THE MODEL HEALTH SHOW

EPISODE 410

7 Little Known Things That Are Affected By Your Sleep

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Shawn Stevenson: Shawn Stevenson: Welcome to The Model Health Show, this is fitness and nutrition expert, Shawn Stevenson. And I was so grateful for you tuning in with me today. This is a very special episode, right now, we're in the midst of "quarantine 2020" an epic time, epic note in the history of humanity, especially in recent history, and as such. We're recording now, live from my home in California and I really wanted to do this episode to talk about a subject that is very much skewed and very much misunderstood especially right now when many of our routines and our patterns are just kind of thrown off.

Huge societal monkey wrench has been thrown into the machine. And what I want to talk about today is our sleep quality, but not just the normal run-of-the-mill stuff. Today, we're going to talk about seven specific ways that your sleep quality is impacting your life that you're probably not aware of. And I know that some of these things are absolutely going to blow your mind.

Now, for many of us, a big reason why our sleep patterns are a little bit off and our routines is the fact that we're not getting out and doing the things that we normally do our normal routines like getting up and going to work putting on clothes just a big shout-out to you if you put on anything other than leggings, jeggings, and sweatpants in the past few weeks to a couple of months. Just a big shout-out.

Not that we have to, but sometimes you just want to kind of get dressed up with some other stuff on. And you know what's so interesting about humans is that we actually have special clothes that we put on in order to go to bed, these clothes that we call this under this category, what we call pajamas, and pajamas the word itself just makes you feel good.

I dare you to say pajamas, and not feel like some warm fuzzes come over you. You could say it with me now, pajamas, now for many of us, our pajamas are something that we put on, again, it's tied to a neuro-association for relaxation, for settling down and for getting sleep, it's all connected and our brain this

neuro-association, our brain is always looking for patterns, it's always looking for associations and the longer we do a behavior, the more ingrained or the more myelin gets laid down, making that habit or that behavior more permanent in our minds.

So now all of a sudden if we're just living in our pajamas we're just... My son Braden, was just walking around his pajamas. My wife too, she went outside, she got the onesie pajama she went outside, but I just like walking around.

So if we're habitually living in our pajamas right now, this can be another little interesting factor throwing off our sleep rituals and our patterns. And so with that said, we're going to talk about number one, we want to create no matter what is going on right now, a semi-consistent sleep routine and today you're going to really understand why and have more legs under that belief on why your sleep quality is so important.

And so let's go ahead and jump right in to these seven little known things that are affected by your sleep.

We're going to start right in, number one.

And this is the fact that great sleep has been found to provide some of the very best skincare, Neuroscientists in Sweden, conducted a study to investigate how sleep deprivation actually affects our attractiveness now humans naturally use social cues based on people's appearance that are essential in helping to keep us protected and helping to keep us healthy because just based on people's appearance we can gather subconscious very important data kind of disseminating and letting us know their level of health or sickness or even their intention. And this is, again, this is largely done in our unconscious, subconscious mind. Now the researchers took a photograph of test subjects, after normal sleep and another photographed after limiting their sleep for two nights in a row, and now, they had raters look at an array of randomized photographs, some were including when people are sleep deprived to when they're well-rested and consistently, the raters rated photos of people who were sleep-deprived as less attractive, less healthy, and they were less inclined to want to socialize with them just based off of whether or not somebody was sleep-deprived.

They're appearance based on that.

And another study found that sleeping less than 6 hours at night for five nights in a row caused fine lines and wrinkles, to increase by 45 percent, also blemishes, went up by 15% and redness increased by nearly 10%. In other words, we literally wear our lack of sleep on our faces.

And in addition to this, yet another study published in the Journal Clinical and Experimental Dermatology found that adequate sleep, protects against skin aging and accelerates recovery from excess sun exposure, it's called beauty sleep for a reason. This is one of the most important factors in determining the health of our skin. Where do you hear information like that? These are the kind of things that are not obviously going to be in a proactive commercial.

So, just real talk now that you know, prioritizing good sleep is far more powerful than proactive.

Alright, but it's... Again, it's changing, the association, and understanding how valuable our sleep is and we're going to again continue to dive in deeper and look at different layers of, Why is this even possible? How is it that my skin can affect my sleep? And I'll tell you right now, just to give you heads up or sleep quality is a huge player in regulating our hormones, which our hormones are big influence on your skin, and also it's a big player in regulating inflammation.

And so that's going to take us to number two, on our list of seven little known things that are affected by your sleep.

Number two, is your sleep quality has a major impact on your cholesterol.

Now, first of all, with this conversation, we have to start with what is cholesterol, what does it do?

Alright, what does cholesterol actually do? When we hear cholesterol, a lot of us think of problem if we're just being real, because of that neuro-association, that's been programmed into us from commercials from conversations in our culture, but in reality, cholesterol is one of the most important nutrients for our survival. Cholesterol is responsible for building your sex hormones, kind of important.

It's also responsible for making vitamin D, which Vitamin D has so many

different factors, a steroid hormone, and longevity and protecting us from illnesses, and specifically vitamin D has been found in clinical trials to be effective at protecting us from the flu virus. Alright, so the list goes on and on for Vitamin D but you can't make vitamin D without cholesterol.

