Academy of PHYSICAL MEDICINE

Neuro-inflammation and the Biopsychosocial Model - Ref 145SB - Draft Transcript

with Simon Billings

16th February 2021

TRANSCRIPT

Please note, this is not a verbatim transcript:

- *Some elements (repetition or time-sensitive material for example) may have been removed*
- *In some cases, related material may have been grouped out of chronological sequence.*
- *The text may have been altered slightly for clarity.*
- *Capitalisation and punctuation may be erratic…*
- *There may be errors in transcription. If something appears odd, please refer to the recording itself (and let us know, so that we can correct the text!)*

Steven Bruce
Now, Simon Billings is going to be talking to us tonight. As you will know from our reminder emails. Simon has been on the show once before about six months ago. He's a chiropractor. He's been a chiropractor for 20 years. And he is an international lecturer but he's also the founder of the Academy of chiropractic nutrition, which is a very misleading title, as I'm sure he'll tell us in a second. Last time, we talked a lot about vitamin D in which he has a particular interest. See evening, we're going to be talking about altering three neuro inflammation and the bio psychosocial model, and all the stress and anxiety that may be arising as a result of neuro inflammation. In particular, get assignments given us the question does neuro inflammation prime a subgroup of people for chronic pain and mood or behavioral issues? So, Simon, welcome to another of the academy shows great to have you with us always is. We're better slightly Shrove Tuesday, isn't it? So we can start with some nutrition? What do you haven't done your pancakes? It's a topic of conversation. In Vimeo I've just been told,

Simon Billings
well, I had pancakes this morning. And as the kids demanded, so that was with buckwheat pancakes. And then there was bacon and maple syrup.

Steven Bruce
So this is really distressing to me. I love pancakes. But ever since we've had we had Gary Taubes on the show a few weeks back. And ever since then, I've been keto. And I'm not allowed pancakes. I can have the butter and I can have the bacon but I cannot the pancakes or the syrup. But hey, I'm happy with the butter and the bacon. I don't want to recap too much on everything we discussed last time you were on the show. But there will be people who who don't know you haven't come across your Academy before. I think you formed the Academy of chiropractic nutrition as a result of health problems of your own, didn't you?

Simon Billings
Yeah, so I kind of go into nutrition and functional medicine via in through my own health issues. So what I did was, you know, I went through my journey I had ankylosing spondylitis, and psoriasis and all of other stuff, a lot of other symptoms peripherally, all sort of related inflammation, they didn't realize were related, which we'll talk about in a minute. And then through that journey that took a lot of training on that. But at the end of it, then it was quite hard to, to implement that training into my chiropractic practice was actually quite hard because it was all designed to people who spending an hour with clients and full on one to one thing. So in the end, then when I wanted to, then yeah, I then set the academy up to try and give, you know, functional medicine slash nutrition specifically for people that were chiropractors, osteopaths and physios that was a dedicated to a neuromechanical. speciality, with really the view that we all know that some people do brilliantly well with our care. And other people turn up with similar symptoms, and they just seem to not respond in the same way. And why was that? And a lot of the time, I experienced that there's a you know, metabolic biochemical involvement in that. And then through the research, we'll see in a minute, that biochemical involvement actually predisposes to a whole lot of stuff, including mental health issues. That Are they all have a root cause and in neuro inflammation is certainly a very, very big part of that one.

Steven Bruce
I just got a message from one of my team that says none of the audience can hear me, but they can hear you and apparently they're very happy with that.

Simon Billings
And apparently,

Steven Bruce
I don't I don't know what's going on. I'm gonna let you talk because obviously, if the audience can't hear me, then there's no point in me saying anything. However, so it's not really an academy of chiropractic nutrition, then, is it?

Simon Billings
No, it's not. I'll repeat your question. It's not really an academy of chiropractic nutrition, per se. So we have lots of osteopaths, we had a physio join today. So it's really a an academy of neuro mechanical nutrition or neuro structural nutrition. In fact, I'm looking for ideas for what I can call it that makes sense. I don't want to call it the Academy of musculoskeletal nutrition because, you know, neuro should be in there somewhere. And neuro musculoskeletal is just too long. So I don't know. But anyway, it's for people that basically we're all obsessed with getting results with what we do, because you know, it works for some people, but not everyone. And the question is why? And if we can get our care to be significant and sustainable, then we're happy.

Steven Bruce
Yeah, and I'm kind of hoping that as the years go by, we will stop worrying about whether we have the title, osteopathic or chiropractic in the type in the in our job titles and descriptions of what we do. Because you know, nutrition is not peculiar to either of those professions is it and most of the techniques we use are not peculiar to either of those perfect professions. There may be a slight different approach, but it's good to see more chiropractors and osteopaths coming together, I think, yeah,

Simon Billings
very much. So.

Steven Bruce
I've just been asked if you can repeat questions that I asked you because they still can't hear me out there. So well, let's let's start with the question that you've asked about neuro inflammation and the subgroup of people.

Simon Billings
So that's the question that the I'm asking is, you know, does neuro inflammation does that Prime a subset of people fall Chronic pain. And for mental health issues or mood and behavior, I prefer the term mood and behavior because it describes the issue that they have rather than getting a label. I think depression and

anxiety is sometimes a little bit unhelpful. So the idea really is that, you know, in a very extreme, we'll see in the slides we go through in a very minimal extreme sense, we know the medical profession, absolutely recognize that very severe medical major depression, is often inflammatory in nature, and is resistant to their normal care. That's well recognized, they still don't really know how to treat inflammation, because they're very pharmaceutical driven. But they've failed to recognize that there is a spectrum of inflammation in play. And it just because your inflammatory markers, or your CRP isn't about five to seven and a half, depending which lab you use, it is not above that. So it's four or five consistently, they would not recognize that was an issue or an elevation of inflammation, or we would say it's a spectrum. And that that low grade, sustained inflammatory response is then going to have a profound effect. Really, if we look at it through the lens of evolution, as we'll see, it's going to do all sorts of things to your chemistry in your body and your symptoms that you you will see consistently in clinic, but you won't always realize the links because the symptoms seem individual. But when they join up, you can see when you look through the lens of evolution, it suddenly becomes much, much clearer. And the key part of that when I said a sustained low grade inflammatory response, the key word there is response. It's a response to something or be causal, something, you don't just get inflammation, because your immune system is an idiot. It has evolved over millions of years. It's just that our lifestyles are so different now to what they were before there is a mismatch between our ancient genes, our ancient immune system and our modern lifestyle, it's just completely they just do not fit together very well. And that's why I have an epidemic, or autoimmunity occurring in all forms, like the rates of type one diabetes in children is going berserk. And so it's obviously that that isn't our area, but that the principal is absolutely clear that that inflammation ongoing even if it doesn't hit the magic CRP number that the NHS are interested in, we need to know about it, because they're not going to be interested. And also they have no real interest in the root root of why the immune system is attacking you.

Steven Bruce
what's what's been the impact on yourself? Um, you mentioned ankylosing spondylitis, and psoriasis. I mean, the approach that you're going to tell us about was that made a big difference.

Simon Billings
Yeah, I'm in remission. So your question is, you know, how is it still affecting me with ankylosing spondylitis, and psoriasis, I'm in remission have been for a number of years. So I had I had a fungal infection, bacterial infection parasite, I was eating gluten. And I shouldn't have been in dairy. So and had a root canal tooth here at the front there, which I had never removed. I had wisdom teeth removed that were when I was younger, that were not done properly and had infections in all four sites, had them opened up, cleaned out four days of intravenous vitamin C and glute assign a whole lot of other stuff. That was a heck of a week. Because your front tooth pulled out, and your mouth gouged out, but I'm in remission, so I have some damage for sure. I'm not the most flexible that is for sure. I'm more flexible now than it was when I was younger. But I certainly have some data on parties use pelvis. So I've got a bit of wiggle in the way I'll walk. And my throat is pretty stiff. But I'm in good health now. Certainly compared to where it was. And if I'd carried on the path that I was on, unwittingly, you know, I would be in a bad place now for sure.

Steven Bruce

Well, until we get my sound going, we've got to leave this to be a presentation by you, Simon. So can I need you to crack on for a second?

Simon Billings
Absolutely fine. Yeah, no problem. So we which slide to be on the first slide there still,

Simon Billings
are we on to the bio, the medical model of back pain. on here now either Steve will be on slide two now.

Steven Bruce
We're on slide two. Okay. Right. So

Simon Billings
the question is just a sort of prep in relative relationship to the biopsychosocial model. So back in the day, we had the medical model of back pain, which was very much do an X ray, do a CT scan, maybe an MRI was around, can you find a thing that is definitively causing the pain? And if you cannot, then they would diagnose them with nonspecific low back pain. And we know that doesn't work well. And they recognize that in work well, and then Gordon Waddell the orthopedic surgeon came along and he developed a bio psychosocial model. So he put on he recognized that, you know, beliefs and attitudes and depression may have relationship with pain. And that's a very good thing. You know, we all need that to understand that our practices, but the point I'm making is that really that the bio bit the bio, psychosocial a, it's just a it's the medical model bolted on to the psychosocial band. So the medical model is still is the BB it's still pretty poor, relatively speaking. And also that these days because of So poor, they just ignore it. So the biopsychosocial model really is the psychosocial model, because he can't find anything that they can identify, put the finger on, they just tell him, it's all in their head, they get pushed through departments, you know, from orthopedics, rheumatology and end up in the pain clinic, and it's all in your head. And they're kind of right, it is all in their head in some senses, pain, but this is what we talk about now is the neuro inflammation and how that creates peripheral and central hypersensitivity. That's going to exaggerate and stop your your care working. Okay, next slide, please.

