How Sleep And Breathing Impact ADD/ADHD & What You Can Do Transcript

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Introduction and Personal Motivation

Hi everyone and welcome back to the summit. I am very excited to talk with Chang Ron, who is a board certified internal medicine physician and a pioneering expert in brain health with a particular focus on ADHD and cognitive optimization.

He is the founder and CEO of the Texas Center for Lifestyle Medicine, and integrates cutting edge functional medicine approaches with conventional practices.

So thank you so much for being here. Thanks so much. Thank you so much for having me. I appreciate you having me on. This is a topic that's near and dear to my heart.

So maybe tell me a little bit more about that. I know, you know, we're going to talk about sleep and breathing and A. D. D. and ADHD, but maybe we can go back a little bit and you can talk more about why this is personal for you.

It's personal because I have an attention, I have A. D. D., so, and, and I think that we have to reframe the definition and looking at this through a bit of a different lens.

So my background is looking at quantitative EEG models. They're basically brain scans and brain maps. And this has been historically used in psychiatry.

I'm not a psychiatrist of internal medicine. So I look at on the medical side, what could be causing this. And one of the things that we've figured out is that at the root of a lot of ADHD and ADHD is as his sleep disorder.

So when we compare the daytime, brain maps or the nighttime brain maps that they do in sleep neurologist offices, we sort of had moments and we had publications on this even as recently as 2024, at the American sleep Societies.

And we're looking at brand new ways of reclassifying, inattention and ADHD and ADHD, which I'm super excited to, talk about. But also, I have two daughters, ten year old, one that's nine year old and one that is three years old.

ADHD, Sleep, and Brain Mapping

So, definitely I can see the effects of inattention on at least two of them. Similar to daddy, but I don't want it to be seen as just like a disorder.

I want it to be seen as something that actually can allow their creativity to come through and kind of reframe that. So that's why it's super personal to me.

So I love that. I think that's exactly the way that we should be looking at it. And and you know, for me, you know, whether we're talking about Add, ADHD or, you know, autism or all sorts of different conditions, I think there are many different triggers and many different causes and many different, routes to this.

And, and I think that it's so important that we do, you know, reframe it. And I'm interested to hear, you know, what you think about that, because I personally feel like there's so many different things that are going on and for, for different kids, there might be different triggers, different reasons.

And certainly something like sleep probably is a huge factor. Why wouldn't it be? Right. And so I think that makes a lot of sense. But so what what are you seeing, you know, in adolescence in terms of, of, you know, patients and what are you seeing and what, what maybe we not know about ADHD.

So my journey really started by looking at posts because of injury. I was an advisor to the NFL former Players Association looking at post concussive inattention.

And we were looking at visual reaction times, auditory reaction times, post-concussion. And we noticed that the people who had the worst outcomes were the ones with sleep apnea, usually undiagnosed.

Right. And now pediatric sleep apnea is heavily undiagnosed and underdiagnosed as well. And that's when the, the child actually pauses and breathing at certain times, of the night.

And that causes the body's physiology to change from hormones to the vagus nerve and different neurological inputs to change. And what we're seeing is that that causes something called nighttime arrhythmias, where the heart rate actually changes because of the lack of breath.

In these kids. So during the daytime, what we're seeing is inattention. So there's a biomarker that we see in EEG models called a theta to beta ratio.

And a high theta to beta ratio is an EEG biomarker of steady. Now what is the state of the beta ratio? The theta waves are basically waves in the brain, or the brain is sleepy and the beta waves are when the brain is focused on awake.

So the so the electrical definition of biomarker of ADHD is when the, the ratio of the theta waves to sleepy waves are more than the awake waves. We call it a sleepy brain phenomenon.

So for pediatric neurologists, most of ADHD, ADHD, you have to rule out an underlying sleep disorder. Prior to making a diagnosis of ADHD, ADHD, because that could be the actual origin.

And so when we look at this biomarker, we're seeing other things as well. So it's not just sleep apnea that causes this, but a lot of inflammatory foods can cause the same issues.

But the most the biggest thing is the screen time. The iPads. Right. And all those difficult parents I know, I know it sounds difficult, but we know that more exposure to this pixelated light, the eyes, as the brain's receiving those signals.

