**Clara Cohen:** My guest today is not a TCM practitioner. He is a functional medicine, chiropractic medicine and naturopathic medicine board certified doctor the States in Michigan. And boy, boy, are you're gonna love this episode. I learned a lot. He gave a masterclass on a subject that we haven't talked enough in Chinese medicine, which is scoliosis.

We see patients with scoliosis. I have seen patients with scoliosis, and you'll hear that I was one of those patients, 'cause I did have scoliosis as a child. So we discussed this as well. We talked about posture, we talked about supplements. We talked about gut health, brain health. We talked about the entire body because.

According to Dr. Mark Morningstar, when we look at scoliosis, he looks at it exactly like Chinese medicine, looks at the person he treats the entire body, including hormonal shifts, diet, everything that affects the body stress genomes. Everything that is part of the entire whole system within the body is what can contribute to the scoliosis.

So it's going back a few steps to try to figure out, okay, how we're gonna manage, treat, resolve, do everything we can to help people with scoliosis. So I love his way of looking at a disorder from a perspective of whole entire body. You gonna love this? You ready? Let's go.

Welcome to AcuPro, A show dedicated to making Chinese medicine and acupuncture. Easy to grasp and fun to learn. Hi, I am your host, Clara Cohen. I support practitioners and students and like you in changing the world one patient at a time. My goal is to share my passion for TCM and empower you to achieve superior patient care.

I love to showcase the amazing benefits of acupuncture because after all, acupuncture rocks.

**Clara Cohen:** Welcome to the AcuPro Show, Doctor Mark Morningstar. First of all, I have to say I love your name. It makes me happy because Morningstar, how positive is that?

**Mark Morningstar:** Thank you. Thank you very much. I do from time to time on my last name, so you're not the first, but yes, thank you very much.

**Clara Cohen:** So Mark, we don't know each other yet, and so I'm excited to learn from you and to really ask you a lot of questions. So we're gonna talk about scoliosis 'cause there's something that you're really passionate about. But

before we do, you are in Michigan, so you're on the East coast for me and. You are one of the rare people that have a board certified degree in chiropractic medicine, in functional medicine, and in naturopathic medicine.

You blow me away. I'm like, what? So explain how that happened.

**Mark Morningstar:** I suppose the back story, no pun intended. I went to chiropractic school in Davenport, Iowa to Palmer College. And when I came back to Michigan to practice 25 years ago or so the scope of practice here in Michigan for chiropractors was very restricted to the point quite literally where chiropractors here weren't actually even technically allowed to take somebody's blood pressure.

And. For me, having been trained in a much broader scope than that I started to just try to, look at other backgrounds, look at other ways where I could help patients. And eventually, the nice thing in my situation is my wife trained as an OBGYN, and while she was in her residency.

She came and started moonlighting in my practice, which then allowed me to sort of

order a lot of testing and do a lot of other functional medicine kinds of therapies that I wouldn't have been able to do by myself if I were in solo practice. From there the interest in it really blew up from there because as a chiropractor, frankly, as any healthcare provider, if you're really interested in helping the person in front of you to the fullest extent possible, you come to quickly realize that you have to be able to offer a lot more than just adjusting their back or neck.

You order to help, I suppose the analogy I always use with my patients is you can't build a house with just a hammer. You have to have a lot of tools in your tool bag, and there's more than one way to build a house. Some contractors, some builders prefer certain tools over others to accomplish the same endpoints.

And as long as you're trained on a variety of tools, to me, the better clinicians out there, regardless of what you know, primary degree they hold, the better clinicians are always the one that are much more broadly trained and have much broader backgrounds that they can draw from a lot of things.

Because I could line up, 10 people in my office right now who all have the exact same symptom and probably all 10 of them will require different

treatments to some extent. To help the same symptoms. And that just, that speaks to how awesome and how terrible the human body is at the same time.

that's my approach. And of course having been in practice with my wife for this kind of time. A I have to keep up with the Joneses because my wife is also involved in integrative medicine and she's an osteopathic physician. It's one of those where I'm already working twice as hard to be half as good as my wife a thing.

But it's just, you can help so many more things and help so many more complex issues with integrative and functional medicine strategies than you can with just, certain musculoskeletal things in isolation. And so that's what really what attracted me to, to having the background that I've ultimately, being a professional student to some degree have done over time.

**Clara Cohen:** Yeah, and I think we all continue to learn because if we're not continuing to have continuing education and courses and read books and improve ourselves, then how can we keep up and basically treat our patients? I love that you're very well rounded. It's interesting you talked about your wife being also a osteopath because I'm from France and. I grew up with osteopathy, but it is not very big in North America compared to France where it's really everywhere. So that's interesting you say that because it's something that a lot of people don't know yet.

So before we start talking about scoliosis, I know everybody knows what chiropractic is. I've had chiropractic adjustment my whole life. osteopathy. I have a naturopathic doctor, so I think most people are really familiar with this. Can you differentiate what's the difference between a chiropractic adjustment and doing osteopathy treatment?

And then talk about functional medicine, because I think some people in my audience are not quite sure. is functional medicine? What is it entitled?

**Mark Morningstar:** Great question. So would say first and foremost to answer the chiropractic osteopathic contrast. I do think they're very similar nowadays in the sense of chiropractors keep trying to expand, or at least the majority of them keep trying to expand their scope of practice.

