Academy of PHYSICAL MEDICINE

Transcript

Central Sensitisation With Matt Wallden

- Well, good evening and welcome once again to one of our fantastic evening CPD shows with the Academy of Physical Medicine. We are back in London at our favorite venue, the Fish Tank Studio, and I've got a quick warning for you before we gone with tonight's CPD. After the last show we had here, we had somebody register some concern that there had been heavy breathing during the show. That heavy breathing is actually the sound of the trains in the background, so don't get too disturbed if you get the occasional rumble as we're speaking this evening. We filter as much of it out as we possibly can, but occasionally a little bit of that sound gets through. Anyway, to tonight's CPD. We have got Matt Wallden back in the studio again for the sixth time, the final one of our program series with him, although I hope we can get him back in in the future for some more of these. He's talked about various subjects, but we asked him to come here for this final one to talk about central sensitization. Matt, as you may remember, is a very experienced osteopath. He's also an associate editor at the Journal of Movement and Bodywork Therapy and is a walking brain box on all topics about osteopathy and medicine. Matt, it's great to have us with you again this evening.

- Thank you very much.

- We're gonna talk about central sensitization, which I always have trouble pronouncing.

-Yes.

- It doesn't seem to trip of the tongue terribly easily, which has been a buzz expression in the medical world for quite a few years now, at least five or six years and I wonder whether it deserves the hype. Is it something we should still be concerned with?

- Yeah, I think what's happened, because certainly central sensitization has been around and known of as a concept for many years. I remember Frank Willard giving a lecture on it somewhere around 2000, and it wasn't particularly new then either I don't think, but I think what has happened is that there's been more and more research, particularly with the pain neuroscience field expanding as it has done, and the recognition that sensitization is a key factor in persistent pain. So yeah, I think it is warranted, the attention. I think it's still quite new clinically for people to try to work out how to deal with it and indeed how to identify it without sort of funky gadgetry. But it seems to be pretty much present with most persistent pain conditions.

- I guess the first thing we need to do is get back to basics with this and discuss what exactly is meant by central sensitization because I suspect that there are some variations on the definition depending on where you look.

- There are, and there's.

- Dr. Google and Wikipedia.

- And there's no simple variation I've found, but essentially what it is is it's sensitization at the cord level, and what that is pointing to is that the afferent drive's coming into the cords, let's say from a painful disc or painful hip joint or whatever, they're obviously coming into the same segment or segments of the cord each time. And it's that drive into that segment that creates sensitization, like a kind of, almost like an electrical sort of charge within that segment that then means that the messaging from that segment isn't quite as slick and precise as it could be. So then what you can get is you can get reflexes coming back out because the sensory drives, or the afferent drives meet with these internuncial neurons and those internuncial neurons are second-order neurons. They then synapse with the ventral horn neurons, the motion nerves, and they can then initiate motor responses, let's say. So you can get postural changes as a result of pain or postural changes as a result of visceral issues and quite confusing pain patterns and so on, so that's.

- We talked a lot certainly when I was going through training 20 years ago or whenever it was about facilitated segments. It sounds like the same thing to me.

- Yeah, it is, it is really, yeah.

- But isn't the, isn't central sensitization also very much an overlap with the biopsychosocial model that we're now supposed to talk about, so simple psychological stress can sensitize the central nervous system too?

- That's it, well I think this is one of the things that's been perhaps less well-documented in the early stages of central sensitization was the descending influences, and so you got descending influences from the brain and in particular the limbic emotional centers, so anxiety in particular can increase sensitization in the

spinal cord, as can depression. And what they seem to do is they seem to create inhibition of the inhibitory neurochemicals that would normally dampen down a pain response, okay? So typically if you were to injure yourself, then you actually want to perceive pain, you know, it's functional to perceive pain when there's an injury there because of course you want to stop using that part, let's say. And then in the normal process of healing, what would happen is the brain would start to inhibit, so it would send messages, descending messages down to that segment of the spinal cord to inhibit the pain messages at the cord level, and what they've found with central sensitivity or central sensitization is that that process doesn't happen or it doesn't happen nearly as effectively. So what you end up with is someone who's got anxiety that is actually perpetuating their back pain even though the original disc damage is gone, let's say. You know, that kind of thing. So that's certainly something that's quite new, and that kind of stems from the research into pain behavior and pain avoidance and catastrophizing, and this kind of thing.

- Is there good evidence for this? Has someone actually seen this happen through functional MRI, or?

- It's been studied a lot in rats, of course.

- Poor little bastards.

- Yeah, that's it. And then those findings have been extrapolated to patients, and then what they've done is they've used various neurophysiological techniques or electromygraphical techniques, this kind of thing to screen where, so for example, if you're getting pain, let's say in your thigh, you know, maybe from a surgical wound, then we'd expect it to be right round where the wound is. But what they can do is they can start to identify that actually if we press over here or over there, you know, away from the wound, that you're also feeling pain, and that's a sign that the pain locus is spreading, and it's an indication that there's sensitization of the spinal cord. Also because temperature is, you know, received via the spinothalamic tract as well, then insensitivities to temperature change are also a factor that you look out for. So when you're looking more generally for central sensitivity, so you know, one of the things that they've found for example is that people with irritable bowel syndrome have central sensitivity for exactly the same--

- Always, or?

- Not, no, not always, not always, and I don't know the exact figures of how many, you know, what percentage would exhibit it, but it's one of the conditions that's listed as a potential contributing factor to central sensitivity. And so in that case, rather than it being a disc or a thigh injury or whatever, it's the bowel is sending afferent drives back via its afferent, in particular its beta afferent nerves, into that thoracolumbar portion of the cord, and so what they can do

is they can actually assess your temperature response or sensitivity, I should say, and if you've got central sensitization, you'll be much less tolerant of changes in temperature than if you don't have the sensitization at those segments.

- Yeah. Are there specific tracts which are affected then, in sensitization?

- Well, it's all quite complex, and one of the things that I think has changed a little bit in recent years in terms of the knowledge base is that when the original research came out looking at central sensitization, what it seemed to indicate is that the C fibers had to be stimulated, which are essentially the pain fiber, so you'd have to be getting afferent drives via the C fibers and that could initiate sensitization at the spinal cord. But what seems to be the case now is that people are saying, "Well there might not have to be pain present "because first of all, the C fibers can be activated "at a subthreshold level." So let's say you've got something that's kind of somewhat irritating, but it's not painful technically. Well, those C fibers will still be firing, so they can initiate a sensitization at that segment of the cord, and by the way, when we talk about segments, you know, it's greatest at the segment and within two to three segments of where the afferent drive's coming in, but it can span as far as six to 10 segments, up and down the cord, so.

- Well that's what I, I was actually going to ask you that when you finished explaining what you were doing, but we'll come back to that if we may in a minute. Because you said C fibers have got to be active to sensitize the cord, but actually what if they're active, isn't that the pain? But now what you're saying is that they can be active at a different level completely,

- Yes.

- And therefore the sensitization is elsewhere. It's not those C fibers that we're feeling, effectively.

- Well so, I suppose what I was trying to convey is that you don't necessarily, I think the original thought was that you have to have a painful event, or painful stimulus to initiate central sensitization,

- Okay.

- But what they're seeing now is that, no, you don't actually need pain at all. You don't need any painful event. It could be that you've got a combination of things, so you could have a slightly irritable hip, you could have irritable bowel syndrome or inflammatory bowel disease, or you could have a food intolerance that's inflaming the gut wall. You could have, you know, uterine problems or bladder problems, and some depression or some anxiety, and the combination of those four, five, six things, they're all relatively subclinical, can create central sensitization.

- Yeah, I've always explained it to my patients that, you know, the brain can cope with certain signals coming up through the spinal cord, but actually, if it's busy coping with all these different inputs, then it can no longer filter out the ones which it shouldn't be dealing with, and so it feels that pain more acutely,

- Yeah.

- Or chronically, I suppose, typically.

- Yeah, yeah, yeah, absolutely, absolutely, yeah. So essentially it's a summation effect. There was something I was gonna say.

- While you're thinking about that, in terms of the way that we deal with this, I'm thinking about you know, Simon Singh and the Good Thinking Society, and all those people who love to criticize everything which isn't delivered in the form of a pill researched by the pharmaceutical companies, you know.

- Yeah.

- We can take a patient into our clinic. We can say, "Right, ah, chronic pain. "Everything here looks as though "there's some facilitation going on." What I'm going to say to you is right, "I need to get you in, "I need to make sure your spine is nice and neutral, "and that you've got all the right sort of muscle flowering "going on to stabilize it, "give you the right proprioception, "and I'm gonna bring in a counselor "because I think you need to get "some emotional stability as well." Would we have any justification for doing that? Is that what's so well-established in the conventional world that we could say, "This is a good treatment plan for this person?"

