



Episode 227: Using the Metabolism Reset Diet to Support Liver Health

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Katie: Hello and welcome to the "Wellness Mama Podcast." I'm Katie from wellnessmama.com. And I'm here with someone who I highly respect and can't wait to share with you. Dr. Alan Christianson is a naturopathic endocrinologist who focuses on thyroid function, adrenal health, and metabolism. He's been actively practicing in Scottsdale, Arizona since 1996 and is the founding physician behind Integrative Health which is a clinic there. He's also a "New York Times" best-selling author whose books include the recent "Metabolism Reset Diet," "The Adrenal Reset Diet," and "The Complete Idiot's Guide to Thyroid Disease."

I am a personally a patient of Dr. C and I consider him one of the smartest people I know. He's also one of the most interesting people I know, and he is a competitive mountain unicyclist. How many people do you know who can say that? So, without further ado, welcome, Dr. C and thanks for being here.

Dr. Christianson: Hey, Katie. Thank you so much. I appreciate that. I'm glad to be able to spend some time with you here.

Katie: Oh, it's always a pleasure. And I'm especially excited to chat about your most recent work because I think like everything that you've written, it's really going to help a lot of people. And I'd love to start there. What inspired you to write this most recent book, "The Metabolism Reset Diet?"

Dr. Christianson: You know, yeah, it was just, I guess, a natural extension of my own health journey from how weight affected me early in life, a few stages later in life as well. And then also just the big struggles of my patients and readers. It's always been about managing weight and managing energy, and I wanted just to come to some deeper understandings about how those things tied together.

Katie: Gotcha. And so, on that note, who would you say this diet... Actually, before we get to that, I'd love to hear...you mentioned your own struggles of weight as a child, and I know this is an amazing story. If you don't mind, can you touch on your own story a little bit?

Dr. Christianson: Yeah, for sure. I had a young, young mother who...I was adopted. She did not choose to raise me but she had some health challenges, and I was born with cerebral palsy. And I had some movement complications from that and bone issues, but also I had seizures from it. And somehow, the mixture, I think I just really couldn't do physical things. I just didn't have that as an outlet. I was driven towards it but I would get injured when I tried to do things. And somewhere along the way around adolescence just before that, food became an outlet, you know.

I haven't talked about this for a lot but I have one vivid memory of being at a resort, my parents were part owners of, and I had this great, big place to play around in. They were always working hard but I was largely unsupervised and we had a kitchen. We had people that cooked for the guests. And I remember walking around figuring out that I could make myself high by eating enough chocolate chip cookies.

This total epiphany, like, at four or five, I'm like, "Wow, this is pretty unusual." And, you know, in retrospect, there was obviously something that was off. There were some psychological stress, some metabolic abnormality that I was feeding in some way, and I became really heavy from that. And I came to realize how the extra pounds really just hurt my health directly in terms of worsening chronic pain and movement patterns and worsening other chronic inflammatory symptoms and then also seeing how it affected me socially and how peers reacted towards me. And it was a big thing.

Really just kudos to yourself and all the other people who have written great health books and how much those can benefit people, and that was what just changed my life was stumbling across some health books, you know, back in the '70s. There were fewer titles and fewer availability of them, but what I found made a radical difference. And it just put me on an arc to want to keep understanding these things better and, you know, help others in that journey along the way.

Katie: Wow. Yeah, absolutely. And you have, I feel like, a unique perspective with now over 20 years of clinical experience with people with across the board everything from thyroid problems to just endocrine system

problems in general, adrenal problems. So, I would love to hear your take on why you felt there was such a need for this particular book right now, and who can benefit from it?

Dr. Christianson: Yeah. So, I think that we've gone through a lot of cycles of popular diets, you know, low fat in the '80s and all sorts of things since then, but most people, I think, understand that if they restrict their diet enough, if they cut out a lot of food categories, or if they just radically drop their total food intake that, sure, they can elicit some change on the scale. But it doesn't last, and even then, they don't feel well.

