Cortisol, mitochondria, and the stress response

Guest: Dr. Carrie Jones

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Sara Jackson - [00:00:15]

Welcome to this interview. I'm Sara Jackson, the head of nutrition at the Optimum Health Clinic here in London. I'm so delighted to be talking with hormones and women's health expert Dr. Carrie Jones.

Such a huge welcome to you Carrie, thank you for joining us.

Dr. Carrie Jones

Oh, thank you so much for having me. It's an honor.

Sara Jackson

In today's interview, we're going to explore cortisol, fatigue and how to support the stress response. Given the year that we've all had I think everyone will agree this talk is much, much needed.

Before we dive in, I'd like to give you some background on my guest, Dr. Carrie Jones. She's an internationally recognized speaker, consultant and educator on the topic of women's health and hormones. Dr. Jones is a naturopathic physician who is board certified in naturopathic endocrinology with a master's in public health, having over 15 years in this field.

She was adjunct faculty at NUMN for many years teaching gynecology, advanced endocrinology and fertility. While in practice, Dr. Jones served as medical director for two large integrative clinics in Portland, and she's currently holding the medical director role for Precision Analytical.

So after a year of living in a pandemic, with all the various challenges that have been thrown at us, and here in London we're still sitting in lockdown, the kids have only just gone to school. So it's fair to say that in lots of different shapes and forms, stress has had a huge, huge impact on us all. And probably stress has a whole new meaning to many of us now.

So I'd love to start off, Dr. Carrie, with you just talking a little bit more about cortisol and what it actually is and where in the body it's made?

Dr. Carrie Jones

It gets a really bad rap too, everyone thinks of cortisol and they think, oh my gosh, I don't want that, that's the stress hormone that puts belly fat on, that's what keeps me up at night. And while those things are true, cortisol is one of our required hormones. We need it to be human, we need it to be able to be alive, we need it to give us energy, we need to fight inflammation, we need it to help us work with our blood sugar. And so, our cortisol levels are really important.

Now, cortisol are made in our adrenal glands. We have two of them. They sit on top of each of our kidneys, oddly enough. And when the brain is scanning inside and outside the body for stress, for, are you hungry? For wow, you seem kind of inflamed, like, ouch, your elbow hurts, like let's ramp up

some cortisol. And so what it does is it sends a little signal down to the brain that says, hey, or down to the adrenal glands, that says, hey, let's do this, let's make some cortisol. And out comes cortisol.

Now, the good thing is your cortisol is supposed to be high in the morning, it follows a rhythm. And so it's high in the morning, basically to get your back end out of bed, to reduce inflammation, to help you with energy, to help you with blood sugar because you haven't eaten all night long. And then it gradually falls, falls, falls throughout the day until it's nice and low before bed so that you can go to sleep and the melatonin comes out.

And so, well absolutely cortisol can be dysfunctional. It can be high at the wrong time. It can cause a lot of problems. It could be too low. We do need it. It's like Goldilocks. We need it, like the right amount, at the right time.

Sara Jackson - [00:03:28]

And how do we know if there's a cortisol dysfunction? What does it look like? How would we feel?

Dr. Carrie Jones

So oftentimes we will say in the morning I need a lot of caffeine, in the morning I hit snooze, right. Like in the morning I'm so tired, I'm unmotivated. Or it's the opposite, in the morning I have anxiety, in the morning I go from 0 to 10, in the morning I feel panicky, I feel anxious, I just, I feel very revved up when I get going in the morning.

And then throughout the day, people may say, I'm really tired, I drag in the afternoon, I eat caffeine or chocolate in the afternoon. And then of course, at night, the people who tend to have high cortisol at night are the ones that say, I can't fall asleep, I can't stay asleep. And so these little clues of how you feel through your day can give a pretty good insight on what your cortisol is probably doing.

Sara Jackson

That can be totally upside down right, just completely back to front?

Dr. Carrie Jones

We call it either the mother's cortisol curve or parent cortisol curve or the entrepreneur cortisol curve, which is when you're low in the morning, like you rely on caffeine and everything to get you going, and then you're high at night because you have put all the kids to bed and that's like your private time. So that's the time you either catch up on TV or you catch up on all the emails, you run your business. And so you're up on screens late into the night. And then all of a sudden you're like, oh, I need to go to bed. And the body says, I can't wind down, I can't wind down now. And so it's a completely flipped curve, is what we call it.

Sara Jackson

And it's going to have a massive impact on lots of other mechanisms and pathways and systems in the body isn't it?

