



THE

FATIGUE

SUPER

CONFERENCE

Rethinking adrenal fatigue

Guest: Nora Gedgaudas

Alex: Welcome to The Fatigue Super Conference and I'm really excited for this next conversation, I'm talking with Nora Gedgaudas and we're going to be talking about adrenal function as one of the key pieces and Nora is bringing forward I think for most people will be some quite new, quite revolutionary ways of thinking about adrenal function. I've been enjoying getting into her work over the last couple of days and it's been a kind of updating of some of my understanding so I'm also curious to get the opportunity to get answers to some of my questions around this as well.

Just to give a bit of Nora's background, Nora is a board certified Nutritional Consultant and a board certified Clinical Neurofeedback Specialist with over 20 years of successful clinical experience. She's a recognised authority on Ketogenic ancestrally based nutrition, she's a popular speaker and educator and author of the best selling books 'Primal Body, Primal Mind', 'Rethinking Fatigue' and her newest critically acclaimed book 'Primal Fat Burner'.

Her accredited primalgenic health certification programme, Primal Restoration, is a unique and invaluable source of cutting edge information benefiting those interested in furthering their nutritional knowledge and optimizing health.

Nora Thank you so much for joining us for this conversation.

Nora: Alex it's a pleasure to be here and thank you for the gorgeous pronunciation of my name.

Alex: I won't let anyone know that I asked you beforehand because I realised my English version of it wasn't quite right.

Nora: Even then, even when I tell people they still have trouble so I'm impressed.

Alex: Well that's very kind of you, thank you very much. I'd love to start, if you don't mind, a little bit about your background and your story because I know that you started in the area of neurofeedback and I know that you'd been suffering with depression for a number of years and it had a significant impact in terms of your own life.

So maybe just say a little bit about that and how that perhaps awakened your sense of potential for alternative way, let's say, of doing things.

Nora: Sure. I suffered depression for a good 35 years of my life actually, before actually two different things came along and they both came along at about the same time but it was fortuitous because the one reinforced the other. You mentioned neurofeedback, which is a highly sophisticated form of brain training, it's also known as EEG Biofeedback. Most traditional biofeedback is known for dealing with what we call peripheral measures so you know breathing, heart rate, galvanic skin response, heart rate variability, skin temperature, things of that nature, and it's all designed to just sort of enhance parasympathetic functioning and your handed a tool and told to focus very hard and to practice, practice, practice and then as you, say for instance, they hand you a thermometer you sit there and you focus and as you find a way to raise your skin temperature that's usually what's happening, there's blood dilation happening and you hands warm and that's due to a parasympathetic response.

So they send you home with a thermometer and you practice, practice and all of that and it's helpful but with neurofeedback you're dealing directly with the electrical activity in the human brain and as such the feedback is happening way faster than anybody can consciously process. The conscious mind really isn't particularly invited to the party, it sits back and it allows the brain to obtain information about its own functioning so it can better regulate itself through video and audio feedback on a computer screen. It's extremely powerful much more direct I think that many of the older biofeedback modalities and anything that is under the governance of the central nervous system can stand to be powerfully impacted by this.

(19.43)

So when I was first introduced to the idea of neurotechnology back in the very early 1990's it made a lot of sense to me and it's a long story as to how I tripped into neurofeedback itself but literally after about the second session for me my lifetime of feelings of helplessness and hopelessness sort of flew out the window and never came back.

Alex: Wow.

Nora: I believe the reason that they never came back is because I was also at the same time making some pretty significant dietary changes where I had stumbled upon the idea of ancestral approaches, basically you know some call it the Paleo diet, that sort of thing, but the idea of eating the way your ancestors ate, which eliminates most of the modern post agricultural foods like grains and legumes and starchy foods and that kind of thing.

So I was making those changes right about the same time. Now my approach to all that has evolved, so to speak, pretty significantly since then and now I have a very, very well thought out, you know I delved into human longevity research and I also take a look at the world we live in today and I draw from a lot of different science in order to formulate what I know call my own Primalgenic approach. A lot of what's going on in Paleo diets has become very highlight commercialized, as well as Ketogenic, it all gets corrupted by industry right and by people looking to make a fast book who are cutting and pasting from other people's work and just basically trying to sell stuff. There is many different versions of these dietary approaches as there are people claiming to practice them and I found myself a bit frustrated with that, I'm a bit of a purist at heart so I've generated my own approach. You know it's well outlined in my books, all of them really but particularly 'Primal Body, Primal Mind', which is my first book, and then my most recent book called 'Primal Fat Burner. No it's not weight loss focused although it will be everybody's favourite side effect of that protocol.

So you know the idea behind it is the optimization of health including brain health. Brain health has become certainly a bit of a specialty of mine for obvious reasons because I've worked with the brain for over 20 years but nutritional consultation really is the primary focus of my life now and I've got extensive training in functional nutrition, functional medicine, those areas and I've studied with some of the best pioneers, really the scientific pioneers out there, and I feel very fortunate to have had the training that I've had. I've learned to connect dots along the way that most people might not think to connect and it's because I have this enormously varied background.