You know, I think about, like, having three dials. You've got, like, your weight, your appetite, and your energy. And it's almost a paradox because when you get a couple of them lined up, one of the others gets thrown off. So, yeah, if you starve yourself or restrict categories a lot, you may affect some change in weight but you'll tank your energy and really cause appetite to rebound. And then, on the other hand, people have often seen that if they try to, you know, eat good foods, eat clean, eat organic, and eat intuitively, they might do a really good job with their health and their energy, and be able to be very satisfied with their appetite. But they'll often not see their weight improve, and they may even see that move in the wrong way.

So, my thought was, not just what is a longer list of foods to avoid but, you know, why does this happen. And I've come to understand that, you know, getting how the body regulates itself, when it works well, those three dials of appetite, energy, and weight, they should sync up effortlessly. You know, you should have it to where you eat to your hunger levels. Your energy is steady. You've got a healthy weight from that. So, the question is, why does that go wrong and what is it we can do to really get that back again?

Katie: Yeah. Absolutely. I think so many people, that is what they struggle with truly. And I think you're right. I think in society, we see this cycle of potentially dangerous diets that people do for a short amount of time, but probably long-term actually creates more dysfunction than solving that problem. I know that I've read, and you could probably speak to this better than I could, but I read about how things like that cycle of binge dieting or all these different words that they call it can actually harm the metabolism so much over time, because you're taking in too many calories and too few, and your body doesn't know how to respond to that.

So, I think you're so right on that. I think we've seen this kind of dangerous cycle in society, especially in the last decade or so of these kind of trendy diets that people tend to stick to for a little while and then rebound. And at least from what I've read, that cycle of dieting, especially extreme dieting can actually have really dangerous side effects for the body in the long-term, and especially if you're someone like, for instance, like me with thyroid issues, that's something you really don't wanna necessarily do at least from what I've read. But I would love to get your insight on that because like I said, I know there's been a lot of different trendy diets over the last few years and people tend to jump on the latest bandwagon.

Dr. Christianson: You know, awesome point and I could not agree more, especially about thyroid function. So, we think about metabolism. And I think about a couple of different ways of considering that, one of which is just is it fast or slow and the other is how flexible it is. I'll come back to that. But in terms of just how much our body burns fuel at rest, you know, how well we do that, one of the biggest variables is thyroid function. And when we plummet our food intake, our body has adaptive mechanisms that kick in that keep us from just

eating up too much of our own body mass. And one of the biggest ones involves changing how thyroid hormones get used.

So, it's completely expected that when someone does lower their food intake by more than about 25% for more than about 6 weeks, that they move into a responsive hypothyroid state, and that's just to shut down the metabolism. Now, if you were to imagine the body as thinking or having just like a deliberate wisdom rather than like an intentional wisdom, that would make sense in the context of famine. You want your body to slow down and spear and hold on to what you could. So, that's one consideration of that. And, yeah, extreme dieting can be a big trigger.

With flexible metabolism, it's a little bit different and that's what I was alluding to about the idea of the energy and the appetite and the weight. So, when you've got a flexible metabolism, even if your food intake goes up and down within some parameters, if your food intake goes down a bit, you still can maintain good energy. And if it goes up by small amounts, weight doesn't have to change. And everyone does that to some degree. You know, we never have precisely the amount of food we need on a given day.

So, when our body works well, we take whatever extra there is and store that harmlessly in a form of fuel that we can access quickly in the liver. And if there's a little less than we need, it's the opposite. We still feel well and don't have to go into cravings. We can still be energized but we draw from that stored energy from the liver and then keep things going really well. There's an emerging concept that's been called leaky liver. That's a huge part of just why people can gain or lose metabolic flexibility.

Katie: Yeah. That's a super interesting concept. And I guess the obvious question that I'm wondering is, is this damage permanent? And if not, what can someone do? How do we start rehabilitating the body from being in that type of a state?

