

# **THE MODEL HEALTH SHOW**

**EPISODE 613**

**The New Science of Napping:  
Paying Off Sleep Debt &  
Managing Your Disease Risk**

You are now listening to **The Model Health Show with Shawn Stevenson**. For more, visit [themodelhealthshow.com](http://themodelhealthshow.com).

**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. A brand-new study published in the peer-reviewed journal *Hypertension* has people waking up to alarming news today. The study found that people who regularly take naps have a much greater chance of developing high blood pressure and having a stroke. In fact, study participants who typically nap during the day were 12% more likely to develop high blood pressure over time and were 24% more likely to have a stroke compared to people who don't take naps. And regularly napping for people under the age of 60 was found to increase the risk of developing high blood pressure by 20%, compared with people who never or rarely nap. Now, before we go falling asleep to what the study actually means, let's perk up, listen in and make sense of what the data is really telling us. This study used the wide array of data points from over 358,000 test subjects. This is a great data set. Now, these individuals were tracked for four years and provided blood, urine, and saliva samples on a regular basis, and they were also providing details about their napping habits. What made frequent napping stand out as a potential risk factor for disease is the fact that these results held true even when people were excluded that had other risk factors for hypertension; this included people with type 2 diabetes excluded, existing high blood pressure excluded, existing high cholesterol excluded.

Also, people with sleep disorders, people who did night shift work excluded, so they were really focusing in to find out and make sure that these confounding factors were not playing a role here in their data. The people who were regularly taking naps, again, were found to have upwards of 20% greater incidents of developing high blood pressure and a 24% greater incidence of having a stroke. Again, they eliminated as many confounding factors as they could in their particular data set. There are some additional questions, of course, that we're going to ask today, but they did a pretty good job at identifying like, hey, this is really something interesting, there's something going on with this practice of napping and developing cardiovascular risk factors. Now, even though they did do a great job of adjusting for major risk factors, they still didn't address the underlying cause of the frequent need or desire to take naps during the day by the study participants. Alright, this is a glaring hole in this brand-new study. Again, published in one of our most prestigious journals, this was coming from the American Heart Association. And publishing this data, and it could put people in alarm like, wait a minute, napping is bad for me.

And this is not the complete story. So again, listen in, and let's really break this stuff down because once more, we're not looking at... This is not included in the study. What is the underlying cause for people having the strong desire or need to nap during the day? Which, that number one cause of daytime sleepiness is having insufficient or poor sleep quality at

night. Poor sleep quality is a causative factor. We already know this for a plethora of diseases. A myriad of chronic conditions can develop, but also acute issues as well. And one of the acute symptoms of poor-quality sleep at night is that strong desire to nap, alright. But here's the thing, a nap very likely can't make up for, band-aid that poor quality sleep, it's going to be a physiological draw towards napping, but we're not addressing the underlying cause of really a need for many people, a need to nap just to make it through the day. Now, again, consistent, low quality, or insufficient sleep causes a dangerous accumulation of something called sleep debt. Now, there are two different types of sleep debt that you need to know about, one is resulting from something called partial sleep deprivation, and the other is resulting from something called total sleep deprivation.

Now, partial sleep deprivation is something that occurs when someone gets insufficient or not enough sleep for a couple of nights, a couple of weeks, or in some instances a couple of months, and it just kind of can long tail out from there. Alright, so that's partial sleep deprivation. That's having some of your sleep, your sleep requirement, your body's biological requirement for sleep, stripped away, pieces of it each night for many nights. Okay, so, maybe your biological requirement is to get seven hours of sleep, and maybe you've, "gotten by" on five hours of sleep for a couple of days, weeks, or even months. So that is partial sleep debt that gets developed. Alright, so, you're just taking away from your physiological health balance, and before you know it, you're in debt, and you can end up defaulting on your biological loan and end up swimming with the fishes. Alright, you're not paying back the bookie, you're not paying back the King Pin, you're falling more and more into debt. Now total sleep deprivation means being awake for 24 hours or more. So, that's a total sleep debt, where you're just awake for an extended amount of time.

Now many of us have found ourselves in both of these situations, a time or two in our lifetime, what comes up for me in thinking about this 24-hour, this extended total sleep debt is when my youngest son was born. I was up for about 24 hours in the process. When my wife was standing by me in the morning, when I opened my eyes, she's like, you know, "I think it's time!" Right? Early, early in the morning, cut to essentially the next day at the time when he was actually... Makes his initial appearance here on planet Earth. And so that jumps to mind, but also in college, accumulating that partial sleep debt all the time. I didn't think about this stuff or care about this stuff. I was just out in the streets. I was doing my thing. I was taking care of my college coursework, and going out, and, you know, kicking it and doing all the things, but also there were occasions specifically while I was in college, I was working at a casino, alright?

This is my superhero origin story. So, I'm working at a casino, and I'm in the hard count department. So, this is the part of the casino that is responsible for counting all the coins. So, every single morning at the crack, so my shift usually started at 3:30 AM. Can you imagine? And we're going through manual labor, serious manual labor, emptying out all of the casino

slot machines and these buckets underneath them that are just full of these coins, and they can be pretty heavy. And then we take 'em back to the count room. We get locked in the room, count every coin. It's like this big vat that we're dumping the buckets into. And that was really one of my primary jobs, so I was picking up all these heavy buckets, dumping it into the vat, rolling 'em up. Then we got to store 'em, the whole thing. Basically, my shift began at 3:30 AM, and my shift ended whenever we finished. That was it, whenever we finished. It could be six hours; it could be 10 hours. Just depends on what problems are going to happen that day, who's on the shift. Alright?

This would be a great setting for a mini-series or a TV show. I'm telling you, all the different characters that I worked with, it would blow your mind. We got one guy who's like this serious bodybuilder, he's definitely on the juice, alright, and he looks like a video game character. He looks like Guile from Street Fighter, and I'm not exaggerating at all. We got another person... Shout-out to my guy, Marshall. He was probably... He looked like he was probably about 90, but he's probably 60. But he smoked a lot. Marshall was always on a smoke break, and the break room, the smoke break room versus the non-smoking break room, the walls were yellow. They were yellow. This nasty yellow color, you can rub it with your fingers. It's just on the wall. So, Marshall was there. And this is a very labor-intensive job. And Marshall looked like he was on his last leg, but he was there, and he actually did a pretty good job from time to time.