Alex: Yeah. I haven't had a chance to read your latest book but your first two books one of the things I really appreciated was the way that you're instigating the functional medicine and the physical piece with the psycho-emotional side of it and I also thought it was really interesting that you're on one hand on the kind of nutritional physical piece, the focus on the Paleo stone age kind of diet, but then when it comes to the psychology the emphasis on neurofeedback as being one of the tools, an absolute use of technology. I thought that was really interesting and really just kind of seeing whatever works, works and not being kind of purist about any piece of it. That's it's really finding the most affective tools to facilitate change.

Nora: Right, right and there is a limit, like for instance with respect to the ancestral approach to things just because our ancestors did something is not necessarily a good reason for me to want to do the same thing because of course they weren't necessarily focused on well how to I live the, longest, healthiest, particularly post reproductive life span. You know that's not something they probably, I mean I don't know what they thought about, but I'm sure they knew more about what was good for their health than most of us do today.

I think it's irrational to assume that everything so called natural that you can put in your mouth, chew up and swallow and not drop dead after having consumed is necessarily going to optimise your health. So to my mind looking at the selective pressures that shaped our physiological makeup, that shaped our brains, that shaped all of that, our biochemical makeup, our digestive makeup, all of those things, it's the only rational starting place but then again I follow that up with well let's take a look at human longevity research and what clues it can lend us about how to take those foundational principals and optimise them for health and longevity. Then again it's also really important to take into account the, I believe, unusually challenging world that we live in today, which is far more hostile frankly in my mind than anything our prehistoric ancestors ever had to put up with. But the big difference today, and this will be a good segway to get into this, is that what we are wired for as a species are, you know when it comes to our stress system right, tangible threats. For instance a saber tooth jumps out from behind a bush to chase you around, that's pretty tangible, you know that's happening. Or so you're getting charged by a cantankerous woolly mammoth or there's a warring tribe invading your camp or there's a volcanic eruption or a major storm or famine or major seasonal change or something. Those are stressors that we are wired to recognise as problematic and in need of our attention in order to avoid them or you know so something with that.

(26.08)

Nowadays we live in these artificial environments where it's always, you know of course I'm in the States so we're not using Centigrade we're using Fahrenheit, but you know it's always 72 degrees inside and you know we don't have to take more than two steps in any direction to grab a handful of something we call food, stuff it in our faces while we're watching Dancing with the Stars and noshing on cheesy doodles, you know.

Alex: That sounds quite pleasant (laughs)

Nora: (laughs) There you go, that's the dietary recommendation right there in a nutshell. No, so it's one of those things where we have this artificial sense of

complacency about things, we think we're safe and warm and everything's great and that we don't have to worry about our environment at all and a lot of the things that we used to view as stresses aren't necessarily high on the list anymore.

But I would say probably 99% of those things that threaten us today, that threaten our survival, are things that are largely invisible to us and they are a highly compromised food supply full of contaminants and GMOs, you know we're being surrounded by things like EMF pollution, Electro Magnetic Frequency pollution for those that don't know what that is, from WiFi and sixty cycle dirty electricity from all kinds of things, cellphones etc. Radiation contamination, things that are in our water supplies, I know we have highly contaminated water supplies, the air that we breathe, everything and yet those things because they're invisible to us we tend to not really think about it.

We tend to not care about it, even when it's brought to our attention, we'd prefer to not have to think about it until it's in our face. So people don't have a tendency to make changes to whatever's happening to their health until the pain of their health until the pain of the problem starts to exceed the pain of the solution, which is an unfortunate aspect of human nature. By then one would only hope that it's not too late and that there's still a way of getting in there and turning things around. People tend to wait until they're highly symptomatic before they start to pay attention to these things that might otherwise be invisible to them, and food sensitivities are another major thing there, but again I believe that we are living in easily the most perilous time in our entire evolutionary history and that we have infinitely less wiggle room than our pre historic ancestors had with respect to what we need to do, not just to optimize our health but to have any semblance of health.

Alex: Yes, yes.

Nora: And stress is one of the words that is sort of a catch hole, we all have a sense of what stress is in our lives but many of us are being stressed by things we're just not even aware of. So those are the things that I tend to try to address but something like neurofeedback can really help improve the way you're brain manages incoming stress and how you perceive stress in your life. Things that normally unravel you or you may be emotionally reactive about after a good amount of quality neurofeedback might not.

So you know it's about giving your brain information about it's own functioning so it can better regulate and manage its own states and that's great but you can be doing the best neurofeedback protocol on the world and it's not going put a nutrient there that's not there. It's not going to take away some interfering substance that doesn't belong and you know the brain and

the body need certain raw materials to function optimally well period. Unless it has those things and unless you're willing to remove the interfering substances you'll never get optimal results from, not just neurofeedback, but anything else you happen to be doing. I have found a combination of optimizing nutritional protocols in tandem with something like neurofeedback has been a virtually full proof combination for virtually everything that has ever come through my door and it's not all mental and emotional or neurological issues really. The brain is a central realised station that regulates quite a lot in our bodies and you'd be surprised at the number of things that is can actually effectively address.

I would recommend that people go to eeginfo.com if they want to learn more about neurofeedback, that is absolutely the best source out there for quality information and you can find a practitioner from wherever you are in the world by going to eegdirectory.com and then you can just hit whatever country you're in and there are thousands of practitioners around the world now. It's very good science behind it.