Whereas of course, osteopathic physicians here in the states already have a. Cultural authority in a medical perspective, meaning they practice really no different than any MD in, any of the conventional specialties. But at their core, in terms of manipulation, especially the osteopathic physicians that were trained

at the older, traditional osteopathic medical schools here in the States, they're gonna have a much higher level of expertise on their manipulative skills compared to some of the newer osteopathic schools.

I think in terms of physical treatments themselves, of course, chiropractors in a general perspective tend to favor more just pure articular manipulation of the joints themselves whether it be by hand or with an instrument assisted style, whatever that is.

Whereas I think the biggest difference in osteopathic manipulation. Is that there is also an equal emphasis on soft tissue manipulation or mobilization, visceral manipulation, cranial nerve mobilization, nerve gliding techniques, that kind of thing. And those are things that you don't necessarily really get in a general chiropractic curriculum.

But a lot of chiropractors go on to learn those things after they graduate and get into practice. Because a lot of us quickly realize, Hey look, if I'm only adjusting the spine, for example. I'm only gonna have a certain maximum effect. That's just the reality of it. I think that's the main difference.

And I think one of the things too, because osteopathic physicians tend to be so much more comprehensive in their viewpoint of things and the way they treat, they also tend to. Be much quicker to try to encourage their patients or emphasize autonomy of their patients relative to them. sometimes one of the biggest knocks that chiropractors get sometimes correctly, so sometimes not, is people get this understanding that, once I start going to a chiropractor, I always have to go on a regular basis.

And I feel like that's not necessarily false, but it's also not the entire story. think the biggest difference is if you're a chiropractor like myself who encourages home exercise, who encourages lifestyle changes, who encourages dietary modifications, all of these things together to help the person as a whole the chance that they're gonna need ongoing, regular care is much less than somebody who's just, they go into the chiropractor, they're in and out in five minutes and pretty soon they get into this rut where they're going like once a week for years or something.

And that's just not typically necessary. But you have to approach it from a whole-body kind of a perspective.

**Clara Cohen:** That's a good point. It's all about compliancy of the homework we give you to do. And if you do the homework, we work as a partnership with

the patient. We're not here just to do the work and then they relax. It's like we're working together. So that's a really good point.

Explain what functional medicine is for people that are not sure what that means?

**Mark Morningstar:** So functional medicine to compare and contrast that to say conventional medicine, right? Conventional medical students are taught to, assess a patient, aggregate a group of different symptoms that the person is describing or showing on clinical exam in order to arrive at some type of a diagnosis.

And that diagnosis is then what drives that physician's treatment options. And unfortunately, at least here in the States, but in most parts of the world, they're typically prescriptive. Something drug related. When we talk about functional medicine, the biggest difference in functional medicine is that.

The focus is not on treating an end stage pathology or a diagnosis per se. It's really focused on identifying what is it about that person that led to them eventually developing that diagnosis. So as an easy clinical example, if you take somebody with type two diabetes, the conventional medical model is, alright, you're a type two diabetic.

Here's your metformin. If you get to this point, maybe you're insulin dependent, whatever it is, here's your lot in life. Good luck. See you later. It's almost like we'll just manage the decline. Whereas in functional medicine, I wanna go through and say, okay, you have type two diabetes.

We need to find out why you developed type two diabetes. A, you're insulin resistant, so we have to figure that out. B, we have to know, are you overweight or underweight? Do you have genetics that are contributing to this? What does your dietary routine look like? Because ultimately that's going to have impacted it in some way.

What does your physical activity look like or inactivity look like in that regard? Because that probably also has to be adjusted and there are ways to work back through the steps. That caused that person to develop type two diabetes to now they no longer need insulin, and now we get their A1C down from six and a half down to 5.5 to where they're not actually considered type two diabetic anymore.

But I'm not, at that point, I'm not treating the diagnosis per se. I'm literally looking at all of the functional metabolic pathways that went wrong first or had

been going wrong for perhaps years. And address those head on, and then everything else downstream really tends to take care of itself.

**Ad:** Imagine this patient walks into your clinic. She's super active. She loves hiking, but lately she's been sidelined by a sharp, nagging heel pain. Every morning she's tried everything, orthotic, stretching, rest, but the pain keeps coming back. Now she's limping, frustrated and wondering, is this just my new normal?

Does it sound familiar? Now imagine your assess her and found tight gastrocnemius and soleus trigger points in the planter muscles and weak foot stabilizers. In other words, a classic planter fasciitis. Man, we see this in clinic a lot. Now, if you had techniques like bone pecking, trigger point release, and targeted deep needling.

The one that are taught in the acupuncture musculoskeletal manual online course by my friend and colleague, Dr. Rebecca Stevens. You'd know exactly how to assess and treat this case confidently and effectively. This course is designed for practitioners and TCM students who wants to treat the entire lower body pain with precision and confidence.

Learn bone packing, trigger point release, and postural assessment. Master both TCM and Western musculoskeletal anatomy, which wasn't taught in TCM schools enough, in my opinion. You can watch step-by-step closeup demos and apply them in real life right away. You'll get continuing education hours or certificate, lifetime access to the recording so you can watch it at your own pace and a seven day money back guarantee.