Anyways, I can go on and on about the characters, but it was in this environment and in this time that I really got to see firsthand what happened with my biology and with my brain when I was sleep-deprived, like severely sleep-deprived. Because being that my shift started at 3:30 AM, and I'm a college kid, and I'm trying to go out and kick it, sometimes... So, I get off work, so maybe, I will just say, I get off at 10:30 AM, and then I do all my day stuff. I got a class or whatever, then I go out that night to the club! I'm from St. Louis. We go to the East Side, East St. Louis. Alright. We got Club Casino over there. Ironic. I know the name is ironic. We got the Monastery. Ooh, if you know about... I hope you don't know about the Monastery, but we got the Monastery.

It gets out when the sun comes up. So there have been times I would go through my entire day, go out, and then leave directly from the club to my job. So, talk about 24-hour plus sleep deprivation. And this resulted in one of those days, I'm standing on the cart with my hand on the cart, leaning on the cart as my team and I are loading up the cart full of these coins in the middle of the casino, and I fell asleep with my hand on the cart standing up in the middle of a casino. It was probably... I don't know how long it was. We'll just say I fell asleep for 10 seconds, to wake up in such alarm, like... I don't think that I've had a time that was... As in fear, when I woke up than in that moment, all the ding ding ding gling gling gling, all that stuff going on, all the lights, and you wake up out of sleep from that, oh my gosh. It sobered me up. In that

moment, I was like, "Oh my... I got to get out of here. This is not healthy. I'm a danger to myself and others. I don't ever want to feel like this again."

Did I learn the lesson 100% at that time? No. But I made it more of a mandate. I can't do that practice of like, if I'm even going to go out whatever, I need to take a nap. So, this gets back in the conversation, "Where can a nap be valuable?" Now, obviously, the lifestyle choices at the time were not health-affirming, clearly. But is there a place for paying off some of the sleep debt through getting a nap in? And now we're going to, again, talk a little bit about the science around napping to understand where the value placement can actually be. Now, even short-term sleep debt is clinically proven to increase the risk of: Insulin resistance, high blood pressure, elevate our stress hormones, increase our daytime fatigue, reduce activity in our prefrontal cortex. So, researchers at UC Berkeley did some brain imaging, and they found that just 24 hours of total sleep debt led to a significant decrease in activity in the prefrontal cortex and insular cortex. So, the parts of our brain that are most associated with executive function, with being human, being able to make decisions, to have forethought, to have social control.

Right? So, all of these very important human faculties, that capacity goes down in that time span significantly, so much so. And by the way, so that's one part, the research has also noted that there was excessive activity that began to happen in the amygdala, so the region of the brain most associated with emotion. It's kind of a survival part of the brain is running more on kind of these primitive programs and is concerned about survival in a very emotionally driven part of the brain. So that takes over. So, our executive brain that has the ability to have social control to distinguish between right and wrong, to make healthful choices, to analyze our choices, that part of the brain starts to shut off and the emotional reactive part of the brain turns up. What do you think is going to happen? Probably not very good choices, alright? Choices in what we eat, choices in who we might associate with.

Maybe you've been out kicking it and your brain, that part of the brain starts to... That shift takes place and maybe you do some stuff you might not normally do or do a person you might not... Let me stop. Alright? It happens. Alright. And we wonder why. Club lights, come on, different story. What am I doing? Alright, so that's another area is that, again, even short-term sleep debt is clinically proven to reduce activity in the prefrontal cortex, also has been found to drive dysfunction of our hunger and satiety hormones just from a short-term sleep debt and much more. But listen to this, a randomized crossover study published in the *Annals of Internal Medicine* had healthy young adult test subjects go just two days with restrictive sleep, where they took a few hours away, again, that kind of partial sleep debt and the other two days, they were allowed to get adequate sleep. After compiling the data, when the participants were sleep-deprived, their levels of leptin, our body's primary satiety hormone helping us to feel satisfied and not driving us towards hunger and cravings, their levels of leptin dropped by an average of almost 20%, alright, 18% to be exact.

Their levels of the hormone ghrelin increased. Ghrelin is the body's kind of glorified hunger hormone driving us, driving cravings, driving us to seek food. Their hormone, ghrelin levels increased by 28% on average, and their feelings of hunger, subjectively, so we're looking at objective and subjective, their feelings of hunger increased by 24%, and their appetite increased by 23%, and in particular their appetite for calorie-dense, high carbohydrate foods. The researchers gave them options on what they can choose from to eat, and what they found was when they were sleep-deprived, their desire to eat those lower quality, high carbohydrate, higher sugar, calorie-dense foods increased by upwards of 45%. We're setting ourselves up for failure and wondering why we cannot micromanage our biology to make the choices that are healthy for us. When we're sleep-deprived, we're just not showing up with our higher-order faculties and showing up as our best self to make the choices. We can will power our way through it, but we're stacking conditions against ourselves when we're not getting adequate sleep. Now, again, that was from just partial sleep debt. We're talking two nights of partial sleep debt. What about long-term sleep debt?

What happens when it really starts accumulating and you start digging that hole deeper and deeper and deeper? That's when we see this dramatic increase in chronic disease development, increasing our risk of heart attack, stroke, diabetes, cancer, obesity, mental illness, and all-cause mortality. For example, a study published in the peer-reviewed journal, *Clinical Obesity*, found that continuous sleep debt is directly related to excessive belly fat gain. Specifically, study participants who frequently got less than six hours of sleep per night over the course of the six-year study period accumulated significantly more abdominal fat than participants who are not accumulating this sleep debt. Another study and this was reported by the World Health Organization, tracked the results of almost 700 men over the course of several years and they found that the men who accumulated long-term sleep debt were twice as likely to have a heart attack and up to four times more likely to have a stroke during the study period.

Now, does this sound more like napping is the issue, or is it the underlying cause for the desire to frequently take naps that is the real issue? By accumulating sleep debt from poor quality sleep at night, our physiology will begin to push us towards daytime fatigue and our desire to doze off for a nap, that is just logical, but it wasn't addressed in this particular study. Now, that feeling of being pulled from within to go to sleep is very much like a biological hunger, it's like a hunger when that nap drive just kind of gets its hooks in you.