Alex: I remember reading 'Symphony of the Brain' around 16/17 years ago and I was so inspired by it I went and brought a very expensive neurofeedback machine and flew to America to train how to use it and then it ended up staying in a cupboard for many years because I was too consumed by my other clinical work that I was doing. But it's fascinating and amazing work and I've had some good friends have some amazing results and particularly things like ADHD and some of the other areas.

Nora: I've seen my share of miracles, yeah, it's some of the most fascinating and gratifying work I can imagine. You know if you see results very, very quickly with people somewhere between the first and the tenth session people usually have a pretty good idea of what this is going to do for them and I mean I've seen results within minutes sometimes of hooking people up. I mean if you hit upon the right thing right away, and there's some adjustments in the early stages of the process and all of that, but I mean I'm not primarily here today to talk about neurofeedback but as a stress management too absolutely important.

Alex: Yes and it's also an interesting segway into the adrenal piece because of course most peoples understanding of adrenal fatigue is it's effectively the adrenal glands struggling to have a sufficient output of cortisol or DHA or adrenaline, whatever it may be, and it's interesting that where we'll explore is actually looking at the brain and that's of course where your background was with neurofeedback.

Nora: Yeah you stole my punch line, well pardon me.

Alex: (laughs) Sorry.

Nora: (laughs) It's OK, it's OK.

Alex: So maybe say a bit about most people assume that their fatigue is due to adrenal burnout or more physical factors.

Nora: It's such a you know a zeitgeist if you will I mean in our culture we talk about adrenal fatigue and adrenal burnout as if it's a real thing and frankly it's mostly a myth. What people need to understand is that the adrenal glands themselves are these two little tiny hormone factories sitting on top of each of your kidneys and they function mainly as your bodies sort of central stress management hormone production facilities if you will. They basically do a lot of things but fundamentally your adrenals do what they are told to do by your brain and it's your brain fundamentally that is ultimately responsible for adjusting the signaling to your adrenals to do whatever it is that they are supposed to do or to inhibit them in some way.

In other words in the majority of cases where a person is claiming that they're suffering from adrenal fatigue or adrenal burnout what they're really struggling with is a brain based issue and maybe more than one. There's at least one other major possibility and there are also a number of things that may mimic adrenal fatigue that we can also talk about and that I think we should. But always the first place to look is essentially the brain.

So there are four different areas of the brain that we'll touch upon here. There's the hypothalamic pituitary adrenal axis, the HPA axis, and that basically regulates the amount of cortisol that you may be producing at any given time. That's the part of your brain responsible for deciding that. Then there's your hippocampus, which is the part of the brain that has the richest repository of cortisol receptors in your brain and the hippocampus, which is part of the temporal cortex right above your ears, is also responsible for integrating and regulating the cortisol circadian rhythms. Then you have your mesencephalic mid brain and that controls the amplitude, if you will, of the adrenal response and then of course there's the pineal gland, which is responsible in part for establishing cortisol melatonin balance because at any given time when melatonin is up, cortisol is down, they're always in diametric opposition to one another, when cortisol is up melatonin is down.

So to start with the first one and I think this is maybe the most common source of what people think of as you know adrenal fatigue for instance. Many people here have already heard of the HPA axis, right, so this hypothalamic pituitary adrenal axis involves this whole cascade of hormonal messaging that

helps to determine the amount of cortisol that your body needs one moment to the next. Your brain sends messages to your adrenals from this axis where messaging is sent through the specific areas or nuclei, if you will from the brain, and those activate your adrenal glands and they cause them to release glucocorticoids mainly cortisol's, what we're going to be talking about. Also certain catecholamine neurotransmitters like epinephrine and norepinephrine and things like that.

So there is a cluster of cells in the back of your hypothalamus called the periventricular nucleus, sometimes it's abbreviated PVM cells, and it turns out that certain types of infections or inflammatory compounds, these things that are called cytokines, can have a huge dampening effect on your hypothalamic output. That has tremendous implications for not just your energy levels but even things like depression, right, so that's near and dear to my heart. So they're really sensitive to certain types of inflammatory compounds in a way that can virtually shut them down and these same cells also regulate the amount of neurotransmitters that your brain is producing. So it's all about the central integrative state of these periventricular nuclear cells of your hypothalamus.

There are two ways in which that hypothalamic interference can result in adrenal problems or adrenal deregulation, creating the effect of too much cortisol or not enough. So in either case what effect do you think most adrenal supplements out there are going to have on something like this, none, none at all. Now say for instance you get a flu bug, your body's going to generate a lot of interferon in order to raise your natural killer cell levels so that those can go after the virus or whatever. But it turns out interferon is one of those cytokines that has a profoundly dampening effect on that hypothalamic output and how do you feel when you have the flu? You feel completely dragged out. Well you don't have to have the flu but you can have chronic infections or some kind what if you have Epstein Barr, Cytomegalic virus, you know HIV or you have almost any other kind of chronic viral kinds of issue that are common today you're going to have this chronic sense of just not having enough get up and go. That is part and parcel of what this dampening effect is all about.

