



THE

FATIGUE

SUPER

CONFERENCE

How your liver is key to unlocking energy

Guest: Dr Alan Christianson

Alex: Welcome to The Fatigue Super Conference and my guest for today's session is Dr Alan Christianson. To give you a bit of his background Dr Alan Christianson is a naturopathic endocrinologist who focuses on thyroid function, adrenal health and metabolism. He has been actively practicing in Scottsdale since 1996 and is the founding physician behind 'Integrative Health'.

He is a New York Times bestselling author whose books include 'The Metabolism Reset Diet', 'The Adrenal Reset Diet' and 'The Complete Idiots Guide to Thyroid Disease', I think that one might have been written for me.

Dr Christianson regularly appears on national media like Dr Oz, The Doctors and The Today Show. So welcome Dr Christianson thank you so much for making the time.

Dr Christianson: Hey Alex thanks so much for having me.

Alex: So I was really curious reading some bits of your books earlier that your own interest in this field was sparked by some of your own experiences. I'd love to hear a little bit about that and actually one of the things particularly which stuck me was when you were working with, I didn't write down the ladies name, but a lady who had Fibromyalgia who you discovered actually had Hashimoto's. It's interesting to hear those kind of key moments that define a career in terms of where someone's focus goes. So yeah tell us a bit about your background and what's brought you to this point today.

Dr Christianson: Yeah for sure. My first interests in life were probably more so things in the sky and space and astrophysics and what not but my health struggles made me focus more on health and wellness. As a kid I had complications from Cerebral Palsy, I had seizures and a lot of movement disorders and I don't know, some mix of all that led to obesity and just chronic pain patterns and fatigue and a lot of related issues.

I realized when your body isn't working the way you wanted it to nothing else mattered. It really came to a front when I was an adolescent and the social world became relevant and I saw myself through others eyes for the first time and yeah the sting of ostracism and rejection was pretty big. Short version of the story was books changed my life, you know this was back in the 70's so health information was not as accessible as it is today but what I got, applied and stuck with was transformative.

So it made me want to go into medicine in a way in which I could practice lifestyle, I really got the importance of that for me. And in that career arc, in my residency, you mentioned about a person with Fibromyalgia, I've called her Amy in a lot of these stories, it was a young gal and her life had pretty much been written off. She was 17 at the time and she was about to drop out of high school on medical disability, she was trying all sorts of various treatments for Fibromyalgia but not making progress and I had heard that she had been suspected of having thyroid disease and she was given treatment but it seemed to me like it was rather aggressive and it was not helpful and it was stopped, not because of its merits but because of its side effects. So I opened that up again and sure enough she had clear signs of Hashimoto's and we re-pursued the goals of treatment and looked more at some of the causative factors and she came around. She was able to graduate in time with her class and get her life back again and that was what really connected me with hormones.

I realised that, you know for in my story lifestyle changed that, but for many people they could do the right things with lifestyle but it wasn't enough because these critical messengers were not where they needed to be. So I always saw hormones like the intersection between lifestyle and symptoms or disease. So I wanted to focus more on that and that became the real calling and yeah I've seen so many that have had symptoms like fatigue to where, often times when someone gets a diagnosis like Fibromyalgia or Chronic Fatigue the thought process stops and doctors say oh we have treatments for that or here's the best treatments we have but yeah things happen for a reason so that's an important point to hold onto.

Alex: Yes and of course it takes a certain attitude and a certain mindset in both the patient and the practitioner to have that curiosity and that sense that answers can be discovered. It was interesting what you were saying about your love of books, I connected with that when I was reading your books earlier, I have a similar passion and actually I'm not sure if I mentioned this but I had ME/Chronic Fatigue as a teenager, and this was 1996 this first started, and I remember going down to the local library and getting every book I could find on health and healing because there wasn't the popular use of the internet and of course things have radically changed over the years and it's

much easier to find that information but back in those days it was books. It was an interesting process, just trying to get to one piece of information could sometimes take a long time.

So your first two books on the thyroid and the adrenals, obviously two key pieces in the fatigue picture, maybe just say a little bit about why the endocrine system can be so crucial in understanding and making sense of fatigue.

Dr Christianson: For sure. You know our hormones regulate just everything and microscopic changes of them can literally control life or death and so sub microscopic changes of them can completely change someone between just crash versus thriving, feeling great or just barely getting by. There's three big ways hormones can become altered, one of which is more so just the genetics of ageing and the body intentionally slowing itself down, I'll put that one aside it's not so much our conversation. But the two others are disease processes and then just dysfunction from chronic stress.

