science,' PLOS One, showed that in the following few months, the number of days taken from work and hours missed from work due to illness plummeted, right?

Those hours of missed work went down so much, and they linked it to doing these contrast showers. So scientists believe moving from hot to cold water boosts the number of disease fighting immune cells such as monocytes.

So some people hearing this might be like, "You know what? Fooling with the cold, it's not my cup of tea." I call it tay, not tea.

And that's okay, these are just tools, but it might be a tool that you maybe consider implementing or experimenting with and see how it can improve your life potentially.

We did a master class on this episode, that was episode 127, benefits of cold thermogenesis. Different ways to go about it, just get outside in the cold period. That's a good idea.

Again, getting the fresh air, getting some exposure, but also these contrast showers, cold showers, folks are taking ice baths. Ice baths are popping right now, alright?

Again, it might not be your cup of tea, but there's other options as well. You could do whole body cryotherapy. This is on the come-up as well, right? Doing the cryo chamber which uses nitrogen.

It's a different kind of cold. It's again like minus 120 degree or whatever, it's crazy, but it's just for like a couple of minutes.

So one of the things I talk about in the episode is how cold exposure can actually increase things like adiponectin, and this is something that improves your insulin sensitivity and increases fat loss.

And it's a protein hormone by the way, so adiponectin is a protein hormone which is involved in regulating glucose levels, as well as fatty acid breakdown in the body. Super cool stuff and it's a result- it could be increased with cold exposure.

So again, if you're interested in that, check out that episode, but for our intents and purposes, make sure for our list, get some access, get some exposure to cold because if you condition yourself to the cold, it's not going to hit you as hard or be that unfriendly.

Alright, so we're going to move on here. We're at number eight. So number eight on our list of the top ten ways to fortify your immune system.

Listen, this is super simple, this is an add-in piece that anybody can do because I said fortify your immune system purposely. I didn't say boost your immune system, I didn't say skyrocket your immune system. That not be the appropriate thing.

You might need to bring that immune system down some. It might be hyperactive because of things you're exposed to in this transition.

This is why things like chaga, medicinal mushrooms, these are known as immunomodulators, alright? Immunomodulators.

So they're able to actually shift your immune system up or down depending on what's actually needed at the time. There are very, very few things in nature, and especially in the pharmaceutical world that can do something like that.

It's usually just punching your immune system in one direction, either suppressing it or pushing it up really high.

These have the intelligence, so much documentation that we have now, to actually help to support your immune system in an entirely different way.

So chaga for example, studies indicate that chaga significantly increases the activity and effectiveness of our natural killer cells. This is probably, by the way, and this is just a little side note, chaga is probably the highest antioxidant substance that humans have access to. Alright?

So specifically one of the antioxidant effects on the body, chaga has been found to increase superoxide dismutase in the body, or SOD, and this is a natural antioxidant enzyme that's produced in the body that plays a significant role as a free radical scavenger, and it essentially acts as kind of like a bodyguard, right?

It's like the Kevin Costner of your system, protecting your DNA from damage, okay? And it helps to reduce the workload placed on your immune system. Superoxide dismutase, AKA Kevin. Alright?

Keep this in mind. Chaga, powerful stuff. Also, rishi. This study found that polysaccharides in rishi were found to enhance the proliferation of T cells and B cells, again interacting directly with your immune system. It's incredible.

Also we talked about how important sleep is. Rishi is incredible for promoting great sleep. This study published in 'Pharmacology, Biochemistry, and Behavior'- first of all, understand the name of this journal. 'Pharmacology.'

These are drug folks. They don't want to hear that rishi can do this, but it does. So they got the data, they got the clinical trial done the right way, they're publishing this.

So what they found was this medicinal mushroom rishi was found to significantly decrease sleep latency, meaning it helps you fall asleep faster. It was found to increase overall sleep time for folks who have trouble sleeping and staying asleep.

It also found that it increased non-REM and REM sleep. So deep sleep and REM sleep as well. Rishi. And for me, these are pretty much dailies that I've been incorporating for several years.

I love the chaga. For me, I do the chaga with lion's mane coffee in the morning, I had it today, because the lion's mane benefits for brain health, right?

So I did the chaga and lion's mane coffee from Four Sigmatic, and before bed especially when I travel, I love doing a cup of rishi.

And so the reason that I use Four Sigmatic and not company X and all these different companies out there is that they do a dual extraction of the mushrooms.

So this is a hot water extract and an alcohol extract to actually get the nutrients out that you're looking for in its full spectrum.

Because you hear these studies, you don't know what extraction method the researchers used. So you might be getting a supplement and you're not actually getting what you're looking for.

You get this with Four Sigmatic, plus they put them in these simple little easy-to-use packets. You just open, pour it into hot water, or pour your hot almond milk, whatever it is you're into, have your coffee.

I've got a little frother. I got fancy, okay? I don't know if you know this, but before when I was traveling and I had my Four Sigmatic, which I just had to have it, and I had the hot water in the hotel room.

I'd pour it in, and I'm like using one of those little plastic straws trying to stir it real fast. It's terrible. Like nobody should suffer through that.