Dr. Carrie Jones

Literally everything, the adrenal glands interact with everything. They're good friends with the thyroid, they're good friends with the immune system, they're good friends with the testicles, with the ovaries, with everything. Our memory, how we lay down memory or not. Our adipose tissue, our fat tissue, like our skin, our skin health. Everything it affects.

Sara Jackson - [00:05:16]

And what role, can you go in a little bit more specifically with what role it plays with blood sugar balancing and regulation?

Dr. Carrie Jones

So if cortisol was applying for a job and it had like its skill set on the top of its resume, 'I handle blood sugar', it would be the top. That's what it does.

Cortisol is actually called a glucocorticosteroid. Gluco because glucose is the primary thing it manages. We think stress and we think sleep and we think all these other things, glucose is the primary thing it manages. So when cortisol goes up, then it's a signal to the body to begin one of two pathways to break down and create glucose for us, to give us blood sugar.

Because the body's like, oh, there must be a little bit of stressor, there must be a little something going on. They may need some extra glucose to go to the brain and go to the muscles, so I'll make sure to increase the glucose. Or maybe you've skipped a meal. Maybe you're working, working, working, working, and you can't eat lunch and your glucose kind of goes up and says, hey, it's alright this one time, I can get you through, I'll get you some extra glucose floating around so your brain continues to function. And so it has a massive impact on our blood sugar.

But on the flip side, it can really do a number on our blood sugar. If we're constantly high cortisol, we're constantly stressed out, we're constantly not sleeping, then that's constantly going to give us, potentially excessive blood sugar, glucose in our system that we don't necessarily need because we're not literally running from the tiger, it just feels like it. And so we're not going to burn that glucose and it has to go somewhere. So insulin swoops in, takes care of it, and insulin is a storage hormone and so it pushes the glucose into storage, such as our fat tissue.

Sara Jackson

Yeah. And so long term that can lead to health consequences like types of diabetes, right?

Dr. Carrie Jones

Absolutely. Like short term, once in a while, like we're adaptive people, we're supposed to be adaptive, flexible, be able to handle it. It's when it becomes our everyday normal that it's a problem.

Sara Jackson

And so that's going to have an impact on fatigue because it's going to affect the way that we sleep and the way that we switch off at night. Right?

Dr. Carrie Jones

A hundred percent. A hundred percent. I always say cortisol is like the sun and melatonin is like the moon. And cortisol, like the sun, is bigger, stronger, kind of a bully. And so if you have a lot of cortisol at night, if you're up on screens, if you're up doing something, if you're up having a cocktail, having a glass of wine, then melatonin is like, oh, OK, I guess I won't come out.

And then when you go to wind down, you go to go to bed the melatonin is delayed and a lot of people say, I can't fall asleep, I can't stay asleep. My mind is racing, my mind can't shut off. And it's very cortisol induced. And if it's not cortisol, it's your cousin, which are adrenaline right, epinephrine and norepinephrine as well. People feel that fight or flight sensation and they work in tandem.

Sara Jackson

And what impact do you think, just to kind of go out of the box a bit, what impact do you think COVID and the pandemic has had on this whole cortisol pattern and the HPA regulation?

Dr. Carrie Jones - [00:08:21]

That is a massive effect. Oh, my goodness. Working for a lab and seeing thousands and thousands and thousands of hormone reports come through, and cortisol is a big thing we test, and just listening to our patients who are doing the tests stress by far, I am stressed out, I can't sleep, I'm more anxious, I'm losing hair, my cycles are weird, I'm gaining weight and I'm stressed. Did I mention I'm stressed? I'm super stressed. We get this constantly.

And so, whether or not somebody actually had COVID just the fact of living in a pandemic, being in 2020, I call 2020 a verb like you know, how was 2020? Did you 2020? Because it's going to be a defining factor for a lot of our health outcomes in the future.

I think GP's and healthcare practitioners are going to ask patients, how did you handle 2020? What happened for you in 2020? Next year, 5 years from now, 10 years from now when people are developing high blood pressure and diabetes and you know, some of these other, a lot of hormonal issues because they sort of got the snowball rolling from the fall out of 2020.

And we already came into 2020 stressed out. I mean most of the global population are already kind of stressed, and so 2019 may have been your normal stress and then all of a sudden you throw a pandemic and a virus on top of it and it was really, pretty breaking for a lot of people. Whether it was health wise or financially or family or even just a lot of responsibility. Children are home now. Schools are all online. People are trying to maintain their jobs. They're trying to pay their bills. I mean, they're trying to stay healthy and it's a lot. It's definitely has taken its toll.