It's cutting off the regulation of melatonin in the evening time. The melatonin allows the brain to rest, allows the stem cells to proliferate, allows the growth hormones to be produced for the child and for adults to actually it's for both.

So that the brain is able to develop. Now in the elderly, we call this mild cognitive impairment dementia, Alzheimer's and adults. We're calling this an attention aide.

Airway, Bite, and Pediatric Treatment

And now even mental health disorders such as bipolar disorder is a huge component of inability to get into the deep sleep function. Interesting. Okay. So the are you finding that a lot of families, you know, with children with ADHD, if they go through and they do EEGs or they work with somebody who will actually do sleep studies, they can find some sort of issue and then they can correct that.

And then you will see the symptoms. And, you know, obviously not the only thing, but are you finding that that's something where it is really worthwhile for a parent, if they've never done that work up to do it first and then, or even if they if they have, they have the diagnosis, but they never did that workup.

Should they do that to see if maybe that's actually what's going on? Yeah, actually that is the case. So what happens is that when you treat underlying sleep disorder, all of a sudden their attention actually improves.

And it's not as simple as it's treating it. And things get better. There's a lot more to it. So what we know is that if

there's pediatric sleep apnea or sleep apnea, which basically means, pausing and breathing, but not as much as that means do.

Or if there's grinding and bruxism that we see, or if the facial development is, is, impaired so that the teeth are coming out overlapping on top of each other, there's not enough real estate, if you will, for the teeth.

Then what happens then is the palate remains narrow, and as the palate remains narrow, their ability for their teeth to come together becomes impaired.

And so this causes an impaired bite. Now, here's the thing. All mammals have this mechanism called the TCR or the trigeminal reflex, where the trigeminal nerve that goes to the maxilla, which is the upper jaw, there's different branches in here.

And these branches are sensing how, how, strong the bite is. If the bite is not meaning together, it's not as strong, then what happens is that the nerve receives a level signal to this area of the brain called the hypothalamus.

And what it does is it shuts off the activity of the vagus nerve. And the vagus nerve is job is to activate the parasympathetic the rest and digest system, the child.

So we see this in a lot of like pediatric bloating and constipation and sleep disruption and bedwetting. You see a lot of that there, right now. Granted, I don't see children under 13, but I do see the adolescents and they have a history of these that we're actually picking up.

Right. So we work with a pediatric neurologist and pediatric oral and airway specialists here in Houston to, to work on these patients. And that's actually part of our protocol to try to eliminate the stimulant medications that they're on, or try to at least reduce the dosing over time, and especially if these medicines aren't necessarily working as you was, we restore the actual bite and restore the ability for the, the airway to become improved.

And that could be a palate expanders. Both my two older kids have pillow expanders. As as we're making more real estate for the teeth to come down instead of pulling the teeth, what happens is the bite forms.

All of a sudden the vagus nerve can kick in, and then the brain can actually focus into what's called the low alpha mode. The low alpha is a brain frequency.

When the brain is remaining nice and calm, cool collected instead of going all the way into theta mode, which is the sleepy brain phenomenon that we see on these quantitative EEGs.

So amazingly, whenever we see the electrical signals improve after either dental work or some sort of appliance to be done, we're seeing that they're symptomatic association of improvement.

And so a lot of the research has been done really over the last two years, have seen in attention as been the primary biomarker of sleep disruption. And so often I ask parents this or I well, I see adolescents last less anxious.

Hey, did you ever have to get a lot of teeth removed if you did, at what age was it? When did you have to have braces? Was it under by overbite? Was there any bite impairment?

If that's the case, that's a big clue as to what's been really going on with inattention. The other part of this is that some kids have perfect bites, but their faces are naturally small.

All right. Naturally narrow. And we see this in a lot of, kids with hereditary syndromes. One of them is called Ehlers-Danlos syndrome, where everyone's face is more narrow, the sinuses are more narrow.

Now, the sinuses, which is right above the teeth, are responsible for making 85% of the body's nitric oxide, which is a gas that's needed for carbon dioxide, oxygen exchange in the brain and everywhere else in the body.

Well, nitric oxide drops. The attention also drops as well.

