Stress, Cortisol, and Sleep

What happens when we experience stress, whether it's worrying about the world situation or it's worrying about taxes or or your family member or your job, doesn't matter what it is, the body reacts the same, whether it's a real threat or a psychological or emotional threat, and it begins to produce cortisol, which is the stress hormone, least popular because it's really getting a bad rap these days, but the body produces the stress hormone when we feel stressed.

This is Doctor Talks. Welcome back, guys. I'm Dr. Audrey Wells. I'm the host of the Sleep Deep Summit, New Approaches at Treating Sleep Apnea and Insomnia.

My next guest is Ronnie Newman. She's a Harvard University-trained researcher, educator, and published author in the field of mind-body medicine and anti-aging.

She's on the faculty of the Nova Southeastern University, and she's the founding director of Behavioral Health Research for the Art of Living Foundation.

Also, she's co-founder of the acclaimed anti-aging webinar, Ageless. Welcome, Ronnie. It's great to have you. Oh, thank you. It's so nice to be here. We were just talking about the importance of sleep in the greater context of health and how people sometimes negate their sleep in order to do other things.

I'm wondering, how do you connect sleep with anti-aging methods and practices in daily life?

Sleep as an Anti-Aging Tool

Oh, wow. That's a great question. Well, there are many answers. We could talk all day about it. So thank you for asking that question. One of the things to really remember is that during sleep, the body does its garbage collection and elimination process, especially in the brain and the immune system.

It's very clear. And so if we don't get enough sleep, We are actually putting our brains at risk for faster aging and it is one of the risk factors for Alzheimer's is inadequate sleep.

Because if we don't get enough sleep, the brain cannot flush out the byproducts of daily metabolic life. And in our immune system, you can think of it like if you drive your car into the garage.

And then you close the garage, well, you leave the garage door open because you don't want to get asphyxiated, but you leave the car in neutral. The immune system never gets the deep rest it needs unless we get to the deeper stages of sleep.

And as people know, there are many stages of sleep and you actually have to get to the deepest levels of sleep, stage three and stage four. in order for the flushing of the brain and the adequate rest of the immune system, just for examples, to take place.

So if we don't get enough sleep or if we don't get deep enough sleep, the quality of sleep is really important. We are putting ourselves at risk for more rapid aging.

We're also putting ourselves at risk for every disease that you can possibly mention. You're exactly right. You know, this is something that I get up on my soapbox and preach quite a bit.

And, you know, I've seen people who get their sleep fixed, have that experience of becoming younger sort of before my eyes. And it's really rewarding.

But some people don't have access to that. They may struggle with insomnia, for example, and they're not getting enough sleep. Now, one of the things that you talk about is internal and external drivers of insomnia.

Tell me what you mean. Okay. There are certain things in our environment. that contribute to insomnia, or on the opposite side, the capacity to enjoy deep, restful, rejuvenating sleep.

And then there are internal drivers, which means the state of our physiology, and particularly our emotions. Because we now know, I mean, that's the foundation of mind-body medicine, that our emotions are not just in our head, but they're everywhere in our body, and they're transmitted there instantaneously, as you know, by chemical messengers.

And some of those chemical messengers promote deep, restful, long, rejuvenating sleep. And some of those chemicals inhibit the experience of that sleep.

And if you'd like, I can give you a couple examples. Yeah, let's, let's get into that because I think it's valuable for people who struggle with this to know that, you know, they're not alone and there's a path toward treatment and toward hope.

Wonderful. So let's do the easiest thing first, the easiest thing to fix.

External Sleep Disruptors: Light in the Bedroom

And that is the amount of light in your room when you turn out the lights at night and you go to sleep. Now what happens is that when light hits the pineal gland, well actually the light hits our eyeballs beneath our closed eyelids, it signals the pineal gland to stop producing melatonin because it thinks the day is coming.