And eventually I found out about frothers, because I told you guys before, like I didn't drink coffee until like about a year and a half ago. Okay?

My entire life I just swore it off. I was like, "I'm never going to drink this stuff." Then I found out about the frother, and it changed my life, okay?

So now I travel with my frother, I bring it in my bookbag, but I love these this much, and it makes me feel that good, and it's that little 1% or 2% benefit, because I'm already doing all these great things for my sleep, but I notice a difference when I have the rishi.

It just- there's something special about it. So if you've yet to do so, go to www.FourSigmatic.com/model. That's www.FourSigmatic.com/model and you get 15% off everything.

If you're not a big coffee fan, you want the chaga, they just have the chaga elixir where you can just get chaga. Dual extracted done the right way so you're actually getting the goods.

So it's a big time thing to implement this time of year, medicinal mushrooms. Let's move on to number nine.

Number nine. Number nine is to incorporate more seasonal foods. I want you to start thinking differently about your food, right?

We have instant access to so much, but it might be throwing off our immune system. Stanford University researchers have discovered that gut microbes can actually change dramatically with each season.

What they did, was they found that healthy hunter gatherer tribes have been found to have microbiome shifts that are in sync with seasonal changes made to their diet.

So as the seasons are changing, the microbiome is changing. Right? What's happening in the gut is changing. The researchers concluded that the gut microbes in digestion is cyclical throughout the year, and in sync with the precise biorhythm of nature in a natural human setting.

The problem is we're no longer in a natural human setting, nor are we consistently eating foods that are provided naturally at different times of the year to support that change of guard, to support the change of the microbiome.

And so now it's time to be more mindful of this, because again, the gut and the immune system, it's the front line. And so supporting our immune system, we need to pay more attention to what nature's providing for us at that time of year. Alright?

Because again, your microbiome is changing just because the season is changing. Crazy stuff. That's one of the biggest takeaways of this episode.

It's just like so profound, the intelligence and the connection of our body to all of life and all of nature. Super powerful stuff.

And so you have to look up and see- because depending on where you live also is going to be what foods are available during different times of the season.

So you just go to Dr. Google, type in 'seasonal foods in your area,' for example, and find a list. You know? It might be persimmons, it might be kale, it might be squash, I

don't know but just look it up. Add in more seasonal foods for yourself during this time of year.

We're at number ten here, so number ten on our list of the top ten ways to fortify and support your immune system.

Number ten is to laugh, connect, and to have fun. Alright? Laugh, connect, have fun. And I'm saying this from a scientific perspective. Alright?

This is part of the reason during this time of year when it gets cold outside, we put a lot of our most elaborate holidays during this time of year because we get that cabin fever, right?

This can be a little bit of a- we get the quote 'winter blues' when you are isolated and you're in the maybe potentially kind of like a hibernation mode.

And these are things to keep us cheerful and to know that spring is coming, that life has these cycles, and everything is good, and to be thankful.

And so keep that in mind. Like we have a historical context for these things, these winter celebrations, but with the science piece, listen to this.

When we're stressed, the immune system and its ability to fight off infections is significantly reduced. This is why we're more susceptible to infections when we're under heavy stress.

A meta-analysis of hundreds of studies published in the 'Psychological Bulletin' found that acute stressors of the fight or flight system elicit potentially beneficial changes to the immune system.

But the more a stressor deviates from this and becoming more chronic, the more components of the immune system are affected in a detrimental way.

So stress is one of those things that we need to be mindful of. This is again why we need to laugh, connect, have fun.

For example, Brigham Young University conducted a study of IBM employees and found that sitting down to a family meal helped working moms to reduce the tension and strain from working long hours at the office.

And also, did you know that there's actually a ton of clinical data demonstrating how good laughter is for your immune system? And this is absolute crazy pants right here. Listen to this.

A study conducted at Indiana State University School of Nursing found that laughter is able to reduce stress and improve natural killer cell activity.

Powerful. Make sure that we're taking advantage of these things, alright? Hang out with people that make you feel good, alright?

Spend some time having fun, connecting, and laughing, because it's one of the greatest gifts we have access to. And these feelings, these experiences, these aren't just 'positive emotions.'

These are things that guide our entire physiology towards a higher state. That's what's so powerful about this.

So I hope you got a lot of value out of this episode, and with these top ten ways to fortify our immune system, this is important for everybody that we care about as well.

So if you got some value out of this, please make sure to share it out with your friends and family. You can post it on social media, on Instagram, and Twitter, and all that good stuff, and of course tag me and let me know what you thought of the episode.

And you could shoot this via email, whatever, text it to somebody, show them some love, give them something that's going to add more years to their life and life to their years.

I appreciate you so very much. We've got some incredible powerful episodes coming up, so make sure to stay tuned. Take care, have an amazing day, and I'll talk with you soon.

And for more after the show, make sure to head over to www.TheModelHealthShow.com. That's where you can find all of the show notes, you can find transcriptions, videos for each episode, and if you've got a comment you can leave me a comment there as well.

And please make sure to head over to iTunes and leave us a rating to let everybody know that the show is awesome, and I appreciate that so much.

And take care, I promise to keep giving you more powerful, empowering, great content to help you transform your life. Thanks for tuning in.