Sara Jackson

Yeah, dealing with grief, I mean, and the role of stress and cortisol itself on the immune system that can have big impacts on how we would actually react to the virus if we were to get it and then possibly the reaction with long-COVID and a likelihood to get that as well, right?

Dr. Carrie Jones

Yeah, absolutely. Absolutely. Especially in long-COVID there was a paper that was published, I want to say, I'd have to look it up, but it was in Frontiers of Immunology a couple of months ago, so 2021, and it was, they're a father son duo. Their last name is Vojdani, the Vojdani's. They published a paper looking at COVID and how it affects different tissues now, it was a cell study, it wasn't a human study, but still one of the big tissues, or I should say one of the big areas of the body that it seems COVID can affect is the mitochondria. And the mitochondria, as we know, are cellular powerhouses, we all learnt that in school, with long-COVID, the COVID fatigue is one of the number one symptoms.

And so by affecting down regulating, dialing down, suppressing your mitochondria, you're going to struggle to be a powerhouse, feel like a powerhouse with this long-COVID. So it was a very interesting paper around, hey, the mitochondria, their sensitive little organelles and it's possible with long-COVID mitochondrial evaluation support is something we should really look into.

Sara Jackson

And cortisol is actually synthesized and made in the mitochondria isn't it?

Dr. Carrie Jones

It started and ended in the mitochondria. And not many people realize that. It's funny, people will say where's cortisol made? And I say in the adrenals. Right, I keep it very easy, in the adrenal glands. But when you get to a very microscopic level, right down to the details, it's in the mitochondria that you make cortisol. So, yes, you make ATP, that's why it's called the cellular powerhouse. But it's also where you make your cortisol.

It's also the first step for all your hormone production. So even things like estrogen, testosterone, progesterone, the mitochondria, the first step occurs in there. So men and women who are struggling with hormone issues, besides cortisol, mitochondria could be a reason that they're having issues, they're having symptoms.

Sara Jackson - [00:12:34]

Yeah, and vice versa for a lot of our ME/CFS and our long-COVID community, mitochondrial dysfunction underpins a lot of their symptoms and a lot of the mechanisms and pathways that they're facing. And it makes perfect sense what you're saying.

Dr. Carrie Jones

And they already have mitochondrial issues, right, they're already, just like you said, if they're already struggling with their mitochondria and and then on top of it, were to develop COVID and then have long-COVID, it's sort of a double whammy against the poor little mitochondria.

Sara Jackson

And that's why I guess sometimes in CFS you can get a ramp up of hormonal issues, you know, around the cycle, and a lot of those times can be really problematic for people with ME and CFS. So that makes sense that it all relates back to the mitochondria.

Dr. Carrie Jones

Yes. Yeah. Plus, just making hormones itself, just the mere act of producing a hormone produces reactive oxygen species, which are basically like little fires right, like they're little, they're little molecules of fire. They burn and they can do things and they can cause some damage. And we can't ever turn them off, they're never zero unfortunately. But thankfully the body's smart and has a lot of fire trucks nearby to put the fires out.

But then when the imbalance happens, if you have way too many fires to fire trucks, now we have that long term hormonal issues, fatigue issues, joint pain, connective tissue, muscular pain, brain fog, all these fallout's because you get this imbalance and fires to fire trucks as you are producing, you're trying to produce energy for one and then hormones for two.

And that's just natural in your body, just the act of building a hormone or breathing or exercising or walking out in the sunshine, like you will create these reactive oxygen species. But then on top of it, unfortunately, viruses, viruses create a lot of reactive oxygen species, environmental toxins create mold. All of these compounding outside things can make it worse as well.

And so, I really hope research takes notes of some of these things and goes, oh, there's a lot we can do for our mitochondria. We should support them. We should love them. We should hug them. We should boost them up. We should give them fire trucks.

Sara Jackson

Absolutely. Thinking about that. What would you go to? What are your go to's, to try to support the mitochondria? I know there's lots of supplements and nutrients that we can put in to support the mitochondria. What do you like?

Dr. Carrie Jones

Well, so obviously, the first thing is to address the cause if you can. So if you know what the cause is, if you're working on your mold, if you're working on just your immune system for the virus, if you are reading labels so that your skin care, your shampoo, your cleaning products, all that stuff you're trying to go clean as possible. So once you do that, then my favorite thing are antioxidants. Antioxidants are quite literally your fire trucks, antioxidants, we hear the word all the time.