Dr. Christianson: Well, that's the exciting part is that some parts of the body are more resilient than others, more reparative than others. And you could probably just quantify that in terms of rate of cell turnover, and normal cell turnover in the population. So, think about, like, brain cells for example to where we now know that as adults, we do still have brain cell turnover. It is quite slow. And so if there's a lot of damage or loss, we may not have turnover that's fast enough to make up for significant loss. And on the other end, we think about things like the gut lining where turnover can be in a matter of minutes. And the liver is quite a ways over on that side of fast cell turnover.

People can donate a big chunk of their liver to a compatible loved one for example, and theirs can readily grow back again. They say we can lose more than 80% of it and it can function to a normal capacity in a matter of just a few months. So, when we're talking about changes in the liver, then a lot of change is possible. And even if there has been a lot of alteration to metabolism, that can come back again. And that's a really exciting part to see.

Katie: That is exciting. And I'm curious also, what are some of the risk factors that someone might have that could put them more at risk for a liver-based issue like this? I'm curious, especially from a personal perspective, if there's a link with thyroid issues, for instance, and having more of a tendency towards these liver issues.

Dr. Christianson: Well, there is an overlap. And with liver issues, we can think about this along a continuum. And what I'm describing as leaky liver is one of the earlier stages of that continuum. If it advances, then we think about fatty liver syndrome or overt cirrhosis where there's just significant damage to the liver. And there's a lot of data around fatty liver especially. And it's been shown that both ways that people that have thyroid disease are more at risk for fatty liver and vice versa. If we poll populations that have fatty liver, they have higher rates of thyroid disease.

Other overlaps we see would include just blood sugar abnormalities. Simple tendencies towards hypoglycemia even, but then certainly, anywhere in the tendency of the spectrum of diabetes. Latest stats on that are that the majority of adults are either diabetic or at risk for diabetes. It's actually 51% or over now. And fatty liver itself, I've seen data arguing that's more than 40% of adults that have very clearly diagnosed full versions of it.

Other things that create higher risk for liver issues, sadly, this is one more case in where female gender is a risk. And we think a lot of that comes down to the complex work that it takes to metabolize and process the fluctuating levels of estrogen and progesterone. So, yeah, that's a big factor. And then age is just relevant. You know, each decade, there's higher rates of manifestations of liver disease as well. You know, medication usage, exposure to environmental toxicants. Those are all factors as well.

Katie: Got it. On the note of thyroid before we move on, I know a question that you and have spoken about, and I wanna make sure I get you on the record to answer because I get it so often, is about thyroid issues and iodine. Because even when I first started researching thyroid issues and I was pretty sure something was going on with mine, that was very common advice online and even from experts was to take iodine. And I know that you've done extensive research on this and have clinical experience. So, can you just explain that for the record so that I can refer people back?

Dr. Christianson: For sure. You know, this is such an important topic. So, if thyroid disease is rampant and we think about just the drivers of that, and it would seem like just the perfect scenario if this common disease that has big effects for a lot of people could be driven by just the lack of a simple nutrient. And even more than that, it can be in other parts of the world. In America, thyroid disease is primarily driven by Hashimoto's thyroiditis, which is autoimmune. We also think about Graves' as being one of the more common causes of causing thyroid disease which is also autoimmune in nature.

Iodine deficiency is a culprit but not so much in parts of the world that have iodine fortification. So, we see that in the U.S., in Europe, in Japan, where there's iodine sufficiency that it's just really not a trigger. And it's such a paradox because the thyroid needs iodine, and if you have too little, that can slow it down. I finally think I got a good intuitive analogy for how iodine works with thyroid hormone. You know, it seems like if the thyroid needs iodine, and the thyroid is sluggish, then it must just be a lack of iodine. But iodine, I think of it

more like a key to a car than a gas pedal to a car. So, it's not that the more you push it, the faster it goes. No, if the key is gone, the car can't go anywhere. But more keys don't mean a faster car.