Alright, cholesterol is that deal when it comes to making it, also cholesterol is a huge player in making the cell membranes of all of your human cells, the vast majority of your human cells are really dependent upon cholesterol in order for them to have form and have stability. It is that important. So just thinking and hearing that cholesterol is this bad guy is wildly inappropriate.

But we're going to dive in deeper and talk about a little bit more of the nuance and why this could be a problem because when we talk about good cholesterol and bad cholesterol, what comes up is LDL low-density lipoprotein and HDL high-density lipoprotein. Low-density lipoprotein, high-density lipoprotein.

Now I got a question for you.

When I said low-density lipoprotein and high-density lipoprotein, did I say cholesterol?

I didn't say cholesterol because neither of those are actually cholesterol.

Those are carriers of cholesterol these are carrier molecules that send and transfer close all throughout your body.

LDL cholesterol is one of the major players in delivering cholesterol throughout your system, this valuable important nutrient to cells throughout your body.

But yet, LDL cholesterol is considered to be the bad boy it's the cholesterol that's on the motorcycle with the ripped-off sleeves and the Hells Angels on the back. They're supposed to be the bad guy, but in reality, that is only a slice of the story without LDL cholesterol. We literally couldn't survive, we needed it taken it's valuable nutrient, again to all the cells throughout our body. But besides your brain cholesterol is so important for your brain, your brain makes its own cholesterol. Cholesterol is so important for your body.

The vast majority of cholesterol in our system cannot possibly come from our food, it's coming from our liver making cholesterol every day because it needs

it, it's super important.

And so, LDL takes that cholesterol from the liver and delivers it throughout the body. Alright, so that's LDL. HDL is going in snatching up leftover cholesterol or cholesterol that's not in use, cholesterol that's kind of just hanging out and shouldn't be there and delivering it back to the liver to be either eliminated from your system or to be recycled because your liver is also about that recycling life.

Alright, I remember when I was in elementary school, we had the recycling song, Second grade "recycle, recycle, recycle now". Stuck with me. Alright, your liver's been about recycling since the beginning of human evolution, because again, this is a really, really important molecule or a really important nutrient so that's a little bit more of the story of LDL and HDL, but let's not neglect to talk about that.

Yes, cholesterol carriers, can be a problem, specifically, LDL is the one well noted to be a potential problem or affirmative factor for some cardio-vascular risk but it's not because LDL in and of itself, is a bad guy. If you look at the data, it's largely associated with the fact that when we have excess oxidation of LDL and inflammation "these are the things that make LDL truly problematic. And so, we've done episodes in the past talking about cholesterol, and some of the kind of clarity on that, so we'll put resource for you in the show notes, but I just wanted to touch on that a little bit before we dive deeper and talk about how our sleep is related to our cholesterol because again, we talk about cholesterol, we think about diet, we think about drugs, but listen to this in a study published in a peer-review journal Sleep, researcher discovered that sleeping less than five hours a night significantly raised the risk of low HDL levels which we need HDL to help the balance out LDL or problems can arise.

And they found that the same study participants experienced much higher triglycerides. And this is key, I really want you to get this, high triglycerides can be especially troublesome because they can cause acute inflammation and also contribute to the hardening of arteries according to data cited in the journal Lipids in Health and Disease.

Another study, published in the Journal of Cardiovascular Nursing found that too little sleep leads to higher levels of LDL cholesterol and an unfavorable cholesterol ratio. Again, it's not that LDL is bad but we want to really manage a

healthy cholesterol, ratio of HDL and LDL. It's like a seesaw, right? We don't want one to start functioning more like an elephant and one to function more like a Chihuahua and creating this really interesting. Basically, the Chihuahua's going to slide over and we're going to have some impromptu interaction that we were not expecting.

Such a weird analogy, but I hope that you get what I'm trying to say.

Alright, another interesting thing about cholesterol, if we look into the study a little bit deeper, it was revealed that individuals who slept less than six hours a night, greatly increased their risk of developing cardiovascular disease so the cholesterol issues and the cardiovascular disease go hand in hand where we're talking about how our sleep quality, can affect inflammation and unfavorable cholesterol ratios. Another interesting fact here is that researchers uncovered that snoring is also associated with lower levels of HDL cholesterol.

Now I know we've got shout-out to my bears out there, alright, we got some bears that our hammers out there with the snoring, and it's not that the bears are bad guys. Bears needs love too.

Alright, shout-out Yogi the bear "Hey, hey, Bobo". But in reality, snoring could be a symptom of some other issues, but I just want to get some quick solutions because this is one of things that I've gotten questions on over the years since Sleep Smarter come out with people struggling with their partner's snoring and also people just wanting to be able to breathe better, to cause snoring can kind of lean towards sleep apnea as well.

The number one solution and there's a whole... It depends on the person, but usually what helps to take care or dramatically decrease the likelihood of snoring is simply changing sleep positions.

If somebody is sleeping on their back, your likelihood of snoring goes up quickly. Now here's the thing, anybody really can technically snore when your laying on your back and your head's cocked back if you could see me on YouTube. It's just going to create the likelihood because you're breathing pathway, gets a little bit misconstrued and so, just changing sleep position or training yourself to sleep on your side so for some folks sleeping on their side and even cocking back a little bit and letting your head drop is going to bring on snoring. So it's training yourself, how do you do that? Number one, just when you catch yourself change

positions at night just put yourself back into that position or the old tennis ball in the pocket trick. Which is putting on a t-shirt with the pocket but put it on backwards and put a tennis ball in that pocket.