And the fire molecule itself, the reactive oxygen species is an oxidant. And so we have antioxidants, which are the fire trucks. And so we get these from our colorful fruits and vegetables. That's why we say eat the rainbow all the time, because we pull in that vitamin C, we pull in that vitamin E, we pull in things like manganese and zinc and copper and selenium and your B vitamins. We use the spice like curcumin, which is turmeric. We like our green tea, which has something in it called EGCG. All of these things help combat the fires so that we keep the balance in our favor as opposed to in the favor of any kind of damage.

Sara Jackson - [00:16:23]

Yeah, absolutely. I love that and I love that it's so easy, right? We can all do that. We can all do that same to try to get, we say at the clinic to try to aim for 10 fruit and vegetables, 2 being fruit, 8 being brightly colored rainbow vegetables, as you said. It's easy. We can all do it without spending too much money.

Dr. Carrie Jones

That's right. And I love that because sometimes pushback I get as well, that seems expensive or that seems like a lot of pills, that seems like a lot of supplements. I'm like, well, let's evaluate what put your mouth first. Because if you're having, a lot of people sometimes are very protein heavy or they're following particular dietary plans that have left out a lot of the fruits and vegetables, but they're not doing well in their joint pain, fatigue, brain fog, hormones, what have you. Like, OK, I think we need to introduce, let's just start with some basics, just I love that, just have 8 veggies, 2 fruits and make it colorful. And it's often able to fit in most people's budget.

Sara Jackson

It's a good starting point anyway, isn't it?

Dr. Carrie Jones

Absolutely.

Sara Jackson

So going back to cortisol, is there a way that we can test cortisol?

Dr. Carrie Jones

Yes. Yes. So there are two main ways to test cortisol. Well, that's not true. There are three ways to test cortisol. I'll tell you standard what most sort of GP's do, they'll do a blood draw. They'll check your cortisol in the morning in the blood and they'll tell you, usually they're like, you're fine, everything's fine. The problem with the blood test of cortisol is that cortisol, like all of your hormones, are like children and they can't be unattended at any time.

So your hormones ride around your bloodstream on a bus and the bus is called a binding globulin. And then a very tiny small percentage of your hormones are free and active. They're not on the bus. They're off the bus. And when they're active, that means they can bind to receptors, turn them on, do the things. So when you get your blood drawn, you get a number that's a combination of cortisol with buses and cortisol's off the bus. So if the number is 10, you don't know if that's 9 with buses, which are inactive, and 1 off the bus. Or 9 off the bus and 1 on the bus. So, it's a general number that gives me not much concrete information.

So then what happened is along came saliva testing where you essentially spit into a tube and you could do it at home. It was very easy. It wasn't a blood draw. You could do it four times throughout the day so you would get your rhythm, especially if you have morning fatigue, afternoon fatigue. Why aren't you sleeping? You're going to collect at these key times. So saliva was nice. Saliva lets you

know you're free cortisol, what is free and active. So what's binding to receptors or not.

Then along came urine testing, which is exactly what it sounds like. You will pee on pieces of filter paper, again four times throughout the day, and that gives you a little bit more information. So that will give you, not only your free cortisol, but it will give you cortisone, which is inactive. And the reason I like cortisone is because sometimes the body will favor that hormone in an attempt to get you to slow down, rest and heal.

So sometimes people need to see on paper that the body is going, you know what? We don't need a lot of cortisol. Let's get you to slow down, rest and heal. And as humans, we just push and push and push and hope for the best but our body is trying.

And your urine testing also gives us a total output as well. So I can answer the question, can you even make cortisol in the first place? How much is free and active? And how much is getting deactivated? So it's the sort of three point bigger picture that lets me answer more questions. And so, that's nice, it's also for people who have dry mouth and they struggle to maybe spit into a tube, most everybody knows how to urinate on a piece of paper.

Sara Jackson - [00:20:14]

We can all manage that.

Dr. Carrie Jones

Right. Exactly. And so those are your three options. And so you may say I've already had my cortisol tested, my doctor did a blood test. Just know it's a very generic, superficial snapshot of your cortisol. And I prefer to peel back the layer of the onion and look deeper and see what's going on.

Sara Jackson

I think that's such a nice explanation because we do often have that where some of our patients will have had the testing done with their GP and don't understand why it's necessary to still keep looking deeper if you see that the symptoms match up, you know, it's all about the context of the symptoms too isn't it?