Steven Bruce
Yeah, all partitions have two things in common.

Simon Billings
Okay. So this is just a prep, I get this one every every tool, but it's just, you know, something we all kind of know, but don't always acknowledge, we like to tell each other about our success stories, when we meet up at home, you know, amazing results we've had, but no one ever says I had this guy with this shoulder problem. And I did all my stuff. And it just didn't get better. He had surgery. But we don't tend to talk about those. But we should, because they're the ones you learn from. If you just look at the ones you already know, then you don't really learn a lot. So everyone knows there's an opportunity for learning. Next slide, please.

Steven Bruce
We've got Albert on this one. Albert good. So

Simon Billings
it's just this, I feel this is coming all professionals. So now sit in mind quite a bit, it's quite easy just to keep doing the same thing didn't work last time all the time before with that same person. So just keep doing it again and again and again. And that's not smart. We can't be doing that. Because ultimately potion is going to drop out and we're going to get a bad reputation. So what we want to see then is where How does the biochemical world and neurosurgery how's that Intel overlap into our neuro mechanical? Well, so we go to the next slide now. Yep. So is this interface I mentioned when they have a vote inflammation, let me say it's pretty obvious. They've got rheumatoid or you know, and then maybe they're undiagnosed or ankylosing spondylitis, they come in, and they've got pain that wakes them in the middle of the night, and they're screaming agony, and they can't barely move. They're stiffer than a plank of wood, it's pretty bloody obvious, right? I hope it is, anyway, it's when it's the more subtle, nuanced ones, when their inflammation is rising up above ideal from one CRP up to 4567. And the energies aren't interested, that's when you get an overlap. So the inflammation will create this sustained, sustained low grade inflammation response then creates hypersensitivity peripherally in the nerves and century in the brain. And that will, then you can take an existing issue, and you can make it way more painful than it would ordinarily be. So they have a genuine issue, a real, you know, it could be dysfunction of some kind, it could be some kind of connective tissue issue, but rotator cuff tear or a disc, whatever it is, but it gets it has that much more, because they have that hypersensitivity. So the difficulty there is it looks just like, you know, normal presentation, but then they just simply fail to respond. And then the other things we consider is that inflammation will create fatigue, that's very well established in the research. And inflammation also will alter your neurotransmitters. So you'll get less serotonin, less dopamine, more glutamate, and all other stuff. And this will then generate mood problems. Next slide, please.

Steven Bruce
Wouldn't be interrupted you just for a second, have your flow, but we've had some questions. Pierre has asked How can you say there's no inflammation, if you if there is inflammation, if you have no evidence of it in blood tests,

Simon Billings
or we do a blood test? That's what I'm saying? It's a spectrum.

Steven Bruce
Okay. And yet, he's also said, Could you give us your definition of neuro inflammation?

Simon Billings
But inflammation in the brain and the nervous system?

Steven Bruce
Could you might have to repeat the question, because

Simon Billings
the question was, how do you define neuro inflammation? Well, it's just in the title, really, there's inflammation in your nervous system. So it's that you're going to get it systemically because that's what happens in the blood when your immune system mobilizes, you'll get inflammation in the blood. And then because of the nature of when your brain when your body but your immune system believes you're under attack, it will open up the blood brain barrier, and it will allow bits in there and it will talk to your blood to your brain through the vagus nerve, for example. And that will that will turn on your immune system in the brain, which is the glial cells, the microglia. And they will start looking trying to clear out and look for trouble. So, again, it's just there's nothing really, I'm not saying anything controversial with that it's very well established in the CRP thing. You mentioned hedging, and there's no hiding there's inflammation, there's nothing in the blood, there isn't the blood, it's just that the NHS have a black and white view of the world, the CRP, somewhere between five and seven and a half the lab will flag if it goes above that, I'm saying if it's a three or four, the NHS will say you're not inflamed. I'm saying it the optimum is below one, and it's a gray scale up from there, the higher inflammation goes, the more chance you'll risk of cancer, heart attacks, strokes, depression, arthritis, it pretty well established and as it goes up, your risk of all cause mortality will generally go up as well. It's just the NHS aren't that interested in that and also, they don't really have anything to offer apart from drugs to suppress the inflammation which leaves the root cause in place and leaves you with a whole lot of side effects from medications.

Steven Bruce
Yeah. Okay. And I'm guessing that well, I guess it goes without saying that no one person reacts at the same level of crps as anyone else.

Simon Billings
not

Simon Billings
exact, there are other factors in play, yeah. And crps, it can be still, it can still be quite low, and you can still have cellular inflammation and other issues. So it isn't always 100% clear cut. It's a fairly gross marker. But so yeah, that can vary somewhat, depending on other nutritional factors. Things like vitamin D, and magnesium and B 12. These all can all create increased sensitivity and pain without as much inflammation.

Steven Bruce
Robin is asked how do you differentiate between good and bad inflammation?

Simon Billings
Well, good inflammation would be if you've had a trauma, that would be a good inflammation, if you roll your ankle, you should have some swelling, you need to remove the damaged tissue, the debris, and then

you needed to calm down and need to rebuild. So it's anything that's ongoing, basically, if you have a sustained, low grade inflammatory response, and it just keeps going, that is not normal. You should your immune system should not be revved up. When you're not, you know, if you don't have an avert infection or some kind of issue.

Steven Bruce
Okay, I'm just wondering, going back to your own health, how long did it take before you started getting better after you discovered this princess principle?

Simon Billings
I'd like to discover princess that's good. The How long did it take me? I you know, it's a long time ago. So it took a while. I mean, now I work. I did it on my own right. And there's a lot of mistakes along the way for sure. But you know, whenever I do three days a week as a chiropractor, and then do Tuesday, two days a week online on zoom, do a one to one sort of nutrition and functional medicine. And quite a few of those have autoimmune diseases, maybe as rheumatoid Reve is going to be, you know, if you get it right, in terms of things like foods and infections, you know, there will certainly feel it within weeks, they'll feel something, they really will. Because the immune system it you know, it's a lot of the time that they're that they're having so many provocative things they're eating, or being exposed to removing the big ones, you can get some decent change within weeks, and doesn't mean they've healed or they can be fine, but it's a long journey, but they should see something within you know, a few weeks to a month or two.

Steven Bruce
All right, okay, great. What was wrong with that, but it means that the audience missed my wonderful introduction, and they've not heard Who the hell was asking those questions. But Robin sent me a PR those were your questions we were asking. So let you get on again, Simon, you were talking about metabolic interface?

Simon Billings
Yeah, so we go to the next slide. This should be the same one with an additional psycho psychosocial stress on top of it.

Steven Bruce
Yeah, it's back again. Yep, yeah. So I need to point out to the audience at this stage that we will be issuing you handouts of the slides after the show. And somehow some of these have got corrupted in the transition process between PDF and PowerPoint. Don't worry about that. Listen to what Simon's got to say because we'll give you the handouts as an aide memoire afterwards, we'll send them all out

Simon Billings
over time. So we've mentioned that the interface between when you've got inflammation running is going to give you central hypersensitivity and change your neurotransmitter output, and maybe give you for tea. And that can overlap with your neuro mechanical issues. And that exaggerate them. But then if you apply if