Alright, now, I know this sounds like training a puppy here, but sometimes we got to treat ourselves like a little baby puppies.

Alright, so it's training yourself to sleep on your side and for many people, again, this is going to help tremendously, however, there can be other issues there can be deviated septum involved, there can be constrictions just with the breathing pathway overall, the sinuses. There are many different issues. That can be the reason. One of the other issues that you're carrying a lot of bodyweight, it's going to have a tendency towards increasing the rates of snoring as well, and so we want to help to get the bodyweight off lower the body fat. But this doesn't mean that skinny people can't snore alright, by the way, or muscular people can't snore but it's just more correlated with snoring. Alright, so really interesting link there snoring and lower levels of HDL cholesterol. I thought that was really fascinating, and I want to share that with you guys. But again, the real issues we're talking about are sleep and relationship to our cholesterol levels. Go back to inflammation. Now, a meta-analysis of 72 studies revealed a direct link between lack of sleep and inflammation.

72 studies, and what the report indicated was that inadequate sleep was shown to result in increased levels of inflammatory markers in the blood like C-reactive protein and interleukin-6. These are both markers that have been linked directly to chronic diseases like heart disease, hypertension, and type two diabetes.

Alright, super fascinating stuff that, again, we don't look at this when folks are meeting with a conventional physician, the vast majority of the time, and talking about cholesterol issues, we're not having a conversation about their sleep quality and what we can do to help the support improvements in their sleep quality and we really need to shift the conversation. And so this is one of those hallmark things that I really hope that you take this information and share this with somebody that you care about that might be on a statin or that might have issues with cholesterol.

And I also think that is critical for us to understand. And have a conversation about the fact that taking a statin is not without its own risk as seen in research coming from Albert Einstein College of Medicine in New York. Published data

from a 10-year study showing conclusively that statins use, is associated with a 36% increase in the risk of developing type two diabetes.

Why? Why are we not talking about this more?

This data has been out there for quite some time, and statins were like just selling like hot cakes for years and years and years now, but it's not without its risk. And so with that said, it's not to say that statins are not an option, everything is an option. Pharmaceutical drugs can be life-saving in some instances, and supportive, but we want to get ourselves to a place where these come in a little bit later after we address the root cause of why the cholesterol ratio can be skewed and is the cholesterol ratio or the LDL amounts and HDL amounts. Are they even a problem in the first place, because of our knowledge of these cholesterol carriers is not complete.

And so I just really want to share that with you guys because there are millions upon tens and millions of people here in the United States alone right now that are on a statins medication, and so what we have number one is looking at our sleep quality, but also, obviously, our nutrition, when we think about cholesterol, we tend to think about our nutrition and what we have here is real scientific evidence to support healthy cholesterol levels without dangerous side effects with certain nutrients in certain supplements that are not largely shared with the population at large with most folks because physicians typically aren't looking at this data and also, of course, the popular conversation is going to revolve around medications. That's what you see commercials for in TV, you don't see commercials for eating healthier, foods, you're not seeing healthier foods promoted by your favorite celebrities, right?

What if they did... What if they did?

What if Arnold Schwarzenegger got on TV, and it was like "all of California get to the chopper go to the farmers market". What if that happened? What if Samuel L. Jackson, got on TV and he was like, "eat your Brussels sprouts mother... ". What if we did that, what if we changed the conversation instead of talking about the credit card thing that he's doing, what if he supported healthy food?

Alright, we can create a shift in the conversation but it's up to us demanding it, and also just taking back our attention because popular media obviously there's going to be a big driving force towards these multinational corporations that

this is not a conspiracy theory as well. This is simply the facts.

The pharmaceutical industry, this is a multi, multi, multi-billion dollar industry and if you're a physician and your one tool is a hammer, everything is going to look like a nail.

If you see... Look at their blood work, and you see that they have high cholesterol, and you're just taught pharmacology, which is when I went to school initially pre-med. Pharmacology is what I had to look forward to, I got to pick as an elective to take a nutrition class. It was not in the pre-requisite I just happened to take one but I was taking it, not to learn how nutrition affects my health, for me at the time, being 17-18 years old, I thought nutrition was about fitness. That's all I thought about, and that was the connection.

But things are changing, things are definitely changing but we want to add more tools to the tool belt. And so supplements real food is a huge player for talking about cholesterol. Now, I got to share this with you guys.

There's a study published in the Journal of the Science of Food and Agriculture, and it revealed that just a small amount of Spirulina, each day was able to significantly reduce triglycerides and improve overall cholesterol ratio of study participants during a three-month study period. In fact, spirulina supplementation was able to reduce triglycerides by 16.3 percent, no side effects. Also according to a study published in Frontiers in Pharmacology another renowned plant used as both food and medicine for thousands of years called Moringa, is clinically proven to be effective as a treatment for hypoglycemia, cholesterol-related dyslipidemia and for reducing cardiovascular disease risk, real food, things that have been around for the of years have clinical evidence. Now, this is published in one of the major pharmacology journals.

