Introduction to Jason Carroll and the summit

Welcome to this episode of the Reverse Alzheimer's Summit. I'm so excited to have Jason Carroll here today. He's a good friend of mine and also a health educator, practitioner, author and filmmaker.

In 2018, his independent research and experience as a practitioner led him to create the Human Longevity Project, which I'm a huge fan of. It's a nine part film series that uncovers the true nature of chronic disease in our modern world.

His currently working on his next film, a series that explores ancient methods of healing, mind, body and soul from indigenous cultures around the world and his recently released his bestselling new book titled Beyond Longevity A Proven Plan for Healing Faster, Feeling Better and Thriving at Any Age.

You can see why I am excited to introduce you to him here today. Thanks for joining us. Oh, thanks for having me. Good to be here. So today we want to dove into connecting sleep and brain health and what happens in Alzheimer's and talk a bit about the pathophysiology and what's going on there.

But before we do that, I really want people to understand, like your depth of expertize in all of this through your work on the Human Longevity Project.

So you traveled around the world and really collected stories and delve deep into what helps people live healthy, long lives. What did you learn? Yeah, I mean, it was a fascinating project.

Lessons from the Human Longevity Project

It was an interesting exploration in the sense that I've never been I've traveled all around the world. I've done a lot of vacationing and really curious about other cultures, but I've never dove into these cultures that are kind of isolated in these pockets right.

And I've never really understood what their life was like. You know, 70, 80 years ago. And so that was a fascinating realization to hear, you know, in 1960, Ikaria, Greece, you know, they didn't have electricity in these little villages.

Right. So they were living this lifestyle. This is the sixties, right? So to. Know. Exactly. And so, you know, we have we have parents or grandparents that were that are from that era.

And these were people that were living their childhood or even in adulthood without electricity for most of their life. That means no refrigeration. That means no of course, no lighting, no electronics.

They were truly operating in in the way that we have for thousands of years. Right. So a lot of times we we think about diet and what should we be doing and what should we be eating?

And we we go back to these sort of Paleolithic times or what were people eating a thousand years ago, and we don't need to go back that far. Like we can go back into our recent history and even places right now around the world, there's people living like this. Right.

So it's it's really interesting to kind of, as best you can, put yourself in the shoes of those people, what their life were like in that environment, in those conditions.

Right. So they're they were living in a way that sort of nature dictated. Right? We've largely isolated and created conditions in our Western world that has created circumstances that is both really, really beneficial.

Right. Like we we are not subject to feast and famine in a large to a large degree. We have ambient temperatures. We can isolate ourselves from, you know, extreme cold and extreme hot.

And and we have luxuries and conveniences that I mean, thank God we do. And at the same time, what's really fascinating is that we are now faced with challenges that the people that I spoke with in Korea and Sardinia, in Okinawa, you know, 50 years ago, they didn't have to face right.

When we walked into a grocery store today, we have to actively say no to this cereal and those organic sweet bars over there and all the trappings that go along with that.

Right. So it's not only the taste trappings which we are familiar with, the sweetness and the crunchiness and the saltiness and the fatty mist that our brain just loves. Right?

Like we are wired to sort of for those tastes in those crunchies, but also the colors and the slick marketing. So we have to actually navigate a world that is a little bit trickier.

Whereas people that I spoke with, you know, they didn't have the luxury that we have, but they also didn't have to contend with all these things that we do in the modern world.

So it's a very fascinating dichotomy to experience that almost directly. It sounds like one of the themes is this decision making fatigue. Right. Is and like you mentioned, the extra work of saying no to things that we're programed to want and we're going to talk a lot about like.

But what comes up for me immediately is like that decision to scroll on your phone until 2 a.m. or check email one more time before going to bed or stay up and watch the entire series and binge on the entire thing.

Right? So we're wired to kind of want those dopamine hits. And so it's this active decision to get to bed on time and to not be exposed to blue light.

So I want to go into all of those details. And you traveled all around the world. So what are some of that like? Can you give us the top five things that you saw that were consistent across these blue zones?

Yeah. So one of the most consistent things that we saw was and then we heard about was the sense of community and connection. Right. So it's actually not the community itself, it's the things that the community provides.

But community provides connection, its ability to feel connected to others as well as safety. So when you have the feeling of safety and connection and security in that well, in that realm, then the community is really beneficial.

We have community today and you can actually feel totally disconnected from a community that you were supposedly a part of. Right. And you don't feel any safety or security or connection.

So it is is those distinguishing factors that that really make a difference. So that sort of connection in community is huge. Another big part is that they they they lived by the seasons and by the daylight.

And we'll get into some of this. This is really ties into circadian rhythm. So they operated seasonally both with what they ate and how they behaved and what they did.

And everything was guided by the seasons and by the day. So the rhythms of nature were their their clocks, so to speak. Right? They don't have deadlines and alarm clocks and things like we have today.

So they operated in a different pace of life. I would say another big thing is that they constantly moved, right. So this was they were they had to do this right.

And none of them exercised. None of them did yoga. None of them did breath work. None of them did the things that we're valuing in our society today. And it doesn't make them bad.

But their whole life was movement, right? So they got up and they were immediately working in the in the farm, in the garden with the animals as shepherds, whatever the case was.

But their whole life was moving. And this didn't stop, you know, when they were in their eighties, nineties and beyond, you know, and that 105 year old Julio in in Sardinia, who's still riding his bike.