A lot of these people go around to natural healthcare providers who are still kind of stuck in the 1950's with respect to what they learned about adrenal fatigue and adrenal burnout and that was the result of work by a brilliant Canadian endocrinologist by the name of Hans Selye. The guy was no slouch, he was nominated many times for the Nobel Prize, and this guy literally coined the term stress and wrote the very first textbook in the subject. He advanced certain hypothesis early on, on the subject of stress, many of which if not most of which, unfortunately never panned out to be quite true and realty

aren't in alignment with what is understood today about stress physiology. But the idea has kind of stuck, the idea that there are these various stages of adrenal adaptation and adrenal fatigue and adrenal burnout and alarm phases and burnout stages and all these kinds of things and it's still an lexicon meaning natural healthcare providers are still speaking that language but that's not really how it works and in fact you know it turns out that you can go into elevated or depressed cortisol patterns almost literally overnight. It's not one of these things that occurs progressively now that we have advanced testing techniques today and an ability to look at this a little more easily you can change these patterns very, very quickly sometimes and they can leap from one end to the other depending on what it is you're doing.

Seyle's model is basically a glandular model of adrenal dysfunction and it's inaccurate not just most of the time but nearly all of the time. That's why so many people will take adrenal supplements, sometimes for years until they're coming out of their eyeballs, and they just might not every do a thing.

Alex: And I guess that there are others that take adrenal supplements and they do see uplift in energy.

Nora: I think that adaptogens are a good thing consistently, pretty consistently to use, but the thing is that adaptogens that people take for adrenal issues don't work on the adrenal glands they work on the brain and that's where they have their primary mode of action is within the brain. But we know that adrenal dysfunction is not necessarily progressive in nature and it's not necessarily the result of one thing but can be caused by many different factors and it's not necessarily the result of adrenal glandular dysfunction but in all likelihood is being caused by something else entirely and until you arrive at whatever the source of what's impaired their adrenal function, until you've figured that out and gotten down to bedrock to figure out what is actually the source of these issues the dysfunction is never really going to be effectively addressed long term.

Alex: Yes. So in terms of getting to that root cause obviously what you're kind of outlining is that ultimately exists in the brain. Can you say a bit more about how that then is resulting in reduced adrenal output, for example? I think what's interesting, as I understand it, is what you're saying is there are people that will take adrenal supplements and actually nothing really happens because it's not really targeting it, others where it may be there is less adrenal output and yes you can take adrenal supplements that will raise that but you're not dealing with the underlying reason why there's less cortisol or whatever it may be in the first place.

Nora: I'm very foundational and very functional like thinking so I really want to know why something is happening and say if this is due to some chronic infection you might be carrying around well then you want to get to the bottom of that right and you want to address that and remove that cytokine burden so that now your hypothalamus can stimulate the appropriate release or have the appropriate release of cortisol into your system.

Alex: I am sorry to interrupt but also it's an interesting point, I meant to just touch on that when you said it earlier, but I imagine there's a vicious circle here between having raised inflammation and then having reduced adrenal output resulting then in more raised inflammation. So in a sense there's a vicious circle that people get into there.

Nora: It is you know and there are a lot of different reasons for inflammation. I think you know food sensitivity issues things like, well gluten and dairy are the two big ones those are the two big bugaboos that are likeliest out of all foods to affect. In fact you don't even have to have an immune reactivity to gluten in order for it to adversely impact your brain and your gut, it will do that without even having an immune reactivity. So when people say I don't have a problem with gluten, there's nobody that doesn't have a problem with gluten, honestly.

Alex: (laughs) I was interviewing Dr Tom O'Bryan earlier and that's exactly what he said as well. I can talk from personal experience a number of years ago doing a, I think it was, an IgA/IgG food intolerance test, coming back normal on foods that I knew that I was having an inflammation response to. So as you say it doesn't have to be an immune reaction for there still to be inflammation.

Nora: Exactly. Everybody that consumes gluten is going to stimulate the release of an enzyme called zonulin, it sounds like something from a Star Trek movie, but anyway. So Zonulin basically controls intestinal permeability and also blood brain permeability and so at the very least there is an acute affect for several ours following a gluten containing meal, even trace amounts count. You know that little bit of coating on your calamari or whatever, the littlest bits can counts. You end up with gut barrier compromise and blood brain barrier compromise and anything that is not properly digested in your gut or any substance that's in your body that your gut might otherwise selectively filter out, or your blood brain barrier might selectively filter out, I liken to it to a bouncer at a popular club downtown, suddenly the bouncer's passed out on the patients and all the nerds of getting in and wrecking the club and the reputation of the club. So it's one of those things where you have the potential to set up an inflammatory response that can lead to any number of immune reactivity's, even if you're not reactive to gluten.

Just as a quick aside I had a client once, it was a Mom with a 10 year old kind, that had suffered horrible chronic migraines and when he ate gluten free he did a little better but still wasn't perfect and so he wasn't that motivated to stick to it. Well I assumed that gluten was an immune reactivity but we still tests and it turned out that it wasn't he didn't have an immune reactivity to gluten, and in fact the only food he had an immune reactivity to was eggs. His Mom was like oh my god he eats those everyday, well it's not just the eggs that he needs to eliminate, it's the gluten because the gluten was facilitating the immune reactivity to the eggs but it's also potentially facilitating the immune reactivity to anything else that he eats. So it's much better to eliminate both under the circumstances and that's what they did and the kids migraines went away and stayed away, which was amazing. Without neurofeedback even.