So the first one there's common immune states in which the body attacks the thyroid and breaks it down and renders it unable to make enough hormones to meet the bodies needs. So we call this Hashimoto's, there's also a lot of overlap between it and Grave's disease, and especially Hashimoto's it's very under diagnosed. So many people will have it and are suffering from that but they do not have the classic abnormal thyroid blood levels. So we have hyperthyroidism, which is defined as severely abnormal thyroid blood levels, you know elevated TSH plus low T4, and curiously the definition of hyperthyroidism doesn't need to include symptoms. You may or may not have symptoms but many people can have symptoms and feel poorly long before they've reached that stage. So that's one big population and thankfully there's been more awareness about that, more understanding about earlier ways to protect that but yeah still it's already that most of those who have the condition have never been diagnosed. Of those that have been diagnosed and treated many still have their same symptoms, they've not been adequately treated, and a lot of that can revolve around fatigue.

Alex: and that's also why building a clinical picture is as important as just getting tests and of course some of the more mainstream tests for both adrenals and thyroid can be quite limited in terms of the picture that one would actually get back from that.

Dr Christianson: You know and a general problem is that many lab tests all they do is look at normal ranges based upon population averages. So I'm not a great sports fan, we have a local basketball team here The Phoenix Suns and if you went to their locker room and averaged the height of the men in the locker

room you could find their average height. Well I'm not a short man but I would be if that was the average (laughs) they're all tall guys. So in the case of thyroid disease people who get the most thyroid tests do so for good reason, you know most who are tested are known to have thyroid disease and of that group those who are tested the most are the ones who are really struggling. Their levels are off, they're symptomatic, so what happens is there's many more scores that come from people who are suffering than from people who have healthy thyroid function and so that normal range becomes bias and far too broad.

So there have been some good studies done in which they've taken out everyone that has thyroid disease or a lot of suspicious symptoms and then the range has become much more narrow and at a different part of the whole part of it. So yeah I would argue that lab tests are helpful but the ranges can be misleading, so if you think about them in the context of good health.

Alex: In addition to those kind of disease states there's also the kind of sub optimal functioning as a result of burnouts and stress right. Where it may not be that there's an active Hashimoto's or kind of Addison's or whatever, but there is a state of fatigue that may be the result of any number of stress factors that could have had an impact over time.

Dr Christianson: Totally right and that's especially true for the adrenal health. You mentioned Addison's, so there's a disease in which the glands become atrophy, just like the thyroid does, and that's what Addison's is. It's really the Hashimoto's of the adrenals and the difficulty is that the conventional world does not recognise that and the holistic world talks about ways in which the adrenal glands become weakened or compromised, and like a milder form of Addison's. The odd thing is they change their function under the state of stress but not like the thyroid does, so it's not a disease. When the adrenals are sluggish, and that can be a cause of fatigue, but barring Addison's disease it isn't because the adrenals can't make cortisol, it isn't because they're damaged, it's not because they're fatigued they're not weakened, the bodies intentionally slowing them down. It's like you've got a car but it's sputtering and you drive it carefully so you don't fall out in the middle of nowhere, you know you limp it back to the garage.

So that's what happens when the adrenal function compromises and the pitfalls of the conventional world only sees the disease stage and in the natural world misinterprets this phenomena and thinks this is a mild disease. The body wants cortisol and can't make it, not the body doesn't want cortisol, the bodies trying to go easy on itself so the question here is why is that? You know what is it that it's needing to recover from?

Alex: That's a great questions, I'd love to hear some of the answers to that.

Dr Christianson: Well so when cortisol's altered there's a thing called 'the cortisol awakening response' and 'low morning cortisol syndrome' and yeah the alternative world that thinks just giving cortisol is the answer, or giving herbs that raise cortisol, and sometimes that can help the symptoms in the short term but yeah the bodies doing it on purpose. So the main things that cause that, a big one can be sleep apnea, poor oxygenation throughout the brain in the evening. There's a fair amount of data about many types of other sleep issues that can cause this as well, blood sugar disturbances are large behind that and this we'll come back to a discussion on liver function.

So the adrenals have a lot of role to play in being a back up control of blood sugar when it's not being well regulated by more gentle mechanisms. So if the blood sugar's dropping off, especially at night, that can cause the glands to change their output, but yeah many things like that can do it. You can also think about chronic infections, low levels of micronutrients, certain environmental toxic things can alter that.