We know that melatonin is the sleep hormone and it's necessary for the body to enjoy those deeper levels of sleep. So if there's too much light in your room, then it signals the pineal gland to stop producing melatonin.

and you start to wake up. Now how dark does your room have to be may surprise you, and this is the external driver I'm talking about. A really great scientific test that each of you can master, I'm convinced, is simply to take your hand, put it in front of your face, and wiggle your fingers.

When you get into bed at night, and you shut your lights and you pull down your curtains, if you can still see your fingers moving, your room is too light for ideal sleep and is contributing to the probability of insomnia.

So what you want to do is make sure that your room is dark enough. That means, you know, ideally no TVs in the bedroom, cell phones, LED clocks. One of my students told me they have a hearing aid.

recharger, and that emits light as well. So you want to get all of those things out of the bedroom. And if you can't get them out of the bedroom, there's a simple fix.

You can either wear, um, shade, you know, room darkening shades. And there's one company that I like called Bunky, B as in boy, U, N as in Nancy, KY, because you need to make sure that the eye mask that you're wearing is thick enough.

And large enough to not let any light inside. And so the bunkie one actually looks like a lady's bathing suit top. It's got padding on top and on bottom.

And it's wonderful, but there's something actually that's even easier than that. And that is to throw a dark t-shirt. over your eyes, just fold it up and put it over your eyes when you go to sleep.

And I am, I am told I'm a very active sleeper and move around a lot. And still, when you lay the t-shirt lengthwise, you go this way, you go this way, you go this way, you go this way.

And it stays in place. I always wake up with the t-shirt in exactly the same place as when I went to sleep. And I highly recommend, you just need to make sure that the material is thick enough that when you put it over your, you drape it over your face, that you don't see any light.

This is so important and I agree with you totally. Human beings are very sensitive to light, especially from the sun. But in this industrial age, we're exposed to light beyond what we were physiologically developing in.

So there's light pollution that happens in our bedroom. What else can you tell us about ours? One more thing I want to add about that. The specifics of why we need to take those things out is they all emit blue light.

And blue light is interpreted by our system as daylight coming. And so that is one of the reasons it's so troubling. So that's just an easy fix that I'm sure everybody owns a t-shirt.

Just grab it out of the drawer. You can even put a pair of leggings over your eyes if your t-shirts are packed away for winter. So that's an external driver.

In terms of the internal drivers, one of the internal drivers These are less easy to fix, but it's 100% doable as well. And that is our emotional state, our levels of stress.

Because when we produce stress, when we feel stressed, again, our emotions are not just in our head, they're everywhere in our body. They're produced there immediately.

And what happens when we experience stress, whether it's worrying about the world situation or it's worrying about taxes or or your family member or your job, doesn't matter what it is, the body reacts the same, whether it's a real threat or a psychological or emotional threat, and it begins to produce cortisol, which is the stress hormone, least popular because it's really getting a bad rap these days, but the body produces the stress hormone when we feel stressed.

Now, the problem with that in terms of being able to fall asleep and stay asleep and to actually get to the deeper levels of sleep, which are the restorative levels necessary for feeling on top of our game, is that cortisol suppresses the production of melatonin.

So that's why we need to be able to do something to get our stress levels in check. That's really important.

Internal Sleep Disruptors: Stress and Cortisol

And it's probably the thing that is causing 68% of Americans, as you're very aware, have trouble falling asleep, staying asleep, or waking refreshed. And I'm sure a big part of that in the industrialized world, because similar stats are there globally in industrialized nations, is the level of stress as well as all of the external drivers.

So it's something we really want to watch. I agree. And when I talk to people about managing their stress, it's a heavy lift because there's multiple stressors.

It's not just like one sort of stress blob. There's a lot of different types of stressors that are causing us to feel agitated. And I really resonate with what you're saying about the emotions and feelings because I like to tell people sleep is an emotional experience.