you're then so I would say that the inflammation in primes these people, so that when they're exposed to stress, they just simply don't cope with it, as well as other people. And because you can't avoid stress, it's just not possible. Everyone has stressed and uh, you know, some people that are under huge amounts of stress, they thrive under it, they can cope with it. And it goes up ebbs and flows through life and other people who have the tiniest amount of stress, and they just fall apart at the seams. So those people are primed. And one of the good ways to do that is to have him neuro inflammation running in the background, changing the brain chemistry, making you a little bit tired. And then when stress comes along, you cannot cope with it. So that's where the distinction is very extreme. When the inflammation is high, it's that that will on in and of itself will cause depression and anxiety. And other times they have a lower level running in the background that they're kind of coping with. They know they don't feel great, but they cope with it, and then income, some stress and they're straight over. And it's very easy at that point to blame it on the stress and say, well, I've been stressed. That's why I've got an X, Y and Zed. And my point would be you know, Why you so fragile? If you're standing on one leg, and I can push it with my little finger, then you're sensitive to little things, you know, and they're just you're over and you avoid little fingers wherever you go, because they just keep falling over. You. We want you to put your leg down and then you're more resilient. You don't have to do that anymore. Yeah. Okay, so we go to the next one. All right, and we'll look at things through the lens of evolution. Yep. Okay. So this is when you can get this and really look at it everything, including change, when they come in and start telling you about various symptoms, you will interpret them through the lens of evolution and that lens of inflammation and your sympathetic parasympathetic nervous system. So, you know, 50 to 50% of our ancestors died before they got anywhere near adulthood. And they were being exposed to all sorts of infectious agents. And so we evolved a very robust immune system to go after anything that we perceive it perceived to be a threat. And it's very important word perceived threat. And, as I said, because we've lost touch with our sort of evolutionary lifestyle, we have a lot of wonderful things with medicine with antibiotics, there's a lot of lives from those infections. But then we kind of got out of touch with it. And there's a lot of talk. Now we're got microbiome, which when I started in 2007, during my journey, it was just not a thing. I was like some crazy madman that wouldn't eat carbs, and would ferment his own vegetables and all this kind of stuff. And talking about gut bacteria. Now it's mainstream, it's on the radio, you can buy kombucha and kefir in every industry, it's just everywhere. So it's well established now that you know, that lots of gut microbiome and the the toxins were exposed all these things, this is part of why our immune system has become so angry, and it's now starting to mistakenly attack us. And that's part of because we've lost touch with those original things. So if we go on to the next slide. So what you have then is an integrated between your, your nervous system and your immune system, with the goal of increasing your chance of survival. So if we were hunter gatherer, and we have some kind of infection bit from puncture wound, or whatever it is, it we need, your immune system is going to try and prioritize the removal of a pathogen. And it needs to also to increase your chances, he's going to try and modify your behavior. And in order to do that, it then it puts in place a whole series of changes within your system that is going to try and increase the chance of you surviving in the longer term to allow you to heal. So once you to withdraw from your sort of society relatively, but also maintain vigilance, hyper vigilance against attack. And that's going to reduce your chances of being attacked when you're recovering from it from an infection. Next slide, please. So this is normal, you should, you should have a normal inflammatory baseline tone, you should have your immune system on the lookout for stuff but you've got normal response to nociceptive

input normal energy, you can get excited when you need to, you can have pleasure from things that should be pleasurable, you can chill out when you need to this is all quite normal. And that's where we should be. Then if you go to the next slide.

Simon Billings

So this is when you have you know, a local interview rolls around, we've broken a bone This is what one of the people asked about, you know what is good inflammation from bad inflammation. This is good inflammation. You have a local response, your body, your immune system mobilizes clears the debris, then it comes down, and then you rebuild, and that's all good, you've healed and you're fine. And that's then you have inflammation acute, it goes away, you've healed you're done, you're back to normal, everything's good. Next slide, please. So now would be when you have something like the flu, where your body latches on and it goes to work you get a search and destroy mission going through your blood, it latches on the brain also then mobilize its immune system in here. And then as a consequence, you get a very very nice woman when it's obvious when you have high levels of inflammation like that like you have you have proper flu you're in bed you know about it, you see your pay is very high. It the symptoms you give me are very obvious, like so no, I remember last time I played with three or four years ago, like move my eyeballs hurt, it was just awful. And your skin hurts. So you're getting clear allodynia this is just you know, movement and light touch and it hurts. So you're getting complete your nervous system is wildly hypersensitive to incoming proprioception. So that's obviously abnormal, you're extremely tired, you're very, very tired, you lying around, you don't feel good, you're happy, any pleasure, anything. But also I've found where you find that when you have that you're trying to sleep, you can't quite often get into a deep sleep, get this kind of weird light sleep, you're tossing and turning and that's the hyper vigilance, your body's trying to make sure that yes, you rest and repair but you maintain vigilance against a predatory attack. So in that scenario, very obvious. And now a manager's will pick that. They don't want to deal with it necessarily if it's ongoing, but they'll usually know about it. If you go to the next slide. So this is where we get into the shades of gray the spectrum. This is where we say your CRP is not going to be high enough the NHS will be interested in you wouldn't necessarily be all you know, obvious that you Have an issue. But you and it may be that remember that it's a perceived threat. So in May, as in this diagram here, you can see there that gluten, your body is perceiving that gluten is a threat. And when I eat gluten, my immune system mobilizes immediately. And wherever it finds gluten bit guts out in front of blood at the muscles, the skin, it will then cause a problem for me. So psoriasis is well documented that rates of celiac, very high, relatively speaking, speaking, in patients with psoriasis. It's also well documented that patients with psoriasis have infections. So the year they removed tonsils and people with persistent psoriasis, so well established also with fungal infections and psoriasis, as well established, so your immune system is after them. The problem is that if you eat gluten every day, which I did, and if you have any infections, for example, in your gut dysbiosis, then that never goes away. I keep eating gluten, my body tries to kill it and remove it. But I eat it every day, that gut infection, if you have dysbiosis, in your gut microbiome, they live and you feed them. And we are a very warm, convivial host, we are warm and moist. And we provide a steady stream of fiber and sugar. And they replicating live, and your body will attack them constantly. And they will as those bacteria die, they release a poison. And that poison will poison you instead of inflammation. And we'll see research studies later, where they can induce depression, they can induce hypersensitivity, and they can induce fatigue, just by injecting people with the

toxins from these types of bacterias. So the issue here then is then so then you become hypersensitive, relatively to incoming nociception you'll get some fatigue, and you'll get altered brain chemistry. But remember the spectrum. So it starts loading builds up. And so they won't always know that they're tired, they won't always know, they just don't get much pleasure anymore. And if they do verbalize it, of course, then it's going to get generally labeled as depression anxiety. And we have medications that will try and you know, improve the symptoms for people. But ultimately, the root cause is left in place. So when that goes on and on and on, then you have a very it once you see that, when people come in, then I can then look at those symptoms and say, Well, if you've got eczema, you've got asthma, you've got quote IBS, you've also got your back pain in your headaches you come in with. And also you've got, let's say you go so I didn't know what I was getting surace would have lots of things, but they're all they're all inflammation, all of them. And so I know somewhere there is a provocative agent or two or three in your system. Now I don't necessarily have to resolve that in order to get my my treatment to work for their their back or their headaches. But I know that the the challenges of my treatment working is going to drop down and down the more of these things they have

Steven Bruce
evolutionary aspect of this and how this is because we don't behave like our ancestors to some degree. Surely, in every generation, there will be a vast number of genetic variations. So could it isn't not the case that some of this inflammation happens just spontaneously without the need for an external provocateur?

Simon Billings
No, no. It's a very interesting point that what the truth is that people like me, so the question is, why would I have my genetics when I read them and realize, I have wildly pro inflammatory genes, not just the gene for celiac disease, but loads of so we're going to talk a minute about cytokines, cytokines are the orchestrators of inflammation, and I miss produced them, I also miss produced forms of my immunoglobulins as well. So I am wildly immunoreactive. Now in an evolutionary setting back when hunter gatherers, that was to my advantage, because when you had an infection, there was no antibiotics. So if you had a good immune system, that would create what they call selective pressure evolutionary so my ancestors have survived because of our pro inflammatory genes. It was an advantage or advantage to us then, now we have antibiotics and a very sanitized lifestyle. It is to my disadvantage, because now my museum is still buying up for a fight. And unfortunately, we went from hunter gatherers to farmers, and we started making growing wheat and then grinding up and then we had, you know, I was a Syrian, I would have died otherwise, but I was Syrian. And I had multiple antibiotics when I was a child for my acne, horrible stuff. And that then mean that I just wiped out my gut bacteria, and I got these infections. Okay. Thank you. It's a pleasure.

Steven Bruce
Right, we're still on your gluten slide. Yep.

Simon Billings
If we go, if we go to the next if we go to root causes versus Association, we can push onto that one. Well, now, so we that's what lens should fall down. When you see the patient. You Go, right? Okay, I see I hear