It's like a craving, like a deep craving from within, pulling us to go to sleep. And many people create daytime fatigue for themselves through lifestyle habits that they're unaware of. This could be from haphazard food choices that lead to blood sugar abnormalities and blood sugar

crashes. This could be from watching television and being on screens late into the evening and diminishing their sleep efficiency and waking up groggy and tired the next day and trying to force their way through and eventually that internal hunger for sleep, that nap-craving becomes too strong.

The list goes on and on about ways that we don't often cognitively know, just as an individual that this is leading to my frequent napping habit, but some people actually intentionally choose activities that increase their daytime fatigue, alright. They choose it and the example that I'm thinking of is my son, alright? My son, as of this recording, he's about to turn 22, he's 21 years old right now. He's working in fitness, impacting so many people's lives, and a great teacher, a great human being. He had this mandate that he was on with getting... And he kept telling me, he's like, "Dad this does something for me mentally, and I love it." He was getting up at 4:00 AM, 4:30, 4:00 AM, 4:30-ish every day and lifting with his homies. He's getting it... Getting up, getting it in, banging and clanging. The start of the days like that, I need... It's just... It's my thing, I need this. This is plugging me in. This is how I'm rolling.

Now, that's amazing, that's amazing. There's so much to extract from that because even coming from that and coming from that energizing experience, he's going to be able to then channel that into creation, creating programs for people, being of service, all of these wonderful things. Now, as long as he was on the move, he was cool. As long as he was on the move, he was attacking life with ferocity, but as soon as he sat down for an extended period, my man's dozing off. My wife did a compilation of him falling asleep in different places. Alright, she hasn't put it together yet, but she's got plenty of footage. Okay? Whenever he stopped that ferocity and his attacking life, he's falling asleep.

Is that normal? Now, you already know the answer to this, but is he connecting this to that practice? For him, he just didn't want to look at that and don't even... Don't take this guy to the movies with you. You're trying to go as a family out to a movie? You trying to go on a date with this dude? You better believe he's sleeping through 80% of that film, alright? This dude went to the movies... He went to see a movie twice with a friend or date or whatever, and he fell asleep on different parts in the movie, so he pieced the movie together by being awake at certain parts, alright? Now, we just went on a little vacation and his routine has been in alignment with ours, he stayed up through everything, right? So, we even have a movie night a couple of times, everybody... The rest of the family is just in awe like Jorden, you stayed awake through the whole thing. I said nothing.

I wrote the book. I wrote sleep smarter and my son's just like, "Whatever dad, that's not what it is." But in reality, he's created this habit of getting up at a certain time because he felt like that was what he had to do to have the momentum that he wanted, and this could be from reading some personal development from whatever the case might be, and just finding this

groove. Even his schedule, a certain time when the gym is available to do what he wanted to do, his friend's schedule, there's a lot of factors that can lead us to do these things. As adults, this can be our work schedule, right? We got to take care of our family; we've got to get stuff done.

There's many reasons why we proactively choose to wake up at certain times, to have a certain schedule, but we have to understand what are the long-term ramifications, what are even the short-term ramifications when we're depriving ourselves of the high quality sleep that we need specifically being in alignment with and paying attention to our circadian biology or... When we talk about circadian medicine, this is one of the most rapid growing fields in science right now and that term circadian rhythm, I believe, especially when I was in my university years, it really seemed like a very soft science, right? So, it's just kind of like... Circadian rhythm was kind of like a horoscope. It's just kind of like why it doesn't really have that much credibility.

Today, we know that when we're talking about our circadian timing system that exists within every cell in our bodies, these are functional genes and proteins, functional proteins that then create and influence other proteins and genes. This is serious business, this is... We're talking about an epigenetic controller of our health outcomes and everything about us, so when we talk about being in alignment, like having a healthy circadian alignment, that's serious business.

And again, because we think as humans, we're not necessarily a part of nature, we don't have to honor what's going on out there in the world with the entire solar system because our personal... As an individual, you listening to this right now, your entire physiology is constantly trying to sync up with a 24-hour solar day. Again, I'm not just talking about a day here on planet earth, I'm talking about a day in the solar system, and all the stuff that's happening is so grand, the magnitude is beyond our... We cannot possibly understand and we're part of it all, but because we tell ourselves the story, we can throw ourselves out of alignment with that and have poor health outcomes as a result.

Now, when we're younger, same story. How can I be mad and my guy? Because I was... He's 21. I was 21 doing stuff, ten times... At least my guy isn't going from work to being at the club to going right into work, alright? So, some of these things we have to learn for ourselves firsthand, and the beautiful part about it is... Yeah, he might have...

Leaned into a little bit of the circadian alignment being a little bit off, but he's doing this from a place of altruism for personal development for growth. So, and that's wonderful, and I'm bringing this up to say that we tell ourselves these stories that it has to be a certain way, but we have the ability from then to experiment, find out, pay attention to the results and then make adjustments as necessary. That's what life is all about, it's about progress, not perfection,



alright? There's never going to be perfect circumstances, everything is going to be perfect, outcomes are going to be perfect, it's about progress and learning and experimenting and trying to enjoy ourselves along the way, even if that enjoyment comes in the form of a delicious nap, alright? So, let's dig in here a little bit deeper, because napping itself is very likely not harmful in and of itself, especially when done occasionally, and according to some of the data we're going to dive into, it can actually be health affirming in some ways. Plus, the overarching study that we led off this episode with published in the Journal of Hypertension, asserting that "Frequent napping is associated with high blood pressure and strokes only collected nap information on nap frequency, not duration."

So, let's examine these things a little bit more, let me ask you a question, what are some of the common reasons for napping? What do you think some of the common reasons are for why people take a nap? Well, one of those things we already covered, which is having poor sleep quality at night leading to that biological hunger for nap-taking, alright? For getting a little nappy, so that's one reason. What's another reason to take a nap?