You can't fall asleep feeling regretful, vindictive, angry, you know, these are high amplitude emotions. They're typically negative emotions, although you can have insomnia due to excitement as well.

But I wonder if you can give us maybe just one simple solution for stress that people can use even starting tonight. Oh, absolutely. Absolutely. Yes. And the nice thing about it is, yeah, it's not heavy lifting.

It's like a feather to do. It's really simple. And that is, it's literally right under our nose because it's our breath. And so I'd like to tell you a little story first, if I may.

Yes. How practical this, this practice is for reducing stress. And I can, and then I'll give you a little bit of the science behind why these things are so effective.

Okay. Yes, let's do it. Okay. So when my mother was 93 and living on her own, She went running to get the phone because God forbid she should have a phone call and she fell flat back on the tile.

And she really banged herself up quite badly. And fortunately she did not lose consciousness. She called me. I went racing over. I raced her to the hospital.

We were in the emergency room. They did all of these tests. And then the nurse came in and said to her. Well, I have very good news for you. Magically, there's no permanent damage.

You'll be bruised and sore for a while, but there's no permanent damage. However, you do need to relax now that I've told you that there's nothing to worry about.

And the reason the nurse said this is that, as you know, when people undergo a trauma, the fight or flight, the stress response kicks in and it jacks up our blood pressure and our heart rate.

And her blood pressure was 199. over 90, over a hundred, excuse me, at that point, which meant that she, even though the fall didn't do her in, she was in danger of having a stroke and losing her life from that.

And so the nurse went out and my mom's all hooked up to the monitors and they couldn't give her any more medication in the hospital than they already had to bring down her blood pressure.

And so the nurse goes out and I'm sitting there and nothing's changing. Every once in a while it goes up to 200, then 198, but it's solid. So then the doctor comes in and he takes our hand and he's stroking our hand and he says the same thing, you know, you just have to relax now.

Just really, I'm here to reassure you. And he walks out and another five minutes go by and nothing is changing. And I realized I had to do something. So I said to her, Ma, I'm going to teach you a breath practice that we teach to the gangs in the inner cities to get them to chillax.

And we're going to do it together. And it's called straw breath. And I taught it to her and in two minutes, her blood pressure came down 30 points. So we need to know what this exercise is because I can imagine that my blood pressure is up sometimes and just no one's around there to measure it.

So tell us what the straw breath is. Okay. So this breath, the English translation is straw breath, is a breathing practice where you're, we're going to breathe in through our nose and then we're going to purse our lips.

And breathe out as if we're breathing out through one of those skinny straws from Starbucks. Well, we just let the breath go out at its own rate that it comfortably wants to.

Once our lips are process up, like blowing out a candle. Okay. So again, we just take a normal full breath in, but not like, you know, just a normal full healthy breath and take a normal breath in through the nose.

First your lips and then let the breath exhale at its own rate through the straw. And once the exhale is naturally complete, we then take another normal, comfortable breath in, full breath through the nose, pierce the lips, purse the lips, and let them, and let them breath come out again.

And if you're not driving a car, you can close your eyes. It's even more relaxing. And so let's just do a couple of them together. Let's see what people experience.

Take a breath through the nose. And out through the straw. And again in through the nose. Out through the straw. And continue at your own rate. And you may notice as you continue, the exhale becomes longer.

That's very natural. So I want to talk about a couple things that I'm noticing as I'm doing this. One is as I'm taking the time to exhale slowly, and it's much longer than my inhale, my inhale becomes much more deliberate with my diaphragm going down and it's pushing my belly out.

And I like that because it's sort of a deeper breath that was recruiting the lower lung fields. The other thing that I'm noticing is that as I'm exhaling, I'm kind of in my body in the present and I'm noticing my heart rate.

And my heart rate started to come down with like the third breath. And that's an excellent sign because you need that to de-stress and you need that to fall asleep too.