Alright, the data's there. But it's just a question, are you actually going to go and look at it as somebody who's in the healthcare space, or are we as citizens going to put our big boy pants on and listen to information like what's here in The Model Health Show or going and look at some of these medical journals which by the way, it can be some super dry reading, let's just be honest. And so I like to take the data and to help to make it make sense for people. And how is it applicable? And just saying, both of these ingredients are in Organifi green juice that my kids have that I have these Green Superfood blends these are not

taking this "multi-vitamins" that a lot of times, don't have any clinical evidence of their ingredients because they're just synthetic nutrients, they're just synthetic nutrients, these are not even Earth-Grown actual interaction with human cells over a long period of time, synthetic versions of vitamin C of the B vitamins, right?

What we really want is Earth-Grown nutrients, food source nutrients, and nutrition.

When I'm a huge fan, and I want to implore everybody to get them a green juice blend.

I think it's one of the best "multi-vitamins" that you can really take is from real whole food and what I love about Organifi. They do a cold process, a cold processing to retain all the nutrients found in the different superfoods like Chlorella, Spirulina, Moringa, Ashwagandha, all in here, and it tastes good compared to every other. I've been in this field for 18 years, I've tried so many different green blends I've tried green blends that make you, you know how you'd say your prayers before you eat a meal.

I've had stuff that made me want to pray after having it.

Alright, it was like a post-pray situation. Because it's so nasty, and I love the fact that Organifi does stuff the right way and they found a formula put together a formula, that it tastes good so that kids, parents, kids-tested, mother-approved can get this nutrition in our body they're super easy to travel with. They have the little go packs. If you're not using Organifi get yourself some Organifi green juice right now, go to organifi.com/model that's O-R-G-A-N-I-F-I.com/model, you get 20% off every one of the Organifi products. The green juice blend the gold. My wife is in love with the gold it's great. She's kind of like her before bed, little ritual that she's having right now.

And the Red juice formula, kids absolutely love the red juice formula but these are based on real whole food concentrates, retaining the nutrients and you have real clinical evidence as to their effectiveness. So I just wanted to make sure that you know this and to again, share this information. We're talking about supporting healthy cholesterol levels with the people that we care about because again, tens of millions of people right now in the United States have deranged issues going on with their cholesterol, if not they're on a statin right

now, tens of millions of people. And we can do something about this.

And so that's number two on our list of seven little known things that are affected by our sleep and we're going to move on to number three, number three is looking at how your sleep deeply impacts your body composition. A recent study conducted by researchers at the University of Chicago revealed that your fat cells need sleep too. The study recruited healthy, lean, test subjects and each volunteer went through two separate study conditions in one part of the study. They spent eight and a half hours in bed, for four consecutive nights in another part of the study they spent only four and a half hours in bed for four consecutive nights, during both phase of the study their food intake was identical, and strictly controlled overall during again, both parts of the study.

Food intake the same, strictly monitored. And here's what happened, the morning after the four days of sleep, deprivation, and on the morning after the four days of normal sleep each volunteer was given an intravenous glucose tolerance test which by the way, so this monitors your total body insulin sensitivity. But here's what was crazy. In addition to that, the research is performed a biopsy, removing abdominal fat cells from the volunteers. Then, they measured how these fat cells responded to insulin.

So here's what happened after just four nights of short sleep.

The test subject's total-body insulin response decreased by an average of 16% sleep deprivation is directly correlated with insulin resistance and insulin resistance is directly correlated with excess belly fat accumulation/body fat accumulation.

Now, that's just the total-body insulin response, but what about specifically these fat cells that they biopsied, here's what happened to their fat cells, the insulin sensitivity of their fat cells was found to decrease by 30%. Almost twice as much insulin resistance for the fat cells. This is problematic, this is one of those things where a lot of people don't realize just how quickly sleep deviation can impact our body composition. And I've been employing people for years now that many people who are not afraid to get out there and grind and work out at the gym if they're really working to transform their health and their body composition because that's the goal for many people, that's why they're working out. They would do a lot better by exercising a little bit less... more

efficient exercise, and sleeping a little bit more, because nothing can replace your sleep quality. We're talking about regulating hormones associated with body fat.

Now, this reduction. This is what the research has stated, this is really important.

This reduction in their insulin sensitivity was comparable to somebody who was Lean transforming into somebody who was obese as far as their insulin sensitivity just in four days, or they gave a comparison of somebody who doesn't have diabetes transforming into somebody who does have diabetes, according to what's happening with their insulin sensitivity. Again, in just four days, that's what your blood work would look like. Your hormone panel would look like. And just four days of sleep deprivation.

So really, really fascinating stuff. And that's just one way that sleep is influencing our body composition and we're looking directly at what's happening with the fat cell. But, there's another study out of the University of Chicago that I kind of helped to make famous on the inter-webs and this study was looking at a different aspect of how our sleep impacts our body composition and what the researchers did for this particular study, is it took test subjects, and they allowed them to get adequate sleep, which was eight and a half hours of sleep again but this was a 14-day study in the lab. Giving them a calorie-restricted diet and monitoring their caloric intake.

Alright, so they track that data got it all compiled. Another phase of the study, same people, but they sleep-deprived them for 14 days, allowing them to get only five and a half hours of sleep and again, same amount of calories, strictly monitored. They compile all the data at the end of the study, they looked at everything and they found that when test subjects were getting an adequate amount of sleep they lost 55% more body fat not weight, actual body fat by getting an adequate amount of sleep.