- Yeah absolutely, I mean I think, you know, there's ways to assess for where the patient is most stressed, and so I've got some examples of how you can do that, which maybe we'll look at later, but. I think there's sufficient literature present now that yeah, if you were to involve a counselor in someone's rehabilitation who has persistent pain then that would be completely justifiable, assuming that they agreed to it and felt it was reasonable. And certainly all of the other strategies that you mentioned would be useful. But I think one thing, one area where we could probably expand on as osteopaths is getting a little deeper into the visceral and the limbic emotional side of things. So you know, if someone comes in with irritable bowel syndrome, that's one example that we've mentioned a few times, but interstitial urethritis is another one, cystitis as well. There's lots of different conditions that have been listed, so fibromyalgia, temporomandibular joint dysfunction, these are all things that the research has indicated can form part of this sensitization experience that the patient is having.

- I had a look at one of your slides before we started this broadcast, and I think there's a whole page of relatively small text listing the conditions which might be a component in central sensitization.

- Yeah, that's it, there is, I mean.

- We probably don't want to bring it up 'cause it won't show up on small screens.

- Yes, yeah, yeah, yeah.

- We'll post it of course, afterwards with the rest of our broadcast.

- Yeah, I mean, there's certainly many different conditions that, I think when I looked through this for the most recent paper I wrote, I found that there are 27 known conditions to contribute to central sensitivity.

- And fibromyalgia's one of them. Is this the golden bullet for dealing with fibromyalgia?

- Well, I think in a way it is, but in another way, you know, what this guy, one of the authors I quote a lot is a guy called Younes, and what he's done is he's taken central sensitization and looked at the common threads between various different disease entities, and I use that term perhaps loosely, but things like fibromyalgia, things like chronic fatigue syndrome, all of those other things that were just mentioned, also post-traumatic stress disorder, multiple chemical sensitivities. There's such a range of different things, and what he has seen is that you know, in medicine in general, they've talked about this as being, many of these conditions as being essentially psychosomatic. You know, they're basically, there's not sufficient clinical grounds to be able to effectively say, "Yes, this is definitely, "I guess, an objective thing that we can measure." It perhaps has, you know, sort of strong psychosomatic underpinnings, so there's functional pathologies and various other terms for this. And what Younes is saying is that that's completely disrespectful to the patient experience, and in fact, there is a common thread between all of these conditions, and the common thread is sensitization of the spinal cord and essentially what he would term as central sensitivity syndrome. And it's not just him saying it, there's lots of other people that have you know, come in and have looked at what he's said, looked at the other research for these different conditions, and have said, "Yeah, you know, it makes sense. "This is what seems to be going on."

- One of the things I think which I've found slightly confusing or potentially misleading in that is you talk about central sensitization of the spinal cord, but actually if it's the limbic system, then that's not any particular segment of the cord, is it, that's being sensitized? It'll have to have some other component coming in lower down to facilitate that.

- Well, and I think what's going on there is that you're getting the descending drives from the limbic system and so it's not so much that the limbic system is sensitized, although I guess you could certainly make an argument for that if someone's anxious or depressed, or whatever. But the notion with the central sensitivity is that it is happening at the cord level, but it's, you're getting descending influences, and you're getting, you know, potentially parallel influences from things like the viscera and ascending influences from the soma. But it's the convergence of those drives that seems to create the sensitization.

- Yeah.

- And also it's potentially the nutrition and the sort of biochemistry in the background that is setting up conditions for, that are optimal for sensitization to arise. So if you just take a look at the standard Western diet, which is quite pro-inflammatory, then that is a perfect kind of milieu to initiate sensitization, and then you know, if you were to compare that with someone who has a much less inflammatory or even an anti-inflammatory style of eating, then they're far less likely to get central sensitivity, so.

- You're not gonna get your vegan placards out again, are you?

-No, definitely not. But so, you know, there's many different factors, and, you know, in the paper that we've just written, which is called The Ghost in the Machine: Is Musculoskeletal Medicine Lacking Soul?, which I can obviously make available to everyone, in there, we--

- So you're gonna make that available through Facebook, and we'll put it on the website after this, and people can have a look at that, and they'll have the whole paper, so.

- Yes, absolutely, yeah, yeah. So we delve into this, and of course, there's multiple references in there. There's also several diagrams as well. But what we start to investigate is various solutions that people could employ to deal with central sensitivity as well, so that's another aspect of that.

- We had a lovely question for you.

- Okay.

- This particular viewer has put in brackets after the question, "too ashamed to give my name." Can you just remind him or her what the limbic system does?

- Oh, okay.

- We've all got an idea of what the limbic system is, don't, we but,

- Yeah, sure.

- But put it into simple terms for simple osteopaths and chiropractors.

- Well yeah, so the limbic system is essentially the part of the nervous system that processes emotions. And so one of the nice models of brain function is MacLean's model, which, so MacLean talked about the triune brain.

- So which one?

- Triune brain, which means three-leveled brain. And so at the core of the brain you've got the reptilian brain or what he called the R complex, reptilian complex, and then overgrowing that, you've got the limbic emotional or mammalian aspect of brain function. Then overgrowing that, you've got the, neocortex, and of course that's the primate and in particular hominid component, and sure enough if you look at comparative--

- And again, this is just a nice idea of how the brain--

- It's a model, it's a model, so it's, but you know, when you look at the comparative anatomy of different species, and you look at say, a snake's brain or a reptile's brain, and sure enough what you see is pretty much a reptilian brain, and actually, they do have some emotions, so the idea of crocodile tears is not completely flawed, but you know, if you're talking generalities, then reptiles have very low emotional intelligence, let's say, and they will eat their young if they're under threat, as opposed to a mammal, which will guard its young, and often guard its young with its life. And so there's that kind of social bonding that tends to occur, and there's a lot more emotional capacity and intelligence in the mammalian, what is it called, class, I think it is. Isn't it a mammalian class?

- Oh I'm not sure.

- I always forget which one it is.

- I can never remember which the levels are.

- But anyway.

- We know what each other meant, mammals anyway.

- In mammals, yeah. And then of course, all of these animals have a neocortex as well, but the neocortex gets larger and larger as you go through the animal kingdom, and you get more and more capable animals. So you know, obviously cats and dogs, quite intelligent, and they have a neocortex which is larger than say, you know, a mouse's. But then you go up to primates, and you see it get larger, and then of course with us it grows exponentially, and so that's the model that MacLean puts forward. But what's nice about that model is that within it, he talks about the way the body is set up reflexively to address the

reptilian reflexes first. So the reptilian reflexes are safety and security. That's number one, there's three of them. Number two is sustenance, and number three is sex or procreation. So you know, you don't procreate before you're safe or you've eaten. Okay, that's just all wrong. And when you look at the hormonal system, that it works that way as well. So you compromise sex hormones in order that you can produce stress hormones for example.

- Yeah.

- And stress hormones of course shut down your digestion, so you know, if you're stressed, you know, you're not gonna be moving onto the second reflex yet. You need to decrease your stress, so your fight-flight first, so you need to address that. So until you feel safe, there's no point eating because your digestion's shut down. You don't even feel like eating.

- I think it's great, the idea that snakes will take you out to dinner first,

- That's it, that's it.

- Before, you know. So then sustenance is next, and then sex is next. And so, what you find is that that's playing underneath the emotions, and then that's playing underneath our ideas and beliefs and concepts that are more neocortical. And so you know, of course that's important because one of the things that we find with central sensitivity and central sensitization is that stress plays a big role, and in particular sleep, if people are having disturbed sleep, that plays a big role in sensitization. But also HPA axis, dysfunctional stress, so what some people would term adrenal fatigue, although that term is kind of questionable. But stress to the adrenal system, which is that first reptilian reflex, you know, that is one of the drivers of central sensitization.

- Hypothalamus, pituitary, adrenal, HPA, which is accepted to be the stress system

- It's the stress response that you would get, yeah, yeah, yeah,

- The stress response.

- So it's, that's how the stress response is controlled and initiated.

- Just wanted to prove that I knew what HPA stood for.

- There you go.

- Before we were to bring it out in the open. I've got another question in my look sync.

- Okay.

- Do these central sensitization effects need to be resolved before rehabilitation via the transversus abdominis and multifidus approaches?

- Well, I would say,

- For example.

- Yeah, yeah, yeah, I would say that they do, and they need to be resolved in conjunction with, I mean, just by seeing someone, that's gonna lower your stress.

- That's true.

- You're already helping them with their central sensitivity or central sensitization.

- What we might have referred to as the placebo effect in the past.

- Yes, unless you tell them they're gonna die because of their back pain. Then you know, that may not help, but the point being that, in general that the patient experience with a manual therapist will be somewhat biopsychosocial and you know, reassuring, and lowering of anxiety, and lowering of depression or other worries associated with the pain condition because they're being assessed by someone who has some confidence, some competence, and is able to reassure them, hopefully relieve some pain for them, and give them a process to work through to get better. So immediately you're dealing with multiple factors to help to decrease central sensitization, just in what we do anyway. Then of course pain is one of the main generators of central sensitization, so if you can help to alleviate pain, which of course, we tend to be quite good at, then that also is gonna help as well. But I suppose my message is that if we're dealing with pain, that's one thing, but we really want to understand what's driving the pain in the first instance, of course, you know. And so I suppose until recently, we've thought that that's posture, and it's biomechanics, and you know, poor ergonomics, or whatever, but the research increasingly is suggesting that that's not a major factor, that statistically speaking, it doesn't have good significance, particularly in more persistent pain cases. That posture and ergonomics and so on, and biomechanics have a very weak association with pain. And that things like anxiety and depression and sleep and other lifestyle factors, they actually have a much stronger association with pain and pain persistence than biomechanics do.