I've got a Jeep I use for getting in the backcountry and it's great for that, but it's not a racing vehicle. If my keys are missing, the Jeep doesn't move at all. But if I've got 100 sets of keys, my Jeep is not a Ferrari. It doesn't make it faster. In fact, you could even imagine to where 100 sets of keys or maybe 10,000 sets of keys could mean that you couldn't even see where you're going. So, it's the same way with iodine, and we see that too little slows the thyroid. But your thyroid pumps in iodine so aggressively that whenever you get a surge of iodine, your thyroid has a lot of protective mechanisms that keep it from just making way too much hormone.

You know, I think about that, like, the circuit to your house. Say that our lights have to run on 10 amps of power. And if for some reason, we had a short circuit, we had 100 amps going through, we would blow a fuse so the house wouldn't burn down. And that's the way the thyroid works. So, paradoxically, high dose iodine slows the thyroid. So, a complete lack of iodine does slow the thyroid as well but so does a little bit too much.

And in terms of typical American intake, the exception would be those who are raw food vegan and not consuming iodized salt, that category can get low. But barring that category, most people do average between 160 to 190 micrograms of iodine. And it's surprising that a large range of diets, you know, cooked food, not exclusively raw food, but some raw food, more vegan, more paleo, more mixed, even standard American, it's surprising how many different diets still fall about in that range.

So, people rarely get much less than that. And in terms of the sweet spot for thyroid disease, it seems like it's about 100 to 300 micrograms. So, the more you are below that, it can be a problem for triggering thyroid disease, but the more you are above that, the more that can be a trigger for causing it in those who are susceptible to it. And because of that pump, extra amounts end up just inhibiting it.

Now, another big wrinkle is that those who are on thyroid medications, they're getting a pretty fair dose of iodine in their thyroid medicine. So, thinking about that 100 to 300 microgram range, many of them are up against the high side of that already. And their best strategy is just to minimize and avoid any extra amounts. But so commonly, people will have very real thyroid disease, or they've got suspicions that make them think they've got thyroid disease, and they will then take iodine to, you know, hopefully, improve that. And sadly, it almost always does the exact opposite.

Katie: That is such a clear and concise explanation. I love the key analogy. I think that's really helpful for understanding it. And I think it's also very illustrative of how especially in the U.S., we have this tendency of if some is good, more is better. And that comes into play with the diets, it comes into play with food. I think that's just a very common theme.

Dr. Christianson: You know, a few more points on that just to help your listeners, there's no really accurate iodine tests. That often comes up as a follow-up question, "How can I test myself for iodine?" I'm not saying

tests don't exist, they do but the only tests that exist are ones that are accurate for gauging the iodine in a population, but they're not consistent enough for gauging the iodine in an individual.

So, what I mean by that, like, say for a 24-hour urine iodine or a spot urine iodine, if you measure 10,000 people, you can get a sense of if this population has enough, too little, or too much. But if you measure one person and you measure them a couple of times, you will not get the same reading. You'd have to measure an individual person upwards of 200 times with a 24-hour sample to be within 90% predictive value of what their levels would be.

So, there's just not accurate tests. But fortunately, none of us are unable to assimilate iodine from our diet. So, as long as we've got a diet with some variety of good organic vegetables, you know, various lean protein sources, several food categories, we're gonna be okay on that. And if we are on third medications, then the main strategy is to not add in any extra iodine.

Katie: That's such an interesting point. And really good to know because I think people do understand a lot more now things like folate and, you know, B vitamins and how certain people may actually not be able to convert those effectively from diet as well. But that's great to know that on iodine, that doesn't exist. So, this would be pretty much an across-the-board recommendation especially if you already know that you have thyroid problems. Definitely something you'd wanna be aware of. So, I really appreciate you going deep on that.

But back to the idea of the metabolism. And so I'm guessing that there are probably a lot of people listening who are resonating with a lot of the things that we've talked about and especially that whole cycle of dieting and it working for a while, and then not working anymore. So, I'm curious, and of course, I'll definitely make a link in the show notes for the book, which I think everybody should read. But can you walk us through what are some of the basic ways we can start to help the body recover and to break that cycle of the dieting and hurting the body and not having enough energy?