Straw Breath for Rapid Stress Relief

And the beauty of it is that, yes, all of those physiological events happen, but we don't have to, it's not like, you know, conscious belly breathing.

Like now I'm breathing in through my belly and then I'm feeling expanding my rib cage and like that. It's just all happens natural. And that's the beauty of it because to relax, we can't be following a million instructions.

It's just breathe, take a full breath in, hold that straw. and let the breath go out. And it is a wonderful thing to do 10 of them before bed. Actually, what I do every night is when I get in bed, that's what I do.

I do 10 of these straw breaths. And it really helps set the stage for sleep. And the beautiful thing is that you can use it to calm the stress response anytime.

Like if you're, it was the other day, I was in the grocery store and I was in a rush because I had to get back, you know, on my lunch break and I had to be back.

And the lady in front of me is like counting her pennies and having these conversations with the teller. And I'm like, come on, come on. And it's like, no, just.

Or sometimes, you know, if you're in a board meeting and somebody's saying something that you think is really, we'll say not in alignment with your view of the world, rather than tear their head off and get your whole system agitated, you just do the straw breath and it calms everything down.

It calms absolutely everything down. I love it. And the reason, I'll just explain very briefly why it's so effective. Because we have, because what I always feel, I always appreciate when people give me an explanation because one of my, one of my mentors once said knowledge is power.

And so to have, to understand why this works so well is that turns out that our emotions and our breath are the opposite sides of the same coin. Or like an example, something that happened.

Well, let me ask you, you know, you're, you're walking down the street and a car backfires and you hear this loud boom. What happens to the breath? And then when you realize it's a car and not a bomb.

And so just from that example, we see that every emotion has a corresponding pattern of the breath. is part of our automatic or autonomic nervous system.

And all of our automatic or autonomic nervous system is out of our control. The whole fight or flight response is out of our control as part of our autonomic or automatic nervous system.

And we have no control over it, except there's one exception of one function of that autonomic nervous system, which controls our heartbeat and our digestion and our perspiration and our every involuntary function of our body, but the breath in addition to being automatic can be consciously controlled.

And because of that, it creates this potent window into our autonomic or automatic nervous system to quickly, with

our own volition, calm the stress response.

It's the only function of our body that gives us a lever like that to directly and immediately calm the stress response. The breath is the best biohack for calming stress that I have come across in my 40 years of research.

Yeah, it's with you all the time, right? And it's free, side effect free. And I agree, I've always been fascinated that your breathing is immediately available for conscious control.

And then when you let go of the lever, it just picks up with unconscious control again. Yeah, it's true. And it's unique in that it does give you access to that calming feature.

I don't think people use it enough. I don't think they remember it or believe that it's going to work as well as it does. But once you're in the habit of doing it, it's actually reassuring to note that you can trust yourself to dial it back.

And I'm wondering, do you run up against this when you're talking to people who may not be tuned into the breath as a tool, and how do you convince them otherwise?

Well, what I usually do is I give them examples of how, number one, the breath and the emotions are connected, because everybody has that experience. And then I make the next step about how our emotions are not just in our head, they're everywhere in our body.

And so we need to look at the physiology as well. And that their breath is a biohack into the sympathetic nervous system, which is the fight or flight response of our body.

And once people understand that it is a lever like that, that's why knowledge is power. Knowledge sets people free. So it just takes a little bit of education that it's not just granola tree huggers saying it, but it's, you know, it's actually, it's the way we're set up.

And I actually considered the breath a super half superpower biohack. It is really a superpower that is underutilized. One thing I talk about with people who have obstructive sleep apnea is that the breath is what is threatened during sleep.

And we are necessarily under automatic or unconscious control of breathing because we're unconscious during sleep. When the airway collapses during sleep and the breath is cut off, That's a threat to the brain and the brain eventually wakes up a little bit, usually not to full consciousness, but that's an example of a sympathetic nervous system overload.