So it's risk free. Don't hesitate. Invest in your patients and in your practice. Click the link below or go to my website and click the shop tab on the menu bar.

**Clara Cohen:** That's exactly the same idea of Chinese medicine. We look for the root cause. What started it up? What got involved in it? Why are you here today with this issue, what brought it on? Right? And looking for the root cause can help you really create your treatment plan in the best way possible instead of just, like you said, treating the symptoms and then, you know, hoping for the best, I guess.

So thank you for explaining this. So now I know you're passionate about scoliosis. So before I start asking you question about scoliosis, I will share, I had scoliosis as a child. So you're the perfect guest for me. And I had lordosis,

so the kyphosis and lordosis for a lot of people. I don't know, you can start explaining the different curvature, but mine was more in the lumbar area.

And as a child, I was fortunate enough in France that the medical doctor will look for. The same kind of idea, very functional perspective. And so I had chiropractic adjustment every single week. I had osteopathy every single week. I had physiotherapy or what we call kinesiology in France. then I had acupuncture as well, and I was

wearing a brace for quite a while. I wore a brace, as I was growing of my spine. And I have to say the thing that I remember the most, I don't remember the treatment a lot, I don't remember the brace. What I remember the most is they put a plywood board and I had to sleep on my back.

And I used to be a stomach sleeper as a kid. And I remember laying there. Crying going, I can't sleep on my back. I can't sleep. This is so hard. and I would wake up on my stomach. Eventually I fell asleep on my back. I trained my body to do so, and now you put me on any flat heart surface, I'm out like a light, I can just sleep on my back.

No problem. So they rectified my spine. I do not have scoliosis anymore, so I'm so grateful for all the people that worked while I was growing up. what I wanted to ask you is the different kind of scoliosis, because of course I'm in my late fifties, and technically as we get older, specifically women, that could also show up later up in life.

But there's also the childhood scoliosis, so can you explain the different

**Mark Morningstar:** Absolutely. So I think in the general sense, there are a lot of subcategories in both of these, but I think in the 10,000 foot overview scoliosis is either what they call idiopathic, meaning there's not a consensus as to what caused that particular curvature in that person, which makes up about 80% of all diagnosed cases of scoliosis.

The remaining 20% falls into a couple of categories with a lot of overlap. One called neuromuscular scoliosis and one of them called syndromic scoliosis. In those situations, they are curvatures that develop usually as a secondary response to a primary underlying issue. For example, the most common reason for neuromuscular scoliosis is cerebral palsy, and.

Syndromic scoliosis, on the other hand, is a curvature that is caused in response to an underlying genetic syndrome, whether that be Ehlers-Danlos syndrome or

Marfan syndrome or Down Syndrome, things like that. Those are the kind of the broader categories. Now, within idiopathic, you have subcategories based on the age of onset.

Essentially from birth until about three years old, that's classified as infantile idiopathic scoliosis from three years to 10 years is juvenile idiopathic, and then from 10 to 18 is adolescent idiopathic. Now they do have classifications in adulthood that they would call a De Novo scoliosis, which is an adult onset.

Most of the time a de novo scoliosis usually starts somewhere around perimenopause and is essentially also referred to as degenerative scoliosis, usually in the lumbar spine or in the low back. Interestingly. And this kinda gets to the crux of what I really am passionate about in scoliosis management is that when you look at those life stages, so for example, we have puberty, which is a, the big time for idiopathic scoliosis to pop up in childhood.

Then you have pregnancy, which then the incidents in Childbearing women is a little bit higher, and then you fast forward again to women who are peri and postmenopausal and the incidence jumps up even higher. So for example, depending on the author, you read, two to 3% of the adolescent population develop scoliosis.

About 20% of childbearing women have scoliosis. But fast forward all the way to post menopause and it's women over 60 have it almost two out of three times. So it's much more prevalent. The interesting thing, what's the commonality among puberty, pregnancy and perimenopause stages of life associated with significant and rapid hormone changes.

and what really kills me is that these observations in scoliosis have been published, going on 50 years. Yet nobody really does anything with the information. We still, no matter where we're at in the world, by and large, treat scoliosis from purely an orthopedic mindset. I have this curvature.

The curvature is synonymous with what I, define as scoliosis. And so that's how I'm gonna treat it. And I always, in my own head I always draw this analogy like somehow this curved spine just floated into my office, and that's just what I'm treating, not recognizing that I have a whole person attached to that spine, and you have to treat the whole thing.

In fact, the brain is mostly where that problem ends up being, and yet almost everybody ignores that. So it's it's a very complex issue. And yet with all of this information that's out there, people still largely ignore

**Clara Cohen:** Wow.

I think the way I was treated was very much the ortho orthopedic kind of way. Right. Really trying to readjust and then relax the muscles and the soft tissues and everything that, I mean, I was eight so it's hard for me to really remember, and obviously I had no medical background, so I didn't know what was happening.

So I can't for sure say, but obviously I was in that range of childhood as scoliosis. So explain then to us, once someone has scoliosis. Does it matter if it's more the thoracic area, the lumbar area, is it better, worse for the person and what can be done in a way that is not just only orthopedic, but also functional?