Dr. Carrie Jones

Absolutely, especially if somebody says, I am so tired in the morning, I am so tired, I can hardly get out of bed, but my doctor said my cortisol was normal. And what we may find is that maybe their number was normal in the blood work, but again, because the blood work is a big fat total, when we do a saliva or a urine test, we may find they have hardly any free, hardly any able to go around and activate those receptors and give you some energy.

And so it's like a fake out, like, yes, you make it, but you don't have any free and active, and so if we didn't know that, then you get blown off as normal. Oh you're normal, you're fine, it's totally acceptable. And you're like, no, I feel terrible. Do something about it.

Sara Jackson

And people shouldn't just be turned away. And what's the benefit of doing the four points?

Dr. Carrie Jones

So we can get a whole, we can see the forest through the trees, so I can see what's going on the morning, what's going on a couple hours later, what's going on your afternoon and what's going on before bed. And a lot of testing, if you have insomnia and you wake up in the middle of the night, you can test at that point as well and we can see what your cortisol is doing.
So for people who can really pinpoint, you know, I'm tired here, I'm anxious here, I'm revved up here, I

can't sleep here, then poof, we can test at that time and we can see what's going on. And then we'll know what is your cortisol doing at that exact moment.

Sara Jackson - [00:22:11]

Yeah, and it can be really helpful, can't it, to have that on paper, A, so that someone can see it and realize that, hey, this is a problem. We've got to do something before it gets out of hand.

Dr. Carrie Jones

Absolutely.

Sara Jackson

Also, I think at the moment, so many people that I'm seeing, I don't know what it's like for your clinic, but so many people that we're seeing are just so stressed out they actually can't see that wood for the trees and don't even know, you know, you can't differentiate what's going on. So I think that four points is really useful.

Dr. Carrie Jones

And, you know, the one thing about the pandemic, first of all, I will say that people are stronger and more resilient than they think. And everyone is doing what they have to do and doing their best to pull together and hold it together for themselves, their family, what have you.

And like you said, because that has now become everyone's new normal. Sometimes when you see it on paper, you ask them, how do you feel? Fine. I feel fine. How do you sleep? Fine. How is your energy? Fine. And then you see it on paper. And I'm like, I don't think you're doing that fine. You know, it doesn't look that good. And they're like, you're right, I'm not, I'm not doing well at all.

Sara Jackson

You can normalize it can't you?

Dr. Carrie Jones

And we have to force it. We have to force it otherwise we'll break and we'll fall apart. And so if we actually admit out loud that I'm not doing fine, that can be hard, that can be challenging and I recognize that. And so, that's why I like to do testing to really see, how fine are you? Because people have gotten strong, but it doesn't mean they're not suffering. And so that's why I want to be able to, like really help them. Even when they think they're doing OK. And I'm like, ahh, your body's telling me otherwise. Your body is literally setting up red flags. Let's do something. Let's support you.

Sara Jackson

And so what would that support look like? That's my next question. You get the test results come back, they're a bit horrifying and they don't look like how you've been thinking you've been feeling. What do we do?

Dr. Carrie Jones

So I will tell you the very first thing: it's free, cheap and easy, which is my favorite way to go. But I'll give you a little background. When you make cortisol, you make it at the direction of your brain, like I said earlier. And you have these genes in your brain called clock genes, just like the clock on your wall, the clock on your table. It's the clock in your brain. And the clock genes set your circadian rhythm. It tells you to get up in the morning and it tells you to go down at night.

Now obviously, this is for somebody who's not a shift worker. This is somebody who is up in the day. -

[00:29:30]

So it's set, it has to be set and reset every single day. The clock genes, they do not work on a 24 hour time. They're a little bit longer than 24 hours. Us humans work on 24 hours, but the genes work a little bit longer. So we have to set and reset them every day.

They are set by full spectrum light. They are set by sunshine light in the morning and they are reset by darkness at night. And so notice I didn't say anything crazy. Notice I didn't say like certain herbs, notice I didn't say B vitamins, I didn't say intermittent fasting. What I said was full spectrum light in the morning, darkness at night. So what I advocate that people do right from the get go is when they wake up in the morning, open up their blinds, open up their curtains, step outside for 5 or 10 minutes, get some light into their eyes, real light, open their windows so they actually see the light versus the window can actually block some of the light coming through.

Yes. Even on a gray day, even on a rainy day, like it's raining right now, but it appears just light through my window. Being outside will help generate that cortisol but you have to do it the first, when you wake up in the morning. You want to do it within about the first 30 minutes of waking up.