Posture, Breathing, and Vagus Nerve

So it's not just a teeth thing, it's a whole skull formation thing where the sinuses are actually affected as well. So it's like it's total body experience if you will.

Yeah. Know, it's so interesting because I feel like just in the last couple of years because I have an integrative practice and I see the little kids being probably before they get to you.

And I feel like the ones that go to more integrative dentists, I'm seeing a lot more expanders and discussions around that. So I mean, that's really interesting to hear because it is new, right?

There's not a lot of it's not new, but it's I guess more and more, of interest in the last couple of years. But do we have long term data on doing a lot of this, you know, expansion teeth work and seeing that that really does drop, like ADHD diagnosis in the long run or these kind of things.

I mean, it's pretty it's fairly new. But where where are we in terms of what we know long term? I think my facility probably has the only long term data, but we're continuing to collect, because our data started in 2019, which is not even long term data.

Right. But we're seeing short term data. And now because on the our medicine, we measure other things like depression, anxiety scores. Now with we're we're a technology practice.

So we have I actually analyzing vernacular. So the way the kids speak, whether they're stuttering, whether there's word choices, they actually become quite different.

The clarity is actually better. And the AI is actually going to be analyzing all of this over time. And we're looking at new AI based analyzes of humans, whether it's kids and adults, to look at neuro cognition and how they actually perform.

I think there's a lot of long term data, looking at improve airway and improving the caliber of the airway in association with symptoms like elimination of like bedwetting, for example.

That's the lot of data that's on that with expanders. Right. And so now I'm not a dentist, internal medicine doctor, I do rely on indigenous friends to help me look at these things, but.

Well, here's what I do know. From our focus within the practice looks at how they're eating on their diet, looking at how they do in school, their grades, their relationship with their parents, and relationship with other kids that are around two and relationship within the generations in the family, grandpa, etc., etc.

so we hyper focus on relationship building and it's not surprising that whenever we look at a lot of people with impaired airways, then we're seeing that as they get treated, these relationships actually improve, over time.

And I do think that speaks volumes into how we're really helping with, with the families, because at the end of the day, relationship is, is what matters the most.

Yeah. And what about posture? Because I feel like, you know, we're we're on our computer, so. Well, I mean, maybe phones even more so, like, looking down at your phones and how is that?

Do you think that's true? I mean, probably I would say yes, it's contributing to this as well, but how is that playing in to all these airway issues? So your teeth and jaw and airway determines your posture.

So a lot of kids have this for her posture I have a two because I have sleep apnea where the entire head comes forward and you're placing a lot of pressure on the cervical spine, which is the next part.

So what happens then is that your posture is more forward, your chin is talk more back. You're actually impinging not just on the airways, but all the structures in the neck.

There's a lot of really important structures in the neck that determine human functionality. And so the connective tissue across their body for the fascia, the fascia with them, the head and neck is extraordinarily important for every bodily function.

I'll give the example. So if the head is, if you have more for head posture or if your spine is more rotated forward, what's happening is that your body is compensating.

It's by trying to enlarge your upper airway. But you're fast just holding your head back. So a lot of people get headaches. A lot of people get, TMJ issues.

A lot of people get, floaters in the eyes. Blurry vision. And that's usually with adolescents, kids less so because they don't really notice it. Now with a lot of kids, they'll just be really hyper at between one, two, 3 p.m.

and just kind of crash later on. Right? And so that's sort of their manifestation of what's really going on. So the the forward head posture is a big deal because you're putting a lot of strain on the neck.

The other problem is if you have forehead posture, your post, your scalene, which is the muscle muscle towards the back, and you're sort of called a mastoid, which is your neck muscle in the front, are putting so much force and anchor to keep the spine straight, it actually tugs your ribs and your clavicle upwards, and it prevents you from taking a deep breath.

And so what happens is, is that the diaphragm, what's right above the diaphragm is the diaphragm cannot depress lower. And therefore the ability to take a full breath is significantly impaired.

So, you know, I have this this concept that that modern technology, especially with the technique and stuff like it, is really stealing our breath away literally is because our volume of breath per breath at rest is significantly depleted whenever the posture is really impaired.