- We had, Neil Stanley came on to talk about the quality of sleep on one of these broadcasts before, and he was saying actually that, I think, he was saying that sleep in itself is a great analgesic.

- Yes.

- Good, quality sleep.

- Yeah, yeah.

- And that actually the drugs which are often prescribed to facilitate sleep, the hypnotics, deprive you of quality sleep. They simply shut your eyes, and you don't wake up. You don't get good, quality sleep, and so therefore they are defeating the object if you'd like because they are not giving you the response that you need. Sorry to interrupt you there. I'm gonna have to interrupt all that again because someone here has asked about reptilian reflexes, and I presume those reptilian priorities, you talked about it.

- Yes, yeah.

- Are those two just an idea, or are they actual reflexes? And it's not a challenge, it's a question.

- Yeah I think, I'm just trying to remember how Paul MacLean developed his theory. I've got his book.

- What's the title of the book, did you say?

- Well, it's called the triune brain, is the theory.

- The triune brain, yeah.

- The book is something like the Neuroethology of Paul MacLean's Triune Brain, something like that.

- Okay well, we'll post the reference to the book after the broadcast, so.

- But I think it is just a theory and a model, and it's based on comparative anatomy. And clinically, it's quite a useful model because what it does is it helps to point to the primacy of the stress response, and then the importance of nutrition, and obviously handling the emotions and so on. So you know, I think from that perspective, it's a useful model to understand human behavior.

- Okay. You were talking about posture before I interrupted you there, and we've talked quite a bit about posture, not just you and me, but we've had a couple of other people talking about posture as well, and how other therapies and how other interventions, whether they're physiotherapy or yoga or variations on the two, can affect posture, and both of them asserting that posture is a major component in pain, and you've just said there's no correlation.

- Well, there's very little correlation. So we've got a slide here, which just illustrates that, the point a little bit. And you know, what obviously the cartoon is showing is this guy moving the leg, and the patient's saying, "How do I know you're not just pulling my leg?" And this is part of the problem, is that it seems that

mechanically, the research doesn't really support the notion that mechanics are causing pain issues in a high percentage of cases. Obviously there are certain cases, acute cases, where you get a contact injury, or an impact injury, then yes, of course.

- So what you're saying is that the posture may not cause the pain, but if you've got pain, posture, bad posture isn't going to help, whatever bad posture may be defined as.

- Well, just to clarify that, what I'm saying is that's what the research seems to be saying.

- Right.

- It's not particularly what I believe, and the reason I don't believe it fully is that research uses linear causality or looks for linear causality, and one of the problems with linear causality is that if you ask, "Does sitting like this cause pain?" well, it probably doesn't on its own. If you ask, you know, "Does sitting like this "and being stressed out cause pain?" Again, that probably is not gonna cause pain. But you start to combine it with, you know, a pro-inflammatory diet, and with deconditioning, and with poor sleep patterns, and with depression, and you've built up a list. Now you've got multiple factors that reach a threshold, and when you breech the threshold, now the pain kicks in. So but, you know, posture is never gonna be statistically significant in that kind of complexity approach. So when you look at it from a complexity theory perspective, then you can see that multiple factors contributing are likely to cause pain. It's just that posture probably isn't quite as important as we thought it once was, but it's still got to be a factor because it's still, we live in a gravitational field that's pulling us towards the center of the Earth at quite a rate.

- I guess the arch cynics would say, "Well, just because you think it's logical, "and it makes common sense that it does do this, "is not evidence," and I do object to that because it's, I've read a couple of quite well-known authors recently, and both of them came out with the same fairly old quote, which is, "The more you read about medicine, "the more you realize you don't know "because nothing, nothing appears to be set in stone."

- Yeah, yeah.

- And all those well-researched therapies that you might get in the conventional system, there are exceptions to their effectiveness as well.

- Well, there is that, and then there's also the notion of airtime and algorithms, and this kind of thing, and so what you find

- Airtime?

- Airtime being that, you know, someone saying, "Posture doesn't matter," is gonna get a lot more airtime and a lot more attention on the Facebook algorithms than someone saying, "Oh, posture causes low back pain," because people have been saying, "Posture causes low back pain," for as long as we can remember, right? And that's because, based on empirical evidence and on clinical experience of thousands of years of working with people in pain, posture seems to affect it, right? So we could just dismiss all of that, but the thing is that on Facebook, or on Twitter, or wherever it is, someone says, "Posture doesn't cause pain, "or isn't related to pain, or I'm calling,"

- It goes viral in a second.

- Then it goes viral because people are like, "Wow, that can't be right." Or there's arguments and you know, cross-talk, and so, I think we're getting an impression that posture doesn't cause pain, but I think the reality is that there's some kind of balance somewhere in the middle, that perhaps it's not as important as we once thought, but there's multiple other factors that we need to look at, and I think that's where central sensitivity and central sensitization comes in because those are those other factors driving the central sensitization, and therefore. So sensitization, what it does is it lowers your pain thresholds, and it increases your pain sensitivity, and so what that means is that, if I were to go like that to you now, because you're not sensitized, doesn't feel like anything. It's just like a friendly tap on the shoulder, but if you had multiple things going on, you know, perhaps an old injury, perhaps a heart condition, perhaps, you know, you're massively stressed out, and I tap you with the same, that could be quite uncomfortable for you. You might even, you know - Suffer a bit from that. And of course we've seen this in pain patients as well where you just do something very light to them which normally wouldn't hurt anyone, but they're jumping off the treatment table and that's because their system is so sensitized.

- Talk me through, then, your clinical approach to this. When you go to a patient in clinic, what leads you to suppose that there are some sensitization going on?

- There's a number of symptoms that you can look out for and in fact, there's a list. I wanna show you this page just because it gives people an idea for the number of things that you can look out for. I know they won't be able to see that particular on there.

- But we will post it. They will post it so they can see it on the website afterwards, but this is sort of a lot of things.

- There's a lot of things which have been associated. So you know, abdominal bloating is the first one, abdominal pain, and we go through the list and there's things like pruritus. There's obviously headaches, there's

- Tinnitus, those things you might not associate--

- Tinnitus, there's palpitations, there's mold allergies, there's parasite problems, there's Meniere's disease. I mean the list is quite significant. The point is that probably one of those things on their own doesn't give you... You know, someone says, "Oh I get bloated when I drink beer," I pay attention to that but it's not ringing the alarm bells but when they say, "Oh and I also sneeze "when the pollen is up and I also find that "the mold in my bathroom makes me sneeze "and I also find that I get itchy skin at night." Then I start to think, wow, okay, there's multiple symptoms here that relate to sensitization. This person could have sensitization, maybe that's why their back pain isn't going on, maybe that's why their knee pain is still present. So those are some of the things I would look out for clinically. I also use a tool called a Health Appraisal Questionnaire, which screens for the stress levels on different organs and glands and gives an overall rating of each of those systems.

- Which tool is this?

- This is called a Health Appraisal Questionnaire.

- Available?

- Well, it's available in the check training but it was developed by a guy called Jeffrey Bland who some people will know because he's the forefather of functional medicine so he develops a lot of the lab tests, the CDSA, the Comprehensive Digestive Stool Analysis we mentioned once before but things like adrenal stress testing and thyroid testing and so on, he's an MD but his big thing was that he could see that medicine was excellent at dealing with horizontal disease as he termed it. So people that have been knocked down flat on their back from a car accident, people that have fallen over with a heart attack or a stroke, people that are dying from cancer, whatever it is, they're great with the horizontal disease but he said that they're terrible with vertical disease so in other words, the process that leads to the person falling over and having the heart attack. His whole thing was let's work with the people with vertical disease. Let's find ways to screen them. What he did is he developed a questionnaire which he called the Health Appraisal Questionnaire and what that does, it gives you a sub-clinical screening of the stresses on 28 different organs and glands. Of course it's just a questionnaire so it's not super technical, it's not super lab based or scientific but it gives you a feel for what's going on and what level of stress the person may be under. If everything is say pretty low but you get a high adrenal score, that seems like the adrenal glands could be under a lot of stress and maybe we should do an adrenal stress test. Maybe then it's worth investing 100 pounds into doing that. If everything is in the green then it's no real point in testing.

- Is the assessment all biological or is there a social and psychological element to it?