So you do see increased blood pressure, you see more shallow breathing, more rapid breathing, you see a sleep disturbance on a person's EEG. Absolutely.

And that accumulates. So for a person who has an apnea hypopnea index of 15, so that's just over the border into moderate sleep apnea, what I can tell you is that person has at least 100 airway obstructions over the course of one night of sleep.

And imagine how that might age a person when they're exposed to that night after night after night. And, you know, you've mentioned cortisol before and that made me think of, you know, these drops in blood oxygen level when you're not breathing is a little stimulus for stress and the sympathetic nervous system.

Absolutely. And it's very easy to remember, you know, I don't like throwing out a lot of scientific terms. A really easy way to remember it is S for stress, S for sympathetic nervous system.

And fortunately, we are constructed, we have these two, well, two of the major branches of the automatic or autonomic nervous system. are the stressful sympathetic and the other side where we're actually intended as a species to spend most of our time is the parasympathetic.

So there's the sympathetic and the parasympathetic. And you remember P for peaceful, P for parasympathetic. And the two tend to go up and down like this.

When we're really stressed, the stress response is up and the peaceful parasympathetic is down. But the breath is like, is the only window into the seesaw that allows us to decide whether to take action to immediately change whether the seesaw is this way or this way or is in what we call ideal homeostasis is in the ideal balance.

And that's what breathing can do. skilled breath work. And so, and it's important to learn an evidence-based practice so that you actually get the benefits and not just something somebody made up at the local why.

Yeah, I agree.

Breath, Sleep Apnea, and the Nervous System

Sometimes there's things that you find when you Google, and there's lots of things that people have tried, and I'm not here to yuck anybody's yum, but I really want to just applaud you for bringing this up as accessible, evidence-based, and the most important thing is it's effective.

It really works. And it works for everybody. If you can slow your breath, if you can gain control over it and just have a little bit of discipline and consistency, you will benefit almost immediately from that.

Oh, absolutely. And it's really not, I mean, you can do these straw breaths while you're cooking dinner, while you're driving to work, you know, and of course when you lay down in bed at night, I always do it laying down in bed at night.

You know, you're there anyway for the next X number of hours and hopefully you're giving yourself the requisite number of hours because sleep is not optional.

What is optional is the amount of toll you're willing to take on your body or the amount of. You think you're willing to provide your body by sleeping because sleeping really is an anti-aging bone.

I want to tap into that idea a little bit more. You know, you talk about achieving deeper sleep. I would imagine more consistent sleep, kind of that trust with your sleep.

And this is directly related to how we spend our lives day to day, what the risk we have for accumulating problems with chronic disease, our longevity, our health span.

Talk about for me, how are sleep and anti-aging connected in other ways besides the breath? Well, one of the other ways is through inflammation. We all know that inflammation is at the root cause of all disease and that in the brain in particular, it's quite damaging because inflammation, and I'm talking about chronic inflammation, you know, if we break our arm, then the arm's gonna, there's inflammation gonna happen and it's adaptive.

Every, you know, everything that happens, the stress response, inflammation, all of these things When they are used the way nature intended them, that they have an inception and then a resolution, then it saves us.

It's like, you know, if a car is barreling down the highway and you need to jump out of the way, you want that sympathetic nervous system to kick in. You want that cortisol to kick in, but then you want it to dissipate.

You know, unless you're spending your life on an eight lane highway, jumping between cars. You don't need it, and it starts to wear and age the system.

And it's the same with inflammation. It's sort of like a frat party. It has its purpose, so it has its inception. Usually lasts for about five days, and then it declines.

But if the inflammation is chronic because stress causes inflammation in the body, Then it starts to age the body. It

contributes to aging of the brain.

And it's quite serious in the brain because inflammation means that brain cells are dying, which means that we're causing our brain to age too rapidly.

And in the body, inflammation is associated with everything from cancer, to osteoporosis, to cardiovascular disease, to diabetes, to multiple age-related diseases, and particularly to Alzheimer's and other forms of dementia.