**Mark Morningstar:** Absolutely. To answer that question properly, I think, a little bit more background info is important here. So the idea is when I take an x-ray of a patient with scoliosis, of course orthopedically, you're looking at a curved spine and a skeleton on that x-ray, right? But what I teach my patients is.

If you actually for a moment, pull yourself back and look at that x-ray from a neurological perspective, what you're really looking at is your brain's internal map of what it thinks your normal spinal control and coordination is supposed to look like. Whether that's normal or not. It's what your brain is used to and believes is normal and that map.

Has to be changed if I want any hope of improving the curvature on the x-ray. with that in mind then, if I'm looking at that curve, what I'm really looking at, and this kind of throws another whole layer into this, is that the curvature. A random event, but it's an intelligent adaptive response that the brain made in response to a different problem.

So again, going back to the idea of all these hormone changes contributing at puberty, pregnancy perimenopause. In the years, particularly a lot of our hormones you know,

we take. For example, progesterone, melatonin, estrogen, those kinds of things. Most people know that they have reproductive purposes and reproductive health issues or,

**Mark Morningstar:** however, in childhood, those hormones are equally as important in signaling normal musculoskeletal growth and lengthening, and in particular, maintaining the normal growth ratio of the spinal vertebrae versus

the spinal cord. Because remember, the spinal cord is housed inside our spinal bones, and so if.

Your spinal bones lengthen faster and grow faster than the spinal cord grows and lengthens. All of a sudden you start to get this sort of axial tension on the spinal cord, and when that happens, now you get a downward pressure of the cord into the brainstem and the brain says, Houston, we have a problem here.

We gotta do something. So the brain will literally induce that curvature. As a protective way of inducing slack into the back, into the spinal cord so that there's not this axial tension on the cord. So by just going in and just haphazardly trying to push on the curve and do all these things without taking into account all of the reasons as to why the brain had to make that adaptive response in the first place.

You might literally be going against what the body is trying to do to minimize that spinal cord tension issue. So in our management of this process, we also have to look at, okay, where is the growth issue, at its core and solve that at the same time that we're trying to improve the curve. That way the body will more readily accept the changes that we're trying to make into the curve with without essentially just going right back and rubber banding right back to what it was.

**Clara Cohen:** So you are basically saying that the brain, the spine, the spinal cord, obviously all the bones and the spine itself, but also the spinal cord in the brain. They kind of know if something is not quite working, they're gonna shift and adjust to keep homeostasis. Even though in the end when we look at it, it doesn't look balanced because of course there's now scoliosis, but it was trying to keep a balance.

So now it's this new normal. Is that what I heard?

**Mark Morningstar:** Exactly right. Going back to my chiropractic teachings in school, we were taught this concept in chiropractic they call innate intelligence, right? Which is the body has an inherent intelligence to heal and to recover, as long there's no barrier to that recovery.

I look at it more tangibly, scientifically, however you wanna say it, to say that really the brain or that innate intelligence is really nothing more than a set of binary options. So when my brain is presented with a problem. My brain is always going to select a solution that allows me to survive in the short term, even if it causes me a long-term problem.

So it's like I tell my patients, look, if I'm having my spinal cord being lengthened and pulled beyond its elastic capacity, where now it has the potential to tear. If I have a spinal cord injury in the next six months to three years. They're gonna be in a wheelchair or worse depending on where that tear occurs.

However, my brain says, okay, so I'm gonna induce this curve to put more relaxation into the spinal cord like they're supposed to be. Yes, this curve is not ideal, but it will still allow me to live a nice, long, full life, but it's not optimal. It might mess with my posture, it might mess with some of my, physical function, it might cause a little bit of more pain, especially as I get into my later years. Besides that, I'm still at least going to get to my later years, which I'm not gonna do if I tear my spinal cord.

**Clara Cohen:** That's very well explained. Thank you so much. That was a great explanation.

I like that you talk about the hormonal shift and how the body has to adjust and then, you know try to deal with whatever's happening. I have a question. 'cause when you were talking about hormonal shift, teenagers, pregnancy and post menopause and perimenopause.

You were talking about the endocrine system, but specifically to the reproductive system, would longstanding stress, so now we're talking cortisol level, right? Like not just reproductive. Would that lead to some issue to the shape of the spine?

**Mark Morningstar:** I believe it does. Absolutely. Because I think especially in younger kids when we do a lot of lab testing, especially on our newly diagnosed adolescents in juveniles, we do tend to notice a lot of essentially Hyponatremia. Where it's not necessarily just that they're low in their progesterone or they're low in their norepinephrine and epinephrine levels, they also tend to run low on their cortisol levels Now, do I know why that is? A hundred percent no. But I also know that when we do a lot of genomic testing on these children, there are certain genomic variants that pop up much more commonly than compared to kids who don't develop a curve. And some of those genomic variants are responsible for the adrenal pituitary axis.

And so, where I tend to try to intervene then is actually at the level of the genomic variant because obviously I can't change that about that person. I can only minimize the expression of those things, and in the hopes that now we're mitigating the downstream ramifications that genomic variant might be contributing to.

The importance of identifying that young is because, these problems don't just magically go away because that child became an adult. And I think one of the big important things is, I think it's where we see even in patients who end up having scoliosis fusion surgery as teenagers, their curves when a lot of people don't realize is their curves still worsen over time, even with that hardware in place.