Alright, so what's not often mentioned the studies that both times, both groups lost weight but they lost more actual fat mass when they were getting adequate sleep?

Alright, so again, this is one of those overlooked things when we're talking about how sleep impacts our lives and I just wanted to add another layer here of

why this is important and why this is more important than ever right now. We don't want to come out of this thing with the quarantine 15 rolling heavy on us. So, getting adequate sleep, and having a semi-consistent sleep schedule, is one of the major orders of the day. Even if we're lunging around pajama-jammy-jam for this time, making sure that we are creating healthy routines because our sleep is one of the most important things in our universe, as human beings that really helps to keep us healthy and as we're going to look at this next thing here on our list of seven ways that sleep, seven... seven overlooked interesting ways that sleep impacts your life. This is about performance.

Now, your sleep is a major player in your motor skills and just being able to move your body in space. A study conducted by scientists in the UK and published in The Lancet tested surgical skills with a virtual reality laparoscopic surgery simulator.

The task in the simulator had been modeled on techniques used during laparoscopic surgery and involved a complex two-handed scale with precise use of a foot pedal to stimulate electrocoagulation of virtual targets. This is a different level of the game operation that you might have played as a kid, you remember like it would buzz you if you're trying to take the Funny Bone out. And what else was in there? The wishbone was one of the things you remove the Adam's apple. You had to try to remove the little apple, but this is a whole different level of simulation here. Now, all the study participants had been pre-trained on the simulator, so they're taking physicians through these tests, and they were all trained pre-trained on a simulator.

Now, here's what they found, they had them to come in, take the tests and they got the results, they sleep deprive them afterward, for 24 hours and they had them to come in and do the same exact procedure. And what happened when we were sleep-deprived is that they made 20% more mistakes during this surgery simulation that is scary, and it took them 14% longer to do the same exact procedure. So a lot of times, we mistakenly go out there and we try to work harder and grind, and not know that we're sacrificing effectiveness for trying to be busy and a reality when we're well-rested, we are more efficient, more effective and we're probably not going to hurt someone, which is the potential scene in a study like this.

Now the researchers actually noted during the study that being awake for 24 hours straight is equivalent to having a blood-alcohol level that is past the legal

limit to operate a motor vehicle.

What about operating on people, that is far more concerning for me. Well, obviously operating a motor vehicle under the influence is super dangerous as well, both are dangerous, but when we're sleep-deprived, we don't have a sleep deprivation test. But this is one of the big issues that is seen with accidents and fatal accidents is folks driving while sleep-deprived. But this is much harder to track versus somebody having their alcohol their blood alcohol being measured, but both matter. And this is one of those things, again, to kind of press us into a broaden understanding of how important our sleep quality is now more than ever. Now listen to this one, research conducted with members of the US military aimed to see how many rounds soldiers could accurately place on target within a 24-hour period, at either seven hours of sleep, six hours of sleep, five hours sleep or four hours of sleep. And this was a long study period. Alright, 20 days plus they were looking at, but they compiled some of the data after 20 days, and I'm going to share with you. Now, for the first two to three days of soldiers who slept less were able by virtue of having more time to shoot and to do the work they were able to put more rounds accurately on target in a 24-hour period, but after the third day, their efficiency degraded to the point that even with this extra time to work their output was notably less than those getting adequate sleep.

And after just 20 days, the accuracy of the soldiers getting six hours of sleep dropped about 40 percent less than those getting seven. The accuracy of those getting five hours of sleep, dropped by about 70 percent and those getting four hours of sleep had their accuracy dropped by over 80 percent of those who are getting adequate sleep, at seven hours. That is scary, that's scary, that's dangerous... And again, this is something that we don't talk about as a society and looking at how our conditions or our cultural constructs taking care of people who are in positions of public safety, our military and things of that nature, because the human brain, our physiology, our biology is heavily reliant on sleep to make everything work better. Now the scientists in the study actually affirm that sleep deprivation impairs alertness, cognitive performance, and mood and the ability to do useful mental work actually declined by 25 percent for every successive 24 hours that the individual soldier is awake and short sleep can have a tremendous impact on motor skills and performance overall.

Alright, so those are a couple of ways that our sleep affects our motor skills and

our performance. And I want to share one more with you because for me, when I think about performance, I think about athletic endeavors and a 2012 study found that sleep deprivation dramatically decreases the reaction times of college athletes.

Alright, when you're in college, you're trying to get to the big show, alright, it's one level. But college sports are huge, a huge driver of community, a huge driver of economics, a huge driver of a cohesive togetherness of society. But also you want to get to the next level, so you want to perform your very best. Furthermore, and this is a study that was actually cited in my book Sleep Smarter, researchers at Stanford University set out to examine the benefits of sleep on athletic performance.

The test subjects were members of the men's varsity basketball team, and the results they saw were absolutely shocking after increasing the amount of sleep that they got with the average ending up at eight and a half hours so it was random. What amount of sleep these athletes were getting but overall the student-athletes increased their sleep to about at an a half hours on average. And here's what happened.

The athletes ran significantly faster by increasing their sleep, players shave nearly one full second off of their sprint times they're shooting improved dramatically players saw their free-throw shooting and their three-point shooting, improved by 9 percent. Also, they felt less fatigue, less daytime sleepiness, and improved their reaction times as well. And subjectively, the athletes reported an improvement in their moods and their overall physical well-being, both during games and at practice.