Reframing ADHD as a Strength

Now, most people think head and neck posture and the think neck pain and back pain. Actually, one of the first signs is foot pain. All right. So the plants are fascia upon or fasciitis on the very bottom is your foot planting anchor on the bottom to try to compensate for the entire forehead posture.

So your body becomes like a C. And at the top of the C in the bottom of the C, you become anchored into the fascia. And that creates a lot of these pains.

So the it does present as foot pain. Ankle pain sometimes first even before head and neck pain and stuff like that. But that's something to really look out for. Interesting.

And so do you recommend to your patients like breathwork and things like that. At home like, well, how do how do we start working on this? Yeah. So at Texas Center for lifestyle most and we actually work with people through breathwork strategies.

So breathwork is really important because you get to practice diaphragmatic breathing. So you soften your belly, open up your belly when you take a deep breath to allow it to be really nice and soft.

And you're not like, raising your chest for deep breath, and you're simply lowering your diaphragm by expanding the belly as much as you can. And we start simply with things such as box breathing.

So inhale for four seconds or for four seconds. Exhale for four seconds will hold for four seconds. If you try to do this at a slumped over posture versus a posture where you're nice and upright, you'll realize that there's a huge

difference in the way you actually box breathing, which is a nice analysis of what your neutral posture actually looks like.

Even beyond that, there's a lot of different strategies with breathwork. Breathwork can get you really, really far and breathwork and not only can get you far, but you can actually, prevent a lot of inattention issues with specific types of breathwork that gets your brain feeding back to the vagus nerve is actually active, so you can get your brain into what's called a low alpha frequency.

And a low alpha frequency called the hypnotic frequency is basically where you can absorb information. So it's almost like a self-hypnosis or breathwork, and you're actually absorbing information from homework and teachers and stuff like that.

That's great. And just to finish off, you know, I know we started by talking about A. D. D. and ADHD and kind of reframing that I know you, you think of it as a as a superpower.

And you really, you know, we're trying to promote it in a positive way, which I think is great. I think that you know, of course, symptoms can be very difficult for some kids.

That can be very difficult for some families. But I think that when we we talk about it, it's so important to talk about in this way, because I do think that reframing it and working through it can make it, a positive instead of a negative.

And I think that's super important to talk about. So I would love to just kind of hear your perspective on that. You need to finish up. Yeah. This is a bit controversial, Joe, because, I think that all diseases can potentially be superpowers, not just, you know, A. D. D.

and ADHD, from autoimmune disease to even memory loss and dementia. So when I say superpower, what I mean is that our body has gifted us the ability to create something that's outside norm, and we can either try to cover it up.

All right. So drugs, entomology and stuff like that, we can try to discover what is that the root of what's going on. Because is the body creating something that gives us a message.

So oftentimes we have adolescents with inattention come in and we diagnose them. And they ask, do you have opinions and they have inferior syndrome. And then we can say that this is hereditary.

All of a sudden three generations up. Everyone has it as well. And grandma, who's in a nursing home suffering from dementia and memory loss, is having urinary issues.

Well, when grandma was being treated for the same airway issues, cognition in the elderly actually becomes improved as well. So it's not just a child.

So we're affecting what's called generational bloodlines. So I do feel like in all of medicine we really have to kind of reframe the way that we look at diseases and disorders as something that tells us something about our generational patterns, because at the end of the day is, is the ability for us to heal as a human civilization based on patterns.

Absolutely. And we tend to kind of ignore it and just kind of take medicines and kind of push through. But I think we have to stop and take a look at the big picture.

So I do feel that in attention, ADHD, and even autism is part of this. Let's take a bigger attention to focus into the environment. Is there mold in a house right?

Are we living in a situation where the factory is polluted outside, or we live in a situation where there is, improper food? Right. A lot of, you know, processed foods and MSG, etc., etc..

So it guess it gets us to answer some of the bigger question of is what we're doing right now in our family, is that really serving us, and is it affecting our generational bloodline?

Yeah, no, I think that's a beautiful message to end on and I couldn't agree more. I think that most of the things that we're seeing are showing us that something's going on and we're not taking that message.