Alex: I was really interested as I was doing my research this morning and getting into your latest book and a lot of the work in this area, particularly looking at the adrenals and the thyroid, tends to focus in certain way and what I thought was really interesting was in a sense, how I interpreted it, you were going a few steps upstream and asking kind of the question 'well why is it that these things are out of balance in the first place?'

I'd love to hear your thoughts around the role of the liver and why that not working properly has such a strong impact on these other pieces.

Dr Christianson: Yeah thank you. It's pretty amazing but I think of our bodies as being this internally self regulating system, you know if we were to go way back in our evolutionary past there's a point at where we were small little multicellular things floating in the ocean and at that point we changed our chemistry by changing our location. You know by just passively, by floating in the right place or swimming to the right place, but we couldn't change our chemistry otherwise. But as we became more complex and left the ocean we're carrying like a space suit, like this bag around us, and our liver's the main filter in the tank and it's filtering but it's also controlling every facet of our chemistry constantly and this also includes the thyroid and our adrenal hormones.

So the glands themselves they make hormones and yes there are ways in which their output can be changed but even barring that the glands make a lot more hormone than we normally need. It's almost like, you know, frogs

have a thousand babies with the expectation that three are going to make it, so the glands pour out all this excess hormone and most of it's made in inactive states. Like a thyroid mostly makes T4, the adrenals mostly make cortisone, and the liver will hold on to that and convert T4 to T3 as it sees fit and convert cortisone to cortisol as it sees fit. So when it's function is altered sometimes those conversions don't work as well and that can be one more way those hormone levels may look abnormal and they may be so but the reason could be because the liver is not activating them properly.

Alex: One of the things that struck me is that I think I'd put myself in the category you described of people that think the liver is just that thing that kind of does some cleaning processes and is not so important and I was struck to read that it's the heaviest internal organ, it's the largest gland in the body and I think particularly what struck me was the role that it plays around storing fat and burning fat and effectively being, you called it the body's storage pantry. That it's got a crucial role to play in not just kind of I guess storing energy but I guess accessing energy.

Dr Christianson: You know I think about it like you're running a factory, you need all these parts, all these building blocks and you only get the trucks coming in say a couple of times a week so you've got to have a warehouse to store all the stuff that you need. Well it's the same way in the body you know we eat not constantly, whatever our food frequency is it's not constant, and yet we're using energy, we're using all these various things from metabolic reactions, we use them consciously. So our liver's the store house of all of that, it's storing our fuel and it's letting that out as we need it, it's storing vitamins, minerals, it's storing hormones, you know other micronutrients, it's also a big part of neurotransmitter formation, immune regulation. So yeah it's constantly checking the wind and then adjusting your chemistry as need be on the fly.

Alex: Maybe say a bit more about why that's so important in blood sugar, going back to the kind of sustainability of energy, and I think you used the term disglycemia for those imbalances. But I think opening that piece up would be really fascinating and also very helpful for people.

Dr Christianson: Yeah that's an awesome question Alex. You know there's a device called the continuous metre and early on in practice I played along with those quite a bit on myself and also with many patients and what it led me to do is see blood sugar 24/7 over the course of about a week. So not just prick your finger here's your numbers right now, but how it's dynamically moving throughout the course of the day. So the numbers but also the rate of change, how fast it moves up or down.

Early along my practice focusing on endocrinology diabetes is a big part of that and in the early days, this is when some of the Atkins ideas were resurfacing, and it seemed so intuitive that towards the goal of regulating blood sugar you know we just want to quite giving glucose, quit giving things that can make into sugar and I thought it would all work out better. But I saw so many people to where they would stop consuming carbohydrate or consuming very little and their blood sugar got higher and higher and higher and that was an enigma until we learned more about the liver function.

So what happens is that when your liver works well it's storing energy in two main ways, there's one version called glycogen and one called triglycerides. I think about these like logs and like kindling. So logs are awesome if you're outside, you can burn them for a long time, you can steady heat overnight, you do not need to keep relighting them, but you can't just drop a match on a log and have it spark up so you need some kindling to get that going. So that's what these things are for your liver. So when you have glycogen you can burn triglyceride and that can provide steady even energy for long periods of time but a pitfall is the liver may end up getting too little glycogen and too much triglyceride. So you can imagine like you're sitting outside and you've got these big logs but you've got no match and you've got no kindling to keep them going with and that's what happens.