Alright, so, really, really profound stuff. Sleep is a huge force multiplier for performance. Whether you're an athlete who is in college, whether you've got athletes who are your kids, your grandkids, who are in high school or middle school, whatever case might be, our kids and ourselves, we all need to get adequate sleep, to enhance and support our sports performance, the very best in the game makes sleep a part of their training. I quoted Usain Bolt also LeBron James. They've made sleep a part of their training.

Alright, so sleep is also tied with that longevity component performance too which will come back to... So we're going to move on now we're going to jump into number five here on our list of seven little known things that are affected

by your sleep and this is how sleep impacts your immune system, the human immune system is incredibly complex, and a highly intelligent system and the immune system is noted to protect our body from harmful infections from pathogens. And as we talked about in recent episodes our immune system actually evolved through the interactions of pathogens via viruses... Bacteria and fungi all of these collectively especially viruses have evolved to actually create the immune system that we have today. Our immune system, the theory states that our immune system evolved from viruses within our system that were defending us against other viruses, so very interesting. And plus, we noted that right now, all of our bodies, we have trillions we have over 300 trillion virus cells in our bodies right now we have trillions of bacteria cells, fungi cells and more that make up the community in and on our bodies. So we want to have a healthy immune system, that can interact with these things in a way that has a efficacy because there's a symbiotic relationship to the vast majority of these viruses and bacteria and fungi that again, inhabit our bodies.

And so with that said, have you noticed by the way, that this "flu season", or that this exotic strain or a new exotic-sounding virus comes along at certain times of the year? Have you ever really thought about why that is, specifically? We're talking about that winter and spring kind of transition somewhere around there, where we have... What we've noted to be this "flu season" from the end of fall up to the beginning of spring.

If you've ever wondered about that there's actually some sound reasoning why this is, researchers at the University of Cambridge published data showing that the activity of thousands of genes actually differs from summer to winter months as a seasons change and transition. We have a transition in the expression of thousands of different genes in our bodies.

The study found that the activity of almost a quarter of our genes differs according to the time of year it is, and this seasonality also affects our immune cells specifically, and the composition of our blood and our fat tissue, the time of year affects what's happening with our blood our fat tissue, and our immune system.

One of the researchers had this to say, "We know that humans adapt to changing environments our paper suggest that the human immune system adapts to show different seasonal variation.

So we're talking about this quote, flu season. There is a deep evolutionary reason behind all of it.

Alright, there's changes happening, with our immune system, but ultimately, again, this is about keeping ourselves healthy, keeping our body in a healthy state supporting and protecting the function of our immune system so that when we interact with viruses which is happening all year round, we are not going to be as susceptible. And our sleep is a huge player in our immune system research published by the Mayo Clinic, shows that people who don't get quality sleep or enough sleep are far more likely to get sick after being exposed to a virus. Also, they noted that your sleep quality affects how fast you recover if you do get sick in the first place. This is probably something else that you've noticed. If you do get sick, you probably find yourself sleeping a lot more, and going on sleep mode is when your immune activity can really kind of up-level things to help to get us well and also to help to protect us in the first place.

I want to talk about a few contributing factors to this. During sleep, your immune system actually releases proteins that are related to this immune activity, but in an intelligent way, cytokines can be problematic, but they're also essential at protecting us from infection. And what was noticed that during sleep your immune system releases these cytokines that have been actually found to promote sleep funny enough, and certain cytokines are needed to protect you from infection and from inflammation when you're under stress. Now sleep deprivation has been found and well-noted to decrease the production of these protective cytokines and kind of deranged their activity also the production and activity of infection-fighting cells and antibodies, are reduced, so the antibodies that protect us from viruses, specifically are reduced during periods when you don't get enough sleep, we need to be sleeping right now, really, all the time. It's a big part of our evolution. Our genes expect asleep from performance to body fat, to our skin health, but your immune system, really, really needs you to get high-quality sleep.

Now, this is leading to the bigger conversation and the more pertinent conversation when we're talking about supporting our immune system, and protecting our body from viruses and also recovering from viruses. This is backed by science, the necessity for high-quality sleep. We got facts versus what we see with our societies concerned again when we're sleep-deprived. It's kind of like we're a little bit drunk and so we hear about a virus and we want to run out and gather up all the hand sanitizer, and we got the hands sanitizer cowboy

gun belt and we're like... every second we get we're shooting it out, squeezing hand sanitize on everybody. "Come here"... hand sanitizer. Is it really effective is it back by science? And it's absolutely not, the maker of purell hand sanitizer the big baller in the field, as a matter of fact, has been warned by the US Food and Drug Administration to stop claiming that the products can protect people from infections and illnesses.

They told him to stop it, Purell formulas are made of about 70% alcohol.

Now, this is not to say that alcohol is not effective in killing viruses, but we need to be more specific here because while this alcohol content can kill bacteria, a 90% alcohol formula is needed to kill most viruses and most people have no idea about that.