- There's a psychological element to it from the perspective that it assesses anxiety and depression and anger in the mood section. It also assesses the central nervous system for signs and symptoms in cognition as well. It's got a few aspects of psychology in there that would be involved. In terms of social assessment, that's not so easy to assess, I guess, in terms of symptoms. It's probably... I mean this is why we called the article that we wrote of the paper, The Ghost in the Machine, partly obviously referencing that notion but also the notion that a lot of what goes on in our behavior is unconscious. All of the automic stuff of course is unconscious so all of the stuff that's associated with pain and with central sensitization is unconscious and in fact, it's really the pain and I've got a little diagram here. It's really the pain that is acting a little bit like a finger to nudge you to say there's something wrong here. We need to address this, okay? Because everything else is going on below the level of consciousness. The digestion, the genetics are expressing themselves, respiration, reproduction, all of these things, they're all driven below the level of consciousness and of course pain, the pain mechanisms themselves are unconscious. You don't decide that I'm gonna make this hurt. It just hurts but it's that process of nociception that gives you a nudge and say you need to shift off of your left buttock 'cause you had been sitting on it too long or that stove is too hot to sit on, you need to get off of it, that kind of thing. So... I forgot where I was going with that. Oh, so I was talking about the unconscious and what the diagram there is showing is that somewhere between 95 and 99 percent of our cognitive function is unconscious so what that means is that what we perceive with our conscious minds is a very small fraction of what's actually going on within us. This is why we find ourselves saying things and doing things that we didn't really expect, maybe grabbing an extra cookie from the jar or maybe you've got the intention of doing something like going for a run but somehow you've managed to distract yourself from it. That's unconscious processes that are occurring. When we're trying to make lifestyle changes, when we're trying to change peoples' nutrition, give them exercise programs, get them to go to bed earlier, get them to think more positively, this kind of thing, it's really the unconscious that we need to work with and that's where a lot of depth psychology but also other subtle techniques because one of the things with persistent pain that's been shown to be very effective is mindfulness, something that you wouldn't expect medicine to go near. The research is all pushing towards one of the things that's really effective with persistent pain patients is for them to take up mindfulness. Mindfulness is all about getting out of your ego state and that conscious mind and delving down into the unconscious.

- Do you know why worry about mindfulness? I am a bit of a skeptic about things we should become vogue with mindfulness, yes, is that rather like the dreaded core stability which was a perfectly reasonable concept when it first surfaced. It gets pounced on by all sorts of people who then adopt it to their, or adapt it to their own particular preconceptions so I wonder where that mindfulness as it is meant to be is now just something that everyone says they do and it's not... How do you know if you've got a good mindfulness tutor or?

- Sure, sure. Yeah.

- Anyway, that was a worry on my part. I'm not gonna ask you for an answer necessarily, but...

- Well, one of the things that Ken Wilber talks about is he talks about how everyone's at a different level. You've got different levels of conscious development and you've got different states of conscious awareness. It doesn't really matter what level of conscious development you're at. You could be at the mythical magical level which is quite tribal and the idea that perhaps there's pond spirits and this kind of thing and that could be seen as someone who is, at the rational level, quite bizarre and backwards. The point is the person down at that level can still move across and go from a sort of waking state of consciousness into a dream state of consciousness into this mindfulness state of consciousness, what they're likely to experience there is plant spirits, where someone who's a level higher actually, mythical magical is the level above that and that would be... 'cause that's more animistic but mythical magical is really where most of the worlds religions are because they're based on myths told in books.

- You're sounding a bit woo.

- Well, I don't think it's particularly woo because what you're looking at is you're looking at different stages of conscious development in terms of if you look at different cultures, So assume a biopsychosocial model. If you look at different societies, some societies are very animistic, other societies are very religious and they'll have a monotheistic religion, then you have societies that have moved beyond that and are in a scientific materialist kind of dominance within the society, which is where we're at in our society. That's why less than a million people go to church, out of 64 million because we're in that scientific materialist level. The point is that as you go up the different levels of consciousness, you still, every single person no matter where they are on that scale, they can go from their beta brainwave state, which hopefully is what we're in now 'cause we're concentrating, into an alpha brainwave state which is daydreaming, into a theta brainwave state which is dreaming. Yes, so did I say that right? So daydreaming, yeah and then dreaming or a hypnical trance so this is getting into mindfulness and then you can go into a delta brainwave state and that is being completely unconscious if you like, or at one, a sense of being at one with everything.

- Okay.

- Okay, so it doesn't matter where you're at on the left hand levels you can still get into the... It's just your experience is going to be different.

- We've had a question from somebody, he who says, "If people don't like the idea "of mindfulness, could they just walk the dog "or play the piano, go to the gym, "or do something that they simply enjoy "to take them away from any of the stresses, "strains, of miserable stuff that's going on around them?"

- Yeah, I mean I think any form of stress management is good but my experience with patients is that there's always a way to get them into mindfulness type practices but you've just gotta find what it is that resonates with them. You could go down a scientific explanation, which some of what I was explaining there is science based stuff Some people prefer more of a mythical magical approach. Other people, they prefer more of a... A lot of athletes, for example, they might not buy into this but if you say to them, by getting into this state, this switches your physiology parasympathetic which means you're in an anabolic state which means you recover quicker now suddenly they're into doing their mindfulness, you see. You've always gotta try to find what it is that's gonna float their boat and again to participate. Also a lot of athletes use this so you see one of the Arsenal midfielders does his incantations or whatever it might be but he has a quiet moment before kickoff and prepares himself so that he can get into the right mindset for the game. Again, working with little footballers--

- Someone's going to write in now and say, "Well now that's all very good."

- There's always a way to access this, I think.

- Someone has written in a question here and I'm a bit disappointed. Only one person so far has given their name and it's not this one but it's nice when people do give their names. It gives a bit more feelings to the questions. They've written in and said, "Well, should we all retrain "as hypnotherapists?" I think an earlier version of that question might have been, "What the hell are we doing? "You've lost your passing chiropractors. "How does this all work with central sensitization?"

- See, this is where I think the social media take on it would have you do that. Some of the language is very negative and very rude about what we do as manual therapists. Those social media people would be saying, yeah you should retrain as hypnotherapists but I think it's missing a lot of what we've got to offer because we do have... Just by putting our hands on someone, we're touching their ectoderm, which is their brain. The ectoderm forms the skin, the nerves, and the brain, so you're straight on to their psyche by touching them. We have the best access to that, as osteopaths, as manual hands-on therapists. Then our manner with the patient is gonna be really important, our ability to reassure them. There's so many different things that we can do, just without even really changing anything that we do. It's just having that context and I think I mentioned it before, I wrote a paper which I called "Realizing the benefits, makes the benefits real" and this is a great example of it. If you think if you're just wobbling a joint and chatting to the patient

and that's what you do, then that's as much benefit as they're gonna get but if you're explaining to them, "Oh you know, what we're doing here "is we're stimulating these nerves "and that will help to..." let's say, proprioceptive drives and that will help to block some of the pain messages and explaining how this all works and if we can work a little bit on your diet to decrease your Irritable Bowel Syndrome, that will help lower your sensitization as well. Get to bed a little bit earlier, let's think about switching the screens off, et cetera, et cetera a little bit earlier and so just with some simple lifestyle interventions you can and very minimal change to what you're doing as a practitioner, you can really help with their central sensitivity.

- So actually you don't have to be a counselor, you don't have to be a hypnotherapist. Maybe their intervention will be helpful at some stage with some patients but you can do a lot without any further real training.

- Absolutely, but the thing is this is where it's great to have options. You've got the option of doing what you do but with a little bit more awareness. You've got the option of doing something like a Health Appraisal Questionnaire screening which gives you more idea of the different stresses on the body and therefore, you can give more bespoke advice to that individual but also you've got other healthcare professionals. So you've got nutritionists, psychologists, counselors, whatever it is you wanna use around you that if you get the sense this is what's gonna benefit the patient, then you can work as a team.

- The question that came in here is that, "Do you think the hypnotherapy works "in the same way as mindfulness "now that we've sort of compared the two a minute ago?"

- Yeah. It does in some ways.

- Presumably it's encouraging that delta wave activity.

- Theta, it's theta that they try to take you to. Delta is kinda beyond that. It's where you do sensible self so there's no context but the theta brainwave state and hypnosis is often dependent on the hypnotherapist making the suggestion to you, so somewhat passive in that way. A difference with mindfulness is that you can talk... If you were my patient I could talk to you and say, "So, let's talk about the stresses "that are associated with this back pain." Maybe you can't work as an osteopath because you've got back pain. What would be a positive way to view this? Let's think what this means, so it gives you reflection time. It gives you a rest for a little while. It may allow you to re-evaluate the practice or get someone else in who you've been meaning to give more work to or get an associate. It's reframing the challenge and then you can potentially take yourself into this mindfulness state and search for those kinds of solutions that we were just discussing. I've obviously just blurted a whole bunch of solutions out, but those are the sorts of things that if you go into the mindfulness with a challenge that's specific to you and that

you want the answers to, then you can get into the mindfulness state and these things tend to just drop into your head because you're giving yourself the mind space to do that.

- Yeah. Is there a role, do you think, for drugs like Amitriptyline? That's one of the questions that's come in.