Boredom, sometimes we put our feet up, and we'd take a nap just because we're not doing anything. I've seen and experience, of course, you have your day-to-day routine, what if you unplug from that routine, and you're just lying around, maybe reading a book or whatever, and you take a nap, or you're just laying around doing nothing, boredom. Relaxation, maybe you've gotten a massage before and you dozed off on the table, just being able to relax for a moment, mentally, physiologically, let go, that can be an on-ramp into nap city, alright? Shout out to Rap City, by the way, Big Tigger. Another reason, napping can be brought on by experiencing a tipping point in stress, so it depends again on our overall stress load, and how our bodies and brains are wired up, but there's a degree of stress that can just put us out, it can literally just knock us out. If somebody, maybe they are starting a new job, and they're bringing in all this data and all these things they have to do. Maybe it's like a personal entrepreneurship, venture, and they're just doing all these different things, and they're learning and then just...

Boom, they're just like, I just, "I got to eat a piece of cake," or I just, "I got to go lay down somewhere." It just becomes too much to the degree that it can knock us out. So even emotionally, maybe there's a conflict, maybe there is sadness or anger or fear, or whatever the case might be, and you're just like, "I'm just emotionally exhausted, I just need to go lay down somewhere," or again, you might have so many things to do that you're just like, "I'm just going to take a nap instead." Okay? And these are just some of the underlying reasons. Also, we can be misreading our biological cues, so there are phases that our hormones go through throughout the day, all of us, and we can be getting biological cues to just slow down, to relax, to take a moment to maybe close our eyes to maybe shift into that parasympathetic a little bit, because we've been going fight or flight, we've been going sympathetic, and we're getting a biological cue to just slow down, take a deep breath, take a moment, and just relax. And

maybe we can mistake that biological cue of like, "I just need to go and go to sleep, I'm exhausted..."

Whatever the case might be, "I'm running on fumes." There's these different terminologies that we use, but there are energy rhythms throughout the day, and some people might notice that they have a feeling of tiredness or a downturn in their energy at certain points of the day, but then within maybe like 20-30 minutes, they feel energetic again. Oftentimes, however, in our culture, that desire to nap in the afternoon is brought on by a sugar crash, getting that hypoglycemic spike and then dipping into hypoglycemia, and that feeling of really low energy. But we don't need food to have that experience where things kind of tamper down a little bit, so it's understanding being able to listen to our bodies, which is the greatest science that we could ever undertake, and it's the science that we're often not directed to, and so just being able to tune in and listen to our bodies.

Now within the same spectrum, we can't let the nap fool you, don't let the nap be-fool you, because we can be getting a false affirmation that we've recovered. Specifically, a study conducted by the Unit for Experimental Psychiatry at the Institute of Pennsylvania Hospital, found that napping during prolonged sleep loss may serve to prevent that sleepiness, that urge to take a nap, much more than it actually helps to recover from the sleep debt, so it can be a superficial thing, we're just kind of putting a band-aid over a gaping wound. We're just pacifying the situation, not doing anything to actually fix it, we're making it. We're just making it through the day versus really thriving and being well.

Now this gets us into the conversation that again was not addressed in that overarching study published in the journal Hypertension, where they were looking at these other potential risk factors, but they looked at nap frequency by test subjects, not nap duration. So, what do we have to say about that? Well, there is actually, based on the science, an ideal amount of time to take a nap. Scientists have found that between the range of about 10 minutes to 26 minutes is found to be most beneficial if you're physiologically sleepy, that's the amount of time to be in, and that's called the quote power nap. And it's been found to increase mental alertness, and this is, again, through clinical trials, increase mental alertness, increase concentration, elevate mood, and even enhance our motor skills.

So, all of these things have been found in clinical data. So, for example, a study published in clinical neurophysiology conducted with adult test subjects found that a short 20-minute nap, improved subjective sleepiness and also boosted performance levels and self-confidence of their task they were performing, i.e. they also noted mood improvements, simply from getting this 20 minute power nap. So that's the range. Why is that? Well, napping for 30 to 60 minutes might sound more seductive, especially if we have sleep debt that we're trying to make amends for, but you can actually result in more feelings of grogginess once we go past that

mark and feeling kind of out of sorts, once we wake up, that can last for upwards of an hour, just kind of feeling groggy, trying to pull ourselves out of that nap.

This happens because you'll inherently start teetering into deeper stages of sleep during the day, which can again throw off these circadian rhythms. This is due to something called sleep inertia. Now, if you remember the term inertia, from school is essentially bodies in motion tend to stay in motion and bodies at rest tend to stay at rest. Now, sleep inertia gets much stronger when we teeter into that 30 to 60-minute mark. And you've maybe had this experience before where you take a nap and you... It's a little bit longer nap and it's really difficult to pull yourself out of it. You just... Maybe you even... I might as well just sleep through the night at this point.

Maybe you fall asleep at 5:00 PM, and you sleep for an hour, and you wake up, the sun's going down, and it's just still just hard to open your eyes. It's kind of like you're getting pulled into the sunken place. It's just hard to pull yourself out of that nap and it's because of that sleep inertia. Yet, there is clinical benefit seen with a nap in this time frame, not necessarily to boost energy. This is the thing again, because the power nap is more associated with a boost in cognitive energy, but a nap in this time frame, the 30 to 60-minute timeframe, has been found to statistically boost our memory.

A study published in the journal *Neurobiology of Learning and Memory* had participants in the study try to learn 90 single words and 20 unconnected word pairs, such as just linking up random words like milk taxi. After that, some of them were instructed to watch a DVD, while others were instructed to take a nap. When they were retested, those who had taken the nap remembered more word pairs than their movie watching counterparts. Additionally, researchers at Saarland University in Germany say that a 45-minute nap can produce up to a fivefold improvement in information retrieval from memory.

Nice benefit, but again, you're much more likely to experience strong sleep inertia with a nap that long. And if you are actually trying to pay off some of the sleep debt via a nap and you won't get fired for doing this, you might want to opt for an actual 90-minute plus nap. Give or take a few minutes, of course, because this is going to enable your brain and biology essentially to get a complete sleep cycle. Now, even as I say that this is not 100% the case because we're missing out on some key components, especially if you're napping during the day because you're not really accessing the metabolic and hormonal benefits of melatonin which, for melatonin to be secreted accurately and move us through our sleep cycles efficiently, we need the prerequisite of darkness and consistency.