Again, it depends, it really depends on the type of virus but consistently this isn't proven, to be as effective. The little hand sanitizer that we're able to pick up at the store and that people just massively bought up and the price skyrocket. If you try to get some on Amazon a couple of weeks back, it was like $50 to get yourself a little bottle of Purell, because it's supposed to be the Holy Grail of protecting us from getting sick and it's just silly. We have this irrational behavior, and it's not even back by science, it's just little mind candies, little brain candies that companies give us and then we give ourselves as an illusion as a sense of protection, but what really protects us is supporting our immune system to do the job that is designed to do. And we talked about this on the past episode just a couple of weeks ago, on how the immune system actually works during this global pandemic have the human virome works and the necessity of understanding how viruses interact with ourselves and how the viruses in our bodies interact with the rest of the environment. So if you did not get to that episode or listen to the episode, make sure to go unless the episode right after this one.

So the FDA demanded that Purell stopped making unproven claims about his product, but. By the way, again from a scientific perspective, enveloped viruses can be killed. Or should I say, this needs to be clear, and I talked about this on the episode inactivated because viruses aren't actually alive so you can't kill them? Enveloped viruses can be inactivated by alcohol by this level of alcohol typically found in purell but not all the time. It just depends, it always depends.

And James Scott a professor at the University of Toronto, specializing in

biological hazards in the workplace notes that not all viruses have external membranes, for instance, the alcohol-based hand sanitizer don't kill norovirus, which this virus is best known for giving you diarrhea when you're out at a random restaurant or while on a cruise ship or something like that.

Luckily, he does go on to say that other viruses are susceptible to being killed by alcohol and alcohol-based hand rubs. But he goes on to say that "one of the major problems with putting alcohol on your hands is that just as it disrupts the membranes of germs, it can similarly remove those membranes and oils from your skin so with repeated exposure of your skin to alcohol, even if it's diluted it can cause your skin to lose protection and become at risk of cracking" and having open cracked or even bleeding places on your hands, put you at increased risk of bacterial and viral transmission which can open you up to even more problems.

So the people posting and sharing stories about their washing their hands to the point that they're getting raw, stop, we have to have a level of sanity with this, that's what we tend to do. Some is good, more is better.

And we get to this level of ridiculousness. Like that show, Rob Deer Deck, shout-out to ridiculousness and that's about fails, that show is about fails and that's what we're doing when we are tearing our hands up thinking we're protecting ourselves when in reality we're making ourselves more susceptible.

Real talk, if you're at a networking event and you're shaking hands, hit yourself with some squirts of the hand sanitizer before you go get some chips n dip. It has its place, it has its level of being appropriate, but we don't want to take this behavior too, far, because number one, it's not proven to be effective.

And number two, we can actually hurt ourselves because your hands were not designed to be rubbing alcohol on them, okay?

We have bacteria and viruses that live on our skin that have some protective faculties, even what your skin is made of your skin is made of viruses, this crazy as it sounds, your skin is part virus.

I know it sounds super weird but some of this stuff is kind of like a self-fulfilling prophecy of like We're trying to kill all the germs, were trying to kill all the viruses, but this would be killing ourselves because we are in fact made of more

virus cells than we have human cells more bacteria cells than we have human cells.

And it's having symbiotic relationship, again, there are pathogens that can hurt us, but we need to support our immune system and the intelligence of the immune system so that we can defend ourselves from the stuff that can hurt us right now and evolve past the things that we're exposed to.

Alright, so I hope that that makes sense and I just want to share that with you guys because it's super important. Again, when we're talking about immune support, we don't talk about sleep quality, we don't talk about how important the right nutrition is and the fact that supplements do in fact, certain supplements but you got to look at the science... What's clinically proven to have effectiveness, there's a statement out by a major country's body of science saying that supplements that there's nothing that boosts the immune system, and that's not true.

When I hear that stuff is like with Daniel Amen. Said, do they read? It's right there in the data. You just have to take the time to look at it and get past your disbelief. So when looking at, what my thought is, why not get both... Get you someone who could do both, get you a supplement who can do both support your immune system and support your sleep. A study published journal Pharmacology Biochemistry and Behavior found that Reishi, the medicinal mushroom Reishi was able to... Number one: significantly decreased sleep latency, that means you fall asleep faster, increase overall sleep time, and increase sleep efficiency by improving REM sleep and non-REM deep sleep time.

My neighbor, Andre, my good friend, he just got on the Reishi last week, every day he just comes giving me the good news. Give me the good stories that Reishi is his peanut butter and jam right now.

Alright, just with supporting the high quality sleep. So again, proven in the data. This is a major pharmacological-focused Journal has this evidence but what about the immune system? Listen to this, research published in the Journal of Pharmacological Sciences, found that the polysaccharides and Reishi have extensive immuno-modulating effects including promoting the function of antigen-presenting cells, humoral immunity, and cellular immunity.

So, humoral immunity, is supporting your immune systems training in learning

viruses so your immune system, that's the immune system's memory so if it's ever exposed to a virus again it is right there on top of it, the virus can't get you. Cellular immunity just overall improving the immunity of the cells themselves so they can't be infected. What else do you know that can do something like that? Reishi can, remarkable, remarkable stuff. By the way, so the Reishi that I gave him and that I drink is kind of one of my nighttime routine is from Four Sigmatic and I love it because it's a dual extraction, it's a easy a little simple tea just open the packet pour it in hot water and Four Sigmatic does a dual extraction, so this means that it's a hot water extract and alcohol extract. Because when you see a study like this, it doesn't always say which method of extraction, they use to get the nutrients out of the... The medicinal mushroom. So you're getting both and hot water extract gets more the antioxidant components, the alcohol extract gets more of the steroid tri Turpin type components.