you got depression, and you've got pain and asthma and eczema and IBS, they're all inflammation. So use if they say that they have mental health issues they've been on. And if they're on antidepressants, if they have a history of antidepressants, that should be a clue to you that there may be some new inflammation and they've been primed by that new inflammation, it may also be then that because of inflammation, they are higher, more likely to have hypersensitivity, that hypersensitivity is more likely than to create the potential risk for a non response to your care. And that's what we're trying to do when I'm what am I going to pick them up, I want to screen them to make sure to make sure that I'm just not not another therapist in a long line of people that thought that there, you know, neuromechanical intervention was going to be the thing that would sort them out. So we go to the next. So this will just give us a an illustration of sort of what I'm talking about terms of thresholds. Okay, so if you look at the chart there, so it's a kind of a basic graphic I've done, the vertical bars are effectively the, quote, size of their structural or functional issue. So we see people with all sorts of different dysfunction in terms of joints in my fascia and posture, and structural stuff, and congenital stuff. But we all know that some people can have appalling issues in terms of degeneration and functional stuff, and have very little symptoms at all. And other people can have very little wrong with them and be in agony. So it really depends on that threshold. So what I'm suggesting here is that a lower threshold will sometimes expose a latent, neuro mechanical, structural and or functional issue or issue or maybe even say, some kind of connective tissue damage or failure. So along with a cuff tear, or some sort of annular tear in the disc, and as that threshold can drop down, it will expose it and pop it out. And my suggestion, therefore was that by doing treatment, you can reduce the size of their structural functional issues. And that will reduce pain. But also, if you can raise the threshold, that is an even better proposition for them, particularly when their threshold was particularly low. And it might mean that that will stop them recovering at all. If we go to the next slide, please. So this is prepping up for a look at some. So we know on MRI, that the size of the bulge doesn't really reflect necessarily the amount of pain they're in. So you have a whopping herniation with very little symptoms. And you can have teeny teeny tiny ones that are absolute agony that they can't cope with. So the question is why and if we go to the next slide, we'll go over a really interesting piece of research is the one. So they took severe sciatica marks out of gun control groups, and they looked at this cytokine profile and they did a oswestry disability index, and they're looking at the correlations between those to say, is it the size of the disc? Is it the order the cytokines, the amount of inflammation in the area, the inflammation is it is it lowering the threshold down and they're getting appropriate, you know, the, you know, the increased levels of pain, you flip on to the next slide. So you can see on the first one there, we have cytokines on the left there, and then you can see there's a higher prevalence of high levels of cytokines in the more severe group. And on the right hand graph, you'll see the oswestry disability and next on the vertical axis, and x is a general trend upwards as cytokines increase the level of pain disability and generally tends to go up. Next slide, please. Yep, that's great. So then they're saying in the conclusions, then that an imbalance in the pro and anti inflammatory cytokines expressions can contribute to neuropathic pain. So they have a genuine disc bulge, it's not like it's all in their head, they have got a bulge, it's just that their inflammatory balance is way off. And that's then creating local inflammation, which is then highlighting that issue. And it may reveal, quote, latent neuropathic pain, and so on. So that's what I mean by you've got this, you've got this disc bulge, you've had it for ages, you something happens in life, you get stressed out, your diet goes wonky, you start using too much gluten, you've got an infection and your threshold drop down and down and down. And suddenly this disc starts to show itself because it was latent

previously. So that's the point where we can raise the threshold up and do the physical tree, but at the same time, that becomes a really, really powerful combination.

Simon Billings
Okay, next page. So the conclusions was caught my attention was that he said, considering this finding, we suggest that these cytokines play a pathogenic role in the generation, meaning they are primed for pain in the generation and persistence of pain. I think it's a really, really important point. So they're primed for it. And then when it when it shows itself and it starts to go and get really, really angry. It's part of what keeps it going. You know, why do some people just not look up because we there's a natural history When he does the Pops, and they get saw, there was a natural history to most of them, but not all of them. And the question is why? Okay, next. Okay, next page, please. Next slide. So the question then is how does neuro inflammation then affect our mood and behavior. So we know, it definitely alters our neurotransmitters, which we'll talk about in a moment. But also I find that a lot of people with when they said they got depression, they're also very, very tired, very tired. And fatigued is a very difficult thing to measure, because people don't really know what normal is. So when you even when I have a my intake form, so all those since I have the intake for my users, and for my users matters, but for four pages, and has all these symptoms, because I want to know all the symptoms, even if they don't think they're relevant. One of them is, was a question on energy, you know, out of 10, how do you mark your energy? people haven't got a clue, not a clue what normal is, they will write anything. And then when I actually asked them, they said, Well, you know, four, or five out of 10, maybe six, when I actually asked them, it turns out, they bang out, you know, to our afternoon kit and go to bed at nine o'clock, and sleep 12 hours. So they haven't got a clue. I find that a few people are tired all the time. And that's often not only but often because of inflammation, it creates that they have this apathy, and a kind of I don't want to do it can't be bothered. They have they lack motivation. And that then often is part of what they're calling depression along with the bits. I'm going to talk about the moment and when you get this right in terms of adding in some nutrients, and we're removing things like gluten, dairy and other things in the gut microbiome, their energy, that vitality just pings up, and it is quite alarming. How much better people feel when you get it. Right. They are then they know they know what normal is at that point. Next slide, please.

Steven Bruce
People asked a question earlier on sent in a question earlier on. She said that you mentioned gluten and you just mentioned it again there. You said it's a typical culprit for neuro inflammation. But what sort of other culprits diet wise can there be? She says,

Simon Billings
we'll come to that in the there's a slide coming up later on. And we'll talk about that the six biggest things that will drive inflammation, and I'm going to pick to do vitamin D, because it's hot topic at the moment. And we did it before. I'll just show some, some research on that. So we'll cover that in a bit.

Steven Bruce

Let's do a couple of other questions. Well, Laura says Where did you start getting the information on your genetic makeup?

Simon Billings
You go to 23andme dot co.uk I think it is they have the American but they have a uk website, you do the test with them. They have a very basic kind of they're looking for named genes with diseases, which isn't terribly helpful. But then you take the raw data from that and you can then for 20 or 30 quid there's lots of different sites, you can then have your they call them snips, single nucleotide polymorphisms. And then you so I there's one called with a company called what's called metabolic healing, Michael McEvoy it's very good this strategy as well, which is Ben Lynch. And then you'll get all your different genetic. You got double whammies, single single issues are all good ones. It's very useful. You can see my genes, it's an absolute recipe for massive inflammation, and an absolute recipe for mental health problems. It's so prone not my grandfather's bipolar the clinical depression runs right in my family, and alcohol and substance abuse as well.

Steven Bruce
Sue has asked about a patient she has who experiences electromagnetic hypersensitivity, have you any thoughts or experience on that?

Simon Billings
She's standing on one leg, and she's being pushed over by an electromagnetic finger. So you can avoid electro magnetics nothing wrong with that, but it's going to be pretty hard to do in general, she is not well, and you'll need to dig in. There'll be something in there that's making a very inflamed shedload of gross deficiencies. If you can pick those out, I will bet money that she is less sensitive to electromagnetics.

Steven Bruce
Trevor says would you also measure low co2 tolerance with neuro inflammation?

Simon Billings
I've never done it. I know we don't think about it, but I'm going to look it up now. Trevor.

Steven Bruce
And one last one before we move on. Because you were talking about bulging discs James says from what you say you need the inflammation to play a part in healing. Given that given that At what point do we decide to embark on an anti inflammatory strategy

Simon Billings
well, you know acute inflammation when you if you have proper disc and it goes you're gonna get acute inflammation regardless, you can't stop that. That's, that's a normal process and you should want it it's when it doesn't go away. That's the problem. So you would embark on it anyway. Because you want to make sure that it goes away.

Steven Bruce
Two more questions. I'll let you carry on because we will get through your your talk.

Simon Billings
So so we want to say Happy serotonin. So I just picked one you have inflammation, it changes your serotonin, your dopamine, noradrenaline, your gamma and your glutamate. All of those get changed. I'm just picking one and serotonin is an easy one, because we all know roughly what it is so clear what it is. So it's what you generally would consider your happy one. And it's what if you take ecstasy, you'll dump all your serotonin out. And you get these intense feelings of, you know, contentment and satisfaction always gonna, it's very important that when you have a pleasurable event, you feel appropriately, good about him. That's why evolutionarily, we develop that, in order that it encourages us to go and explore and to build communities and tribes. So that's why we have that. That's why in that in with the inflammation, it turns the production of serotonin down, it wants you to become less social temporarily to withdraw from your hunter gatherer society to try and save you. That's the basis obviously, of modern sort of pharmaceutical intervention is the idea that everyone who's depressed has low serotonin Now, some people do, not everyone, and that's why not everyone works that well with selective serotonin reuptake inhibitors. Next page, please. So what really happens here is so there's this is it always the serotonin is the third bump there, we have to build it. So you take trip to fan, you take it down a conveyor belt, five HTP eventually makes serotonin. And FYI, serotonin is the building block for melatonin. And that's sometimes why depression as well as the other inflammation, so they can have an effect on sleep because you get less serotonin, mammalian melatonin from serotonin. Now, when this starts to go, when inflammation kicks up, your body will turn go to the next slide for me there. Yep, next slide. So then the pathway from trip to fan down, that enzyme is turned down doesn't stop, I couldn't find a slow down, slow down symbol that gets less all right now and then won't be and then as a consequence, you get less serotonin. And that means you get that kind of social withdrawal. And that feelings of you know, less pleasure, okay, it's all relative the amount you're getting. But then another path, another pathway that is upregulated. And that comes down, and that goes into cairene. And eventually, that becomes quinolinic acid. And quinolinic acid is a neuro excitable, very strong, so it excites your neurons. So if you have incoming nociception, when it gets the brain and the spinal cord in the brain, it is going to fire up more and more and more and amplify that pain coming in. Because those neurons are going to squeeze, it's going to get a squeeze that lots of equivalent acid, and that's going to then promote the pain. If you're worrying about something, then it's going to promote those thoughts. And you can have troubles to stop thinking, Okay, aka anxiety would be the general term, people would draw up hyper vigilance in in reality. So as I said, this happens with effects dopamine, it affects all the other ones as well. I just picked serotonin because it's relatively easy when people know. And this is this general theory, if you go to the next slide, this is what's known as pathways, the D theory of depression. So pathogen Host Defense, everything I've told you is kind of based around my reading of the scientific literature around that. And it's pretty well established for the most part. So you know, and as is the idea that inflammation and depression is an inflammatory issue. Again, it's pretty well established, you can induce inflammation, they have people with hepatitis and the good scientists, and they give them a form of cytokine. To try and help the hepatitis. With the end of the treatment, 40 to 50% of them will have major depression. So they induce depression, by accident, really, by giving them a cytokine. that'll stop them dying

of hepatitis. And it's very consistent people with terrible depression, to give them anti inflammatories and those rheumatological drugs, they find often their depression improves quite substantially. So it's fairly well established the major depression, there's often an inflammatory component. And what we'll do now is have a look at some research to show that they can literally induce these things in people very easily if you go to the next slide for me. So they basically they they're giving people they're taking infectious bacteria and harvesting out the toxins from the membrane of the cell, and then injecting it into the people. And then measuring then also things from moved to higher sensitivity and so on. So if you go to the next slide, or the next slide, should be a graph.