Right. So this idea, especially as we get older, we talk about Alzheimer's and dementia and these this this neurodegeneration, it the movement is a huge, huge factor in this.

So we need to keep moving after retirement age. And that means more than just going out in and golfing or what have you. It is constantly engaging the body and as much as we can, it doesn't have to be, you know, high intensity interval training.

It just means that walking and moving and lifting and twisting and all the ways that our body can move, continue that as much as possible. Right. We're fortunate to have things like yoga and and tai chi and qigong and pilates and all these sort of new ways that we can move that are really conducive to elderly populations when we get in our 50, 60, 7080s.

Movement, stairs, and staying active with age

This is really, really good stuff. Right? So keeping the body moving is critical. And I said last one is fundamentally without getting into the weeds too much, eating a a whole foods diet that is hopefully organic is possible.

So for them, everything was organic. There wasn't a not organic. Right. And a lot of plants. Right. So that doesn't mean don't eat meat, doesn't mean you should eat meat.

It just means a lot of plant food, a lot of plant matter that is organic. So I think those are really, really huge factors. And if we can do those things throughout most of our life, we're going to stand a really good chance to avoid these sort of this diseases that are associated with getting older.

I just got back from Costa Rica, which was in one of the blue zones on the coast there, and I remembered it somewhere in the back of my mind. One of the things about blue jeans is that there's a lot of stairs and so the thigh muscles, they stay really strong.

And as you mentioned, it's not because people are signing up for a class and like getting their 200 minutes a week of exercise. But because it's just ingrained in their day to day life, they've got to go up and down a lot of stairs.

And I think this is true in Sardinia, too. It can. Can you confirm or deny in my on the right track there. Yeah, totally. I mean, it's it's the stairs for sure.

So they climbed and look, there's actually a funny photo online you can find. It's like it's like an escalator going up into the 24 hour fitness, right.

Like this in my 24 hour fitness that I go to here, there's an elevator, right? And I look, there's this is for good reasons, right? We have handicapped disability or disabled kind of situations that require this.

And yet it's a good example and it shows us that, you know, we might find and try to find the closest parking spot to the gym so that we don't have to walk too far before we go work out.

Right. This is our mindset that we have to kind of bring awareness to and hopefully be conditioned a little bit. Right. So the idea of walking a little bit extra into the grocery store, walking a little bit extra to your house, walking to the bus stop.

Now, we see this a lot in places like New York or in Europe. A lot, right. It's it's more geared toward walking. Right. So it's interesting how we've set up our environment out here in the West such that it is really car driven.

It is based on a having a car and driving everywhere. So it's partially a result of our environment in the way that we've set things up. But whenever we can, it's about moving.

And so they were they they were moving, they were lifting. They they were forced to do difficult things on on the day to day because it was part of their life.

And so it's it's hard to separate it from that. Like you talk to them and they literally would say, we don't do leisure. That's not a thing as kids they do.

But when you get into like, you know, can adolescence and beyond leisure wasn't a thing. It was just part of their day to day work. Everything was a grind.

And that's fascinating because a lot of people, as they approach in the Western world, as we approach retirement, we think, oh, we're going to kick our feet up, watch TV, they have cocktails and happy hour and eat whatever we want because we've worked hard and we deserve it.

And yet then what happens is that slippery slope. And we we get the aging that we sort of expect now in the Western world. Is that as you don't use it, you lose it.

So whether that's not cognitive function, you're not really you're not doing anything challenging, not physically or mentally. And so you your body just kind of shuts down in these ways.

And so really fascinating how as people age, they think of aging in place and they want single storey you know that stairs nothing where I might fall or trip or nothing that's going to I don't want to have to lift anything over my head because it might fall on me.

I might lose my strength. But if you kind of set your life up to have that life of leisure, then you're not going to have the ability to engage in the things that keep us healthy. Yeah.

And the reality is, as far as I can tell, there's no way around this. We're all going to degenerate like we all get older. Like that is the process of that that is associated with life.

However it can look differently, right? So again, I mentioned 105 year old who's who's a capable of riding a bike that means balance right leg is vestibular function has to be really good.

Right. He has to have enough muscularity to hold himself into pedal. Right. So and yet he was he wasn't his former self. Right. So so it's just a matter of can we maintain some capacity and and there's there's a lot of research to looks at.

Walking backwards is one of the most beneficial things to preserve the leg strength, the knee strength, right. And so these things walking up stairs, walking backwards, balancing exercise is like unbelievable for for maintaining that neuromuscular coordination.

Right? So that is a big part of it. It's not about building muscle per se, although we do know that maintaining some muscle mass and that and avoiding that sarcopenia is really, really critical for avoiding falls and and protecting the joints and bones and everything and hormonal balance.

And it's more than that, right? It's the neuromuscular adaptations that that we maintain or lose when we start changing our day to day operation. Right.

So can we move in multiple, multiple directions? Walking is probably the most beneficial thing that we can do. And the people that I spoke with, they walked 30, 40 kilometers a day when they were adults.

I mean, that is unbelievable, Miles. Yes. I mean, yeah, I mean, and some of them would walk, you know, 15, 20 miles just to go to get milk or to get fish or do whatever the kid cheese, you know, whatever the case was,

depending on their situation, because they didn't have everything at the tip of their fingers.