Alex: And I guess if the raised inflammation is resulting in reduced adrenal function then also, given that the adrenals play a role in reducing inflammation, that's where you've kind of got, if you've got less cortisol or whatever is being used to reduce the inflammation that's that circle where it's just going round and round.

Nora: It really can go round and round and then there's also the issue of the whole pineal things. So then you have cortisol/melatonin balance and if one of those things were, you know melatonin is sort of like the darling of the supplement industry, everybody's popping melatonin pills like they're going out of style because they've never found a toxicity associated with them at any level. They've done their best to kill lab rats with melatonin and haven't been able to do it. So everybody figures because it's not toxic it's automatically find and good for you but the problem is that it's a hormone. Whenever we take exogenous hormones to try to manage something what we end up doing is affecting feedback loops and affecting other hormones.

So there is a very real problem with that and if you really want to screw up your cortisol circadian rhythms one of the surest ways to do it is by taking melatonin supplements because for starts when melatonin is up cortisol is down, and then you are messing up feedback loops that hormones rely upon. You are also shutting down your own internal, your own endogenous production of melatonin in the process because your body looks and says well there's plenty of melatonin coming in I guess we don't have to make any and that can cause a lot of problems long term. Then finally all melatonin that people take does not normally cross the blood brain barrier and melatonin, the endogenously produced melatonin, is critical for the detoxification and protection of your brain. So if you're taking melatonin orally your brain's not getting what it needs and you're messing up your ability to produce more. In

addition to that you're screwing up your cortisol circadian rhythms and so it's one of those things that I'm just not a fan. If somebody wants to take a little melatonin for jet lag I don't have a problem with that but if you're needing to take it very night for sleep you might want to rethink that.

Alex: Yes, yes.

Nora: I would say one of the most common forms of adrenal dysregulation that I see, and also one of the most unfortunate, and that is where it comes to hippocampal compromise, you know we talked about that area of the brain. This area of the brain has the richest repository of cortisol receptors and it was never really designed to be marinated in cortisol 24/7 and unfortunately when somebody's been chronically abusing themselves with stress, burning the candle at both ends or worse, working 7 days a week, not sleeping enough subjecting yourself to whatever strains at work or whatever else in life, lots of people kind of set themselves up I think for stressful patterns.

What happens is you know cortisol is a catabolic hormone, right, anabolic means you're building things up, catabolic means you're breaking things down, and when that part of your brain which is critical for the integration of long term memory in people, when that part of your brain is being marinated in cortisol it starts basically breaking down and turning into Swiss cheese. Radiologists nowadays are starting to see these patterns in younger and younger individuals all the time, you know these little Swiss cheese hippocampi, and they're calling this now a normal variant of ageing because its become so common.

There's nothing normal about it just because it's common, it's a very, very scary thing and what you see if you do, there's a salivary cortisol test called an ASI, which stands for Adrenal Stress Index, and what that will usually do is number 1 it will tell you your overall cortisol burden but it will also take a close look at your cortisol circadian rhythm. Normally cortisol starts at it's highest early in the morning, the idea behind that the reason it starts so high generally is because cortisol also when it's elevated raises blood sugar and it's in order to wake you up and get you going in the morning. That's assuming that you're relying on blood sugar as a primary source of fuel which you know is not my favourite go to for a primary source of fuel, I tend to rely on ketones and free fatty acids for mine. It's sort of interesting because ASI are not standardized for people that are Ketogeniccally adapted.

Alex: interesting.

Nora: So that is something I think to consider. So when I look at an ASI and I see a lower level of cortisol in the morning I'm always asking about symptoms,

are you symptomatic, are you ketonecally adapted, because if you are your need for cortisol may be less than somebody who is relying on that to get their blood sugar up in the morning. It helps with ketone production too but it's really needed for sugar.

So anyway cortisol levels start highest in the morning and then around noon they are coming down and then they level off and by midnight your cortisol levels should be at their lowest level. But what you see in a person with hippocampal dysregulation is you see this rollercoaster ride. You know you may have tanked cortisol in the morning and then at midnight it's topped out in a way it's not supposed to be and you see these zig zag patterns. That's why it's so important to do these ASI's where that gets mapped out because again there's the circadian rhythm to cortisol so at any given point if you go in for a blood test to check your cortisol levels it's like taking one frame out of a documentary film and trying to figure out what the film is about.

You know you can't, you have to look at the pattern and if the pattern is on it's way down you just never know where you're catching that snap shot and it may not at all be providing you with an accurate picture as to what's going on. So I really like to look at the patterns and they can tell you a lot about what exactly you're looking at.