So, we're really not going to get the most efficient sleep cycle if we're taking a 90-minute plus nap during the day, unless, again, if somebody's doing shift work and they're sleeping during

the day and they've created this consistent routine of sleeping during the day, and they create a dark environment, they can get melatonin doing this thing. So, keep that in mind as I'm sharing this, but you can opt for a longer nap to try to pay off some of that sleep debt and there is some efficacy here. Now, this length of a nap has been found to improve emotional and procedural memory and even improve creativity.

Also, some positive body and brain repair can take place when we're able to have an extended nap like that again, 90 minutes plus. And even that, even as I say, 90 minutes, give or take, because a sleep cycle for each person is going to be a little bit different. The average sleep cycle might be 90 minutes, it might be 75 minutes. What do I mean by sleep cycle? I'm talking about going through the phases of sleep. Stage one, stage two, three, four. So, we're going from the transitional stages of sleep, different brain wave frequencies from waking state of beta that we're in right now, to alpha waves, to theta waves to delta, that slow wave deep sleep. Now, generally, we can move past strong sleep inertia with a nap that length as well.

Right? So, power nap. We don't really have that strong sleep inertia. A nap from 30-60 minutes, sleep inertia kind of takes hold, but a longer nap of 90 minutes plus, we generally have an easier time coming out of the nap. Now, what is the best time to nap? All right. What's the best time to nap? There are some cultures, as you might be well aware of. And some people who are just... They love their naps. They're already will come into this with beef. They're listening to this episode like I'm a napper. And Shawn, you're being a capper. Now, if you don't know what cap means, that means lie, okay? Get with it. No cap. All right. No cap. They're just not trying to hear it because a nap is a part of their routine.

Some of the healthiest people I know take naps regularly. Actually, but they also pay attention to getting high quality sleep at night. It's just something they like to do. They just feel like the nap is yummy. And sometimes they don't nap. They just take a time, a siesta. They take time just to relax. And I'm talking about icon... There's a icon of fitness. I'm not going to put his nap business on the streets, but I went and hung out with him at his place. And he's just going... It was a couple of days. He had his nap. He was like, "I'm going to take my nap." And it was just like, "Okay. Cool. Got it." I wasn't about that nap life still... I'm not necessarily that guy. But I get it. And I understand. We can put blanket associations over things. And it's just like all good or all bad, that's the problem with that particular study is that people can see the headlines and they're just like, "Another thing that I can't do or another thing that's bad for me. Napping. Are you kidding me?"

Let's actually take a deeper look and look at what the information is trying to tell us. Our society is severely sick right now. So, if we can analyze any of these things that help to kind of put a spotlight on the direction that we need to go as a society, as a species, and get more in alignment with things that are health-affirming, why will we not do that? Without

fearmongering though. Having that balance, and perspective, and understanding that every human being is unique.

So, if we're going to partake in said nap, what's the best time to do it? This is going to depend primarily, again, based on your sleep routine, but I'm going to give you an example. If you've made it a mandate to get to bed at a reasonable time when the sun goes down. So, it's going to be generally between like we'll just say 10:00 PM and midnight, all right? Nice box there. And we'll say you rise in the morning between 5 o'clock and seven or eight, right? So maybe you're getting on average around seven hours of sleep. Okay? You're getting seven hours of sleep, feeling good. Everything is going well, but you like to take a nap, or you feel the need to take a nap. What's the best time to do that? Well, according to the data, it's going to be having your nap, a power nap, before 4:00 PM, that's what the data shows. I recommend even earlier than that, between the hours of maybe noon to three. You can fit a nap in there.

This is because we don't want to create a situation where you're not sleepy when it's time to go to bed in the evening, and just perpetuate that problem where you feel like I have to take a nap during the day, or I'm not going to make it. So, even putting the nap, the timing of the nap can be super helpful, but some of this stuff too is about giving ourselves permission. It can be frowned upon if somebody's "sleeping on the job," right? Kids falling asleep in class. Maybe they're tired. Maybe they need to have helpful practices to ensure that they're getting higher quality sleep at night. We don't know what their conditions are. We don't know what we've... What we, even us, when these things happen with us, people don't know what we've been through that's leading to that exhaustion to where we're... We can't keep our eyes open, right?

Well, what about that phenomenon of your eye lids feeling so heavy? What the... What is that about? Why? Why? Your eyelids. Listen to this. They're muscles. They're muscles too. They need some time to relax, 'cause guess what they're doing? Through the day, they're blinking. They're getting their reps in, right? Sometimes you just want to put the weight down. Just drop the weight.

So, all of these things are kind of tied into this sympathetic, parasympathetic nervous system, right? That relaxation. Our eyes can start to get a little bit heavy too when we're just shifting into parasympathetic and relaxing. All right. Little fun facts. We throw in a fun fact or two. Now, we are definitely hardwired as a species to sleep at night and to be up during the day. This isn't conjecture. This isn't a theory. We are not nocturnal creatures. And for me, one of the most glaring things that point to this, because there are different theories out there, and camps, and people who we've experimented with different phasing of naps, right? Polyphasic and different things like that. But we are hard-wired. Our genes expect us to sleep at night and to be awake during the day.

And the glaring thing if we're talking about real science and biochemistry. What would tell us this is the function of melatonin, right? It's this... And I generally put this caveat. It's a glorified sleep hormone. It's not just a sleep hormone. People say the sleep hormone. It is so much more than that. It is a primary controller of our circadian timing system. Melatonin has an influence on when you're producing testosterone. Melatonin has an influence on your cortisol levels, on your cognitive abilities, your mental acuity, your attention, your memory. It affects practically everything about you. So, to put in this little box, like we tend to do in science today, sleep hormone. No disrespect. Put some respect on melatonin's name, okay?

We can't do that. So, what's telling us that we are not nocturnal creatures is the function of melatonin that is active at the pre-requisite darkness and a consistent cycle, consistent routine is going to determine when and how much melatonin is getting produced.

To express this, to flesh out this knowledge base, there was a study that was done by researchers at Cornell University, and they had the test subject in an otherwise dark room, and they put a light the size of a quarter behind the test subject's knee and that was enough, that little bit of light to create abnormalities in their sleep cycle. That light exposure because our bodies are constantly trying to attune and sync up with the environment to figure out what time of day it is, the biological controllers, the biological sinking agents, the primary ones are light and food, light and food, but light is the strongest. So, what's the bottom line here when we're talking about napping in association with our biochemistry, with our neurobiology, with our hormone production, neurotransmitters, and as we were just talking about melatonin, for example, what's the bottom line with napping?