Steven Bruce
those terms,

Simon Billings
yeah, yeah.

Simon Billings
Yeah. I mean, it's more and more, the reason is coming out extremely fast. Because, again, because the gut microbiome aspects, we've been taught that you've lost all should have a trillion friends in our gut, we've lost them. And, and when you have, that you lost those, your immune system needs to kind of push against. And if you don't want to push against, it just goes berserk and starts going crazy and attacking people. That's why we know that sometimes parasites can actually be very protective against autoimmunity and other problems. So pig farmers in Iowa have almost no Crohn's disease at all in their community. Because they all have I think it's whip worm infections. And so they've got this parasite living in them and it gives them immune system so in to push against because historically you would have had parasites and all sorts of stuff. And then if you get a very sanitized that removes and they go berserk. So there's there's a whole interesting line of research in there where they're deliberately infecting people with certain types of low level parasites in order to improve gut health and inflammatory issues.

Steven Bruce
You're on your scatter graph diagram.

Simon Billings
Okay, as you can see, this is what they're saying, they inject them. And then they're looking at the levels, there are things like anxiety trending up, and then they've got depression trending up. And then they've got things like recalls, delayed recall, a conquering thing, their story, because they give them a story and something to remember. And it affects their cognition basis, they get kind of brain fog and slow thoughts, then they start forgetting stuff, that kind of thing. And this is very immediate, inject them, and they test them, you know, within a few hours, and then it just continues that they get this kind of, it's a very consistent thing when they can develop increased anxiety, depression, so on if you skip on to the next one. So the key bit on this slide is just to say that the saying that mild stimulation that is very modern are giving them a huge dose of the primary Host Defense. So your immune system is on the lookout for things that

might be trying to get them they've delivered, they've deliberately injected you with something, and that then has a negative effect on your emotion and your memory. And remember, there are lots and lots and lots of people wandering around with gut infections that are doing this 24 hours a day, not just a one off injection, every single day, they're having these bacteria living in them producing these toxins that are driving that. So just give you another example here. If you have small intestinal bacterial overgrowth, or SIBO dysbiosis this morning testing these people, it's very common amongst patients with IBS, but it is almost universal amongst patients with fibromyalgia, in one research, 100% of fibromyalgia patients all had overgrowth of bacteria in the gut, okay. And if you go to the next slide, we'll see here pain sensitivity and inflammation, and they can induce it. So to say, oh, they're the same thing, they're injecting them again, and then they're checking them for then they're gonna look at their cytokine response, but also, you'll see in a minute, they're gonna do they're gonna do pressure gauge, they're sticking into their lower back their deltoid, their calf, all that kinds of stuff, seeing does your pain threshold drop with a dab of inflammation from a little bit of an infection. Next slide, please.

Steven Bruce
Success in helping people with fibromyalgia.

Simon Billings
Fibromyalgia is complicated, because there's, it's a dumping ground in ground. So there's true Fibromyalgia x where they have genuine central hypersensitivity, and then there's a dumping ground and other people with a whole lot of other stuff like sort of subclinical thyroid issues. That and that can be also a lot of psychological involvement in a sense that they get what's the word secondary gain, I think it's a technical term psychologically, where I've seen people where they got genuinely genuinely ill they are really ill, they start to get better, but then when they got ill, they got a benefit. So it might be that I one lady I saw with losing her hair exhausted, really, really tired, terrible time, started getting better with the treatment. But husband before worked away, and if she didn't give any attention, as she got better, she subconsciously realized that he might not give it the attention that he was gonna give it is giving an active zeal and she's completely sabotage her own recovery completely so obvious. And that then that's why Fibromyalgia I find it can be tricky to treat, if it's straightforward food intolerances and gut stuff that's relatively easy with nutrition. But there's a spectrum of those patients so yet success and then a spectrum, from there out with depending on other factors and the psychosocial aspect.

Steven Bruce
Thank you. Sorry, I distracted you from this graph, as well. So

Simon Billings
we Oh, yeah. So you see there, that baseline there. So they've got they had the baseline and then inject them and then you can see very clearly that the top left one is chairman necrosis factor, alpha is a cytokine. They just start spiking up in meters, that's that we know there's definitely inflammation being brought up by that infection. Note also that cortisol pops up as well. So being inflamed is stressful. Again, it's a vicious cycle because it pushes your cortisol up, it makes you stressed. And then when you're exposed to psychosocial

stress, you're already kind of primed like I said, we go to the next slide. So same again, as they inject anxiety starts to trend up mood trends down alertness, trends down calmness trends down so very, very and this is just you know, I picked out two studies but there are so many of the same stuff. It's just it's absolutely overwhelming, overwhelming, and it's very, very consistent. If you go to the next slide was look at hypersensitivity baseline, they put the pressure gauge into L three, I think deltoid calf superspinatus and you can see within 1020 minutes that you know that the the amount of pressure, they can tolerate as pain drops down considerably. And again, just imagine that that it isn't affected, it's gluten and you eat gluten three times a day. And then they turn up with, you know, fibromyalgia, whoever it is, it's not surprising that they're gonna have a lot because their immune system is cranked up and running around, having a pop up everything that moves, if go to the next slide. So this is, um, I think it's a really, it's a big block of text, but it's really, really important study, when I read it, there was just so many gems in there. So I'm just gonna read through it a little bit here it says chronic pain is in is maintained in part by Central hypersensitivity to hypersensitivities. That's very important. The other part in my exam is, like I said, is the bio part the bio psychosocial is just that you and I and physios are very interested in function of, you know, those facet joints, that my fascia that does all those things. We know we've all seen patients who've been through the chronic pain clinic, and we're told it's all in your head, it's a kid's hypersensitivity, you manipulate the spine, you mobilize them, you release soft tissue, and they come back and go, it's fine, it's absolutely fine. And they were just misdiagnosed with, because they don't do functional stuff in the NHS. So it's in part maintained by the part by Central sensitivity. And then they go on to say that central hypersensitivity is also driven by neuro inflammation is very important. So it's the central sensitivity is driven by the inflammation in the peripheral and central nervous system. And a characteristic feature of neuro inflammation is activation of glial cells. And that's the immune system. So the microglia are the immune system. So your body has interpreted a perceived threat. And it's told the brain right, you need to do some stuff to to protect as many pathogens that may be getting into the blood brain barrier. And that then leads to cytokines being released, and, you know, all this kind of stuff, and then ultimately leads to hyperalgesia. So that's exaggeration of an issue. And then allodynia, which of course is just that's pain when there is nothing going on at all. Sustained increase of cytokines and chemokine in the central nervous system promote chronic widespread pain that affects most body sites, that's very much like as you said, Fibromyalgia type symptoms as well. Next Page please. And as they go on, say neuro inflammation drives one via central message so that the root cause of Central is inflammation in the brain. And that then drives central hypersensitivity in my theory, as from the literature from the literature is that that new information drives pain, but also drives and program promotes mood and behavioral problems would be diagnosed as mood and depression, anxiety, and of course, great fatigue. And the fatigue thing is interesting, because it means often that they they do less exercise and less motivation, and they D socialize as well as part of the whole process. Okay, next slide, please. Okay, so then we've circled there persistent pain and dysfunction. So I want to just go over then the lady asked about foods and so on. So if we look at what might be the drivers behind inflammation, we go to the next slide.