One of the other things that I really want to touch upon too, because we've talked about the brain base model of adrenal issues, but also there's one other thing that can impact a feeling of chronic fatigue and feelings of burnout and that involves, and even this isn't really a glandular issue although it may look like it on the surface, and that has to do with adrenal autoimmunity. There's one lab in the world and only one that I trust to not only look for food, chemical, environmental sensitivities but also to look for the presence of potential autoimmune antibodies. So that's a lab called Cyrex labs and Cyrex is in the UK, it's in Australia it's actually in Canada now, they're all over the place, I don't have any financial ties to them but after years of having worked with them I've seen their testing transform and even save lives in a way that no other lab in the world can do, they're just that good they're that accurate and comprehensive. In a way that other labs just simply aren't.

But I can tell you after looking at hundreds of Cyrex reports now that it's not that unusual to see an individual whose producing what are called 21 hydroxylase antibodies, which are basically adrenal antibodies. However, you're not diagnosable with what is called Addison's Disease until, and I mean this is the medical standard of diagnosis, until a minimum of 90% tissue destruction has already occurred.

Alex: That sounds pretty serious.

Nora: I think part of the reason for that problem, that discrepancy and it's a big problem, not just with adrenal autoimmunity but all forms of immunity, is that Western medicine really has nothing decent to offer you if you are autoimmune. They would prefer to not deal with it and once it's in its end stages they put you on cortisol or cortisone or whatever, IsaCore or whatever, in order to try to kind of address things symptomatically but you're past the point of really being able to do very much about it.

So identifying these things in their early stages can be a lifesaver, literally. But say you're only half way there, you're only at 45% tissue destruction, you're going to notice that in every part of the way you feel and function but you're not going to have any answers. You're going to assume your adrenals are burned out or whatever, you're going to be going around from practitioner to practitioner, they're going to be putting you on adrenal supplements or telling you that you have chronic fatigue this or that and you may never get properly diagnosed. I have this book of course 'Rethinking Fatigue: What your adrenals are really telling you and what you can do about it', which I offer a lot screening tools and I offer a lot of ways of looking at it that anybody can look at and say OK wow this really sounds like me here. Then I offer suggestions as to what you might need to test next and how to approach this. If this is really what's happening to you what are some of the best ways of approaching it.

But the adrenal autoimmunity thing is not entirely uncommon to run into it and it is something well worth ruling out especially if your symptoms are somewhat extreme. So there's that and again you're going to have the same symptoms that you have if you have low functioning cortisol, you know you're going to feel that chronic physical and mental fatigue and unexplained low blood sugar symptoms and cravings and you know constant cravings for stimulants, caffeine and nicotine and things like that. You are going to have chronically maybe low blood pressure and weakness and stress intolerance and weight issues, you might feel really dizzy upon standing, muscle and joint pain, GI disturbances, anxiety/depression. With Addison's you get this increased weird skin pigmentation over time, which tends to develop as the condition advances more.

There are things you can do if you catch it in the earliest stages but there are also other things that are well worth discussing as what people want to label as adrenal fatigue or adrenal burnout may just be some manor of chronic infection be it viral, bacterial, parasitic, could be SIBO, dysbiosis, you know all these things. Free radical processes like cancer, I mean we don't want to immediately go there and freak everybody out but you know for sure that's something that's going to lead to feelings of fatigue. Inflammation of any kind, having depressed thyroid function and in fact there is a form of depressed

thyroid function that is associated with depressed pituitary function and usually what you see is you have both TSH and total serum T4 are both depressed, usually also T4, and are functionally or clinically depressed and that tends to be associated with chronic stress. But again that's not adrenal fatigue or adrenal burnout that is, you know so if you have your pedal to the metal constantly I your life doesn't it makes sense that the central computer in your body might kind of dial itself back a little to stop you from blowing a gasket. That's your thyroid dialing back in order to compensate for excessive stress. So you deal with the stress and that tends to kind of correct.

Alex: I think what you're saying there is really important that it's easy to think that because there is fatigue therefore it's a very simple explanation to say oh well the adrenals are not producing enough hormones but actually as you're saying there's lots of other reasons why somebody...

Nora: Or combinations of things. Everybody wants to think that's there's one things right.

Alex: And it can also be as you say if there's inflammation, a result of inflammation can be reduced adrenal output or it could be the case that there's some kind of Lyme or Bartonella or some kind of viral piece that's going on that again it's either the mechanism is that it's causing inflammation or the fact that it's depleting the system and therefore the adrenals are having to try to compensate or they're seen as a stress signal and again they're dialing down the output.

So it may well be the consequence rather than the primary piece. I think that's a really helpful point to make.

Nora: Yeah it always pays to dig for the mechanism, you've gotta figure out what this is at base and don't just assume it's one thing. One of the other things it's extremely common is either undiagnosed or subclinical anemia and I don't care what form of anemia, any form of anemia, and in fact if you have even the mildest subclinical form of anemia it can impact your ability to get anywhere with anything you are doing about any other health issue you have. You really can't get anywhere until you address that so not just getting blood work done and having your doctor look at that and say oh you're fine no anemia there.