I believe that the reason they still get worse with the hardware in place is because those underlying drivers, the genomic variants, the hormone problems, neurotransmitter issues, none of that ever gets addressed at the time. And so now this adult is left with these underlying drivers still there.

Maybe now they're manifesting in other ways because now instead of a 15-year-old girl in high school, maybe now she's a 30 5-year-old mom of two who is pulling her hair out every day because she's a normal mom and she's, burning the candle at both ends perpetually. And of course I think those are things that then drive curve progression, especially then when mom's under enough stress and anxiety and, now she hits perimenopause and now those hormone changes start to impact bone mineralization. And when we start to see decreases in bone mineral density, that's also a very big mechanical driver of scoliosis, which is why I think it's so prevalent and it jumps from 20% to two out of three from, the 20 years to the 60 years is because of that bone density problem.

**Clara Cohen:** let's talk about couple of things now that I would love for you to share is obviously someone coming in, let's say if it is a woman in her twenties, then great and she doesn't have any spinal issue. What can she do to prevent later on when she goes through, you know, aging and menopause so her bone density doesn't decline.

And it leads to my next question. Some patients come in and they're going through menopause or the post-menopausal and they're starting to have issue with bone density. They're starting to have issue with osteoporosis. They might have scoliosis as well, so. I would love for you to share your perspective because in TCM perspective, we always say that your lifestyle, including weight bearing exercise, doing the you know, stretches, nutrition, having the right supplements to make sure that we can do preventative medicine.

And of course once it's happened during menopause or later on, then we have to try to manage it the best we can. the homework that I was mentioning earlier. So when you see a patient, let's say that's more an adult patient with scoliosis, do you generally talk about what they can do to improve their whole disorders and what are those things?

**Mark Morningstar:** Speaking particularly to bone density. So one of the things that it's published research. It's been out there for several years, but nobody really ever pays attention to this, is that kids who are diagnosed with scoliosis, typically have about one to one and a half standard deviations, lower bone density than their peers. Now, they're not to a level at the time where they would call it osteopenia or osteoporosis or something like that, but it's still lower than their non scoliosis counterparts, even in the teenage years.

So they're already starting from the back. Now all of a sudden, fast forward to where they're getting closer towards perimenopause. As soon as they start having irregular periods, that's when we instantly say, okay, A, I think it would be advisable to get right now to basically get what will serve as your baseline bone density scan to see where you're at before all these hormone changes really kick in.

If it's low then there are things that we can do to mitigate that process or even reverse that process, depending on what we find. a lot of times it's nutrient based early on, and then it becomes more hormonal based depending on how early I get to the patient. Because of course sometimes they get to me after the fact and they're already at a point of osteopenia or osteoporosis and so on.

And now we're trying to deal with a whole lot of things, but. I think as easy examples, it's been known for a very long time. That vitamin D three deficiency is very common in idiopathic scoliosis patients. And so from that perspective, when I'm now working with an adult who's coming up to that threshold, but one of the things I do, and this obviously this is just as pertinent for you as it is for me being in the northern climates, is.

In Michigan. I remember reading a magazine here a few months ago where in the wintertime we get like one and a half hours of peak sunlight a day. It's pathetic.

**Clara Cohen:** In Vancouver I think it's even less because it rains all day. So here you go.

**Mark Morningstar:** Right? And so the problem becomes of course, lack of sun exposure equals lack of vitamin D three conversion. What I typically do with my patients and recommend that they do is in the dead of winter, so basically mid-December every winter, and then in the peak of summer, mid-June, I'll have them get their blood levels of D three drawn so that I see what it's like in the peak of summer and the dead of winter, and that then can steer me on how

well do I need, or how much do I need to supplement them to keep them at a normal healthy value.

Now from a bone density perspective, because obviously when you talk about vitamin D there, you're gonna get a whole lot of opinions as to what normal is. But I would say from my experience of trying to improve osteoporosis and osteopenia in patients, if I want to have any shot at reversing bone density loss, there are two things that I always look for.

I look for a minimum perpetual vitamin D three value of 90 or higher. And I look for a vitamin K level of a thousand or higher on a zero to 1500 scale because I need that K two particularly to help drive that D three and calcium into bone tissue and direct it. Otherwise any calcium I might be taking, which is a whole lot of patients who are, for example, put on a calcium or caltrate or a calcium D three product from their OB GYN as an example, or their family doctor.

Well, a lot of that calcium just gets deposited into your coronary arteries. And now we have a bigger issue because there's nothing steering it to where it goes. So K two and D three are vital components. As part of a core foundational, a perspective on improving bone density.

I've been teaching this for a very long time and for a very long time. When you try to first expose people to these kinds of concepts they would always come back with Welp, how can taking supplements fix my scoliosis? that's not really what we're trying to say.

However, interestingly, summer of 2023, there was a study published out of Romania where they took a group of children with idiopathic scoliosis. And they split those children who were newly diagnosed into two groups, they were all at basically curves between 10 and 20 degrees, where classically they would just observe them.

They wouldn't treat 'em, but they would just watch and see what happens, which I think is a terrible idea, but that's another story. But anyhow, they took half of the group and just continued to watch the other half. They gave them 2000 units of Vitamin D three per day. One and a half milligrams of melatonin per day and 600 milligrams of calcium per day.