Simon Billings

Yep. Yep. So this is a an acronym I use in clinic was just a nice way to remember it. And for people to learn, it's fit. So So fit Ws O. So that would be foods, infections, toxins, stress, sleep, and obesity. So those three, those six things are very, very big drivers of inflammation. So and she's asked about which foods so I've

done a fairly extensive lab testing on patients for food sensitivities. And the ones that come up again and again and again, are gluten, dairy of all forms, eggs, nuts, and then if you remove those, the issue then is that if you want to have some kind of milk, you've removed dairy and you've moved nuts. They'll often have soya and soya, even though they don't eat it that much, unless they're sort of committed vegan with the tofu and stuff. Soy is a very common allergen once they start eating it. So I tend to remove soya as well. So people can do food testing with me if they want to. But often, I'd say let's save as 150 quid, and just spend two weeks of gluten dairy, eggs nuts and soya and see what happens. And we'll see. And at the end of that, if you you keep an eye on your energy, your pain, your mood, your gender, vitality, any digestive symptoms, any skin sins, anything like that. At the end of two weeks, you tell me how you're feeling. If you're feeling better, any of those things, then you're going to go and challenge each one. stuffy faced with gluten for a good meal or two and then see how you feel. And if they have a problem, they'll suddenly blow up like a balloon. There'll be lying down to be so exhausted, they'll be depressed again, it's quite dramatic. You get a much of when you have a level of inflammation sustained. If you drop it by stopping eating of food, there's an issue. When it kicks up again, it will really kick up hard, really hard. They really know about it. And the same with different forms of dairy and eggs and nuts. Eggs and nuts are a brilliant source of nutrition. But unfortunately, are also very, very, very common allergens. So even though they're great neutral, they often need removing, just to be sure.

Steven Bruce
To be pretty bleak for the vegans. If you take out soil,

Simon Billings
it can be an issue and be an issue. Yeah, that can be an issue. Yeah, that's true. Okay. So those things, the other one, I think the other one I tend to do, so I go foods first, and meat so that foods will also feed infections. In the gut, usually the sinuses, maybe the teeth, or the vagina offers various, but also those infections, as well as being a direct trigger for the immune system, those infections also release a toxin, which what we saw in the research study, those toxins then also trigger inflammation, we also know that stress can do it. And we're going to talk about that in a minute about how what stress because we say there, stress is one of the triggers for inflammation. It's a very interesting point, we'll come back to that in a minute. We also know that people who sleep poorly are much more inflamed. And also we know that people who are obese are much more inflamed. That's one of the reasons that people who are obese are struggling with COVID, by the way. Next slide, please. So it just interesting that, you know, we think about, oh, I gotta go stress and I got my dog and I got stressed out or whatever it is, how to stress makers poorly. And one of the ways actually is again, it's inflammation. So stress creates ongoing inflammation. So there's a thing called an adverse adverse childhood event, which is lots of people are aware of you know that there's a screening questionnaire, we know that if you have adverse childhood events, big t trauma, or maybe even a cumulative little t trauma, these will actually prime your immune system, then when you're an adult, it's way more likely to become frisky and start kicking off. So if you go to the next slide. So big T is like proper, proper abuse, trauma, sexual abuse, physical abuse stuff that's been of properties. And then it literally it means it was traumatic for you, like you didn't get picked up last being picked for the football team or you got dumped publicly or something. It was humiliating, it wasn't trauma in the true sense of the word or you

know, like a, you know, thing that you bought, it meant something to you personally, and those can still hang up and cause problems. So the next slide is just the adverse childhood questionnaire seeing that. And then if you flip back,

Steven Bruce
because all of these available much more clearly after the show, so don't worry, you can read some of these.

Simon Billings
Next one again. So we know then, if you have four or more on the on the score, and you don't have an always available and trusted adult, that you're three times more likely to end up, you know, drinking and having poor diet and smoking and a whole lot of other stuff. And if you flip to the next one, you can see there the massive difference in if you have no adverse childhood events, the rates of depression, if you push it up to four adverse childhood events, you know, the rates of depression, particularly amongst women are jumping up to the 50 60%. Now it's a massive, massive jump up in terms of the risk. So the question is, well, why and let's go to the next slide. So this is a really interesting study, they took a group of adults, they took control group who didn't have any maltreatment as a child, and then two people that had been had some kind of, you know, adverse issues of childhood. And then they said to them, all right, you're going to do, you're going to do a presentation for us. And for us, it's called a tree or social stress test, you're going to do a presentation for us, they gave them five minutes, and they all got a pen and paper to write down their presentation of a particular topic. And then they're going to be judged. And they would sit behind a desk, and they would give no emotion when they're judging them. And then just before the test, start the presentation, they would take the paper off them and stress them out and then stick it in front of this group of people and say right talk now. And they would talk for five minutes, they stopped early, they made them you got to carry on and stress them out. And if you go to the next slide. So you'll see that if you look at the control group versus that was the bottom line versus the the group that had the maltreatment, not only they they start at a lower level of inflammation, the control group who weren't abused, but then when they when they gave them the stress test, look how much higher the cytokines go in response to that emotional stress. So again, what we say there is, you know, it's normal for stress to give a little bit of inflammation is preparing you. But when the group that had been had childhood event issues, that event issues, they had way more sensitive immune system, it just kicks right off. And that's one of the reasons again, that's you know, so inflammation underpins that, but that's being driven by that childhood issues. Okay, so we've come a long way there. What I want to do now is just give you one easy easy peasy thing we can do in clinic. And this is a we talked about it last time, and it couldn't be a hot topic. Right now vitamin D is now as big as it's ever been because of COVID. So if we go to the next slide Vitamin D will create a sustained inflammatory response, okay, again, because we've we've come away from our evolutionary ancestry,

Simon Billings
which

Simon Billings

deficiency indeed, if you're low in that, because we go out with a sun lotion, we we cover up in the midday sun, all those things we're not we're all deficient in vitamin D. And because if you're obese, or if you're black and Asian minority, or if you are elderly, they are all deficient. So it creates inflammation widespread, that then of course, creates neuro inflammation, which can then create hypersensitivity, which then means you're getting more pain than you ought to, and a persistence of pain. But it also affects your mood and behavior, if you go to the next slide. So this one I just did, it's such a we did our shows last time, but it's just a brilliant bit of research, they took a load of people with chronic widespread pain, and they measured the vitamin D, and they gave them a proper juicy dose. A lot of the problem a lot of the problem with research we have is that the people doing the research do not understand what it is they're researching. Weirdly, they will give them teeny, teeny little doses of vitamin D that don't get them out of deficiency or they don't even measure they're deficient, the first place. And then the conclusion writes vitamin D was was no good at resolving pain or depression or anything. But then you can measure their vitamin D levels. It's quite peculiar. So they did that they measured it, they gave them a proper dose sort of set equivalent of 7000 a day. And as well as measuring the pain, and a few markers, a fair amount of they also measure depression. And there's some general stuff on vitality. All right, so we go to the next slide. Through people that were deficient, you get one thing, one thing that you didn't touch them, and then three months later, you've haft their pain. Now, how amazing is that heart half the pain that would be a great result in clinic even without even touching them, and you just done it with one nutrient. And then if you look down there, also your suppression dropped 35% on average, didn't do it, you just gave him 30 min D, the cheapest thing on the market, right. And then if you look at their general levels, they have a sort of a series of formed in terms of vitality, energy, all that kind of stuff, a 77% increase in their overall vitality for one nutrient. And the mechanism again, is inflammation is inflammation. And it neuro and hypersensitivity. And that change of brain chemistry. And the increase in energy they're going to get by getting in tune with their evolutionary ancestry.

Steven Bruce
They're going to take it because the nutritional companies were making a fortune out of it.

Simon Billings
Next slide. Next slide, please. So just to show you that where we are now 87% 90% of people are either deficient or insufficient. And you flip to the next slide. That then goes to 100% if you are obese, if you are elderly, or if you have any other ethnicity other than Caucasian, that's going to be 100%. Pretty much across the board. And that's again, if you think about which groups are most vulnerable to were COVID deaths over deaths, it is elderly people, it is obese people. And it is groups from an you know, black and Asian background.

Steven Bruce
How does obesity affect vitamin D? What's the mechanism?

Simon Billings
So vitamin D is a fat. And when you're obese, you have a lot much too fat and your body will put the vitamin D into your into your fat and sequester it. And therefore there is less available in the blood. That's

just it's just showing the difference in skin production from elderly versus younger people that they just cannot generate, they have to supplement across the board, and they can kick to the next slide. So then I think we come all the way down to the end. So we're saying that neuro inflammation, definitely Prime's subgroup of patients for developing chronic pain and mood and behavioral problems. And that by successfully removing the drivers inflammation, you get consistently more significant and sustained results with your neuro mechanical care. And as well you can improve them as well you can improve their mood and behavior and their energy and general vitality at the same time. So you get one root cause which is inflammation via a few mechanisms. And that's going to give you a whole lot of increased benefits including obviously your the issue that they've turned up with along with a whole lot of other side benefits.

Steven Bruce
I've got a whole load of questions and other points for you here so I'm

Simon Billings
ready. I'm ready.

Steven Bruce
Good. Well, there's a lot about vitamin D. Hey Misha sent in a very useful observation here he says always measure the measure of vitamin D before supplementing it Watch out for upsetting phosphate levels and take care in sarcoidosis.

Simon Billings
I didn't quite finish but I think he said be careful with sarcoidosis. Did you say

Steven Bruce
yeah Watch out for upsetting phosphates levels.