So this was a different lifestyle. And so it's not about trying to mimic that. It's about understanding the conditions that they were sort of forced to be in and how we can apply that wisdom to our modern life and keep things moving.

So again, the movement of the body has tremendous neuroprotective effects. Right. And we know this with Alzheimer's and dementia, Parkinson's, ALS. I mean, all the neurodegenerative conditions really, really respond well to a life of movement.

Amazing. Okay. Well, if you're not inspired to exercise yet, I don't know what's going to save you.

Why sleep and circadian rhythm matter for brain health

So let's go into sleep. Well, maybe this actually right. So many people get caught in that. I'm so tired and I don't have time to exercise. And part of that can be because they're not getting great sleep.

So it's like where to start sometimes sleep and prioritizing sleep, getting that circadian rhythm balanced, that is a phenomenal place to start because then you get that energy for your day.

So what did you learn about circadian rhythm chronobiology? The best sleep for brain health? Well, I mean, this is something we actually all have intimate familiarity with. Right.

And I'm going to go back to a recent story of mine. I've got a three year old now, but he didn't sleep much for the first year of life. He was all over the place.

Now, in that first year of life, it's to be expected. And we worked with it. But my sleep is horrible. Right. And so there's interesting things here because I know all about circadian rhythm and sleep and the benefits and the detriments and all these things.

And yet because I was waking up, because my circadian rhythm in my sleep was dysfunctional during that year, year and a half, all of my habits changed, right?

So I started eating more foods, more sugary, more sweet, more processed foods, even though I knew better meat. So the fact that I was I was not sleeping as good impact in my decision making impacted my judgment, impacted my willpower, impacted everything about what I will be doing the next day.

So and when I'm more tired, I don't feel like working out. And in fact, it may not even be that good of an idea because my nervous system balance may not be able to support a really heavy or intense workout.

Right? So when we don't sleep well, then everything about our day suffers our mood, our decision making, our food choices, our exercise habits. Everything starts to suffer, right?

And then as our habits suffer because of this chronic sort of sleep deprivation or poor sleep, now our habits get ingrained. So now I'm more likely to eat this certain crappy food.

And then as that habit develops, it actually becomes it sort of fortifies itself in my day to day, right? And the not exercising starts to fortify itself.

So now I'm living in this certain way that becomes my lifestyle that is very, very difficult to change. And the ability for your willpower to overcome that is very challenging, right?

So the lack of sleep itself causes a huge downstream effect when it comes to your habits, your decision making, your feelings, everything that you're doing.

But then there's a there's a different part of this as well, and that's circadian rhythm. And so this idea of circadian

rhythm is intimately tied to sleep, but it is very, very different in and of itself.

So everybody's familiar with circadian rhythms if they if they've traveled across time zones, right. So if you skipped three time zones or five time zones, we call it jetlag.

But essentially, you're body is on Pacific Time and now usually your physiology is on your activity time, but your physical body is in Eastern Time zone.

Right. And so now you're you're the solar cycle that you're in is actually different than what your body is expecting. So that's the easiest way I can describe what circadian rhythm is, but it's essentially your body has predictive programing.

It's anticipating when the sun is coming up and when the sun is going down and it's going to it's going to determine all of its functions based on that, that timing.

So we are guided by the light, right. And so when you when you experience jetlag, it's usually pretty bad at first. And then over a few days you start to normalize that your body actually acclimating to the change in the solar in the light cycle.

So when the light cycle starts to shift, the body has adaptive capacity to now change its function based on that. So what am I talking about? I'm talking about not only sleep, right, not only the melatonin rhythm that you might measure on it, on a certain test or your cortisol rhythm.

Right. We know that those cortisol is high, is supposed to peak in the morning and then decline throughout the day and be really low at about 9 p.m.. 10 p.m.

is kind of when it's lowest and then it starts to peak back up again during the night and it wakes you up in the morning. The melatonin is the opposite, right?

So melatonin is going to start to peak right around 11, midnight or so, maybe one, and then it starts to decline. So those are the two primary sort of sleep hormones that we track.

But there is everything is affected. Right. So what happens is as the light comes into the eye and the light, the eye is actually capable of detecting the different frequencies.

Right? So at night when you were during the day, it's very bright. We have blue light, green light, UV light. We have all the short spectrum and long spectrum, light, orange, red, yellow, red, the whole colors of the rainbow are coming through the atmosphere during the day.

Then, as the sun starts to set, we actually only see the orange and red and yellow spectrum come through. Right? That's why it's not as bright we can actually, if the sun's really low toward the horizon, we can actually look at it directly and have no impact on our eyes.

In fact, it's actually a practice that's been done for thousands of years, sun gazing, and it does have some benefits. But all the other spectrums the green, the blue, the purple, the UV are reflected back into space.

Right. So this is why you don't get a sunburn at 6 p.m., right. During most of the year. So so all those are reflected back into space and our eye is detecting the changes in this light in our skin to some degree as well.

So our eyes then transfer that information, that light information, through an electrical signal to the the super charismatic nucleus. Right. So this is this this this bundle of nerve cells that essentially acts as the master clock of our body and brain.

So now it's detecting what time of day this, and then it's passing that information to the hypothalamus, to the pituitary, to the pineal gland, to a lot of different parts of the brain.