Dr. Christianson: For sure. So one big thing is to think about the idea of changing one's weight to prioritize changes in the waist over changes to the weight. So people can often do the right things and improve their health, but they may not see the scale weight change that they wanted, but they may have seen the inches that they wanted. And that's a better sign because the inches around the waist are largely from changes in the liver itself, which is less mass in the liver itself.

So, that's one big thing is focus more on inches and on waist than on weight. The other thought is I would highly encourage people to think about any weight loss efforts as really distinct and finite projects. So, yeah, there's been an idea that if you're eating healthy food, that your weight should, like, magically go back to normal. And a quick pushback to that is imagine a diet that was wild-caught fresh salmon, wild-picked blueberries, greens, the healthiest foods imaginable. Well, that's what bears eat to gain weight and hibernate.

So, food quality alone will not necessarily improve body weight but it certainly can improve health in a million ways. So, you wanna eat quality food in general, but you shouldn't think that your day to day life and habits should lead to weight loss. Weight loss is something that in the best of circumstances is unnatural for the body and is a bit of a strain.

So, in the book, I talk about, like, a four-week process. Six weeks is an upper limit. You wouldn't wanna be in a mode of weight loss for longer than that. I really keep it more to four, because longer than that, you really are causing changes to the thyroid like you mentioned, and also changes to the cortisol rhythms. So, that's one big thing.

Another one is that I like to think about the category of fuel in the diet rather than calories. And I make that distinction because calories include things like protein and fiber, they work differently. Fuel, I lump together conceptually the carbohydrates, fats, and even ketone supplements. Because chemically, they're all the same thing at the point of being used for energy. So when they're broken down by the mitochondria, they become something called oxaloacetate.

And all of them, that's exactly what they're comprised of. So, they're really not different at that level. We've often thought that if we could take carbs, fats, ketones, and rearrange that category in some way that that alone would fix things. But I want people to understand that they're really all fuel, and the idea of changing the body's fuel dynamics and helping the liver get unclogged from too much fuel, it does take being on a low amount of fuel for a shorter period of time.

But the pitfall is then losing a lot of lean body mass. And when that happens, you're just getting set up for yo-yo dieting and more impairments to metabolism. So, a part about that is being sure that even though you're lowering your fuel intake, you're still maintaining an adequate, not excessive, but an adequate amount of protein to cut the risk of muscle loss and to keep the metabolism healthy.

Another thing that I do that's quite different in this program is, believe it or not, I discourage exercise during that active stage of weight loss. There's a lot of great data about the benefits of exercise for weight maintenance, and I just could not more hardly endorse it for those purposes. But during that acute stage, it creates either more appetite or a higher demand on the body to process fuel. So, I encourage very brief, I call these micro-workouts in the book and I talk about how to do those, but very brief things of up to just a few minutes towards the goal of keeping your muscles stimulated but not creating high-fuel demands.

So, those are some of the big ideas about having dieting being a short-term project, maintaining protein intake, taking this whole bucket of fuel and lowering that and then just minimal but adequate stimulation of the muscles to keep them engaged.

Katie: Got it. And that probably seems psychologically so much easier for people as well. The idea of a four-week project is much more doable than...I know people when they get on a diet think like, "Oh, I can only eat like this for the rest of my life," which is unsustainable. And then they rebound. So, I'm curious then. So if

someone goes through this four-week process, hopefully then, they're improving their liver by the end of that. Is this something that would be cycled until a person reaches whatever their healthy weight is based on some kind of a schedule?

Dr. Christianson: That's exactly the idea. And what I encourage that way is if someone does have a lot of change they want to make is to plan on up to four times per year, you know, up to quarterly, and then taking at least two-week breaks between the efforts. So, best cycle is, if someone is having just a small amount of change to make, you know, once a year is a good thing for maintenance, but if there's more changes you want, then just once per quarter is ideal.