Now, where I live in the Pacific Northwest is very similar to your weather in London. So I fully understand some people go, well when I wake up in the morning it's dark, like it's still dark out. The cheap way to do it then is to buy a full spectrum light box and they're little boxes, they are called full spectrum lights and you can turn it on in the morning. So I have a full spectrum light box on my kitchen counter. And when I go downstairs in the morning and let my dog out and feed him, I turn my light box on. And people go, well why is that different than my overhead light or my kitchen light? The Lux, L.U.X, is much, much, much brighter. It's mimicking a bright day. So you want that for about 10, 15 minutes in the morning, while you're making tea or getting, whatever. What do I do? I feed my dog, I empty my dishwasher, make my tea, and I have my light box on when it's dark out.

Now, at night you do the complete opposite, at night darkness wins. So you want to wind down at night. That's wind with a D, not wine with an E. So be very careful of your alcohol intake that will affect your sleep patterns. It does affect all of your sleep cycles, your REM sleep, your deep sleep. Unfortunately, it's not great for it. You want to be off of your screen, off of your phones, mindful of TV, e-readers, things like that as you get closer to your bedtime. The brain registers that white light, that blue light as, oh, let's get up and let's get moving. And for some people, it's more sensitive than others. And so they can really struggle to fall asleep or stay asleep.

And then in your bedroom, make sure you're sleeping in darkness. So be mindful of night lights or lights from alarm clocks or if you have your computer in there, your phone, what have you, make sure things are on airplane mode. Make sure little lights on electronics are covered up. Consider a sleep mask to block out the light and then after a while, that light in the morning, that darkness at night, retrains how your cortisol functions and can be just a really great basic starting point.

There are a lot of herbs. There are a lot of supplements. There are a lot of things that do help cortisol, absolutely. But if you don't have the basic, they're not stronger than darkness, they're not stronger than light, they're not stronger than these, than your rhythm. And so if you're listening to this and you're thinking to yourself, yeah, I've been really screwing myself up, like I stay up late, I watch Netflix, I'm watching the murder shows, I'm watching really exciting, thrilling shows. And then I stay up way too late watching the next episode. And then I can't figure out why I can't go to bed. I can tell you why you can't go to bed. Let's go back to the basics.

Now, the other option, of course, the blue light blocking glasses, the glasses that have the orange frames in them. Those can be really helpful, but they are not a get out of jail free card. I definitely have people that still use the blue light blocking glasses, but until they cut out the screens about an hour or so before bed, then they get the best sleep. They feel the best, they sort of rejuvenate the best. The blue light blocking glasses I use and I love, but I know they are like a, like a cheater method and they're not an absolute cheat. If I were to just get off my phone or my TV and my computer, I know I sleep better, deeper, healthier. So, they're great in between, but just know if you're still not getting the benefit you want, you should cut the screens.

Sara Jackson - [00:29:30]

Yeah.

Dr. Carrie Jones

That's the start. That's like my baseline.

Sara Jackson

Fabulous. Anyone can do it, we can all do it no matter where we are in terms of the fatigue, we can all definitely start to work on that. And it's such a symptom of the pandemic I think, boxsets and watching Netflix because, you know, what else have we got? We haven't had anything else.

Dr. Carrie Jones

100 percent. 100 percent. And I tell people, you know, and I'm just as guilty, don't get me wrong, I'm not perfect but I'm aware of it. And in the height of the pandemic, I mean people were just trying to keep their head above water and I'm like, yeah, watch Netflix, do what you need to do to get some normalcy and rhythm in your life. Now that we are in 2021 and we have a much better grasp and grip, it's like, OK, and if you're still struggling, let's really try to dial this back. Do you really need to be on Netflix until midnight? You know, do you really need to be working that late once the kids are asleep? Or maybe if you do need to be working, why don't you wear the blue light blocking glasses, drink a calming tea, start to do some mindful things before bed to relax as opposed to stimulatory, a fight or flight type things.

Sara Jackson

And like the Airflux filters we can put on our computers, the nighttime settings we can put on our phones. I mean, they can make a difference can't they? Again, it's a cheat option isn't it like the blue glasses, but it's something.

Dr. Carrie Jones

Yeah, I have it, my phone, and I could not even begin to tell you how I did it. I had to Google it, when I click a shortcut on my phone, my iPhone, my background turns orange. And so there is a nighttime mode. Yes. Which brings the light down. And I actually switch my background setting. It's like an orangey red and so it's really nice. So if I don't happen to have my blue eye blocking glasses or I've forgotten them, I can just hit the shortcut button and my background switches to a red or an orange versus the normal bright white light that my phone is.