So when the liver function is good you can keep your blood sugar up between meals. You know a classic sign about diabetes is someone has a high morning fasting blood sugar but we think about this, morning fasting, so let's take it at face value and assume that they didn't just wake up and maybe sleep walk and maybe eat something, assuming that didn't happen this is not the affect of a meal. This is the body over releasing blood sugar because it is not getting it right. So this comes down to the liver and the other thing I saw from seeing so many continuous glucose metre tracings is that people that have symptoms of their energy dropping off or they have anxiety or panic or maybe they wake up in the middle of the night, those things almost always are happening not even just when the bloods sugars low but when the blood sugar is rapidly dropping.

So someone might have a blood sugar that's 85, a perfectly normal number, but if you look back on their proceeding ten minutes maybe they dropped 15 points over the course of two minutes. So that sets off a panic in the body, the body then slows down its rate of metabolism and your brain and your brain glucose and your muscle glucose becomes compromised and that's the experience of someone just feeling their energy drop off and they didn't even have to have low blood sugar it was just plummeting and yeah good liver function protects against that.

Alex: That's really interesting and also I guess why there's fatigue patients that can do all the 'right things' to manage blood sugar like eating enough protein, eating regularly, snacking before they go to bed doing all the right things but still notice this kind of instability. That what you're saying is the solution is not just doing more things to manage blood sugar it's understanding the role of the liver and why it's not performing in the way it needs to to support those processes.

Dr Christianson: Exactly.

Alex: So I guess this kind of raises the question of how does someone know if they have liver issues? Now I guess obviously part of it is that there's a kind of clinical picture as a practitioner or someone resonating with some of the things you were saying, but what when you're seeing a patient for the first time what are some of the checks that you would do or some of the tests that you would do? How would you identify that this could be a key piece of their jigsaw?

Dr Christianson: Yeah good question. So in terms of just general suspicion the first things to think about are energy symptoms that are fluctuating, especially with meal times. You know this is something that I've done as a test for people so in the States at least, the US, dextrose or glucose tablets are non-prescription, many diabetics use them to rescue out of low blood sugar. I have often used them just diagnostically so if someone has their energy crash and they take a glucose tablet, dextrose tablet, and it comes back up again you can say this was the cause behind that. So that's not a long term solution but it's a diagnostic tool. So whenever someone has energy levels that drop off, that seem to do better with food, especially with carbohydrate, even in the short term I'm not saying it fixes it long term, but if it helps them in the short term that's a suspicious sign for that.

In terms of a few more particular things, so I think a lot about height to weight ratio being an important marker of health and liver function and it's simple math. So however tall you are in inches or centimeters you just compare that against waist circumference in the same units and if you're healthy, you've got some leeway below half, you're waist is less than half of what your height is. You know for US units for a typical gal let's say she's 5ft tall so that would be 60 inches, so her half would be 30 inches, so if she's right at that 30 inches that's a risk. If she's 27 or 26 she's probably OK. But yeah when your height to weight ratio approaches half that's a sign saying there's liver problems.

One thing that we see on blood tests, so this is the case where there's normal and optimal distinction also, and in all honesty this distinction is one to where there's even less controversy than there are to thyroid markers. But most liver

enzymes, the most central ones called ALT, or alanine aminotransferase, and most labs will say that you're normal as high as about 45 or 63 of the most difficult upper limits. But liver specialists agree that if you're a woman you shouldn't be above 19 and guys shouldn't be above 30. So you can be well squared in that normal range but there's some kind of red flags saying your liver's not happy.

Alex: And I guess this goes back to this point around metabolic flexibility right. That if the liver is, for example, storing fat but not able to burn it, that that's why someone would end up storing fat around the waist. Is that correct?

Dr Christianson: That's exactly correct and so what happens there is when the system's healthy and you have a meal you've got micronutrients and you've got macronutrients, proteins, fats and carbs. I'd like to talk about the idea of fuel because as far as your liver's concerned that's carbs, even ketones, they're all kind of the same down at a chemical level, they're all made of the same thing called Oxo L Acetate. So there's your fuel load that comes in, now when your liver works well you get fuel from your diet and you take that in and you store that in ways that you can get back to it later and then when you've got a gap between meals or over the course of the night you pull that fuel out to keep your energy up. But when it's not working well that two way process becomes a one way process.