Listen, nap if you need to. Take a nap. It's okay. Nap if you need to. But of course, I recommend following some of the insights and guidelines that we've talked about, but most importantly, the number one thing for us to do is to optimize our sleep quality at night where the nap becomes a choice and not a necessity. And even with that necessity it's a biological feeling of necessity, this doesn't mean that it actually fixes or addresses the sleep debt that we're accumulating when we're not getting high quality sleep at night.

So, what are a couple of important foundational tenets to improving said sleep quality in the evening? Number one, because we're talking about again circadian medicine, it's having and optimizing an evening routine that works for us, finding a way, again, to sync up with these nocturnal and diurnal patterns of the solar day, the solar system, so for us in the evening, humans, we are, we're day walkers, all right? We're day walkers. Shout out to Blade. I don't know if you know this, Blade is getting re-energized, reintroduced into the Marvel cinematic universe. I'm about that, I like that. Thank you, Marvel. Shout out to Blade.

Now, improving your sleep quality at night, foundational tenet, optimize your evening routine. What does that look like? The biggest culprit today, in my professional opinion, is our technology. Ironically, the thing that has made us more connected and given us so much access, and this has only been a couple of decades that we've had access to 24/7 technology, in particular, television and iPhones and laptops and all these things, we're talking about data consumption and that FOMO that gets developed because of so much, FOMO, fear of missing out. And I don't know if some people might not have heard of that, they're like, "Who are you calling a FOMO?" FOMO, Fear of Missing Out.

Now there's also JOMO. The joy of missing out that's rising in popularity. But because of our devices, it's making us more divided from our sleep. And to give an example of this, researchers at Harvard University did a study and they found that the test subjects who were on their iPad, they actually used iPads in this particular study, these individuals, and by the way, this was in the evening, not in the day, who were staring into their iPad in the evening reading books and the like, they had a significant reduction in their melatonin secretion and a delay in their melatonin secretion at night.

Very, very important for us to understand, again, melatonin is a regulator of our sleep cycle, of so much with our biochemistry, with our hormones, with our neurotransmitters, with our metabolism. It's getting suppressed being on our devices at night. Now we've talked about that in past episodes. So, we'll put one of them, a recent one was the biggest mistakes that people make when trying to get high quality sleep in the evening, we'll put that episode for you in the show notes. We really break down that study even more, the details which is pretty sobering.

Bottom line is, one of the things for us to implement in our evening routine to optimize our sleep is to give ourselves a screen curfew. If we're planning on getting to bed at, we'll say, 11:00 PM, give yourself at least 30 minutes off of a screen before going to bed. Ideally, it will be more, yes, but I understand we're addicted, we're addicted. So, we've got to understand that we're right now as a culture, we're very, very tied to our devices. And so how do we supplant that addiction? It's one of those basic tenets with anything that we're trying to replace with a healthier habit, what we tend to do is try to tough through it. We bite down, we white-knuckle it, we grip it, and we just push through. "Oh, I'm going to do it. I've got to let go. Let's go." Right? We try to do that. For most people, it doesn't work.

We're missing out on basic human psychology tenets here, which is, if we take something away that we have all of this pleasurable neuro-association, neurochemistry taking place, dopamine and endorphins and serotonin being on this device, and then we replace it with sitting there and trying to not get on the device, guess what's going to happen? You're going to struggle, right? That's kind of like not reaching for that drink. Not reaching for that particular... What

we call these "bad habits," that cigarette, right? Instead of not doing the thing, we just sit there and try to... And as we're thinking about it, we're not replacing it with anything that gives us equal or greater value. It makes it so much easier, right? So, with that screen curfew, you can't just sit there and twiddle your thumbs. We can't just sit there and for most people, we have to replace it with something of equal or greater value.

So, find something that... And it's going to be different for you. This could be reading. It could be reading a physical book. It could be listening to a podcast. You don't have to stare into a screen to listen to an awesome podcast like this. Like the Model Health Show. You don't have to stare into a screen to do it. This could be an audio book. This could be hanging out with your family. And whenever I say that it's like it's so crazy because that act is on the endangered species list because of our devices. Our devices are divisive. They're putting a divide on people in the same room with each other. It's the craziest thing. And we go into this alternate dimension through the device. We leave there. You're no longer there.

And so, as a culture, again, just to actually not be on the thing and just sit and chill, talk to your... And making that a practice in the evening but again, it's going to depend on the relationship context too. On how effective or valuable, how much you enjoy that. Another thing that could be a part of this is intimacy. So, this is actually there's some really great data on sex improving our sleep quality. So maybe that is a part of your evening routine. It doesn't have to necessarily be the full monty, but maybe it's just again, intimacy. The oxytocin that we produce when we're in close proximity to the one that we love, our significant other. So, and also again, but if you are going all the way, all the way, you release a cocktail of chemicals that are sleep supportive, so from prolactin to oxytocin, norepinephrine. These are all involved in different stages of sleep and also regulating our sleep cycles themselves. So, yeah. It's one of those things. Again, hopefully that's more interesting than being on your iPad.

I'm just throwing that out there. So, finding that optimal evening routine for us. This could be just maybe journaling, doing a gratitude journal, or writing down some ideas, taking time to journal or to just write something, maybe writing poetry, whatever it might be for you, and maybe a part of that is having some tea, some sleep supportive tea while you're journaling, or reading, or listening to a podcast, or hanging out with your loved one, your child or your significant other. And for me, and I do this at least a couple of nights a week. I love to have a Reishi tea as a part of my evening routine. Why is this? A study published in the journal Pharmacology, Biochemistry, and Behavior found that the renowned medicinal mushroom Reishi is able to significantly decrease sleep latency, meaning you fall asleep faster. It's been found to increase overall sleep time and increase non-REM deep sleep time as well. And I love having this tea maybe 30-45 minutes before bed. Maybe sometimes a little bit earlier, but just part of that wind down routine.