Simon Billings
I didn't get all of that. So definitely, I wouldn't give it with people with sarcoidosis, because they can get prone to getting very high calcium levels. So just just don't do it. Leave it alone. Let the GP deal with it. And what was the other thing said phosphate levels? Yes. They know they've got high phosphate. You mean you'd be careful?

Steven Bruce
So beware of upsetting phosphate levels? Yeah,

Simon Billings
I suppose Yeah. is a measure. I suppose. I'm not seeing it. But yeah, I'll keep an eye out for

Steven Bruce

questions about COVID. Lawrence's so how do you feel about the the media flow on COVID-19 stimulating fear and panic and people?

Simon Billings
Or was a bit more potato steady? Thanks to that one. I'm not a big fan. But I understand why they're doing it. I just, you know, I just think I would rather they treat us as adults and give us honest statistics about who died definitively from COVID. And who has had COVID as a side issue that didn't necessarily kill them personally, and to be honest about it, but I understand why they're doing it to get compliance. I do you understand that. So it is what it is, I guess,

Steven Bruce
number almost a year ago reading a blog from a medical expert saying vitamin D is a very useful supplement in COVID. There's no guarantee that it's going to stop you getting COVID. There's no guarantee it'll make the symptoms any less. But there is a good chance of this. And I remember a couple of weeks, couple months after that there was a lot of publicity saying stop telling people that COVID can be defeated by vitamin D. has the has the conventional mood changed in that regard? Again?

Simon Billings
adequate adequate the last bit, but yeah, the I think the issue is that we have there was a bit of research published just last week, I think it was showing a 60% reduction in mortality in Spain, and 60%. That's massive. There was a big headline news recently about one of those rheumatology drugs that helped one in 25 people not die. I mean, that's not a great strike rate. 60% is enormous. I think the issue is they don't like anyone saying I think is a cure for COVID. And I understand that, but no one is saying it's a cure. What they're saying is, we know at the moment, 90% of the population 100%, the ones that are vulnerable are low in it. So why would you leave them low? Even if the evidence isn't perfect? Just get them up to a good level, because that's good for their general health. We know it's good for the immune system. There is about I think there's quite a lot of research now showing that it does improve COVID outcomes. No one's saying it's a cure. But why would you leave people deficient? It just boggles the mind. It's just so unscientific and unethical. In my opinion.

Steven Bruce
Elizabeth has asked more about COVID Is there any research on long COVID and its relation to inflammation and diet? But you're aware of?

Simon Billings
I don't, I don't, I don't have as much information about it at all. We know that viruses commonly cause long lasting symptoms. So the classic one is epstein barr virus, which causes glandular fever, I've seen research showing patients still have active epstein barr virus, I have a handful of COVID, long COVID patients I'm sort of working with to a degree there seem to be there's very high rates of autoimmune antibodies in those patients want some some research or a really high. So it looks like maybe these people again, are primed for long COVID by having elevated levels of inflammation. Because the one that the people that struck their

head is cytokine storm, where they get the infection, they have a better response. They don't quite clear if they get a bit better, and then it suddenly goes berserk, and they get this massive over response. And that's why they're using those rheumatology drugs to squash and squash the over inflammation and indeed the vitamin D. That's just it's giving your immune system what it needs to run normally. So you don't get that over response. So yeah, I think it's I think it's like any other long term viral issue. It's just there's a probably a moulding competent immune system and it gets established and then you you've got to try and then wheedle out

Steven Bruce
Pam was asked whether you would say inflammation is linked to Barrett's esophagus.

Simon Billings
Well, indirectly a bit embarrassed, Safa goes is you know, it's that cell changes the top the bottom of the esophagus from the acid and incompetent bow for whatever reason, changing it so not directly. I mean, it's bounced off because because of the acid getting worse shouldn't be. Why did the valve isn't working is a bigger question. And sometimes that is because you have gut infections again, and that creates bloating, intra abdominal Lee, and that intra abdominal pressure will pop the valve open and that will allow the acid You have to then get up into the esophagus and then cause problems. So kind of indirectly, but not really.

Steven Bruce
A lot of people asking about vitamin D dosage, you talked about 7000 international units a day on that particular trial. I think in our last discussion you said 5000. Since then I've been taking 4000 because that's all I can fit in the little plastic boxes, I keep my daily drugs, my daily returns in, what's the what's the guideline?

Simon Billings
Yeah, yeah, it depends on the size, the key thing is size dependent. And also your if you're obese, so yeah, four foot four, or 5000 is enough for most people. And it's a very safe dose very clearly research that you can take 10,000 a day very safely for long term, we should also remember that your skin, if you're exposed to half an hour of really strong sun whole body, you can make 10 to 20,000 units in about half an hour. So we're trying to mimic a little bit of sun exposure daily. So four or 5000 is fine. If you're a bit smaller, you don't need to quite that much. But if you're bigger, so if you're obese, you will need to double the dose probably. So if you're sort of three, four or five stone overweight, you will need to push it up higher. And that's the one thing that can really stop people's levels getting up to a decent level. And remember, again, the difference here, we're you know, with what I'm teaching, is that we want optimum levels. And we would say that from looking at studies that people that work and live in sunny climates and are outdoors at the time, their levels usually are sort of 100 up to 180, depending on which study you read. So you want to be in into sort of 100 somewhere. The NHS, if you're above 50, they consider you adequate. Now, the issue is that a lot of the immune system benefits don't tend to really start appearing until you get up higher and particularly max out in the hundreds. So from an immune system benefit, which we all want to get get you what do you want to take sort of four or 5000 units? And then if you're bigger than you would double it?

Steven Bruce
And one one of the questions I had was, is it worth to be taking vitamin D if it's not going to get used for the body? But I guess your answer there, so just go with like a lot more of it.

Simon Billings
Exactly. So Exactly. So yeah, exactly that. Yeah.

Steven Bruce
Laura has said, not relating to vitamin D, but relating to inflammation was what you were saying the possible influence of inflammation. Does that is that I'm trying to paraphrase the question, does that reflect the similar lack of relationship between visible arthritic changes on playing film and the lived experience?

Simon Billings
Yeah,

Simon Billings
definitely. That's part of it along with unit function. But yeah, definitely,

Steven Bruce
he has come back in again, before he came back in some time back, he said he might have missed your point about anxiety. Are you suggesting that anxiety is associated with inflammation or caused by it?

Simon Billings
It's caused, it's caused that one cause or it's not the only one, obviously, but certainly, you know, anxiety is one cause of that could be inflammation yet via the mechanism we discussed on less serotonin more quinolinic acid production. There's a bit more to it than that. But that is certainly one of them could be done. And remember, also just there's, there's inflammation can cause it. But also remember some of those more more nuanced and complex, it might be again, that you're prying with a little bit of something. And then life stress happens. And they come together. And that's when you just cannot cope. Yeah, even though, you know, you might have coped you think years ago with all sorts of stuff. And now we're just you know, and fall apart at the seams. You know, why is that? And that's going to be a combination of factors. There's not just it might be that you need to be sort of more resilient. It's not just inflammation. So it's the life and those things coming together,

Steven Bruce
traditionally referred to as central sensitization. Isn't that sort of priming the overall system? Yeah. Yeah. Oh, PS, Pierre. Pierre is very active today. Thank you. He says the NHS recommend recommend 400 R Us per day of some indie, which I think, again, we talked a lot about vitamin D in in Simon's previous broadcasts, there's a lot more information there on what you need to take, as well as vitamin D in order to make it effective. And but we did talk then about the gross disparity and what the NHS recommends, and

what Simon is saying is actually a healthy level. I think one of the important things though, Simon is sorry, I should shut up. One of the important things you're saying it's bloody hard to overdose on vitamin D supplementation,

Simon Billings
oh, oh, yeah,

Simon Billings
you can't do it. But you'd have to take a lot for a long period. And we're not going to give those kind of doses, you know, say for 5000 a day, you can make more than that in half an hour son. So I'm not saying anything. 400 units is not a meaningful physiological dose. It just isn't. And the reason this is again, quite odd. This I saw there was an argument on Facebook, I don't I don't get involved anymore, because it's just ridiculous. But someone was saying, basically, what the experts have said this. So you know, if you think you know, better the experts, you're wrong. And my argument was, it's not me saying it. I'm quoting the researchers who've done the research and I'm quoting use scientific data that says if you give someone 400 units, it will raise your blood level on average about 10 nanomoles. Now let's so the deficiency range starts at zero is nothing 50 is the end of deficiency and then insufficiency is 85, we want to get to 100. If you're say at 10, you're grossly deficient, and you give them 400 units, on average, that will raise them another 10 to 20, which is still grossly deficient. And this is well established in the research. There's nothing controversial about that at all. It's just that for some reason, the people that in the nice guidance, it's they just they don't have a clinic. I don't think they're not okay. They're just researchers are they clear what they are, but they seem very research based, but not clinicals, they can read the news, they don't quite get the fact that if you take someone's down, you have to give them higher doses to get them higher. It's not rocket surgery. And we know that it's safe, it's overwhelmingly safe. And I'm just trying to mimic physiologically what you would get from sunshine, if I lived in Florida, I'd go out and walk about doing stuff. And I'd get a few 1000 every day. And we know that these people have waivers lates of vitamin D deficiency and also that correlates with lower rates of cancer and Ms and a whole lot of other stuff. So yeah, 400 units, it's just initial round, the cost is not going to get you out of deficiency. And then what are you aiming for? Do you want to be not deficient of 51? Or do you want all the immune system benefits? Now, they might argue about that, because there isn't perfect, randomized double blind of every single thing. But again, from an evolutionary point of view, I would have been out in the sun more than I am now. I would have been and I so I want to mimic that that I guess into a good level and do that I don't have to have perfect research to know that evolutionarily, I would have got more sunshine than I do now.