Sara Jackson

And what do you think is the optimal time that we should be turning screens off?

Dr. Carrie Jones

Well so, I hear a mix all the time and I hear ideally there's a researcher out of a Stanford lab and I believe he says ideally 2 hours before bed is what you should do. And I agree with him 2 hours, but as far as logistics and the reality of life, you know, that's not always the case. So if you can go for at least an hour.

So I personally try for at least an hour. I try to be in bed by 10pm and by 9 o'clock I try to be off all electronics and drinking tea, talking to my husband, reading a real book. I don't have an E-reader and so, or a magazine or something, trying to wind myself down that last hour, taking a bath and not on a screen. 2 hours is tough for me. So that's my negotiation. It's an hour.

Sara Jackson - [00:32:27]

Yeah. It's about keeping it realistic as well, isn't it?

Dr. Carrie Jones

Yes.

Sara Jackson

And thinking about anything else that we might be able to do, I mean, already changing that cortisol rhythm is going to have an effect on your mood isn't it? That's going to help reduce anxiety, perhaps help reduce depressive symptoms. Getting that deeper sleep is going to have a massive impact on probably everything, isn't it?

Dr. Carrie Jones

It does. And with cortisol, so in the morning, we have what's called a cortisol awakening response. It's in the first 30 minutes of waking 30 to 45 minutes when you open your eyes and light comes in and you register that you're awake now, you're no longer asleep, your brain does this, you make a massive amount of cortisol very quickly. It's normal. You're supposed to.

Again it's to get your backside out of bed, get you moving, switch you to an alert state, give you a little bit of glucose because you've been fasting all night. Lower your inflammation. That's what it does. And so I tell people, if you feel like in the morning, you're dragging, like this is my standard question, how long does it take you to feel alert and awake in the morning?

Sara Jackson

Without coffee?

Dr. Carrie Jones

No, just in general. Just in general, because people will say, oh, about 2 hours and two cups of coffee. So normally you should feel alert and awake in about 30 to 45 minutes without coffee. But most people can't do that. Or people will say, oh my gosh, I'm alert and awake within 5 minutes because of their anxiety or panic. So if you tend to go one way or the other, I can't wake up, I'm not alert, I need caffeine, I drag. Or I'm the opposite, immediately I'm hyper vigilant, I'm anxious, I'm panicky. Then your cortisol awakening response is not healthy, I should say.

So what I tell people is if you're the tired type, if you are tired, dragging, need caffeine, whatever you do in the morning, if you have been prescribed supplements or herbs, nutrients, what have you, do it within the first 30 to 45 minutes of waking. Let's try to train your brain that we get up in the morning and we are alert, which is why I said do light right on waking within the first 30 minutes.

So even if you're so tired, like the thought of maybe going for a walk is just not an option, or doing a little exercise in your family room or doing some stretching is just not happening, at least open your window, open your door and get some get some natural light into you in that first 30 minutes.

If you've been prescribed supplements for the morning time, then a lot of people will wait till they shower, have breakfast, handle the kids, do the dog, and then they'll take their supplements. I'm like, I need you to reverse that. I need you to take the supplements that you can take within the first 30 to 45 minutes of waking. Let's remind the brain and the adrenals in the morning we wake up, in the morning we wake up. That's what we're going for. We've got about a 30 to 45 minute window to really help enhance that. So we know that, let's work with it.

Sara Jackson - [00:35:25]

Yeah. Sorry Carrie. Does it matter what time you're waking up? I mean if you're waking up at 6am, you do it within half an hour, you're waking up at 9am, even sometimes people with stage one ME/CFS might be waking up at 11am or 12pm. You still do the same thing don't you?

Dr. Carrie Jones

Still the same. Yep, absolutely. Still do the same thing because it's their normal wake up time and it's their cortisol awakening response. Yep, absolutely.

Sara Jackson

And how long does it normally take before you get to kick start your natural cortisol rhythm?

Dr. Carrie Jones

On average, with the anecdotal feedback I get from people is it takes a couple of weeks. And so, I've had people within the short of a week say, oh my gosh, it's made a huge difference, I'm getting some light every single morning, I started taking my dog for a walk or I started doing 10 minutes of yoga in the morning, just light stretching just to get myself moving. And that has made a huge difference.

Just like I've had people if you're the anxious, panic, hyper vigilant type, whatever you do, do your calming stuff, do your breathing exercises, do your meditation, do your journaling, do that within the first 30 to 45 minutes.