And in the group who took the nutrients, their curves actually did not worsen like the other group did. Just by taking the nutrients. And of course what are key

among all three of those nutrients in some way they signal musculoskeletal growth. Especially the melatonin even signals for spinal cord lengthening.

So you have to have all of those in order to have proper function. And guess what happens? If I'm growing properly and symmetrically, I'm gonna be less likely to have a curve or to allow an existing small curve to progress rapidly.

**Ad:** Before we continue with today's episode, I wanna share something that honestly feels like a big moment for me if you've been following me for a while. You know, I've always said no to all sponsorships. I've been approached many times, but I turn them all down because if I don't genuinely use a product or love it, I will never recommend it to you.

But today is different. I am super excited to introduce my very first sponsor. Drum roll please. Jane app. I'm also a Jane Ambassador, so this is a company I actually use and love. I am saying yes because I've used Jane for years in my own multidisciplinary clinic. Truly, it's the best practice management software and electronic medical record.

I've ever worked with before, Jane, we were using a clunky system that made everything harder than it needed to be. When we switched the entire clinic, felt the difference immediately. Jane is built by people who actually understand what it's like to be a practitioner. Running a busy practice. One of my favorite features is online booking.

There is nothing better than waking up and seeing patients booking their own appointment. Well, I was asleep. Your patients can book when it works for them and the wait list feature. Fills last minute cancellations automatically. I love that. I used to spend so much time calling eight to 10 people just to fill up one spot.

Jane also automates the things we never enjoy doing, like intake forms, reminders, confirmation. It honestly feels like having an extra assistant handling all the moving parts. You can focus on what really matters, which is supporting your patients and being the TCM rockstar practitioner. You truly are.

There are so many features I could talk about, but we would be here all day if you are looking for a system that brings more ease, more clarity and comment to your practice. I truly. Recommend Jane. You can check it out at jane.app/demo. And because you're part of the Clara Cohen community, you can use my code Clara Cohen one mo one month when you sign up to get a one month grace period on your new account.

The link and the code are also in the show notes below for you. Now let's get back to today's episode.

Thank you for that. Living in Vancouver every winter I take, vitamin D three and K two and my vitamin D has been lower in the past, like when I found that out. So I love the connection because, this is so vital for us. Now, I wanted to share something with you and then I have another question.

My mother, she's no longer here. She passed at 92 and she smoked two packs a day, you know, for 60 years. So that's just typical French woman. But what was interesting about my mother, is that she was born in a different era where when you went to school, if you slouch, the teacher would literally take the ruler in.

Slapped you on the finger and it was really painful. So after a few time of getting hit on the finger by the ruler, she learned to sit in school really straight. Although we look at this going, oh my God, that's abuse. My mom, up until she passed away, sat at the kitchen table.

If we played cards or ate bed, and I did. I could slouch. She never slouched. She was sitting so straight all the time. And because she had learned this from a young child, and I believe this is why she never developed osteoporosis. And of course she wasn't of the time of devices, right? So she's not.

Like there was no neck issue. She didn't work on the computer, right? All those kind of things, even though she had a lifestyle that was quite interesting with the smoking, let's just not forget that. Although she stopped at 77, so I think she lengthened her life when she stopped.

But my question is, how important is your daily posture in order for us, specifically as we age, if we don't have scoliosis, to not get affected by it as the hormonal shift changes and et cetera?

**Mark Morningstar:** I think posture's extremely important, and I'll even go a little bit more basic even than some of the hormones as it relates to scoliosis. Again from my own teachings back in school, one of the big, sort of my own mentors is a very famous medical doctor named Renee Callier, who is an MD in physical medicine.

And he actually wrote a book called The Rejuvenation Strategy. And the entire book was quite literally just postural techniques. But one of the things that they were always quick to denote is that even in somebody who has like that basic

forward head posture where, today, they call it tech neck, you know what I'm talking about, slouching kind of a posture.

That forward head posture decreases your lung capacity by a full third. He used to actually go in and show how people who had a chronically reduced lung capacity also had a proportionately lower life expectancy than people who had better posture, which is the whole basis of this book.

Me being a big posture person, of course scoliosis is the epitome of a postural problem. That was that book was like the Bible to me in terms of, my professional career. Posture is huge and, but what's interesting with posture now, I think as long as the reason why the whole rule around the hand works is because they're constantly doing it.

You have to keep up to constantly train. Because posture is governed by two distinct systems. You have what I would call the autopilot, and then you have what I would call the manual override. So of course, as we're sitting here talking, we are sitting in our natural resting posture, whether that's good or bad, it's our autopilot setting, it's what our brain thinks is normal.

Now, at any time I could sit up straight, sit up, stand up nice and tall, pull my shoulders back, do all those things. Now I'm engaging my manual override, and in doing so, that manual override is really only in control for fractions of the day, because as soon as my attention goes elsewhere, I'm right back to whatever my autopilot settings.

One of the big keys in posture and scoliosis rehabilitation techniques is that you have to engage the autopilot setting because that's what's in control. 99 point something percent of the d now. It's never a bad idea to also engage the manual override. Sit up straight, stand up tall. Like Schroth therapy for scoliosis is a very popular therapy, which I like, but it's predicated on teaching the manual override part of this.