So yeah it can go in but then it can't get out and even if you're not consuming more than you need every meal you never have you don't need it all in that moment, by the time you've swallowed that meal you don't need it all right then. You know you might need it the next hour, couple of hours, but you don't need it in that instant. So there's always some you've got to store even if you're not eating too much and this is where the wrinkle comes in. If you're storing it but you can't pull it out you'll see this fat growth and now the connection with fatigue is that this fat growth for many that's a concern for many all onto itself, but when energy is a problem that's gas you can't get to. That's like two sides of the same coin; this is energy you should be able to keep your body powered with just fine. You know the leanest people are still carrying around 10lbs of fat and each pound could keep you going for a couple of days or at least a day and a half or so. So it's never that there's not enough energy or fuel it's that you can't tap into that and yeah that's the big connection between the liver and fatigue.

Alex: The image that almost comes to mind, it's almost like having a car with a fuel tank that's got all this fuel in it that you can't use so you put another fuel tank on top of the car, another one on top of the car and you end up lugging all this fuel which takes more energy but you already have energy that

you can't access. But I suppose that there are also those people suffering with fatigue which also have an issue around, even though you're saying they still have some fat, there's the patients which are tending to fat store but there's also those which are struggling to store fat in the first place and they tend to be on the very skinny side. Is there something that's also going on here around the metabolic flexibility that they're not able to effectively store fat in the first place?

Dr Christianson: Well it's an easier process to store than it is to tap into. Now to your point there are many people to where they're not large and they may not be heavy but in this problem they may be having a hard time breaking down muscle mass. So this has been called Tofi, or 'thin outside fat inside' or it's been called 'the skinny fat', but there's many people to where they're scale weight is fine but if you do a close analysis they have too little muscle tissue and then too much fat around the organs and inside the organs. For quite a while we thought it was a bit of a puzzle how some people who would get heavy would get diabetes and get complications and others would not and then other people who were not heavy could still get these same complications. What's happened is that they've developed the capacity now to look, it's not even just belly fat we've heard about belly fat forever, and the better someone can form belly fat the more they are protected against getting ill in major ways believe it or not. But when they can't make belly fat then the extra starts going into organ fat that goes between the cells of the liver and the pancreas. That's when people get sick, they get tired, that become diabetic, they have higher risk for cancer and heart disease and people have different set points for their organ fat. Some can carry around a lot of belly fat and nothing leaks into the organs and they might be large and really healthy, they've got normal cholesterol, they're not diabetic they feel fine and then other people may be on the outside their clothes, their outline looks fine, they're scale weight is good but they just can't form that visceral fat. So whatever extra they have just goes straightaway into the organs and they're suffering from that.

Alex: Very interesting and something else that really struck me from what I was reading earlier was the ketone diets have become pretty in vogue and a number of people that I've been interviewing as part of this online conference have been talking about the value of using fat as an energy source rather than carbohydrates and I think there is a lot of validity to that but it struck me as I was reading your book that you were making a point that there are people, and you mentioned it a little bit earlier in this conversation, that there are people that go on those diets but actually because the liver's not functioning that they can't burn fat and it struck me that that could be a similar problem for people with fatigue. That people with fatigue that they go on a very kind of

low carb, high fat diet and actually it doesn't produce the energy they should be expecting.

So it would be good just to say a bit more about that because I think there may well be some people which are doing the right things and having the wrong outcome as it were?

Dr Christianson: Sure. You know if anyone has gone low carb and had their health improve that's awesome, no regrets, but my thought is always what if someone does have compromises to their thyroid or their liver, what are the pitfalls they may encounter and this can be a pitfall.

So I have this weird fantasy about just taking a year off for all of us and fixing a lot of things, one of them would be language, we've got so many ambiguous words. So fats can at least be nuts, you've got fat, lipids, triglycerides, oils and these are all used so interchangeably but yeah to burn fat chemically it's a process called beta oxidation, so I'll be more precise and talk about beta oxidation, that's how you really turn fat into energy. And this is kind of odd but ketosis is really the antithesis of beta oxidation, it's not heightened beta oxidation it's a shut down of beta oxidation. So when you cannot burn fat for energy then you convert fat into ketones and I imagine like if someone has a fuel tank that they're pump is in the car and it's over flowing, the gas is flowing on the curb. Well if you take that pump out for unleaded and say you put diesel in and you start pouring in diesel, it's going to overflow, it's the same problem.

So ketones are just a different kind of fuel, you know they're not different from fat in that regard. When there's too much there's too much and the liver can't handle that. The liver's the only organ that cannot burn ketones so yeah beta oxidation you burn fat when there is glycogen and this is a funny thing, glucose is something that our bodies can make out of protein, whether that's dietary protein or muscle mass, but glycogen we cannot. Glycogen can only convert from dietary sources of glucose specifically.