And then of course, their transmitting that information to the rest of the body. So if we're if if the pituitary gland is functioning based off of that time, then that means all the hormones that are that are regulated throughout the body, through all the different organ systems, are being tamed by the pituitary, by the super charismatic nucleus, and by the light.

Now, what's even more fascinating, it's not just the hormones that are guided by this, but every cell in the body has clock genes. And this is what's so wild.

And in 2017, there was a Nobel Prize awarded to the mechanism three three gentlemen from I think both of us from the US studying these mechanisms, the cellular mechanism of of chronobiology, of our biology to function based on the timing.

And so this is a tremendous discovery at the cellular level that we have these clock genes, period genes, BMR, and they are gating and controlling function at the cellular level.

So this means cellular metabolism, this means detoxification, this means are you burning fat or you adding that all of the things that you can think of down into the bone cells, every cell of your body has these clock genes.

So they all need to know what time it is essentially. And based on what time it is, they're going to do certain things right. And this is how we get the expression of cortisol rhythms, melatonin rhythms, testosterone rhythms, right.

Prolactin. I mean, you name it all these things have these rhythms throughout the body. Your digestion is peaking during the day. You have really strong digestion and it's weaker at 9 p.m., right?

You have a greater ability to metabolize sugars. You have different insulin sensitivities during parts of the day. So everything is guided by this. So why does this matter?

This means that everything is is dependent on this master regulator known as circadian rhythm. And if your circadian rhythm is dysregulated, everything starts to fall apart essentially, right?

Not only does it impact cellular function directly, your information goes up. Poor blood flow to the brain starts to occur. When you're when your circadian rhythms disrupted, you have less melatonin like it doesn't peak as high and it doesn't stay on as long.

There's there's not as much area under the curb, so to speak. You have insulin dysregulation, metabolic dysfunction. You have poor, poor lymphatic clearance rates.

And we talk about Alzheimer's, dementia, right. The buildup of tau proteins, beta amyloid. We're unable to clear that through the combat system because we're not sleeping well, because the circadian rhythm is off.

I think a lot of people don't realize that we all make beta amyloid plaques, but there are studies that show if you don't get good sleep, if you if you're jetlagged or if you stay up all night partying or something happens that disrupts your sleep.

Even if you're in your twenties, thirties, forties, you have an accumulation of amyloid plaques in the morning. Significa an accumulation compared to the day before.

And so if you don't give your body that opportunity to that lymphatic system to flush that out at night, you over time are going to put yourself at risk for Alzheimer's.

And we see this that there's a correlation of between sleep deprivation in our thirties, forties, fifties, and an increased risk of Alzheimer's later in life.

So sleep is of the utmost importance. And it's so nice to hear you sort of describing the nuts and bolts of how that's working at a cellular level. Yeah, if we're having this excess inflammation, right?

I mean, the body's always ebbing and flowing, right? These buildup of things generally during the day, it's essentially the day is a destructive time for our bodies.

Like everything breaks down. It's just a complete mess. We need. To stimulate. That good. And that's how we engage with the world. Right? And then ideally, we go to sleep, we shut down and the body goes, okay, this human's finally resting.

Let's go ahead and clean things up. Right. We're going to take out the trash. The maid comes in right and starts to clean up the house. So this is what we need.

And this build up, it really is very much like the operation of living in a house, right? So you make a mess during the day, then you wipe your counters, you clean the dishes, you put things into the trash bins.

Right. And eventually the trash bins need to be taken out. Right. If you don't take out the trash bins are you can shove them in the closet for a while, right.

You can shove them under the bed. You can, you can put them around your house and hide them. And then eventually it will build up too much and then it will start affecting the rest of the household.

You'll start to smell. You'll have infections, right? You'll start getting and this is exactly what happens at the cellular level as well as in the interstitial space right throughout the body and the lymphatic system is the primary sort of waste clearance system, which affects the brain to it.

We call it the glimpse attic system, but it's essentially the same thing. It's the ability to take out this metabolic waste, this activity that builds up in the cellular level.

And we flushed that out in our data. They call it asthma. Right. It's just this buildup of gunk is a natural result of living, of cellular metabolism.

Fortunately, we have mechanisms to clear that out, to wash that out, to flush it out. But if those systems get backed up, if they don't get what they need, then they start breaking down. Right.

And then then we get the buildup of this, the tau proteins of the of the beta amyloid. And again, I don't think those are bad things. I do think they're sort of protective in their own right.

How light, timing, and temperature shape sleep

And then until they become accumulative and the body is unable to communicate at that, at that level, neuroinflammation rates and we get in this sort of vicious cycle.

So we need to clear that stuff out. The body will build it up again. We cleared out. So this is a natural process, right. But if our circadian rhythm is not on point, in other words, we put it this way you can be sleeping 9 hours a day, but if you're sleeping those 9 hours at the wrong time of day, if you aware of your swing shift, if you're working nights now, we have a problem.

So it's not about the amount of time per se is are you timing it with the with the light cycle and so we should be sleeping roughly 10 p.m. to at least 4 a.m.

like that is the crucial window. And again, that's going to vary depending on your latitude. So if you are living in Sweden or you living in Costa Rica, those are very different situations and they have different seasonality to them.