Whereas I want to also do things that work on the autopilot setting and in some cases dig deeper into the genomics hormones, neurotransmitters, all of the fuel for the autopilot setting. So that the autopilot setting has a chance to work like it's supposed to, even when I am training it. Because if I'm trying to work on the autopilot setting, it's just like I can have a really nice Ferrari sitting out here in the parking lot, but if I don't put any gas in it, it's not gonna go anywhere.

it's useless. So if I don't, if I have a problem in the fuel system for my autopilot setting's not gonna be too trainable. So we have to have all of that.

**Clara Cohen:** I totally get that because autopilot is easier on us. We don't have to do much of the work if we have to constantly readjust, like you said, it's not gonna last long because we're going back to what we know. So I think what happened with my mom is that, she was basically being told that the manual kind of way over and over and over until it became autopilot.

Right. That's the way they did it. I know it's probably not the best way, but that worked for her because of her entire life. She was sitting straight compared to so many of her friends that were all hunched over as they got older and started getting osteoporosis specifically in a cervical area.

And, she used to say, I'm very thankful for that because I always sit so straight and it's to her. That's her autopilot, that's her normal. Right. Which made it easier. So I appreciate your giving us this whole lesson on scoliosis now even though the brain and the spinal cord and, the whole spine is feeling or thinking it's normal.

My new normal 'cause I had to adjust to the curvature. Even though it's thinking that obviously for a lot of people there's gotta be some pain, right? Specifically women as they get older and whatnot. And the pain is gonna be very much muscular because the muscles are gonna be tense all around the spine and everything.

So my last question for you is, once you figure out, obviously the cause and what's going on, what's an overall treatment plan, what would involve a treatment plan in, in a succinct way? How many modality, what do you need someone to release your muscle and massage you?

Do you need a chiropractic adjustment? Do you need to change your diet? Do you need supplement, like all this stuff? What do you need in order to get successful and avoid surgery?

**Mark Morningstar:** Actually all the modalities you mentioned, I would say yes succinctly but to give you a little bit more detail on that. First and foremost, with the muscles in particular, of course, if I were to look at a scoliosis x-ray and everybody could predict this, it doesn't take a trained eye to understand this, but the muscles on the outside of my curves are naturally gonna be working harder than the muscles on the inside of the curves.

That's just gravity doesn't take a break unfortunately. But the problem is what people don't appreciate about the spinal muscles as compared to, say, my bicep, right? So if I were to go up to the gym right now and start doing bicep curls

with a five pound dumbbell, at some point when my bicep gets tired, my arm's just gonna go dead for a little bit until the muscle can recover.

That's because my bicep is a fast twitch muscle predominantly. So when it reaches its metabolic capacity, it just goes limp. My spinal muscles are what we call slow twitch postural muscles, which are also referred to in their best most particular manner as anti-gravity muscles. Does gravity ever take a break?

No. So guess what? My back muscles, anytime I'm upright, my back muscles always have to work to some degree. So the problem becomes the brain tells my back muscles. When you hit your limit of exhaustion, unlike my bicep, which goes limp, the brain says, look, you can't go limp because I can't continue to be upright if you stop working.

So what my back muscles do when they get tired is they spasm . Of course, the spasm hurts. I don't have to tell everybody what a spasm feels like, but the spasm also accomplishes the higher purpose of me fighting gravity. So sometimes it actually becomes a little bit complex to have to try to go in and work with a patient who's having a lot of tight muscles, because again, if I'm just going in and haphazardly just relaxing those muscles for a symptom improvement, I might be trading a symptom improvement for literally going against what the body's doing to try to fight gravity.

So the best way to get the stress off of those muscles over the longer term is to decrease the leverage on them. That way they have a longer endurance throughout a given day. And so that's the focus of what we try to do from a rehab technique perspective, is to say, okay, if a person comes in a certain way, what can I do to improve and minimize the leverage on their back so that they feel and function better on a more consistent basis with always having to have this codependent relationship on me.

Obviously some of their back muscle endurance is gonna be predicated upon my neurotransmitter output. It's gonna be predicated on the ability of my digestive system to break down all my proteins and into amino acids and use all that for muscle repair and building and so forth.

So there are a lot of other factors that go into scoliosis. A lot of people don't understand. We see a curve that we call scoliosis, but the reality is 90% of girls with scoliosis have a hormone problem with it. 80% of boys and girls with scoliosis have chronic digestive issues that they actually now refer to as functional gastrointestinal disorders.

In scoliosis, 88% have chronic asymmetries with the muscles around the eyeballs, and then the inner ear. So that the left and right sides aren't telling the brain the same sets of information. All of those asymmetries and problems are what are the initial drivers of the curve. So at the end of the day, if I want to improve the curve, I have to get rid of the stimulus as to why that curve developed in the first place.

Otherwise, the physical treatment has no chance of helping.

**Clara Cohen:** So good because I love to look for the root cause. This is what I always wanna figure out, right? So if it comes from digestive system issues or hormonal issues. If we know that then, then we can address that before we go and treat the outcome, which was the scoliosis, if we call it an outcome. I would think is fascinating if you see, because I've had lots of patients coming for, back pain, neck pain, whatever, chronic, I'm not talking acute, but I'm talking chronic, necessarily scoliosis, but and they see their chiropractor and they have other treatment and whatnot.