And the key here is, again, making sure that it's dual-extracted. I've talked about these many times. So, we actually get the... From a hot water extract and alcohol extract, you're going to get different compounds from the Reishi. So, the beta-glucans, antioxidant type compounds, and also like triterpenes and hormonal compounds. So, we need a dual extraction. They've been doing this, they've created a movement, really. There are other companies that are following suit, but the originators, highest quality, do it the best is coming from Four Sigmatic. Go to [foursigmatic.com/model](https://foursigmatic.com/model). It's F-O-U-R-S-I-G-M-A-T-I-C.com forward slash model. You get 10% off their Reishi elixir. They've also got a wonderful Reishi hot coco that people love to have in the evening as well.

And by the way, so this is a tea, okay? The Reishi tea. I'm not saying Reishi tea is like the most outrageously delicious thing ever. So, you could dress it up, maybe put a couple of drops of some chocolate Stevia or some emulsified MCT oil, a little gee, whatever, or if you're just about that life, you do a straight Reishi. All good, but the Reishi hot coco people really love that as is. And these are just a couple of the wonderful dual extracted, organic, done the right way.

Mushrooms, and mushroom coffees, mushroom elixirs coming from Four Sigmatic. So go and check them out [foursigmatic.com/model](https://foursigmatic.com/model). You get 10% off everything they carry. All right, so again, optimize your evening routine. That is foundational because your brain is expecting automation, patterns, that's when it really starts to sink up. And that translates over into improve sleep efficiency, all right? So, giving your brain a routine.

Number two, and this is another thing that has a lot of components to it, but a overarching principle for improving our sleep quality at night so that we're not dependent upon napping during the day, specifically, if we don't want to take a nap, but we're just feeling energetic, we're reducing that daytime fatigue is to optimize our sleep environment itself. The environment that we're sleeping in, number one, there's a strong neuro association to where we lay our heads down to being in a bed. So...

So, if you're somebody who tends to work in bed or bringing your computer into bed, watching TV in bed, there is a myriad of science right now affirming how this can affect different areas of our lives from our relationships, our sexual health. Alright. There's a study that I actually featured in my book, *Sleep Smarter*, that was done on couples. And they found that the couples who had a television in their bedroom had upwards of 50% less sex. Now, for some people that are like, "I'm going to get this television out tonight." For other people, they're like, " doesn't affect me at all."

I'm actually... I'm about that life. I'm humping with no matter what's on the television or if the TV... It doesn't matter. Alright, I'm not talking about you. Alright, if you're just humpty hamper, it's... So be it. But for most people, they don't realize... They're not cognitively aware that

television is creating a divide, that it's quite possibly, especially if they're laying back, watching TV in the night, not to say again when you're...

Maybe you're on vacation, maybe you're staying at a hotel, whatever, there are scenarios where it's cool like kick back, watch TV, lay in bed, lounge, but we're doing this on a consistent basis in the evening, this is going to be pressing down your melatonin, it's going to be pressing up your cortisol, and it's also stimulating regions of your brain that need to be calming down, and also again, it could be a divisive thing for you and your significant other, but also the ramifications of it decreasing our sleep quality can show up with less sexual desire, lower libido, all the things, so it's a multi-faceted reason why they saw that in that particular study.

But again, optimizing your sleep environment, creating a neuro association for your bed, your bedroom to be a place where it's a sleep sanctuary. Alright, so what does that look like? I'm just going to give you a couple of tenets in this, number one is an environment where we can support melatonin production, so that's going to be an environment where we don't have light pollution, right, light pollution, so this is this intrusive artificial light. This could be coming from outside your home, streetlights and your late... Your neighbor's porch light, those type of things is been dubbed light pollution because as mentioned, this can disrupt your sleep cycle, so get yourself some black out curtains, get the room as dark as you can. And listen, even if you're trying to do this on a budget, there are so many...

I've done this before where there is this door... There's one place I stayed there, it was an Airbnb, and the door didn't have a curtain over it, and it was like leading to outside, it was the room that my son was staying in, and it was like a streetlight just illuminating the room. So, we put up some foil, we grabbed some foil, grabbed some tape, blacked that sucker out like that, there's always a way to do this stuff. So, eliminate external light pollution and also internal light pollution which could be from, luminescent alarm clock or maybe you got your iPad or laptop plugged in on your desk, and that little... Even that green little light can illuminate the room.

You could probably even read by that little light in some instances. So again... Here's the thing, we don't have to be neurotic about it, and if these things... If you've tested them and found that, hey, this does actually make me feel better, improves my sleep, getting rid of some of this light exposure in my bedroom, so be it, you know, just experiment. Think about it, experiment, it's not make or break thing, but a stack in conditions, the big things are eliminating the external light pollution, where we're just kind of illuminating a room with artificial light. Moonlight, not the same, moon light is not the problem. We evolved with that, and again, this is about the artificial light exposure that again is very, very new to human biology.

So, number one, eliminating light pollution; number two is minding the temperature in the environment, thermal regulation. This is a natural process that humans and other species undergo constantly throughout the day. Our bodies are adjusting its temperature based on our conditions and what we're doing, that kind of thing, there's a automatic drop in our temperature, our core body temperature and even our skin temperature in some instances in the evening to help facilitate sleep. We've evolved... Again, this is another huge marker to show us that we are not nocturnal creatures, alright. We're hard-wired to have this drop in our core body temperature in the evening, and a growing body of data has shown that insomniacs, individuals with chronic sleep issues tend to have a significantly warmer core body temperature right before bed than normal.

So again, we're looking at what is going on here. We just might see somebody or experience this clinical classification as insomnia, what's going on underneath the surface, what is a causative agent behind it. One of those appears to be a dysregulation with managing the core body temperature. Guess what's... The master controller is the hypothalamus in the brain, and the hypothalamus is really under attack in our society today as well. Hypothalamic inflammation is one of the growing issues, where there's brain inflammation taking place, it can throw off that whole system. That inflammation can be... Contributing factors, The Albert Einstein College of Medicine, could be from excessive weight that we're carrying can create brain inflammation. The research has noted that abnormal diet, toxicants from our food, pesticides, things of that nature, viruses, abnormal blood sugar, right?