What a lot of people, you know you and a lot of the people watching this are functionally orient so they understand that when you go an get your blood drawn what comes back on the report is the values, whatever came up for you, that then get's weighed against what is called a lab range or reference range and what a lot of people and a lot of doctors don't realise, I've

discovered, is those lab ranges and references ranges aren't based on anything scientific, they're not standardized for anything, they'll vary from lab to lab in area of the country to area of the country and all they represent of two ends of a bell curve of everyone that went into that particular lab system for blood work. So you're not getting compared to normal and healthy you're getting compared to the guy whose standing in front of you in line waiting whose carrying the oxygen tank and the person in front of them on their second round of chemo and the person in front of them whose adapting to their glucophage medication or whatever else.

As the population becomes less and less healthy, and they are, these are getting broader and broader and broader and less and less meaningful to the average person that just wants to know how they might compare to normal and healthy. Organisations like the American Association of Clinical Chemists and American Endocrine Society and other groups agree that there's a very really problem here. Some of these institutions and certain functional practitioners and things have established instead what could be termed functional ranges. They are instead based up on a population deemed to be 'normal and healthy' in other words not having any symptoms right now, not on any medications presumably above ground, and so that bell curve is going to end up with a much narrower range but it's a lot more meaningful to the average person. If you fall outside of one end of that range or the other it doesn't necessarily indicate pathology, although I'd be concerned about it if there was some anemic indicator, but it does imply an area of imbalance.

The other issue of course is that blood chemistry markers in and of themselves are not necessarily diagnostic in nature, they're more about indicators and probabilities. So the more of these markers, I always usually look at a panel that has at least 60 markers in it, and say somebody has low blood sugar or low fasting blood glucose levels by itself it doesn't necessarily tell me that much. I'm looking at about a dozen other markers that are related to that to get a sense of what the collective picture is trying to tell me and I refer to it as points in a constellation. The more of those points that you have the clearer the image becomes so if you have a practitioner that's functionally orientated and knows how to evaluate your blood chemistry results from a functional perspective, I mean I can write a hundred page report on 60 markers easy. A conventional practitioner will look at that and say well you know your cholesterols a little high, don't get me started about that, otherwise you're fine and will send you home. Most practitioners are not very well trained in terms of how to interpret the use of appropriately used blood chemistry reports honestly, they're just looking for whatever's highlighted in the reference range and that may not tell you much.

Alex: There's so many pieces to this and I'm obviously a little bit sensitive of the time but I'd love to just take a bit of time to explore, obviously this is very patient specific and very much based upon just as you were talking about functional testing to really understand what the mechanisms are, which are driving symptoms and creating the overall symptom picture.

But what are some of the more common things that you see being helpful from a kind of treatment point of view? You mentioned, for example, earlier on about a Paelo kind of Ketogenic diet, I know you're a fan of meditation, neurofeedback. So maybe for those that are resonating with this that either who are already working with a functionally informed practitioner on the kind of more nuanced pieces or perhaps are not able to do that for some reason, what are some of the more general principles that you would recommend?

Nora: The dietary approach I recommend is basically a diet that is in alignment with our human evolutionary and genetic heritage and the human brain is designed to make use full time of one of two types of fuel as a primary source of fuel. Either glucose or ketones, ketones being the energy units of fat, right, the water soluble energy units of fat. It turns out that carbohydrate, you know glucose whatever, is really more of a metabolic kindling. Say if you have a wood stove at home and that's how you're heating your home and all you have to run that wood stove are things like, I mean basically carbohydrates are forms of metabolic kindling. Your so called complex carbohydrates, the whole grains and the beans and the sweet potatoes and whatever else, all of that, are kind of like twigs on that metabolic fire and then you have your white rice, white potatoes, bread, pasta, junk like that and that's really like taking crumpled up paper and throwing that on the fire. Then you have things like alcoholic beverages, sweetened beverages, you know it's literally like taking lighter fluid or gasoline and throwing that on the fire.

Now if all you had was kindling to run that wood stove well you could do it, and metabolically this is what 99% of our culture now is doing but what in effect is happening. Your chair is pulled up to the that wood stove, you're sitting in front of it with the doors open and you're constantly preoccupied with where the next handful off fuel is going to come to keep the thing going and god for bid you should become distracted from doing that for too long. Or heaven forbid you should need to sleep through the night, and yeah there's an analogy there too, and now you wake up at 3am and the house is freezing cold and you look in the stove and oh my god the fire's going out, you're crumpling up paper and you know doing whatever it takes to get that thing going again.

But what's the alternative to that. Well what if you were to take a nice big log and throw that on the fire now suddenly you have a source of fuel that is going to burn for a very long time, at a very even rate, that is not going to

require a lot of replenishment even in the absence of regular meals because once you're body becomes adapted to rely on fat as a primary source of fuel you will be drawing from your own fat stores in order to maintain your energy levels. I can go all day without eating a thing, not that I'd recommend somebody doing that necessarily because we need nutrition, but from an energy standpoint it is a non-issue for me completely.

I actually did an experiment once where I did a 21 day fast.

Alex: That's pretty serious.

Nora: Once I got to where Gandhi got I was like right I'm gonna eat.

Alex: That's a pretty meaningful milestone right?