And if I. Try to discuss diet and exercise. It's very, very hard for people to compute how diet can help their back pain, their neck pain, and I have such a hard time. Explaining to them how everything is connected. And yes, stress can cause, you know, issues and tension that they get. But when I say, okay, let's talk about your gut and your diet, which I think is at the center of our entire health.

And literally it is at the center in our physical body. I have really a lot of resistance. So what do you say to your patients when you want to talk about gut health?

**Mark Morningstar:** As far as patient or the parents of the patient depending on the patient's age, of course they're there because the child has a curve, right? So everything I talk about, I still have to bring back to the curve.

So when I talk about gut health, one of the things that's well known, in fact, is some of the first non spinal things studied as far as scoliosis onset is concerned, are problems associated with serotonin melatonin. the l tryptophan pathway. Interestingly of course, and depending on which neurotransmitter we're talking about, anywhere between 80 to 90% of each of those neurotransmitters is either produced or activated in the intestinal tract.

So if my digestive system's not working right, I have no chance of having normal neurotransmitter status. And if I don't have normal neurotransmitter

status, I am not going to be able to help the curve. Because one of the things, again, just take serotonin for example. Most people of course, equate and have cursory knowledge of serotonin as regards to emotional health. Links to depression and certain things. But serotonin more importantly, is responsible for governing 80% of all of our peripheral neuromuscular pathways. So if I don't have enough serotonin, it's impossible for me to have normal torso muscle coordination.

I have to improve serotonin profile in kids if I want to basically help their curve, but more importantly, keep it fixed or keep it improved for a long term, not just for a few weeks or a few months.

**Clara Cohen:** That's perfectly explained. I love the connection of the gut, the brain, which we know there's a gut brain access anyway, and then the spine, the muscle, the bone density, everything we talked about today. I really appreciate you educating us on this subject that you are passionate about and very well versed, obviously.

And so my last question is. We'll have the links in the show notes to all your, resources and what you offer as well, just because people might wanna have more question and wanna look more into it. But I would love for you to share anything that we haven't talked about today that you think is really important for people to know.

**Mark Morningstar:** Actually, in fact, I even brought the citations for it too. One of the big things we've been looking at lately, and this will be perfectly fitting for you and your audience, is the idea that, going back to neurotransmitter status, of course, really the main ways that people use to try to improve neurotransmitter status is through some type of supplementation.

Whether it be amino acid precursors or enzymes, whatever the case may be. But neurologically and in a more mechanical means, the things that we all also explore are color therapy or also, so one of the newer things is laser acupuncture. In fact, one of the studies here, this is actually literally just published in July of 2024.

The title of the study is Observation on the Therapeutic Effect of Laser Acupuncture combined with Therapy on adolescent idiopathic Scoliosis.

Admittedly, acupuncture is not in my wheelhouse, but I know enough to make me dangerous. So basically what they did is they did straw therapy on all these

patients, but they took half of these patients and also did laser acupuncture on them. And in particular they did a series of spinal points Du 2, 4, 6, 9, and 12.

And then they also did a gallbladder, a spleen, and a liver point. They did the laser acupuncture treatments five times a week for four weeks. And in doing that, and then continuing with the straw therapy, six months, and then a year later, the people who did the laser acupuncture with the exercises, their curves were about 40% better compared to the people who just did the exercises.

**Clara Cohen:** Wow, that's really amazing.

**Mark Morningstar:** For a long time everybody's kinda like. How can laser acupuncture affect something like scoliosis? And it's not necessarily that it's helping the curve directly per se, but we're also developing a lot of brain laser, like low level laser therapy applications to stimulate the areas of the brain that are responsible for serotonin and dopamine and norepinephrine utilization in an effort to reinforce the changes that they're getting from their exercise theories.

**Clara Cohen:** That's fantastic. I love it. Well, I'm sure everybody that's listening is gonna love to hear specifically if you do laser acupuncture. I don't practice laser acupuncture, but I know it's getting bigger and bigger and, and it's an option for people that do not want needle or have, you know needle phobia.

So that's really cool cool to. see, and I love that they're doing studies more and more using different modalities, not just, conventional medicine because there are so many tools all over the world that we can help patients with. So I really appreciate you sharing that study. That's really, really sweet of you.

Thank you. We'll put in a show note. Mark. This was like a masterclass in scoliosis. I'm sure there's so much more you could tell us, but I wanna be respectful of your time. So, just a few parting words before we go?

**Mark Morningstar:** Although most people recognize or look at scoliosis as a spinal condition, it's not, it's a whole person problem. It just has a spinal ramification as its chief symptom, and if you want to properly help scoliosis, you have to help the person, not the curve. It's like I always teach my doctors that I consult with, you have to fix the process to fix the curve.

**Clara Cohen:** Love it. That's the best way to end the show. Thank you so much for coming today.

**Mark Morningstar:** Thank you for having me very much. I appreciate it.

**Clara Cohen:** Thank you so much for spending your time with me today. I truly hope you benefited from this episode, and I would love for you to share it with a friend that may benefit from it as well. Follow the show, live a review, and if you want more. Go to my website, Clara Cohen academy.com. I have tons of resources there with treatment protocols, case studies, free courses, and so much more.

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