And just like you said, we're shoving a medication at something which sometimes medicines can help for sure. But we're not looking into the root cause.

We're not focus on on these things. And we are not helping ourselves and our kids to function as resiliently and optimally as they could, because we're trying to put them in a box as opposed to figuring out what is going on.

And I think that it's amazing what you're doing. I think it's such a great message and it's so, so needed. And we need a million of you. So I think that it's really, really helpful to see that.

And I do think it will be very helpful to parents, because I think that the first step is just even being aware that there is there are other things out there that could be triggering it.

And once you start down that path, once you start thinking about things like what you mentioned, you know, may not be sleep, may have nothing to do with sleep for your child, but the fact that you start thinking outside of, well, here's a medicine, that's the problem.

Maybe it's food, maybe it's air, maybe it's mobile, maybe. Maybe it is sleep, you know?

Resources, Training, and Closing

And once you get down that path, you can start to figure some stuff out and help your kid to be as resilient as possible, which is what we want. Yeah, at the end of the day, it really is about building resilience.

But the other thing is that at the end of the day, is that the parent child relationship has to be one of trust, right? If no one likes dragging a kid to different places, right?

Well, like working together for that unified trust because of the kids, after a while, kids get really scared of doctors, right? For sure. And they get doctor fatigue also.

And I think that, we don't want to create that imbalance. We want to create that, that relationship balance that's there. And the other part is, if kids don't feel like they actually have a problem, then it's a lot harder.

Right. So but we have to define what a problem may actually be you know. And so you have to relate it to the children as well, especially if they're old enough to really understand what they really want.

And honestly a lot of them just want to play Roblox all day. Totally. Right. Maybe you can get them to play Roblox a little better, you know, a little more.

Yeah. Or you can say, hey, what is the root reason they're playing Roblox? Oh, you hang out with their friends that live far away. Hey, maybe let's do a monthly meetup with their friends and, decrease the screen time over time to right.

Love that way that we create this unity in this cohort of the wolf tentacle. Right. And so we're kind of going back to basics of like physically hanging out with each other and not look at Roblox all day.

Yeah. I love it. And can you tell people where to find you if they want to work with you or for all of you? Yeah. So Texas Center for Lifestyle Medicine, y'all.

Google that. We're all over the internet. If you're interested about a lot of things that I say, I am very loud on this

topic. So my Instagram, YouTube, Facebook is my name's Shane Ryan and Angie.

Are you an MD? You can find me on there, as well, from a medical practice, we pretty much take most insurances. We're not a concierge practice or cash practice.

We, we like to be within the insurance network. And for, for our brain mappings that we do for, adding ADHD. We do that. We're the only ones that do it and are specific way to looking at brain frequencies.

For US disorders, there's also other psychiatric disorders. So it's something I'm super passionate about. That's awesome. Well you can everyone should definitely look you up, follow you.

And, certainly if you are looking to, you know, get a good workup done then then I think you're a great place to start, start learning and maybe take a trip out to Texas. I don't know.

And for, by the way, for healthcare professionals, listening to this, we're teaching institution. So, my nonprofit is the Physician Transformation Institute.

We actually raise funds for, physicians who are neurodivergent and like myself and, physicians who actually are suffering from depression and mental health challenges to offer anonymous mental health services.

But our nonprofit physician transformation institute, it's open for all health care professionals. But we are we do have know, online courses on this.

We have an entire Irwin ADHD course. That's 11 hours of a bunch of experts who are always smarter than me. That's on here as well. So if anyone's who's interested, who are health professionals, we want to take a deep, deep, deep dive into this.

We have that, the physician transformation sitcom as well. That's awesome. Everybody check that out. You're pretty smart. So it sounds like it'd be pretty intelligent.

Then, since you're pretty smart guy. I try to get the oral surgeons and the pediatric neurology, and we try to get, a lot of people talking together with each other.

Because at the end of the day, I think conversations like this, like being you have to be had. And I think the public really has to be aware that there's a lot more than just medications that are out there, and there's nothing wrong with medications.

I'm all about it. But don't stop looking. Keep up. Yeah. I couldn't agree more. Well, thank you for for doing this. And thank you for being part of this.

And everyone will see you in the next episode. Thank you.