So not even just carbohydrate but healthy good sources of glucose are all we can make glycogen out of and in the absence of glycogen we cannot burn fat for fuel. We can convert fat into ketones, that's not burning it that's just converting it. And if we're unable to burn it will circulate and come right back and it will still become triglycerides and get stored in the exact same way and the pitfalls too is that in that scenario the idea of forming ketones is definitely dependent upon higher amounts of cortisol and then lower amounts of thyroid hormones, especially T3.

So I mentioned about cortisol being a blood sugar regulating hormone, if we have too little carbohydrate to run the oxidation the backup mechanisms our body liberates more cortisol and that causes more muscle mass to eventually become a source of glucose, a short term source of glucose not a source of glycogen. So that higher cortisol comes at a cost, that's more stress hormone, and all of this makes your body have higher demands upon metabolism, which we compensate for by decreasing our activation of thyroid hormones. So if we have too little carbohydrate and we're sensitive to it we can end up with more cortisol demands and then more hypothyroidism.

Alex: interesting so it sounds like that there's a valid concern of particularly people which have liver issues or even people that are suffering from fatigue of going too far into ketosis and thinking this is the answer, they could actually be stacking more problems as a result, at least of doing that in an irresponsible way.

Dr Christianson: It's possible, yeah.

Alex: Interesting, interesting. I'd love to take some time to come to a bit about your programme and how you help people to improve and heal liver function. So maybe let's start from a kind of nutritional piece of that. So yeah say a bit about how you find it's really effective to work with people that are resonating with these issues?

Dr Christianson: You know that's the exciting thing Alex, as central as the liver is to all these parts of your health it can fix, it can get better, it can be quite resilient given the right circumstances. It was a programme that I first heard about that was done in the UK that inspired a lot of this work actually.

So back in 2009/2011 there was some work showing that these diets that were being done could reverse diabetes and the first versions of them were pretty low amounts of food, it was like liquid calories only, 600 calories a day for 8 weeks, but it showed on CT scans that the pancreases were regenerated so it was totally exciting. And I saw these studies and I thought wow how could I make it easier but still see similar results with my own patients so I added in more protein, I added in a bit more food. The first studies of high quality was corn syrup and corn oil, it was like just liquid things to use in the study, so I wanted to use natural compounds and natural foods so I started adjusting it and watching the results and I saw for those who are diabetic we can see good reversals in similar timeframes but see lasting effects by including some more variables and I kept adjusting that. Then I learned how relevant the liver was to that so made it more liver specific.

The basic idea is that it's not a matter of you've got to follow 20 rules for the rest of your life to have good liver function. Most people that are taking the time to listen to your show and to be here, they're probably pretty savvy already and I would bet they're doing 80%-90% of things right so my goal is how can you reset the body to where that 80%-90% that you're doing right is going to work better for you and you can go back to that which you've already been doing and get more results from that. So that's the concept, take a little time out, do a reset process, fix your liver and let these things you are already up to be more effective for you.

Alex: It struck me that your initial correction period is only one month and a lot of the programmes that people can be used to be going on that can be programmes that take an enormous amount of time which does sometimes beg the question that are they really dealing with the core things or are they helping manage symptoms around that.

Maybe describe a bit more, so what people would actually be doing, I know you lay it out in quite a bit of detail in the book and the book would be a great place for people to go to find out more, but yeah break it down to some of the processes, some of the shakes they would make, what would be in there and what a kind of day would look like on the programme?

Dr Christianson: You know it's been a real fascinating evolution to see it all form, it's changed a lot of the over the years, where it is now it's at a place we've had about 20,000 people do the process and we've made it simple. So the format is two shakes and a meal, make it really, really easy and the idea is that we want to be able to get high amounts of a compound called resistance starch, which is neither carbohydrate or fibre, it's the kind of in between thing that's really amazing for the liver and blood sugar. So we want to get a lot of that, we want to get a fair amount of protein, relative to the fuel and the fuel being fats and carbs. So good protein, healthy resistant starch, adequate but not excessive fuel, you know controlled amounts, and a lot of variety of phytonutrients, a lot of plant compounds that have unique effects on benefitting liver function. So just real simple to do that, we also added in unlimited snacks, which are veggie based, so if someone has times especially the first few days to first week where they're just used to eating more frequently, they've not quite gotten the initial shift just yet, they've got snacks they've got access to so no one has to starve or struggle. So you have two shakes, one meal, some snacks.