It's amazing, wonderful, easy and they're doing stuff the right way they're getting high quality sourced and they're not cutting any corners. I love them so much head over to foursigmatic.com/model that's F-O-U-R-S-I-G-M-A-T-I-C.com/model and get 15% off every single thing they carry. You could do the Reishi straight as a tea at night. It's kind of, a more of a earthy side vibe. But if you're not into that add yourself some high-quality fats blended in there, maybe a little bit of stevia and enjoy, getting a little sip on before bed, and it's actually going to have benefits for immune system and your sleep.

So let's just move on. So we're talking about our seven little known things that are affected by our sleep and we've already covered a lot of ground, we've talked about the impact on our immune system, we talked about the impact on body fat, on our skin health on cholesterol. But now we're going to talk about how your sleep impacts your personality. Now sleep deprivation is directly correlated with higher rates of depression, anxiety, and irritability, a study published in The Journal Sleep, found that sleep loss amplifies the negative emotive effects of disruptive events while reducing the positive effect of gold-enhancing events. So, when negative things happen and your sleep deprive it's hotter, it affects you more it makes you more upset, and when good things happen, when you're sleep-deprived, the joy, the happiness, the feeling of accomplishment, accomplishment is reduced, it's stealing joy, from us when we're sleep-deprived.

Also, a 2018 study published in Nature communications and cover that sleep deprivation is directly correlated with higher rates of social withdrawal and

loneliness.

Now more than ever, we need connection, we need connection when we're sleep-deprived we're going to have a hyper propensity to seclude ourselves to not reach out to not connect.

It goes hand in hand. And now we know why we're looking at real clinical evidence of why this matters right now, so just going willy-nilly I don't think I've ever said willy-nilly in my life, but going willy-nilly with our sleep right now, because many of us are on lockdown, and this extends past this time in human history. This information in this episode, this is stuff that stick with you forever. But right now, more than ever, we do need to pay attention to if we're withdrawing, ourselves and understand the need for human connection on whatever level we're trying to get.

Alright, whether it's the social distancing thing or doing virtual or you're getting close to the people in your life that you have close contact with. We need this, but when we're sleep-deprived it affects our personality causing us to withdraw, causing us to be more irritable, and we don't even know because we're sitting around binging until 4 o'clock in the morning watching Pablo Escobar or the Tiger King or whatever it might be, for you, so much good stuff to watch, but we need to prioritize our sleep. You could still binge, you could still do your thing, you can still live your life get your work done, whatever it might be, hang out with your family but make sure that you're getting your sleep.

Alright, now we're a number seven here in our list of seven little known things that are affected by your sleep and this one is really, really powerful.

This one is looking at how your sleep impacts how long you're going to live.

We've talked before in this podcast, about our telomeres, which our telomeres are our best biological marker that we have right now telling us how long we're going to live. And telomeres are the end-casings or end-caps on your chromosomes, and basically, as your cells divide as the days go on, those telomeres get clipped off more and more until your chromosome is basically unravel your genetic information that makes you up. It starts to unravel.

And we actually had one.

So Elizabeth Blackburn won a Nobel Prize for her discovery of an enzyme called Telomerase. That could actually add length back onto your telomeres essentially stopping or slowing or need I say reversing the aging process. She won the Nobel Prize for this discovery and her co-author. So, we had on the show, Dr. Elissa Epel talking about their research and here's one of the things that they noted there was a 2012 study published in the Journal PLOS One, so the Public Library of Science and they found that short sleep duration, is directly associated with shorter telomere length.

We are haphazardly aging ourselves speeding up the time, to when our telomeres unravel, not just our life span, but our health span is up by not getting sleep, so we're trying to experience more life, but we're really shortening our lifespan when we're not getting sleep, plus when we're well-rested, it makes all of the life that we're living so much more juicy.

Another study published in 2017, found that children with shorter sleep duration have, shorter telomeres. We cannot allow this to happen to our kids, we need to create conditions not just for ourselves before our children to get the sleep that they need because we are shortening their lifespans early in life because we're not creating a culture, or structure routines and rituals, around or sleep quality. So right now, at this time, I just again, want to implore you to pay a little bit more attention to having at least a semi-consistent sleep schedule, because so many factors in our lives are dependent upon it. And I hope that you got a lot of value out of this episode and you learn a few new things and more than anything, I want to share this episode of the people that you care about because this is a conversation that needs to be had, and of 'course you're sharing it out on social media, you can tag me, I'm at Shawn model, S-H-A-W-N model on Instagram and I'm on Twitter every now and then I'll pop on there but on Facebook, I'm at the Model Health Show and I appreciate you guys so much for hanging out with me today and investing your time and energy into wellness, into education and to looking at some of the science behind this stuff because we need sound-minded, rational thought processes right now, and also we need people to be of service and to help and support the people that we care about. And so again, I appreciate you so much between into the show today that some epic shows lined up for you coming very soon, so make sure, to stay tuned. Take care, have an amazing day that I talk to you, so... And for more after the show, make sure to head over to the Model Health Show.com, that's where you could find all of the show notes you could find transcriptions videos for each episode and if you got a comment you can do 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 I keep giving you more powerful, empowering, great content to help you transform your life. Thanks for tuning in.