So it is going to vary depending on seasons and location. But generally speaking, that sort of 10 p.m. to 4 a.m. window is the critical window. So even if we're in our thirties or twenties, you know, a lot of times we stay up past 10 p.m.

because we're young, we're youthful, we are for vitality, we're social that is causing damage, that is creating the conditions to set us up for Alzheimer's, dementia, autoimmune conditions, cancers, all the things that we might think of in the sort of the disease realm.

It is this sort of lack of good sleep during the right times of day that create the conditions in the body that then have manifest in what we might might term as a disease.

Right. So it is a really complex mechanism, but circadian rhythm is the thing that governs all the function in the body. I love that visual that you shared about the house, right?

We can all relate to that. But if the trash doesn't get taken out, it builds up and it creates a pathology. Eventually. And so we need this opportunity to do that.

So I'm sure that our listeners are convinced that they need better sleep. What's the first step? Or and I also I kind of think of you as a tech guy. So like, do you use a tracker?

Do you have a tracker that you recommend? Is there a healthy way to interact with the tech around this? Or are you like no wi fi off every night? What's what are your opinions here?

I mean, the aura ring is probably my favorite piece of tech overall, to be honest. I think I think wearables and tech can get you into a little bit hot water sometimes.

Some of them aren't that healthy. And and sometimes we're monitoring things that aren't really about most important and something like the aura ring. And I wish I got pitched.

I always get paid to pitch this, but but the work is fantastic. It measures heart rate variability. So that is your your nervous system, your autonomic nervous system balance.

In other words, can you get into good parasympathetic tone, which is your rest and digest? And if you are on that early phase of dementia or Alzheimer's or you're worried about it, let's say you're you live 40 years recklessly and you're like, oh, my God, I didn't know.

Now you can use something like that to track your autonomic balance. And are you able to get into good regenerative capacity? It's fantastic tool for that.

It also tracks your sleep and it gives you are you in deep sleep? Are you in are you getting a REM sleep? Are you getting light sleep or you waking up?

So it tracks that throughout the night and just simple rate, very easy to wear. Probably like my set, my fave. I don't own a lot of devices. That is probably my favorite device that you can use and it gives you a lot of information about the most fundamental aspects of healing, which is sleep, right?

This is the most critical piece of our of our healing journey. So that is part of my favorite healing. And it tracks exercise or movement as well. Right.

Steps at least. Yeah. And the interaction between. Right. So this is what's important. You know, bodybuilders know this or people who are intense exercisers and you know, athletes know this, that you actually don't want to have a vigorous workout unless you get really good sleep.

So and what they call it in in the morning is your readiness score, right? So is your nervous system ready to handle a heavy workout? So athletes, they want to workout hard, but if they're nervous systems not ready, then not that hard work out that they can do will just cause more damage.

When we're the same way, and especially if we have a chronic disease or illness, then our nervous system is actually going to be, I say, less ready for intense exercise.

But the idea with exercise is the most beneficial thing you can do is go as intense as possible for you as long as your nervous system is is capable. Right.

So that may only be walking and that's fine, but you're going to get the most benefits by sort of reaching that hermetic stress response. Like just enough of a stressor to allow the body to adapt so long as it has the repair and the regenerative capacity and the resource to respond.

Great. And then there are people where this isn't right for them. Right. I have had patients where, you know, they're so attached to that readiness score or like how much sleep they got last night and then kind of stuck in their head.

And so we want to use it as a tool that supportive, not as something that where we start to hyper focused on achieving over. So that relationship with it.

This is the achievement personality type that gets locked into that totally. And the best way I think you can use that is to learn from it right? So at first you just checking.

Oh, that's interesting. Why is my sleep really bad? I thought I got really good sleep. And then maybe next time before bed you try meditating, right? Or you try this like red light therapy or you try going into a sauna or you try reading a book or taking a bath.

You try something and then you see your sleep. And then you say, That didn't work. Well, maybe I need to black out my curtains a little bit, make the room darker.

And the idea is, I almost want you to slow down, like, okay, what are the but are these things that you would do? I have a patient. This is a great example.

He has a sleep tracker and wasn't getting great sleep. You know, really prioritized it because he had the experience that I think all of us have. It's like you don't get enough sleep and your brain doesn't work. The next day.

He's a you know, an executive tech executive needs his sleep. And so he was setting aside like 10 hours to get enough sleep because he wasn't getting good sleep, changed his mattress and his sleep scores changed profoundly.

It was the biggest shift in his sleep in years, despite him trying a lot of things that you had just listed. So, you know, this is that opportunity, right, is to get that feedback, to know what's really impacting your sleep and okay, tell us everything.

Go through the list. If you don't feel like you're getting your good sleep, where do you start? What do you do? Yeah, and this is actually a big problem with with dementia and Alzheimer's patients.

Is that because of the neuroinflammation in the condition that they're in, actually disrupts the circadian neurons? So so this is part of the reason why they're actually not getting good sleep.

It's because the brain degeneration. So this is a this is a this is an intimate relationship. We have the circadian rhythm, light and Alzheimer's. Right. And one affects the other.

So we can reverse things from both ends. So I'm going to start there's a lot of things that affect sleep, right? So I probably can't name them all, but I'm going to name the most important that is that is almost always overlooked, which is the most important aspect to getting good sleep at night is getting light during the day, particularly in the morning.