So that inflammation and it allows the system to settle down. So it's vital. for our health span. And I love that you use the word health span. It's one of my favorite words.

Yeah, you know, it speaks to the idea that when we age, we want to be as vital and have vitality as much as possible. And as you're talking, I'm thinking of like this recurring theme with stress and inflammation to your point that, you know, one instance isn't problematic.

In fact, it's very functional as it protects us. But chronic stress and chronic inflammation and chronic poor sleep over time causes a decay. It erodes our health.

And that is really costly to us. Our brains are our most important assets by far.

Inflammation, Brain Health, and Longevity

And I know that there are studies on younger people looking at the effects of disruption or sleep deprivation. And you can get measurable amounts of beta amyloid protein, people who are young and have no Alzheimer's disease, but they're just a little bit sleep deprived and that protein starts to collect even with a short-term sleep deprivation.

Absolutely. And for those who are not aware, a beta amyloid plaque is one that builds up between the brain cells. And if we don't get sufficient sleep, then the body can't do its flushing.

They actually call it flushing of toxins out of the brain. So the body can't do its garbage collection. And as the amyloid plaque continues to grow, it spreads exponentially through the brain.

So a little bit of sleep and then another little bit deprived and another little bit tend to add up, but so it is really important. But there's another aspect of sleep, which is why, one of the reasons why breath practices are so valuable.

As you know, at about age, you know, 31 by 40 for sure, people spend less time anyway, even healthy people in the deeper stages of sleep. And there was a study done on two different stress management practices.

One was the Sudarshan Kriya breathing practice that our foundation teaches. And the other was a form of meditation. I think it was Vipassana meditation.

And what was found is that the amount of time, and the study was divided, it was all men, and it was divided into those who were younger adults and middle-aged adults.

And what they found was that not only Did the middle-aged adults spend significantly more time in the deeper stages of sleep than age-matched controls?

But the amount of time was actually three times more. They spent three times as much of their night's sleep in the deeper stages of sleep than age match controls, who are matched for all the demographics, you know, location and education and SES and diet and all the things that we know that impact sleep.

Still, they spent three times as much of their night in the deeper stages of sleep, and their sleep was equivalent to those who were 21 to 31. So it can actually turn, it seems like it can either prevent or turn back the hands of time because a lot of the people in the group that was up to 50 years old, We're just new to these practices like a year.

So it seemed to reverse the age-related decline in sleep quality as well. So really the quality of our sleep is in our hands to much degree. When we manage the external drivers and we look at the internal drivers, we are well on our way to making a big difference.

Yes, I think that's so true and it takes a certain amount of self-awareness to kind of pinpoint what is going on for you individually. But I think it's so worth it because every night you have an opportunity to go up to bat and have another good night of sleep.

I kind of like to think of it as making a vote. You know, you're casting your vote for a good night of sleep or you're casting your vote for a bad. And I like to tell people, try to make it 80% good at least.

Closing Thoughts and Where to Find Ronnie Newman

Perfection is not needed here. In the long run, it will serve you because one day it'll be your time for election. Oh, I love that. Ronnie, as we wrap up here, I wonder if you can tell us where you can be found and how might people get to know you better.

Okay, great. I would love it. You can easily contact me through ageless. If you go to yestosuccess.com slash ageless and you can contact me at info at yestosuccess.com or at R Newman spelled like you see on the screen R for Ronnie and then Newman, N-E-W-M-A-N.

at artofliving.com. Love it. Yes. Thank you so much. And it's been a great conversation today. I think there's some really actionable tips here and it will help people for sure.

Thank you. My pleasure. Thank you so much for what you do. Really makes a difference in the world. Thank you. That means a lot. Thank you for tuning into Doctor Talks.

We hope today's episode has enlightened and inspired you on your path to optimal health. Each day is a new opportunity to make choices that empower your well-being.

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