Nora: It was a meaningful milestone and it was like OK I got there but I was very interested in how this might affect my energy levels, my cognitive functioning being very full time ketosis like that. I was already ketogenic going into it so there really wasn't a struggle to adapt to the fasting it's just that as social creatures as we are a lot of our socialization is around food. I really enjoy eating and I look forward to making meals so it really sucked for that (laughs). I'd wake up in the morning thinking what am I going to eat,, oh gosh I'm not going to get to eat anything today. Saved a ton of money on groceries but anyway. But my cognitive functions, my energy levels were as fabulous on day 21 as they were on day 1.

Alex: Wow, amazing.

Nora: Really no change. Your brain can run, not only can it run on nothing but fat and ketones but it actually runs better. Again you have an even burning energy source, you don't have this going on with your cognitive emotional or energetic equation and your brain is made of mostly fat, it thrives on fat as a primary source of fuel. It's also profoundly anti-inflammatory, it helps dampen free radical activity and so a fat based Ketogenic approach that takes our human evolutionary and genetic heritage into account, and again I use longevity research as a litmus to as to how to optimize those principles for optimizing health. Then taking the world we live in today into account and addressing the contaminants in our air, water and food supply and mitigating that is the best possible foundational approach for getting a leg up on almost anything that you're going to wrestle with in terms of health related issues, certainly adrenal related issues.

Now if you have chronically low cortisol it's going to be harder for you to do this because you are going to feel like you have low blood sugar all the time.

You know you're trying to adapt to ketosis and you're still struggling with blood sugar issues that is a key symptom of chronically depressed cortisol. The way to get around that is through the use of, I mean this is one trick of the trade anyway, exogenous ketone esters, which have become commercially available for the first time. There's a company here and it's called ketoneaid.com, you can contact Frank and let him know **Nora** sent you, he's become a good friend of mine. Dr Richard Veech discovered the ketone ester and it's since now become, I never thought this would happen in my lifetime, but not it's commercially viable and actually taste wise doable. It's not something you'd order in a restaurant but you can down these within moments, or within minutes I should say, you have healthy ketone levels, blood sugar is irrelevant, and some people feel for the very first time like somebody has flipped on a switch. You can know within like 15/20 minutes what it's like to be fully ketogenically adapted.

Now I see it as a bicycle training wheels thing, you don't want to take these forever but you can use them during your adaptation phase to mitigate some of the Ketogenic flu symptoms that people get. You have to make sure that you're getting ample magnesium and I prefer liquid ionic forms of magnesium as a more reliable way of getting magnesium levels up. You want to make sure you have good potassium levels either with your green drinks or through potassium supplementation. Just a little bit, you know 100mg or 200mg might be sufficient for that. You want to make sure you're getting hydrated well because when we start to adopt a Ketogenic metabolism your body tends to get rid of a lot of extra cellular fluid. It's water that you don't want anyway but you really want to hydrate well to compensate for that. Eventually you don't have to hydrate as voraciously as you do in the beginning because your body adapts to this. You don't have to supplement with electrolytes forever because your body will adjust and adapt. During the adaptation phase it becomes important to really pay attention to these things.

But ultimately that is going to give you a foundation and my newest book 'Primal Fat Burner' is basically a how to guide and it has a 21 day meal plan and about 60 recipes and it's all about being a fat burner as opposed to being a sugar burner.

Alex: Very good.

Nora: It's not about burning fat to lose weight. You'll do that too if you need to but it's mostly about weight optimization in people.

Alex: It's fascinating. There are so many directions I would like to go but I'm very acutely aware of your time. Before we wrap up and talk about how people

can find out more about you and your work are there any really key pieces that you feel we haven't covered that you wanted to touch on.

Nora: Regarding the subject? (laughs)

Alex: (laughs) I'm just mindful there are a lot of pieces we touched on and if there are any bits of that you wanted to cycle back to that we haven't had a chance to. Certainly from my point of view I feel like we've covered a lot.

Nora: Yeah I think that would be dangerous (laughs)

Alex: (laughs) You might be right. So for people that want to find out more about you and your work where's the best place to go and what's the best place to do that? Obviously you mentioned your book, I've got here 'Primal Body Primal Mind', which is a fantastic book. 'Rethinking Fatigue' is an eBook, which I've actually got on the Kindle.

Nora: Yes and there's also my book 'Primal Fat Burner' and I also have my eBook called 'Rethinking Fatigue', which is more to the point of what we're talking about today and that's available on amazon and all the places you can order eBook's. If you order it through my website primalbody-primalmind.com I might get a little extra kick back for that, but you know I'm not a stickler about that.

I also have an online certification course called Primal Restoration and there's actually 52 weeks worth of material in it and it's extremely high end detailed information, as you might summarise I tend to be kind of exhaustive in detail to my approach to things, but I make it accessible. I'd say more than half of the people taking the course are practitioners of some kind and I found the information to be really uniquely informative. I spent 3 weeks on the subject of adrenal stuff like what we're talking about today, needless to say there's just nowhere near enough time to address this stuff. I spend 9 weeks on the brain, at any rate if you go to primalcourses.com you can learn more about that and some of the other programmes I have available that way. Primalbody-primalmind.com is my main site.

Alex: Fantastic. Nora this has been fascinating and I really appreciate both your time but also the depth of your understanding and your sharing so thank you very much.

Nora: It's really been wonderful talking with you and it's an honor and a privilege for sure.

Alex: Thank you.

Nora: Thank you.