So it has to do with circadian timing. So again, our body is always reading and responding to the environmental cues. So when you get up in the morning, assuming that the sun has risen, but essentially once the sun's risen and you're up, you want to get 20 to 30 minutes outside and your light you're the light is going to enter your eyes and your body's going to say, Ah, it's morning.

Cool. We know we're going to mark this as morning. Right. Sun's up now turn on all these functions. Now, it may not happen right away because it takes time for your body to adapt.

Just like if you were to cross time zones and you're halfway around the world, 12 hours difference. It's going to take you probably two weeks for your body to to get back on function.

So same thing in in your modern day is it if you're if your body's off rhythm, then it's going to take a couple of days, a couple of weeks perhaps to get you back into optimal function.

But go outside the first thing in the morning, go for a ten or 15 minute walk, even if it's cloudy, even if it's dark, even if it's raining, the light it filters through the clouds.

It's such an intensity that your body will pick it up, your your eyes will pick it up and your body knows. Now, if you can get light during the day, that's even better, too.

So this is this has to do with peak melatonin. So the peak cortisol will rise because of the light and also your your brain will essentially program the timing such that you will make more melatonin at night and you will make it at the right times.

So one of the big issues with sleep latency, the ability to fall asleep, how long it takes us, was going to take you 5 minutes to take you. 45 minutes has to do with that melatonin peak.

So are you able to make good, strong, high melatonin peak and maintain that throughout the night? The daylight is the most important factor when it comes to your ability to make melatonin at night and your ability for for cortisol to drop.

So we want to see really sharp, nice curves if we were to do testing. And usually what we find is things are flat, they're kind of dull. So we don't get a good cortisol peak in the morning, we don't get a good melatonin peak at night, or sometimes we even see flip flop.

We see melatonin starting to rise at like 4 p.m.. Right? And then it's or it starts to rise at 1 a.m., it's just a mess. It can be all over the place or it can be double humps.

I mean, it can really get chaotic. So getting good light signaling during the day is the number one thing. And almost everybody forgets that. Another huge factor exercise, I'm going to go back to this.

But that part of the reason and the reason coffee is effective sort of keeping us from sleeping is because of the adenosine receptor. So the caffeine attaches to that adenosine receptor and blocks it.

We want adenosine to go into that receptor and that helps us fall asleep. So caffeine doesn't actually give you energy. It sure kicks on cortisol and adrenaline, but it also blocks adenosine preventing you from sleeping.

So if you have trouble sleeping at night, either cut out coffee, cut it down, way down, and limit your intake before, say, noon. So that'll help a lot.

And then if you exercise, you're actually getting more Dennison in the system that'll attach to the adenosine receptors and help us sleep. So if you have a really good workout kind of mid-afternoon, you'll fall asleep pretty well at night, you know?

But you don't want to exercise too late either, right? So again, you see what I'm pointing to. It's all timing. If you're exercising at 9 p.m. and you're eating your your post-exercise meal at 930 or whatever, this is a disaster for for hormonal fluctuations and the ability to fall asleep, leptin, ghrelin, all these sort of neuropeptide Y.

There's various hormones that start to shift and that are really important for sleep. So we want to exercise during the day. We want to eat our biggest meals during the day.

We want to get good light signaling during the day and then at night we want the opposite, right? We want to slow things down. We want to not eat a huge meal at 7 p.m.

and I have been on the East Coast enough and it's that's what they do. They go out to dinner at eight or 9 p.m., eat massive meals, and then it's a super active city.

So we double click on that because like Italy, right? People eat later in the evening, but there's still a blue zone there. So what's with the disconnect well?

So there's a big difference in Italy and Sardinia. Right. So Sardinia is that is is the island. And even in the island of Sardinia, Cagliari is the is the main city.

They're not a blue zone. They are not particularly healthy. But you go up into the mountains where there's hardly any street lighting, where they're walking all day, where at night, you know, they're basically going to bed when the sun goes down because there's not much else to do.

Right. Very different lifestyles there. But some of the habits are the same, right? So they take a siesta. So that is beneficial. So they might have a 45 minute or hour rest during the 1:00, 2:00 when the sun is the highest.

They they rest metabolize their food. So they may push their sleep a little bit later, but they get up as well. So it's very different. Hard to say. There's a lot of factors with all of this.

But when it comes to trying to restore somebody's good sleep. Right, and getting good sleep scores and seeing good deep sleep and good REM sleep, these are the factors that we really want to stick to.

And as we get into that sort of 9 p.m. range, we don't want food. No, no eating food. After about 7:38 p.m. is ideal. You want your body to fully digest, so it's not taking its energy to digest the food again.

Your neural your hormones will start to regulate better. And then at night everything has to do with slowing down relaxing. You don't want to be thinking a bunch watching TV, the blue light, the green light from the TVs, from the computer screens and the phones from the iPads.

This is all impacting again through through the optic chasm to the suprachiasmatic nucleus. Those light signals are telling your brain it's morning, it's morning when really it's 930.

Right now, they're not as strong as what's coming from the sun, but they're still there. Right. There's still more than what you would get from a fire or candle.

Worse or the stars or the moon or sunset. Right. So think about what nature's doing. And this is what we find when you take people, insomniacs out into nature and you basically have them go camping for three weeks.

They're no longer insomniacs, right? Like it's so crazy. The stimulus and the the light and the temperature. Right. So this is another big one. Temperature regulation, our natural body temperature starts to dip.