If you've been prescribed calming supplements, nutrients and herbs, do it within the first 30 to 45 minutes with the blessing of your practitioner, because again, we're trying to remind the system in those people, in the morning I'm calm, in the morning I'm calm, in the morning I'm calm. I don't need to be anxious, panicked and hyper vigilant. And it doesn't matter if you wake up at 6am, 9am or 11am, it's your normal. So let's just work with it.

Sara Jackson

I love that. And it can be so easy to just retrain the body to do what it knows how to do. It's just flicked out of that switch.

Dr. Carrie Jones

Because we are rhythmic creatures, right? So men and women have a circadian rhythm, so up in the morning, down at night. And then, women, because of their ovaries and uterus, we are a monthly as well, we have other cycles that we work with as well. And so by getting in tune with our cycles, whether your, doesn't matter which gender, what gender you are to be honest, as long as you're working with the day and night cycle, that can help all the other cycles, your when you feel hungry cycle, your feeding cycle. Like I said, your sleep cycle, for those who still have a menstrual cycle, it can help with that as well.

And I've had so many women report back to me, and you probably as well because of the pandemic, my periods are weird, I skipped a month, I'm early, it's heavy, my PMS is terrible, like what happened? I'm like, a pandemic happened.

Sara Jackson

Yes. And we're not going to know for a while I think, all of these nuances and all of the effects that it's having on so many of those pathways. But it's crazy. Yeah, I have heard that from lots of people that, menstrual changes. And do you think that's related to the cortisol and stress response?

Dr. Carrie Jones - [00:38:12]

Yes, absolutely. Because remember, for women, whether you want to be pregnant or not, your brain is constantly surveying to make sure you are safe enough and healthy enough to carry a baby. I don't want to carry a baby, not interested in carrying a baby, last year or this year. But I know my brain because of the pandemic was like, oh, this is not a good time. This is not necessarily, you're not in a safe or healthy situation. And so I had two months where my cycle, one it was early and then the next month was late, I'm like, come on now. This isn't cool. But I was also under a lot of stress and my brain was just like, avert, divert, divert.

There are plenty of women who became pregnant in the pandemic. Absolutely. Their brain was surveying. It was like, nope, we're good. You're handling this. It's fine despite the outside world. And lots of other women who it absolutely affected their cycle because all that cortisol and all that adrenaline can be deemed as, there's a threat and therefore maybe not a great idea to grow a baby if there is a threat.

Sara Jackson

You're in that fight or flight state, aren't you?

Dr. Carrie Jones

100 percent. 100 percent. And so our cycles get thrown off.

Sara Jackson

Yeah, I love that. So just to recap, so, for somebody that is feeling that really strong effect of cortisol dysregulation, we go and test where you can, then you can correct it, you can really be precise about which times of the day you're going to put in some of these lifestyle interventions. Always remembering within 30, 35 minutes in front of the light box, sitting outside getting the sun. I can just see we're all going to be getting those light boxes because in the U.K. you can't really rely on much sun.

Dr. Carrie Jones

That's true. Where I live too in Portland, Oregon similar weather. At a conference, at lot of conferences, when we used to have conferences, I would say this to the crowd, I would say, so tomorrow morning every single one of you better be outside for 5 or 10 minutes. Or you better open your hotel window if it opens or at least open your blinds, at least open your blinds and get some light in. And people, even in just a couple of conference days, they're like, wow, it actually made a really big difference. I felt happier. I felt a little more energetic. I felt ready to go. Yeah, it's funny how the sun can do that.

Sara Jackson

Exactly. And it's a good idea then to bring in your point about journaling, because that can help you, note down when you're doing that and how you feel after a week of getting that 5/10 minutes of sunshine each morning. Yeah, it's very important.

Fabulous. Thank you so much. So I know our audience are going to want to find out much more about you and your work. How is the best way that they can do that?

Dr. Carrie Jones

I will be honest. I hang out a lot on Instagram. So I am @dr.carriejones. Everything on my Instagram is all just education around predominantly female hormones, so estrogen, progesterone and the menstrual cycle and cortisol. I do quite a bit a lot about cortisol. I just did a big thing about mitochondria. I don't try to sell you anything. I just want to educate and empower so that you can take the reins of health in your hands and then be proactive.

Sara Jackson

We've loved your work for such a long time. We're grateful for you coming on today to participate in the OHC Super Fatigue Conference. Thank you so much for your time today Dr. Carrie Jones.

Dr. Carrie Jones

Thank you so much for having me. I really appreciate it.