- Yeah, there's always a role for drugs and for surgery and all kinds of different approaches, I think but Amitriptyline I'm not sure about. What I do know is that a lot of the, which was the class of drugs, the morphine based drugs, they are not a good idea for persistent pain patients. You only have to to Google it, or go on YouTube, look up central sensitivity and you'll find that there's a real move away from these opioids type drugs.

- Hasn't NICE changed it's guidelines about that, for that very reason recently? There is good quality research that says opioids are not actually good for chronic pain.

- They're not beneficial. They have a very short term effect and then they create a dependency and they actually have an exacerbating effect on the pain patients. Yeah, that's, as you say best practice is to avoid them completely unless you've got something that's extremely acute like a surgery and then they may be used in the short term but they should not be used in the long term.

- I just want to go to the one question that so far has been asked by a named viewer, Kevin from Surrey, apparently, who says... We're going back a bit in the conversation but he says the posture is very significant, from his perspective. "How can posture be disregarded as the cause "of pain when the patient has flexion to the lumbar spine, "for eight to 10 hours a day sat in a chair, "then sits in a car, then slumps on the sofa "which recreates the same posture. "This position of the spine has to be influential "in lower back pain. "This position encourages the NP posterior..."

- Could you please help us?

- Thank you, yeah. "Therefore the disc and lower back pain is inevitable."

- I agree.

- The only question, the only criticism I know about is of course yes we can see why that's logical but again, to satisfy the good thinking bunch andwe probably need a little bit more evidence.

- I think one of the things that's come up in the research is this very surprising notion that the majority of people have disc bulges and particularly as you get older so I don't have the slide with me for that but it does essentially go up roughly with the decades, so about 20 year olds, about 20 percent of people have

disc bulges and as you go up the decades, by the time you get to 80, about 80 percent of people have disc bulges but they're all asymptomatic so this is on asymptomatic populations. The way that's taken by these social media-happy anti-posture types is that, therefore, if people without pain are getting disc bulges or have disc bulges, then the disc bulges can't be causing the pain. Well, for me that--

- It can't be causing all of it.

- Yeah, and it comes back to a number of things. It comes back to, first of all does the bulge actually press on something that's pain-sensitive? Course, it may not be. Second of all, what's their underlying biochemical status? Are they proinflammatory or are they not proinflammatory? Are they anti-inflammatory? 'Cause then they might not feel pain.

- Now we talked about that in a previous broadcast, which people might not have seen. Can you explain that just a little bit more?

- So certain things in the diet are proinflammatory, obviously having too many Omega-6s is the classic one which you tend to find in processed meats and factory farmed meats and also factory farmed eggs, factory farmed fish, you get high levels of Omega-6s and then the same in a lot of commercially baked products. So what you find is that the average Western diet has a ratio of between 30 to one Omega-6 to Omega-3s to up to 60 to one Omega-6 to Omega-3s but in nature we would have had about a one to one ratio. The Omega-6s are proinflammatory and the Omega-3s are anti-inflammatory so that's one aspect of it but then you've got things like food intolerances, very very common in this day and age, often related to grain consumption and medical drugs and other chemicals in the foods because they tend to inflame the gut and as soon as you get inflammation in the gut, then the tight junctions become loose, which means you start to absorb macromolecules through into the blood supply into the hepatic portal vein and you get a strong immune response. An immune complex is forming and ultimately, the immune system becomes sensitized and then you start sneezing when there's pollen in the air or when there's dust in the air, or whatever. Generally that's digestively initiated thing but the immune system is now on red alert and its in an inflammatory state so you're in this proinflammatory state. That's another aspect to it and then you've got... back to the reptilian reflexes, most people have too much stress. It's the number one cause of time off work. Stress itself keeps you in a fight-or-flight state. It releases cortisol which is anti-inflammatory in the short term but in the long term, it's catabolic and it's proinflammatory. It breaks tissues down so you get weaker and weaker tissues. Again, that can lead on to things like disc bulges or ACL tears or whatever it might be.

- And there's a strong correlation between stress and heart disease as well.

- And heart disease, yeah. Of course, of course. And in Alzheimer's is the kind of, the list goes on. Diabetes... So I absolutely agree that posture has to be part of the picture for me. Again, to go back to posture, if you think about it, you've got the logic of it, you've got the Newtonian physics that the moment something isn't perfectly aligned against gravity, it's gonna create stress on it. The Leaning Tower of Pisa concept. So then you've got Newtonian physics on your side. You've got clinical experience on your side. You've got logic and common sense on your side. You've got some research on your side as well. The point being, earlier we talked about the Facebook algorithms. There's plenty of research that comes out that shows that posture is effecting back pain or pre-disposes people to injury. People aren't shouting about it. I've got several studies like that. I can share those if people are interested.

- I'm sure they would be, yeah.

- Yeah so the point is that a lot of it is misconstrued and it's just a trend at the moment. I think when we did the neutral spine talk or it may have been the core stability talk and we talked about a paper that was looking at sagittal spinal curves and saying that there's no correlation with pain but that was because they're taking all of the conditions and lumping them all in and finding some conditions are worse with extension, some are worse flat so overall...

- On average.

- On average, posture doesn't relate to back pain. What a ridiculous conclusion but that's what they concluded.

- Actually that enables me to read this comment from one of the viewers and again I don't know who it is, but whoever it is says, "Not a question but Matt, I love the soundbite "that Claire shared of you saying posture is dynamic." And she uses a lot with... Oh she, I'm saying he or she uses it a lot with their patients, so thank you.

- Oh good, excellent.

- So at least one of your talks was useful. All of them are being--

- As long as I'm very well-received as well.

-questions in here... Robin, in Exeter, hello Robin. Robin says, "Should osteopathic training, "and by implication chiropractic training include "a module on pain management? "It seems we're actually reasonably good at pain management. "We get a fair bit of criticism "because we haven't packaged it in the way "that the mainstream demands." Good point, that.

- Yeah, absolutely. I think it's important for us to have a good working knowledge of pain, pain theory, and of course we do cover that to some degree in our training

but what I'm seeing, interesting enough is that I don't think anyone really has much idea of how to deal with pain at the moment. I think the field is so blossoming and so new and so many new realizations coming out of it that everyone's just experimenting. When you look at the concepts that seem to be most cutting edge, it's playing around with movement, trying to find movements that don't hurt. It's what they call edge working which is where, let's say it hurts to go past here. So let's just work to the edge of that pain. And it might not hurt to go this way, that's fine, but when I go that way there is so let's just find something that's just working around the edge of the pain. That's edge working. I mean these are common sense ideas in some ways but they're also just playing and I'm not saying it's a bad thing because I think play is also in itself very important. But where I think the biggest growth is going to be is partly in digging in to peoples' unconscious behaviors and beliefs because that, I think, is what's stopping a lot of people from making changes in their life. I think people feel disempowered. That is one area but I think the other area is with the central sensitivity and recognizing that actually anything that's irritated in the body is likely to be contributing to central sensitivity. The person that reacts a little bit to dairy and also gets PMS and also is a bit anxious at times, and then they tweak their knee, they're the person that's gonna get a knee problem that won't go or doesn't respond to treatment as effectively as someone who doesn't have those things but tweaks it in exactly the same way. I think where we're gonna make our greatest gains is by thinking more holistically, which is exactly what osteopaths have been trained to do, or having this awareness of how the different systems integrates and then having strategies to work with that as well.

- I think, going back to what Robin just said a moment ago, I take his point there, that actually, although we cover some of these things in training, we don't call it a module necessarily and say we're gonna talk specifically about this topic so that we can then say that we've studied the concept of pain management because we're too busy talking about the whole holistic osteopathic chiropractic model of what we do, but moving on...

- Well on that point, I actually think that pain management is very musculoskeletal and as it stands, because it's coming from musculoskeletal practitioners, you aren't thinking holistically. When you see these papers, they say, oh sleep is really important, or like I say Irritable Bowel Syndrome or whatever and that's as far as it goes. Well, so what do you do about that? I think most osteopaths, or anyone that's holistic in the way they practice, well that's what I've been doing for years, is talking people... You know, you need to get more sleep. It's not just a case of saying that but saying how do you get more sleep? How do you get better quality sleep? Well, the nutrition, okay, and you have to work on your stress levels. How do I do that? Well, you could do Tai chi or you could do mindfulness or you could do...

- I've surprised myself and I shouldn't say this but the extent to which the broadcasts we've done, over the many many months we've been doing them how they interlink. The chat I was talking about, sleep, Neo Stanley. All of a sudden you find that he's interlinking with what you say and you interlink with what someone else.... There's a lot of stuff here which we can put together and put to really good use in practice. What you're saying this evening is gonna be very helpful. Jason has asked whether, he says in his experience, doctors don't even notice the posture of their patients. Are you aware of doctors being given any instruction on what to look for?

- My experience with doctors hasn't been fantastic in terms of their musculoskeletal awareness in general.

- I should say at this point, I know I've said this before. When we had an NHS contract, the NHS GP, who was a musculoskeletal specialist said, and I'm pretty much quoting word for word, "GPs have zero knowledge of musculoskeletal problems." So that's not a biased opinion of an osteopath chiropractor. That's what a GP musculoskeletal specialist said so it's not surprising then, that they're turning to the stuff that they've been taught and it comes out of the nice guidelines which is...