Our core body temp, our brain temperature starts to dip at early in the night. And it actually fluctuates during sleep. Right. Brain temperature starts to fluctuate.

It's really bizarre how all that works. But nevertheless, we want a colder room during during sleep. Right. So when you even even really cold is better than hot, your body will adapt to that cold temperature a lot better than if it's like 75 or above.

Your body's going to struggle to get to to reduce its temperature and induce sleep. So cold temperatures at night really, really effective. Is there a general temperature?

Because like I've I've woken up in the middle of the night because my feet are freezing. Right. And it's like

disrupting my sleep because it's too cold.

And then also woken up because it's the middle of summer and it's I'm sweating. Right? It's too hot. So if I'm looking to optimize the temperature in my room for sleep, like, where do you start?

Like 68 or like. Good question. It's individualized, right? So so your sleep tracker, you get your ring or your watch. But just the idea is pay attention to temperature.

And so sometimes it can even be something like the temperatures. Generally speaking, 65 is about right for most people.

Practical sleep optimization and blue zone habits

68 I was a mechanical engineer in my day and we we had to deal with temperatures inside buildings and typically 68 to 71 is your typical indoor temperature during the day.

At night, you want it to be about 65 to 68, somewhere in that range. Some people like it colder. But the other thing you can do is you can have overhead bands that can change the dynamics, but ultimately just pay attention to temperature and and and you don't want to be too hot.

That is the primary issue that most people have. I mean, I slept in the Himalayas at 14,000 feet, whereas and there was like holes in the wall. So like we were inside a sleeping bag with like multiple layers on and like snow jackets and gloves and everything.

It was so cold, my nose was freezing. But yeah, I slept like a baby. So, you know, it's really interesting what happens in with regard to temperature, whereas I've also been in Costa Rica and other really, really hot places, basically sleeping with nothing on on top of the covers and had a horrible time sleeping, right.

So so temperature plays a big role and it's because of the circadian rhythm. And then, you know, other things you can look at Wi-Fi, Bluetooth, some of these sort of EMF signals.

And the way that that really works is that it impacts the calcium channels, the voltage gated calcium channels in in various cells. And so that's going to that impact is going to influence melatonin production.

So are you producing enough melatonin? You know, they've even looked at in some of the status lights, even some some lighting in the room that you might see from alarm clocks or whatever else you might have in your room.

This we are super, super sensitive to some of these lights. They will they will put some of these lights on somebody's skin and they'll detect neural changes.

Brainwave patterns shift just light on your on your arm. So if you need to for kids or as people age and, they're getting up to pee in the middle of the night, would you recommend having like a red light or a different an orange kind of make sure it doesn't have it's not an led with like a lot of blue.

It's not a really bright nightlight. You got it. Yeah, exactly. And it can even be somewhat bright as long as it's in that red range that, that the red is the ideal.

And so we have four for my three year old as well. So when he wakes up and gets, you know, he's not sure what to do, he can see. Right. But that red light is is ideal for not impacting sleep as much.

And can you sleep with a little bit of red light on this? I've actually heard somebody suggest that that was beneficial when I was under the impression that you want complete darkness.

Typically, it's a good question. You know, I think about historically, what would we have seen? We probably would have seen fires, you know, sleeping by the fire.

Right. So cold night, little bit of warmth, a little bit of noise, a little bit of fire. Right. So probably throughout human history, we've we've experienced that quite a bit so we're probably fairly adapted to that type of a setting.

So I don't think it would be that that problematic. That said, you know, darkness is a is is our friend when it comes to sleep. Right. And so so if you're going to do light, make sure it's as I would say, as deep red as you can get.

That's that's the best way to do it. But but it's it's all pretty intuitive if you just kind of slow down and think about what is it that that really happens?

And again, this is why I'm pointing to circadian rhythm. If you understand circadian rhythm and sort of either Vedic Chinese medicine, even the most fundamental way of thinking about it, you already understand about jetlag.

You already understand that digestion and exercise is probably going to be better during the day. You may not know exactly when, but certainly better during the day than at 9 p.m..

Right. You know that it's not natural to be looking at screens, bright screens and bright lights and overhead lights at night because just look outside, right.

We already understand some of these things. If we're having a very big, difficult to digest meal like ice cream, which is literally my favorite. But if we have that at 8 p.m.

or 9 p.m., it's not ideal. The body has to take so much energy to metabolize, digest, process, store, all that food that it can't do what it wants to do at 9 p.m.

or 10 p.m., which is clean up, right? Which is take out the trash, which is clear the system out. It's having to do other things. So we have limited resource in our bodies to do the functions that we need to do.

And that sort of ten to midnight window is absolutely critical for taking out the trash, for cleaning things up, for restoring function, for making new mitochondria, for all the things that we really, really want.

That window really matters. So if we can just start to flow with this rhythm and what's cool is that without getting too deep into this, that this circadian rhythm actually changes based on the seasons, right?

So during the summer, in most places, we have a longer summer unless you're directly on the equator, you know, the days during the summer longer. So our body day by day as the light cycle starts to shift slowly, slowly.

So usually a minute or two at a time. Are bodies picking that up, our eyes going, Oh, okay, okay. It's different today. It's different today. These little micro changes, that is why we are so attuned to the light, is because we can actually track the seasons in our biology down to your kidneys cells and spleen cells are they know what time of day it is so long as you're getting up and you're going outside during the day and you're getting good shut down, slow down darkness at night.