Something else that's not intuitive is that when you train really hard that's an awesome thing for a million facets of your health as far as exercise goes but during times of changing your liver function that can put more demands on it.

So during this window I do encourage some but rather controlled and specific amounts of exercise.

Alex: How about for people which have impaired digestive function or people which really struggle with not having regular meals kind of through the day and they've perhaps tried fasting in the past and that's been a really difficult thing. How do you see your programme navigating for those people and perhaps being different?

Dr Christianson: Yeah that's a great question. So in terms of the food frequency and the symptoms from foods, you know we cut out a lot of the common reactive foods, a lot of the common allergens and irritants, but this is also a place to where the resistant starch really shines. There's just mountains of data about the benefit of certain short chain fatty acids in the intestinal tract, we hear about things like butyrate and acetate and propionate and the largest contributor of their formation by far is good bacteria forming them from resistant starch. So by including those we see a great improvement in gut lining health and gut motility as far as the overall neurological response of the intestinal tract.

So it's quite common that a lot of symptoms that have been described to Irritable Bowel or even Inflammatory Bowel can do a lot better and there's also we're learning more connections between how the liver works and how the gut itself is functioning. We thought a lot in the past that the gut caused a lot of the liver issues and now we're seeing that's still true but there's a lot more example of the opposite where how the liver works determines how the intestinal symptoms are.

Alex: Can you say a bit more about that that's a really interesting point?

Dr Christianson: Yeah so it turns out that bile is not so much just a thing as it is a category and there's a big array in terms of its chemical properties. Its viscosity, its pH, some of its other sub categories and it seems that chainers in bile are larger drivers of gut inflammation than vice versa. So your liver controls your flora in a lot of ways. It's kind of a concept but we often think about the intestinal tract as where the outside meets the inside and you know it's really not quite true. The intestinal tract is still outside, you know if you swallow something it's not really inside until you simulate it across your gut lining and once you assimilate it across your gut lining first stop is the liver. You know all the veins go to your liver and there are some unique cells called kupffer cells that are liver immune cells and they're the port of entry for the body, that's where things first come inside. So your liver is really adjusting and controlling the properties of your intestinal tract based upon what it sees coming in so as it works better its so common that these ongoing issues, that

seemed like they were caused by wrong foods, were really just how the liver was controlling the gut.

Alex: That's very, very interesting. As I was reading your book earlier I was also struck by this piece around there's the role of kind of nutrition and food and how you're working with that but you also talk about the role of body reset and one particular piece on that that jumped out to me you talked about paying off sleep debt. I would just be curious to hear more about that because I think sometimes people can get overly fixated on thinking it's all about, thinking people that are in the functional medicine nutritional world, it's all about food and not realising the importance of these other pieces.

So say a bit about why body reset is important and some of the pieces of that?

Dr Christianson: Yeah great point that's a huge thing. So I think most have heard the message that sleep is essential but you can't make up for bad habits in one night, you know there really is a debt that emerges. This goes back to that whole model of glycogen and the kindling and the logs. So it turns out we need to have glucose to make glycogen but we also need to have a nice long break without there being a lot of circulating cortisol and we only have low healthy amounts of cortisol for long periods of time when we are in the deepest stages of sustained sleep. So that's when the body can go and rebuild that kindling and start to burn that stored liver fat again and if someone's had a long time of poor quality sleep they won't really necessarily reverse that all at once it may take some time where they're getting more sleep than they would need for maintenance just to make up for that gap.

You now one exercise I put in the book was the idea of doing a sleep vacation checking into a hotel for a long weekend and just doing that (laughs), setting up to eat and get a lot of extra sleep.

Alex: I liked that bit (laughs) having three small children and it was funny because it also made me realise that there's a funny thing that can happen sometimes that when people go on holiday if they are particularly sleep deprived that initially they kind of go and they're kind of, perhaps I'm describing myself here, but they go and they're checking emails and there's a kind of busyness, there's a gradual winding down that happens and then if someone really winds down there can suddenly be a period of two, three, four days where they just want to sleep and they don't really realise how tired the body is and maybe, you know someone that sleeps seven hours a night suddenly sleeping nine, ten hours a night but I guess that's that mechanism in action.

Dr Christianson: Well and they think that all the good things that happened to them were because they were on holiday (laughs) maybe because you caught up on sleep you could do that if you're not on holiday too (laughs).