Steven Bruce
Yeah. And you clearly feel very strongly about it. And

Simon Billings
just at the moment, my ankles that Parliament months ago, months ago, even now saying there's no evidence, the vitamin D is of any good at all, you know, the papers coming out all the time, you know, and again, why would you leave people deficient? Isn't that corporate manslaughter? I mean, I just find it

astonishing. We know that efficient that research I showed you about the deficiency was done, I think 15 years ago, that has some more than recently. Everyone's still deficient. You know, how many more times you measure people in the UK and gather all deficient, particularly people who are obese, elderly, and people who are black and Asian, they're dropping like flies, and they're not doing anything, I find that I find it abhorrent.

Steven Bruce
And I agree with you. But let's turn away from with Lindsay just for a second. Because apparently amongst the Vimeo team, there is a big debate going on about nuts. Well, they want to know which nuts are good or bad or whether nuts are good or bad. And whether you can reintroduce nuts if you've cut them out. It seems that the vivio team like nuts, apparently, and they're worried about not being able to eat them,

Simon Billings
Well, well, well. Nuts are a great source of nutrition, you should technically soak them before you eat them because they're full of phytic acid. And that will bind to the minerals and the nutrients in there and stop you getting out of them. So if it had fallen off the tree, it would soak there and that helps get rid of basically the phytic acid that's a problem. So try and soak them if you can be water, you could do that. But I don't know quite what it would do to the whiskey, I suppose. So they are a good source of news, my experience is that people who held on sometimes eat too many nuts, and they are a common allergen. And you shouldn't eat nuts every day. Some people just go a bit bizarre once or twice a week might be fine with but just remember, from an evolutionary point of view, you wouldn't have eaten nuts very often. You know, once a year they fall off the tree, you get a few nuts. That's it. And we probably now in my opinion, too much polyunsaturated fats, you wouldn't have eaten seed oils of any kind none. Even though we might think flaxseed is very good for you in many ways, you just wouldn't have eaten anything from seeds because you wouldn't have had again at it. So just give a little bit careful. We don't overdo the nuts that can be a great source of nutrients. But certainly if you can, and then gently, you roast them at a very low level. And they're delicious or pecans, soaked dried out for 12 hours, dry them out and then bake them about 50 degrees with sea salt and rosemary is delicious. Yes, if you do if you do have an issue with when you pull them out as part minimum amount as part of elimination diet, you know you if you bring them back in and you don't get a reaction, no tummy ache, no kind of tiredness, no aches and pains The next day, that's fine, you can eat them. But if you do, then you need to pull them out and keep them out for a good six to 12 months and really try and do some stuff to try and repair your gut lining. The beginning.

Steven Bruce
Interesting you mentioned series by where Pam sends a question saying aisle seats okay.

Simon Billings
depends on your point of view. They do have nutritional benefit obviously. But again Yeah, depends on your point of view. There are definitely good things about them. Again, I just think maybe we're overdoing the seeds a little bit because they're you know good fats in them and they have got good fats in them. But it's what's appropriate level to have potentially and that varies depends on the person a little bit.

Steven Bruce
Rachel's asked your thoughts. So like to free diets?

Simon Billings
I think they are. I think people who think they've got lactose intolerance. So remember that lactose is is the sugar and lactase at the enzyme that kind of snips in half. Most people, not most a good proportion of that have lactose intolerance are actually gluten sensitive. And what happens is the gluten inflammation, the gut, irritates the gut lining, and that then stops you making the lactase enzyme. And then you become quote lactose intolerant. So you get less severe tummy problems when you cut lactose out by going lactose free, but you still having gluten and dairy. I find that they cut gluten and dairy out, they'll often heal, they'll then tolerate the dairy much, much better when they go back to in the future. It's very

Steven Bruce
common that Solomon was asked what about sugar hope salami, you were watching the talk with Gary Taubes a few weeks back because he talked a lot about sugar and carbohydrates. What's your opinion?

Simon Billings
I wouldn't go chucking in I certainly avoid it as best I can. I suppose if I had a choice between people eating like a refined flour, like a white flour or something rather versus some sugar, I'd probably pick sugar because at least it's it's a to die saccharide and it is technically natural cane sugar is natural. Whereas if you take flour and grind it up, it's it's just an unbelievable hit of sugar when it gets broken down in such a quick release. So don't have lots of sugar. But you know, I have a bit of honey now. And again, I use honey during the week for energy raw honey. So don't think sugar is the devil per se. I think it's more that it's you know, you're getting most people get their sugar from processed junk food. So, you know, I wouldn't go spooning over things. But you know, again, Wendy's,

Steven Bruce
also you go about repairing your gut lining?

Simon Billings
Well, as well, it's a whole different way you can do it. But generally l glutamine is a decent start. So five grams three times a day, and maybe higher 10 grams three times a day, depending on how they get on. glutamine is the main fuel that the cells use in the gut lining to replicate and heal. And the cell lining of the gut does heal, it turns over every three to five days, to the very fast turnover. So using that, and also butyrate can be very, very soothing. butyrate is the other fuel that the cells generally use. butyrate is made by your gut bacteria, or some of them at least. So if you have a good healthy gut microbiome population, they will eat your fiber, they then produce butyrate. And butyrate, then is a fuel that goes in and heals your gut. That was it's replicated. And also you can use butyrate as a fat because butyrate is a fat it can you can actually use it to burn as fat. which interestingly, if you're interested, if you look at apes, they have a very, very large tuber and bellies. And the reason is because they they're generally vegetarian eat huge amounts of foliage all day long.

They have very small, they have very short sorry, small intestines, because that's where absorption of nutrients from food occurs. Now the plants they're eating are low in nutrients. So they need to ferment the fiber from the plants, they have very, very large, a very long, large intestine. And they then eat that food all day long. And it goes to the to the goes into the colon, they then ferment it. And then they get lots and lots of butyrate, which they then burn as fat. And that's when their belly stick out. But that's why as we started to eat meat, when we started to evolve, our small intestines had to get longer, because we needed to absorb the nutrients from animals because they're very nutrient dense in animals. And our colons got shorter.

Steven Bruce
Two questions to go, because we're nearly out of time. One very quick one, I hope Laura says is there any research on the amount and I presumed humans have vitamin D that children should have in the early years?

Simon Billings
Yes, so just yet, so just size dependence. So, you know, it's, I would aim for about up to 1000 units up to sort of one to two years of age and as they get bigger to slowly increase the dose until their adult size, which is you know, and then any sort of four or 5000 once they're an add on the size at least.

Steven Bruce
Right and the one I'm sure you've been waiting for Pam has a house without us prompting her to run workshops.

Simon Billings
Yes, you do. What a coincidence. Coincidence? Yeah, if you go to Oh, what a great hit to do go to Academy of chiropractic nutrition.com you can sign up there just for the newsletter sent every Friday with all the stuff like this free vitamin D downloads and agenda and stuff. And if people aren't getting the courses in evergreen online courses purely online you can watch it at your own pace is lifetime access. And we take you through the core concepts in inflammation being one all the common nutrients vitamin D, magnesium b 12, glycine Foley all the nutrients we need, and strategies and protocols for nursing. Pain, mood and depression, migraine, all that kind of stuff. And then we have a thriving Facebook group as well we just had another round of members come on board the last week and what I'll do is I'll leave that open. So if you go to Academy of chiropractic nutrition.com forward slash final that will take you to the sales page. And then from there you will see on there there's a video that takes you at the backstage you can see all the different modules and what you're going to get. And then if people want to join us up it's there's a reducing the price of them in the course is about 95 85% complete and there's a reduction then down so the course is now not at the moment is 985 for that lifetime access. And then you can join us there through the through the website any questions they can drop me an email on Simon at integrative care doc coda UK or Simon at Academy of corporate nutrition.com

Steven Bruce

who will share all those details with you I will get the try to get the slides out to you later tonight. Don't have to wait up for them. They might not get through till the morning. But we'll send all the slides out with all that information including access to any courses that Simon is running. So don't worry, you won't get without Simon has been brilliant again. I'm sorry. We had internet problems. But it's been fascinating and I'm really grateful for you for coming on the show again. Hopefully we'll do this again sometime in the future. I'm so looking forward to not having to do this by bloody zoom or Microsoft Teams because there are so many problems inherent in that