- Is that the leaflet or a little training... Yeah, yeah.

- Sorry, I interrupted you there.

- Well no, I think that pretty much summarizes my experience as well and having spoken with GPs and people in medical training, that is exactly the situation.

- Well Christ, how much can you do in 10 minutes? They haven't got time to do a postural examination, they've barely got time to take your name and find out what's wrong with you this week so it's not necessarily their fault. Someone's asked if you know any good books on mindfulness. Are there authors or topics that you'd recommend, or any that you might avoid?

    - Yeah, just trying to think if their is. I've explored it from a number of different angles, different courses and using different audios as well. One of the things that, and this is one of the things I would do with my patients, I assess my patients to understand their intelligences so how Gardner's concept of multiple intelligences have a little questionnaire. So if someone's musically very intelligent, then I would use something like there's a band called Anugama and another musician called Steven Halpern and they do a lot of music that is specifically theta brainwave state. What it does is, you listen to it, it just sounds like nice relaxing music but gradually it's taking you into this state where you're more in a dream-like state so you might get more daydreaming so if you're meditating while you do that then that facilitates it. Now for someone who's not musically intelligent and that's not their thing, that might irritate the Hell out of them and might just stress them out. So then, someone's visually spatially intelligent...Then they're probably quite good with a pen and paper so you might ask

them to draw a mandala, for example. This was something Young used to use. And the circle represents wholeness. You can have a theme of what you're going to draw within the circle. And then it can just be fairly mindlessdrawing which takes you into that state, and that can help you to access it. For other people that are very kinesthetic, they might want to do more like a tai chi type thing where they're actually moving and this is why Paul Chek teaches a meditative technique which is tai chi based, because he says most of the people that he works with, they're athletes, and the last thing they want to do is sit down and hold still for a minute. So if you get them just to do a cyclical movement just back and forth with their breathing rates. Can't really do it sitting down, but so you sort of breathe in there and then you exhale as you come back here. And what that does is it takes them down into this theta brain wave state and this relaxed parasympathetic state, but in what looks like quite a dynamic and feels like a kinda dynamic movement pattern. So your athletes love that.

- Sorry, I'm messing with my questions. I am listening to you.

- No, no, no, that's alright, that's alright. I wasn't sure if you wanted me to--

- No, no, no. I was just thinking you've been doing this and putting half the audience to sleep. This just gives a chance to wake up again.

- Yes.

- This comment here is something which I think I started out with. It says surely pain management is something we've always done, with lots of exclamation marks. We just have so many different new fads, titles, and names coming up at the moment. Core mindfulness, they're just some of the more recent. And that was where my concern was at the beginning that mindfulness might have become a fad which isn't now addressed quite as seriously as it should be. Same as core stability and so on.

- Yeah. No, I agree. I think again in the paper that I wrote, I actually wrote it with Paul Chek this time. The first one is called The Ghost in the Machine: Is Musculoskeletal Medicine Lacking Soul? But the second one, which is kind of the practical paper, is Working With the Ghost in the Machine. And within that, what we talk about is a concept that Paul developed. He developed it from a concept that Hippocrates had put out. And this is the idea that you've got three doctors that you need to consult. And Paul added a fourth, okay? So Hippocrates said that you need to consult with doctor diet, with doctor quiet, and with doctor happiness. And if you consult with those, you won't need any other doctors. And Paul added doctor movement because in this day and age, so many people are so sedentary. So he, you know, says there's these four doctors. And he wrote a book called The Last Four Doctors You'll Ever Need. And so really, that's an example of simplicity emerging out of the complexity of everything on the other side. So you know, if you work with your diet to make it anti-inflammatory or at least not pro-inflammatory, and

if you work with giving yourself some quiet time, getting to bed on time, giving yourself some introspective time, you know, potentially some mindfulness, that kind of thing. So that's doctor quiet. Then you've got doctor happiness, so you really got to think about what you want to do with your life. Are you on the right path? Do you want to change tack? You know, how are your relationships?

- That can be a tricky one, isn't it?

- I mean, these are big questions. But you know, if you're on the wrong path. I mean, one of the things that Maslow said is that the biggest stressor to anyone psychologically is whether or not they've got the right vocation because you spend so much of your waking time doing your vocation that if you're in the wrong job, then that's the most profound psychological impact you're likely to have across the lifespan. Of course, there's other acute traumas. Bereavements, divorces, whatever it might be.

- For many people, almost it's not changeable as well, isn't it?

- Yeah, yeah, yeah.

- If you're working on the production line for a living and there aren't many jobs to be had, well, you're probably stuck with it, like it or not. And so somehow, you've gotta get past that obstacle.

- Yeah, yeah, yeah.

- You went back to pro-inflammatories a minute ago and somebody sent in an observation, which I think is a misunderstanding of what you said 'cause it says not all omega-3's are pro-inflammatory. Now, I don't think you said omega-3's were pro-inflammatory.

- No, no, no.

- It's omega-6's.

- Omega-6's are pro-inflammatory. So omega-3's, my understanding is that of course, they're anti-inflammatory and you tend to find them in fish, but not so much in factory farmed fish. You find them in grass-fed cattle. You find them in free range eggs, and organic eggs, and so on. And generally, in organic animal meats. But when you start to get more commercially farmed, then you start to find a lot more omega-6's in all meats. Yeah, yeah.

- I've got a slightly longer question from Robyn. I don't know if it's the same Robyn again, but thank you whichever Robyn it is. If we've got time. Could we ask your understanding of how sleep deprivation affects the HPA and causes neurasthenic musculoskeletal pain syndrome?

- Neurasthenic? I don't know that.

- Which he says I believe is related to CFS, fibromyalgia type conditions. And how to break the cycle apart from sleep. I acknowledge that an NPS is a bit of an obsession of mine. So is an NPS

- Yeah, myasthenic.

- Yeah, neurasthenic musculoskeletal pain syndrome, which I confess, Robyn, is not something I'm familiar with. Send some more information in.

- Yeah, send more information. But essentially, the question is about sleep and how it affects the HPA axis. Yeah, okay. It's almost I would start the other way around, that the HPA axis affects sleep. And then of course, there's a perpetuation of that.

- Can't these work both ways?

- Oh of course, but the thing is if you're stressed. So if your cortisol level is too high in the evening. So, I mean, I always find when I do these things, you know, 'cause we're up, and we're buzzing, we're talking, or same if I played five-a-side football in the evening, then I'm getting into a bit more of a fight flight state. And then I find it more difficult to get to sleep at an early time, you know. So I might end up getting to bed at 11, half 11, 12 o'clock on a night like tonight, whereas you know, typically I want to be in bed about half 10, something like that, and I feel ready for bed around that time because I feel like I've wound down. My melatonin starts to kick in because my cortisol has dropped. So one of the important things to understand are that cortisol and melatonin are antagonistic to each other. So when your cortisol is high, your melatonin is just not going to come up. And melatonin is what makes you feel sleepy. Now, light stimulates cortisol production. That's very sort of well documented information. So if you're sat in a bright light environment watching a screen, working on the computer late, that is going to inhibit melatonin production. The flicker rate on the screen or on fluorescent lights also inhibits melatonin production. So there's many things that can inhibit your ability to get to sleep. So then if you get to sleep. Let's say you go to bed on time but you don't really get into a deep state of sleep, then in the first half of the night, you tend to get more of your physical repair occurring. You get deeper into the delta. Sorry, yeah, the delta brainwave state, the deepest level. The kind of state where people could walk into the room, switch the light on, rub you, and go out, and you wouldn't even know 'cause you're just dead to the world. You're in deep, delta brainwave state. But as you get into the wee hours of the morning between two and six. So if you sort of say 10 'til two roughly is more physical repair. Two 'til six is more psychogenic repair. And that's because the cortisol is slowly starting to come up. And what it's doing is inhibiting the melatonin. And so what it's doing, it's lifting

you from your delta brainwave state up towards your theta brainwave state, which is your dream state.

- Yup.

- And that's why you tend to dream more in the latter half of the night and you do more of your mental processing, 'cause that's what dreaming is, in the latter half of the night. And so that's why you're getting psychogenic repair at that time. So you know, of course, if you're exposed to too much cortisol in the evening, perhaps 'cause you're in pain, perhaps 'cause you're working too late 'cause you're stressed out, financial worries, whatever it might be, relationship worries, then all of those things can inhibit melatonin. You don't get the depth of sleep. You don't get the physical repair. You wake up in the morning feeling tired. And so then the way most people handle that tiredness in the morning is to have coffee and stimulants. You get a pick up and then you get a drop, and you get pick up and drop, pick up and drop, and that goes throughout the day. And ultimately, you get back into this pattern of too much cortisol later in the day because you're using stimulants, which have quite a long half life. One of the things that caffeine is is that its got a half life of between six to eight hours, which you know, a lot of people don't understand what half life means when you're talking to a patient, for example. That means there's half at six to eight hours, right? So if you have a double espresso at lunch time, it's the equivalent of having a single espresso at 8:00 p.m.