Alex: Right, right. I also, as we kind of start to wrap some of this up, one of the other things that I also wanted to touch on was making these kinds of changes can be quite challenging, you know someone whose used to eating in a certain way, whose used to driving their body in a certain way, and you talked in your book around the importance of having a reason why someone's doing it, having a buddy, having the right support in place.

So maybe just say a bit about why going into these kinds of changes with those pieces is a key factor between someone being successful or not in sustaining

Dr Christianson: Yeah I think it's a really critical thing to be clear on the reason one wants to change their health and the importance of that and the more you can really articulate what your needs are, and I think it's smart to have needs in a few categories. Like it's OK to have some vanity needs, like we want to have a nice tummy or a nice shape whatever that is that's cool that's fine there's nothing wrong with that. But then also realising that how your health is directly impacting what you're contribution is in life and what level of service it is you're giving your loved ones. You know I think about my time with my wife, my children, my patients, my staff, my team, what can I contribute to them and I realise that yeah my health is a function of that. So the more that mindset takes hold the more you realise hey the things that matter to me are all conditional upon how well this all works out and the more evident that is the more obvious it becomes.

The other funny thing I would just push back and say is that part of the mindset is hey I'm doing this for 28 days, this is not the 50 rules forever, this is 28 days. So that's often helpful for people to realise that this is a change this is a process and when that's occurred reasonable habits can work again, things that I can live with and I can stick with.

Alex: And as someone whose worked with the vast number of people that you have over the years through your work when you have someone that comes in that feels like they've tried everything, that they've tried multiple programmes before, they've tried taking multiple supplement programmes, they've tried you know all these different pieces and they feel like nothing has really worked. I think obviously that piece is a very helpful piece that it's almost like suspend your disbelief for 28 days and lets see where we are. But what else do you find yourself saying to those kinds of patients? It's not that they've given up because they don't want those things to change, they've almost given up to

protect themselves from the disappointment of something not helping. How do you tend to respond to that?

Dr Christianson: You know the neat thing is that in those cases once I talk about the proposed changes they realise that it's different from what they've heard before, it's not the same old things they've attempted and that in itself does give some pause and some reason for hope. But what I see is that for almost all people they're seeing some big changes in the first week and that's when it's a really difficult thing I'll say look just give it a week and either you're going to find out that you're seeing some clear benefits or you'll find out that it's not as difficult as you thought and you can stick through it. If you decide that hey it's not helpful this is hard, go ahead and stop, but it almost never happens that way.

Part of the process too is that I encourage people taking a break from alcohol and caffeine during it and when you talked about those who have the concerns those are often the biggest objections. Those that say hey I can't give up my morning coffee and the bizarre thing is the more someone has a push back about making those changes the more I know that they're going to have a transformation if they make that change (laughs). If someone says 'ah take it or leave it' that won't be a big thing for them but if someone's like 'oh I could never not have my wine at night or have my coffee in the morning', it's a great time to really think and say well are you really having it or is it having you? Is this something that you're choosing or have you lost your choice at this point?

So sometimes just taking the reigns back and saying look afterwards go back to your habits no worries but just pause, take a break, do things differently. You know if you're not seeing progress, you're not seeing change this is a chance to do things in ways that are different, if you keep trying the same old things you have you won't see different results. So by making a clean break and by making a distinction you can give your body a chance to fix itself and when it gets the opportunities it can do that in such amazing ways.

Alex: And clearly your own life has been a testament to that in terms of some of the challenges that I know you've overcome. Also it's great the point that you made that of course the liver is something that can respond quickly and I think that's, for patients I'm sure, a very satisfying thing that they actually get to see that evidence and they get to see that from that change.

Dr Christianson it's been fascinating and I always enjoy people who have gone those kind of steps further to understand more of the pieces. This has been illuminating for me as well so thank you very much.

Dr Christianson: My pleasure.

Alex: For people that want to find out more about you and your work where would be the best places and the best vehicles to do that?

Dr Christianson: You know our hub is drchristianson.com and each month we put together a free challenge. You don't even need to have the book you can just come on for free and we'll walk you through that first week and explain the whole thing and got menus and shopping ideas and support groups. That's an easy resource for someone to test the waters themselves.

Alex: Fantastic and I think the book that relates to what we've been talking about here I think is 'The Metabolism Reset Diet' which would be a great one for people to get a hold of.

Thank you so much for your time I've really enjoyed this.

Dr Christianson: My pleasure Alex nice being with you.