But most of us stay in our little boxes with just enough ambient light to sort of kind of be like day. But you can light up a room and it's not nearly the same lux or same intensity of light as if you just go stand outside on a cloudy day.

So it's not the same with the spectrum of light that we get from the sun is very balanced. There's a lot of UV, there's a lot of infrared and everything in between.

If you look at the light spectrum of some of these light, I mean, there's like there's zero UV, there's hardly there's like a spike of blue and then there's the random spikes of frequencies.

It's not this big balanced spectrum of like a rainbow. It's like these weird spikes. It's totally artificial. And your biology understands this. Your mind may not, but your biology down to the every cell understands this difference.

Or doesn't understand this. Right, exactly. It's trying to adapt. Yeah. So it's like that extra effort. That's right. Yeah, I

got Jason. This is so exciting.

And there's I mean, we've barely scratched the surface of what you've learned about health and longevity. So I want people to know where they can find out more about what you've learned.

Yeah, of course. Well, first, if they're interested in my new book, they can go to Beyond Longevity Book Tor.com, where you can find out more about that.

And we have some really nice policies actually that go along with that for for your listeners and also they can go to awaken Health Academy dot com that's where I have a bulk of my work as well as the Human Longevity Project docu series.

And we get into all kinds of really important factors that we just didn't have time to get in today, you know, but this idea that mitochondria play a huge role in brain health, right?

Neurodegeneration and the avoidance of Alzheimer's, dementia microbiota and the communication between those two. Right. Which is why the gut brain connection is so critical.

And again, circadian rhythm affects all of these things as well. So we explore all these complex topics, but and we get into the deep science, we really do.

So if you're a nerd and you like the deep science, then we got you covered. But more importantly, it's about making everything practical right. How do we how do we get this to the point where we can apply these very simple lifestyle habits throughout our day and we don't need to know the science, you know?

And that's the thing. When I walk around the world and talk to these people from Okinawa and in Costa Rica and in Sardinia, they understood the big life lessons.

They understood what we were doing wrong in the West. They understood what they were doing right and what their ancestors and and heritage and culture taught them and why they do that.

Resources, burnout support, and closing remarks

But they didn't know the mechanisms, so they couldn't talk to you about mitochondria microbiota interaction and why, you know, producing short chain fatty acids is so beneficial.

They don't care. They know what to do, right? So that really is really the most factor. And I think if we don't get down to that level, then we're just kind of playing in this sort of science world and not really getting it down to the ground level where it really makes a difference.

If we're on our computer scrolling to learn about how to live this healthy lifestyle, but it's two and then we're not going to work and it's kind of defeating the purpose totally.

Also just because I saw you recently and we were chatting, I know that you have some other really fun, exciting projects that you're kind of moving towards.

And we have a lot of health care providers who listen to the summit and show up. So can we share a little bit about your offerings for people suffering with burnout?

Yeah, of course. Yes, we've got a new retreat that we're doing in Costa Rica and the demand is actually very high. So I'll I'll give you a link. And hopefully by the time this comes out, we we still have availability.

But the idea here is that there's there's a lot of doctors that have gone into their field have done extremely well. Right. They've they've made money.

They've done the best they can to help you. But they're stuck in a system that no longer feels congruent with where they're at. And I have so much compassion for those people because I was one of those people.

I was just doing it in the engineering field and I was stuck and I felt like I needed a way out, which isn't to say that I was doing anything wrong. I just didn't feel like I was living in a way that was in alignment with my soul and what I was here to do.

And so I know there's a ton of doctors and practitioners of all kinds that are looking for a different way to do business. And so I partnered with Dr.

Chang, Ron, who is a brilliant businessman first. I mean, he's a doctor, but he actually helps doctors find a new way to practice. Right. Heather, you're doing this.

There's so many doctors that have found a way to do this, but it's not necessarily easy when you're coming from the traditional system and figuring out, okay, I do have to learn how to do business in a totally different way.

How do I start that? But there's actually a really cool thing. You can build insurance companies in totally new ways now, so we can actually stay in kind of the old paradigm and use it in a new way that is a little bit more integrative, that is a little bit more therapeutic, that allows the doctor to be in touch with their patients and actually work with them instead of just, you know, rushing them out the door and be caught in this sort of system.

So so that's really what we're we're doctor on and I are doing helping doctors to find a new way to practice what they love to do, a new way to help people and a new way to feel like they're contributing to the health of their patients and their clients without getting so burned out and caught in the system.

Yeah, getting that congruence back. I have so many friends who are kind of in that spot and I. I just so appreciate what you guys are doing to, to make that available for people.

And I'm sure that the first one, if there's not space of the first one, I can't imagine you guys want to do another one because it's sounds like it's going to be it's a really, really wonderful, amazing offering.

Yeah, we've actually got we've actually got we were going to do one and we may do back to back because the demand is so high. So it's not a surprise. Back to back weeks.

And so because of that, we're hopefully you could have planned another one in December or January of of summer of 2023 or January 2024. So that's day.

We're going to be doing this going forward because it's so, so beneficial. So, so valuable. Well, thank you for sharing and thank you for being here and taking the time.

I know you're busy and got lots going on and so it's just really valuable and wonderful to have you here. I'm so grateful. Thanks for having me. Heather.