- Yeah, yeah.

- That's a lot of caffeine going into your system.

- I guess some people will build up a tolerance level for it and some people have different tolerance levels to start with.

- There is that as well, for sure, but it's still probably not a great strategy and there are other strategies that could be better like getting some light. Go out for a walk at lunch time or after lunch. Eat a balanced meal at lunch, well, throughout the day when you're having your meals and that avoids the blood sugar spikes and drops.

- And that business you talked about, preparing for good sleep. Again, that was re-emphasized by Neil Stanley in his talk to us. And he talked about television prior to sleep. Because of its predominance, I think, with blue light, it's very poor for sleep. And blue light in a room is bad for sleep. He didn't say that you have to have a completely dark room to get good quality sleep, but there are some light which is really bad as you mentioned earlier on. So there's lots of simple things that people can do to try and improve that quality of sleep, aren't there?

- Yeah, yeah.

- Someone's asked if you could repeat the names of the musicians you were talking about.

- Oh yeah. Anugama, that's the first one. That's spelled A-N-U-G-A-M-A, Anugama. And you can find them on iTunes or on Amazon. He's got a number of albums but Shamanic Dream and Shamanic Dream Two are really good ones for taking you to a theta brainwave state. And then you've got Steven Halpern has a whole bunch of different albums, some of them actually called theta albums. Some of them are for concentration and others for deep relaxation, et cetera.

- I can possibly add to that as well because years and years ago, I was looking into the process of hypnosis and how it could aid learning and retention and Lagos, particularly I think Bark's Lagos were said to be very, very good for putting your brain into exactly the right sort of state.

- Yeah, yeah.

- As we've just been discussing. And I will try to find the actual reference for that to make it a little more credible. It was probably written by somebody who hadn't done any research because things like that weren't necessarily researched--

- It's quite well known.

- But they'd done lots of practical training in it. Do you have any specific techniques which you find are particularly successful on patients with CS or any techniques that you've used whose efficacy surprised you? That's an interesting one.

- It is, it is. I've been surprised by how just changing someone's diet can make a huge impact just by working with macronutrients. I think you can get into lots of detail with diets and talk about, you know, supplement for this and supplement for that, and that kind of more technical side to it. But just by adjusting people's macronutrients. Quite often, people having too high a carb level because they're on a kind of low fat, what used to be termed a healthy diet, you know, and they're not getting enough protein and not enough fat because there's a sort of fat phobia. I just think it's really important. Well, it's quite clear that it's important for cellular health that you need to, you know, cells are built out of fat. They've got a bilaminar lipid membrane. So you know, when you're replacing them and repairing them at the kind of rate that we do. It's two million red blood cells per second. It's 120 million red blood cells per minute. You know, this is a lot of repair that's going on. That's just red blood cells. It's not talking about muscle, and hair, and bone, and everything else. And each of those has to be repackaged using fat. So I just think sometimes improving people's nutrition can massively improve their sleep as well. You know, to link back to the previous question, one of the big problems that people experience with sleep issues is that they have too high a carb meal in the evening. Quite often, it's their biggest meal of the day.

They might have loads of pasta, let's say, with some meat or with some vegetables, or whatever it is. And they go to bed, and the pasta has hiked their blood sugar, which of course, then you release insulin which drops it down. And normally by about two or three in the morning, the blood sugar is dropping below where it should be. Now, if you'd had a more balanced diet, more proteins and more fats with evening meal, then you would have had a rise but it would have stayed much more level. The problem is is that when you get the dip that occurs, the only way you can get blood sugar back up again is by releasing cortisol and cortisol is antagonistic to melatonin. So I've had several people that have come and see me with insomnia as either their primary or their secondary complaint, and just by giving them dietary advice, it completely solves it, you know. And they're quite amazed that just by eating a few nuts before they go to bed or having some ham, or you know, having more protein with their meal or whatever, makes all the difference. So that's probably one of the most surprising things, that something as simple as that can make such a big difference.

- Well again, if I can contribute as well here, and you, I'm sure will sympathize with this. I would comment that Leon Chaitow's pet treatment which is for breathing pattern disorders is surprisingly effective. And I say that not through my own experience, but we did a case place discussion last week and there were two cases. A child with Tourette's and a child with, it may be more, with ADHD, had benefited from treatment of first, and accessory muscles, and so on. And I actually emailed Leon after that and said is this something which is explained by your theory on breathing pattern disorders, which of course, he talks about oxygenation patterns of the brain and so on. And he said well of course it does, yeah. And I just think well, that is so lovely. There's no way that we could pretend that we could cure or treat these things or certainly claim to treat them publicly, but the idea that treating holistically, looking at something as simple as a breathing pattern disorder, could have such a dramatic effect on an unexpected subject. And we've got a comment here from Tish or a question from Tish who says how can we square this holistic approach, which, by the way, she feels is the way to go because at the end of the day, people are multifaceted, so dealing with health and healing must also be a multi-approach. How do we scale this holistic approach by our governing body, ours being GOSC, of course, going closer and closer to the EBM requirement which is so difficult to do with the evidence based medicine. It's so difficult to do with a holistic, person-centered approach. And it is, isn't it sometimes? Because the evidence based approach says we want a single intervention and look at a single outcome. But when you're saying well actually, just being in the room with the patient is part of the intervention, it's very hard to square that with what's required by, pet hatred of Simon Singh. Tish, I'm taking over a bit. Sorry. I wouldn't blame the GOSC because the GOSC has to do what the GOSC has to do and it's supposed to be an impartial arbiter, is it not, between, you know, patients welfare and our own status. But anyway. So you answer the question and I'll shut up for a bit.

- Yeah, I mean, I think, you know, all of the research is pointing towards the fact we have to be holistic to be effective. And that's what kind of makes me laugh is that having really dug into the pain neuroscience, essentially what it's saying is that you need to behave like a bit of a naturopath really. You know, you need to look at the diet and you need to look at the sleep, and the breathing, and you know, the stress, and those are much more important than the posture is what they're telling us. But I think of course, the posture's a contributing factor. But also, you know, as we've talked about in the past, I think it's really key that the patient feels empowered, that they feel they have tools to get themselves better, and I think we could get better at that. I do think that we could get a little bit more, I suppose, aware of the different options. And of course, you have to do that by doing them yourself. You can't really teach mindfulness if you haven't done mindfulness and you can't teach someone to squat if you don't know how to squat yourself, and so on and so forth. So I think it's kind of getting immersed in that ourselves, changing your own diet, seeing how that affects your sleep, these kinds of things. And then we're in a much better position to be able to coach other people. But in terms of what the GOSC have got to say about it, I mean, or whoever it might be, I mean, it's about as evidence based as you can get. I suppose the question is is what interventions are you going to make and how do you make those evidence based? And you know, that's tricky because really, a lot of it comes back down to nature, you know, and there's not much more of an evidence base than evolution. I mean, that's about as strong as an evidence base as you've got. which is that, you know, the experiment's been done. We're here and we've got here through eating natural whole foods, through moving regularly, through sleeping in rhythm with the cycles of the planet, and all without doctors, and all without drugs. Isn't that amazing? You know. And living in the sort of harsh outdoors. So we are very well adapted to get by with minimal intervention, but it's back to the simplicity thing of the four doctors. You know, making sure you're happy, making sure you're eating well, sleeping well, moving well, which is all easier said than done, but that's how simple it really is at the end of it.

- Tish's question makes me wonder well, conventional world looks for evidence base, an evidence base for its medicine and the conventional world appears to accept the biopsychosocial model, but how do hell do they got the evidence for the efficacy of the biopsychosocial model because there can't be a single intervention if you've got three clear elements to that. And yet, it is accepted.

- One of the criticisms of the evidence based approach is that there's so much evidence now that some of it's conflicting, first of all. So then you try and get around that by doing a systematic review. But the people that are doing systematic review probably have some bias themselves. So there's that aspect that you have to get around that should, theoretically, negate their bias, but that's not always the case as we discussed with thepaper. You know, it essentially showed the was more effective than manual therapies on its own, but not statistically more. You know, so the conclusion is that essentially, a lot of people

interpreted it as it's therefore no good, let's get rid of it. But actually, it's more effective than hands on treatment. So surely, you want to combine hands on treatment withto get a better effect. But that's an example of where evidence based medicine throws out the because it's not in vogue at the minute. And you get the other thing with evidence base is that you get so much evidence that you don't know where to go with it. And I think I had some stats on the meta analysis and how only 2% of them, according to this guy who is a research critic from, I think it was Stanford University. He says that only 2% of them are worth the paper they're written on.

- Which was a meta analysis of meta analysis, wasn't it?

- Yeah, yeah, yeah. And he said these are not useful in most cases. So you know, of course you can argue it 'til the cows come home. I guess ultimately, we have to jump through the hoops that they put there for us. But yeah.

- Robyn has actually come back to us and said that neurasthenic musculoskeletal pain syndrome is provoked by sleep deprivation and reversed with stage three sleep in the short term, but can become persistent. Sound like a weather report. Can become persistent with chronic deprivation, hence consider the potential component of CFSFM type conditions. Not sure what actually causes the pain though. Suspect it's a processing issue, but centralization would make sense as well.