So especially having rapid amounts of sugar coming to the body. The human brain will confiscate a significant portion of glucose that's brought in from any meal, it's getting shuttled right to the brain. The brain, even though it's about 2% of your body's mass, consumes about 20% to 25% of the calories you consume, and it is ravenous whenever sugar is on the scene, this can lead to more brain inflammation. So that's an overarching thing that could be causing this dysregulation but here's the thing, we live at times where the technology can also be helpful, so being able to manage our environment, the temperature in our environment via the thermostat, alright, so we have an internal thermostat governed by your hypothalamus, but we can support our biology by cooling off the environment in the evening. So, no matter where you live on planet Earth, the temperature is almost always going to be lower in the evening than it is during the day, okay?

And we're just supporting that practice by cooling off the environment. Many researchers have found that right around 68 degrees Fahrenheit, for some folks, it's like "That is too cold." But this could be... I gave... I opened it up a little bit more to... Some researchers actually say, cooling down to like 62. But 62 to 72, in that frame, I believe to be most advantageous, so it gives us a little bit of a spectrum, but even with that said, as I mentioned, a growing body of data has shown that insomniacs tend to have significantly warmer core body temperature than normal

right before bed to help combat this issue, in a study published in the peer review journal, *Brain*, scientists had participants wear thermosuits, so they actually put on these super hero type uniforms to lower their skin temperature, less than one degree Celsius without affecting core body temperature to measure its impact on sleep. So just cooling down their skin temperature. The study results showed that the participants, by just having their skin temperature a little bit cooler, didn't wake up as much during the night, and they found that the amount of time that they spent in stages three and four deep sleeps had increased just by cooling them off like tad bit.

So, your environment via the thermostat, that's one step, and your clothing/bedding could be haphazardly reducing your sleep quality. So, with your bedding, this is an easy on-ramp as well, because you don't have to change your behavior. In a new study just published, 32 participants were recruited into a three-week clinical trial where sleep was measured for one week at a baseline condition using their original sheets, this was followed by randomly assigning the participants to either a week of sleeping on bamboo lyocell sheets from Ettitude, followed by a week of standard cotton sheets, or a week of standard cotton sheets followed by a week of organic bamboo lyocell sheets from Ettitude, randomly counter balance.

The researchers monitored subjective and objective data from the study participants. They found that by objectively using sleep tracking technology, study participants had a 1.5% improvement in sleep efficiency, sleeping on the bamboo lyocell sheets from Ettitude, which equated to an additional 7.2 more minutes of restorative sleep per night. Now, that might not sound like much, but listen to this. Over the course of a year, that approximately eight more minutes of restorative sleep is an extra 43 hours of sleep per year. When you start to look at things from a bigger picture, and we talk about addressing and healing, paying back that sleep debt, this is the opposite, this is an investment, and it's not even changing anything in our life, so I was just changing what you're sleeping on, is really powerful.

Subjectively, participants found that their mental alertness during the day had improved from sleeping on their bamboo lyocell sheets by 25% and 94% of people prefer sleeping on Ettitude sheets. If you're like "What are Ettitude sheets?" Ettitude sheets are made from organic bamboo lyocell, and they're free from harmful chemicals, irritants, allergens, they're hypoallergenic, they're also anti-microbial, they're self-deodorizing, helping to inhibit bacterial growth. It's common in sheets. They're breathable. This is key here with that thermal regulation, moisture wicking, and they have this thermo-regulating capacity, which makes sure that you're not just trapping this heat like a microwave with low quality sheets that tends to happen.

Now, I cannot begin to tell you what it's actually like. This is something that you have to experience. I love, I love my Ettitude sheets. I didn't even know what it could be like. I didn't

know that this was a thing. When sleeping on Ettitude sheets, it's like truly... It's like sleeping into a love song. It's like sleeping into a romance novel. It is just it's such a wonderful feeling. And like I shared, the science behind what they're doing is remarkable and they're going above and beyond to run some clinical trials to really affirm what they're doing. But to get true beauty sleep and to get your own Ettitude sheets, you get 15% off.

This is exclusive here with the Model Health Show. Go to [ettitude.com/model](http://ettitude.com/model). Use the code model 15 and check out. That's [E-T-T-I-T-U-D-E.com/model](http://E-T-T-I-T-U-D-E.com/model). Use the code model 15 and check out, get that 15% off. And plus, they want to give you a 30-night sleep trial. Sleep on it. Dream on it. And if you don't actually love these sheets, like I know you're going to send them back for a full refund. Go to [ettitude.com/model](http://ettitude.com/model). Use the code model 15 for 15% off today.

Alright, so this is just another thing that we can do to stack conditions to create that sleep sanctuary and to up-level our sleep quality in the evening. In addition to that, one last thing that we can do, a great night of sleep really starts the moment that we wake up in the morning. So helping the front end of that circadian timing system by getting up and getting some light exposure during the day, because we are day walkers, so getting some sun exposure is incredibly important, and also we can do things to help us set that cortisol rhythm by being active, maybe within that first 30 minutes of getting up, doing five minutes of exercise, maybe jumping on a mini trampoline, going for a power walk, doing some sun salutations, a little yoga, there's so many different things that we can do just to kind of get our bodies get our juices flowing and really does have clinical weight.

So, the bottom line from this episode is that the science really does not affirm that naps are the problem, it's what's the underlying causative agent that makes one feel like they have to take a nap in order to function. Naps are a lot like supplements. The real food comes from our sleep in the evening. A nap can help to supplement certain things, add an extra half a percent, 1% here or there, but we don't want to mistake it for the real food that we need, which is getting high quality sleep.

I hope that you got a lot of value from this episode. If you did, please share it out with your friends and family, make sure that you're subscribed to The Model Health Show, so you don't miss a minute of this goodness. Make sure that you're subscribed on your favorite podcast platforms. And listen, we've got some epic, I'm talking about epic master classes and incredible world class experts coming up for you very, very soon, so make sure to stay tuned. Take Care. Have an amazing day. I'll talk with you soon.

And for more after the show, make sure to head over to [themodelhealthshow.com](http://themodelhealthshow.com). That's where you can find all of the show notes. You could find transcriptions, videos for each episode. And if you got a comment, you can leave me a comment there as well. And please make sure

to head over to iTunes and leave us a rating to let everybody know that this 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.