- Yeah. So I would consider looking at all of the other factors that are known to contribute to central sensitivity as well. So you know, do they have gut issues? Do they have TMJ issues? Do they have pain from elsewhere in the body that can be addressed? Do they have recurrent uterine infection, or not uterine infections. Bladder infections and uterine problems. Depending on who you're working with, if you look at the list of things that may sensitive the nervous system, There may well be things there that you can look into and address. Or if not you, then perhaps a nutritionist, or perhaps a gynecologist, or whatever it may be, may be able to assist. But it would have to be a case by case basis based on the individual.

- I quite like this question. This has been on my list for quite some time. And again, I don't know who asked it. But the person asking it says is a chiari malformation a symptom? Meaning does it sensitize the patient or is it the knowledge that you have such a malformation that causes the stress on the system?

- That's a good question. I have no idea, I have no idea. I don't know, I don't know.

- Was it on your list?

- Yeah, it was on the list, yeah. I would honestly think that it's the latter, that it's the knowledge that you have it that creates the anxiety that drives the

sensitization, but I don't know. I mean, it seems to make sense that it would be that way around. It could be both.

- Well, here's another good one as well which is somewhere where we ought to be able to help, I think, because whoever says this points out that patients with central sensitization have often gone through the NHS system with CBT and pharmacology and they don't want to hear yet again that it's all in their head. How do we break that cycle?

- Well, because it's probably not all in their head. It's probably coming from a lot of their viscera. And you know, from the way they're. So one of the concepts that we use in the check system is we talk about the pain teacher. And you know, it sounds a little bit medicine man, and it is in a way, but the idea is that you want to look at what it is that the pain is teaching you and is it that your posture is poor? Is it that your diet is pro-inflammatory? Is it that you're not sleeping enough? Is it that you're too stressed? When you start to identify the lesson that's there, then you can become a student of that lesson. And so I think for us, we have to facilitate that learning process and kind of re-frame it as what can we learn from this pain situation. And that's why, you know, addressing these holistic factors is key. I'm trying to remember the actual.

- It was. I don't know, it's gone now. Patients with central sense, that they've been through the NHS and they've had CBT, and they've had whatever.

- Sure. So you know, CBT obviously is just going to help to address anxiety and depression, but they're only two factors out of all of the other factors that can drive central sensitivity.

- But they also mentioned pharmacology. And of course in the past, the pharmacology itself may have contributed to the problem if it's the wrong dose.

- Absolutely, absolutely, yeah. And you know, it depends a lot on the attitude of the people. You know, not to put anyone down at the NHS 'cause we don't know what these individuals are like, but it could be that they've had a duff practitioner, you know, so I think it's really important to take each case as it comes in and to recognize that there's so many different factors. In fact, one of the interesting things about the slide that I showed of the different symptoms that you can get as a result or coinciding with central sensitivity; almost all of those are breathing pattern disorder symptoms that are And so then you look at all Leon's work, and as you were saying with your client earlier, sometimes just some manual work and some reassurance can be enough to address a breathing pattern disorder and that can get rid of the brain fog, and it can get rid of the bloating, and it can get rid of the, you know, the aches and pains around the body which are all kind of related to.

- You had a slide in your little armory here, didn't you, of bloating?

- Yes.

- There was an athlete or a body builder and there's several hours difference and an extraordinary change in her abdomen.

- Here. So she actually is a physiotherapist, and she's a strength conditioning coach, and she's a fitness model. So she actually did some work for us when we were with the five finger shoes, and that's how I know her. She's also a check practitioner. Anyway, so that's a picture of her like you say, you know, with what was it? Probably just over 24 hours. Probably 30, 32 hours difference, something like that. And it's because she ate gluten. What we've got on the other side of the slide there is research about irritable bowel syndrome. She has irritable bowel syndrome, so she would be a candidate, potentially, for central sensitivity. But the four factors involved in bloating are subjective sensation of bloating, okay, objective abdominal distention, which we can measure. So we can actually measure her stomach in the left hand picture, the right hand picture. The volume of abdominal contents and then the changes to the musculo-activity of the abdominal wall. They're all components of bloating. And what they've shown, these research, is that if you actually X-ray the bloating, then what you find is that gas only accounts for 18% of the bloating, okay? So you might think that that bloating is all gas in the stomach, and of course, there is extra gas. There's 18% extra. But that stomach, you can see in the pictures, is at least twice the size. Must be there or thereabouts, twice the size. So then you have to ask well, what is that then? What is causing that? And the obvious thing is it's a viscerosomatic reflex. So you're getting pain coming back from the gut, from the small intestine or large intestine, coming into that thoracolumbar cord, creating sensitization there, inhibiting the abdominal wall. And so then you're getting again, as it says, changes to muscular activity of the abdominal wall. So you're getting relative inhibition of the abdominal wall, and that's what's creating the bloating. So that's another massively uncharted area as far as central sensitivity is concerned, and that is the notion that these organs that can drive all pain, that can drive central sensitivity, can inhibit the tonic motor neurons of muscles around the core, or in the hip joints, or in the knee joints, you know, wherever it is in the body is the tonic motor neurons that will be affected depending on which level of the cord is sensitized. So now you're going to get fatigue sooner 'cause your tonic motion neurons are the ones that feed the tonic fibers that are postural that have great endurance because they are oxygen based. But the others, the phasic fibers, which you're going to have to recruit because these are inhibited, well, they're anerobic, so you're gonna get pyruvic acid, and lactic acid, and you're gonna get fatigue really soon. And look, oh, now we've got chronic fatigue syndrome, right? Oh wow, isn't that amazing? So this is how it all connects together, I think, is that people. It's not people. When you look at the information and you put it together, then there's a fairly compelling picture that if we can just address the holistic health of the individual, then many of these things will start to improve and potentially correct.

- Possibly the last question here which is from Hamish who's a naturopath and an osteopath. Hamish wants to know is it likely that the future is in personalized medicine, and therein lies the evidence in qualitative research.

- Yeah. I think.

- So we need more, I guess.

-Well, yeah. I mean, certainly, certainly personalized medicine is the way of the future and I think that's the way that holistic medicine has taught for many years, you know, the idea of patient centered care I guess has been a buzz phrase that perhaps hasn't necessarily been as applied as it might have been in the clinical setting. But yeah, I mean, I don't think it's just about being patient centered. I think it's about being holistic and patient centered. And when we're talking about holism, we're not talking about someone's got a headache, have they got a flat foot? We're talking about someone's got a headache. Have they got irritable bowel syndrome? Have they got anxiety? Have they got back pain? You know, we need to screen all the systems of the body, and when we can see that there's multiple systems are under stress, then we need strategies to work with those and then we can be truly sort of customized.

- And one of our viewers says that it's so nice to hear that the way we've all been working for so many years is actually what research shows works. So thank you very much to Matt. I'm going to give you one more question before we finish. Any ideas on how to approach patients for whom their sensitization has become so much a part of their identity that they're reluctant to let it go? I suppose we're talking about a lot of the fibromyalgia patients here, aren't we?

- Yeah, and this is where it gets a bit, well, I won't say esoteric, but it gets into psychology, the realms of psychology, because this is really shadow behavior in a way. And shadow sounds sinister, but it's not really. We all have shadow behavior from the perspective that we have things that we consciously project out to the world and things that we keep back either consciously or unconsciously, and they tend to stay in the shadows. And so. I've lost my train. The question was--

- Do you want me to read that one again?

- Yeah, go on.

- Oh where's it gone? How do we approach patients for whom this has become part of their identity?

- Yeah, their identity, yeah. And so normally, there's a currency there. You know, there's a currency for them. And Caroline Myss talks about woundology and the idea

that we can pair our wounds. You know, I've had this, I've had that, whatever. And that that gives you a sense of currency when you're having a conversation with people. So you know, when people are identified with their conditions, then you need to give them something bigger than that. 'Cause essentially, the conditions are the nightmare and you need to give them something bigger than the nightmare. And so I think Jerry Hesch says that when you've got a big enough dream, you haven't got time for a nightmare. And so really, it's trying to find.

- Nice comment.

- You're trying to find the thing that inspires the patient the most. Could it be their legacy, their sort of one love, the thing they're going to leave behind. And that's where we can, I think, help people to sort of lift themselves out of the identification with these conditions, but it's really gotta be coming from them and it's gotta be something that's really massively inspiring that's their purpose, their life purpose.

- Matt, we come on these broadcasts and I don't script them. We have some slides that we can refer to if necessary and I always wonderso many of them whether we're going to have enough to fill the time. With you, it's never a problem because there are so many questions and the conversation is always so, I don't know, it's so exciting. And I'm sorry this is the last one we've got scheduled, but I'm going to do everything we can to find some reason to get you back in again in the future. It's been great this evening. Thank you very much. Pleasure to have you on the set, as always. And no doubt I'll have some questions to feed to you afterwards for our audience.