And in terms of general health benefits, I'm just staggered by how many things can relate to a small amount of healthy fat loss. You know, we've heard a lot about visceral fat, about the dreaded belly fat, and for sure, it's a nemesis but there's a version that's even worse that we've not heard a lot about and that's called the organ fat. So, we've got a different kind of fat that gets embedded in the liver, in the pancreas. And that stuff, I mean, even like two grams, like, the mass of a paperclip, that can be the difference between being diabetic and non-diabetic. So, it's just huge.

And I think in a lot of cases, people have cut out...they've been very restrictive on food categories and they've seen health benefit, but they may have misattributed the benefit from the restriction where it could've come from just dropping some of that organ fat. So, I've seen data about migraines, autoimmune disease, polycystic ovarian syndrome, diabetes, irritable bowel syndrome, inflammatory bowel diseases, fibromyalgia, fatigue patterns, all these things that people have improved and they've improved thinking that they happen because they just cut down a lot on food categories.

But those things also can improve from a drop in this organ fat. There's some that's called adipokines or these inflammatory chemicals that come from organ fat, and they trigger many negative effects upon the body. So, it's a huge, huge blessing for the system to shed some of that. And it functions so much better without it.

Katie: That's fascinating. And I know I've seen some research and different articles explaining how basically that idea of the belly fat or just the waist-hip ratio for women and I believe waist-to-shoulder ratio for men that that's actually a more statistically accurate indicator of a lot of different risk factors for death over the long term than just body weight. Is that kind of the concept you're explaining here as well?

Dr. Christianson: Spot on. And in the book, I talk a lot about waist-to-height ratio. I've seen a lot of data on that. And both genders, and it's actually a really simple thing too. Most of us as adults know our height. It doesn't change too quickly. And then just measure waist around the belly button. And the protocol is get out of bed in the morning, ideally, not after the day of having like a higher-than-normal salt intake. But wake up in the morning. Empty your bowels and your bladder, and take just a deep breath in and out and relax your belly muscles all the way and measure inches around the belly button. Right around the waist circumference of the point level of the belly button and compare that to height.

Now, the danger zone is half. So quite simply, you want your waist circumference to be less than half of your height. And, yeah, like you're saying, I've seen a lot of data saying that your total mortality risk, that can be a better predictor than blood cholesterol or blood pressure or lots of other things. And it's a lot more meaningful than body mass index which can have many pitfalls for those who are taller or shorter or have more muscle mass than typical. So, yeah, waist to height ratio is a hugely, hugely important variable and easy to measure.

Katie: That's, yeah, a super easy metric to remember for sure. And knowing you, knowing the way that you research, I'm guessing that you also looked at the metrics that can improve when you improve your liver especially, like, your liver health and belly fat and organ fat like you've talked about. So, from what you've seen on the clinical side, what are some of the markers that are actually changing or improving in the body as people start to really focus on liver health?

Dr. Christianson: You know, awesome question. And a lot of things that relate to blood sugar, blood lipids, inflammation. So, I talked about how there's this thing called leaky liver. And what's happening is your liver is like a spare department for holding onto a fuel, the carbs, the fats, the ketones. So, whenever there's extra of that, we would hold that in the liver. But there's some point where it gets too full.

Now, there becomes damage to the liver when there is so much there the liver can't grow new cells quickly enough. And there's a common thing in a blood test called ALT or the alanine aminotransferase. And this is pretty bizarre but well within the normal range, all the liver specialists agree that if you're even on the upper half of normal that there's some kind of a problem with your liver. To be precise, the number is 18. Some studies suggest 19. But for women, if you're above 19, there's something wrong with your liver. And there's certainly can be other explanations like undiagnosed hepatitis or reactions to medications. But barring any other clear explanation, we think about this leaky liver as being the culprit. So, that's one of those.

We'll also see a lot of changes in fasting blood glucose. And this is really fascinating. People think a lot about the importance of that which there is a lot, but we often think about, like, how our diet in terms of carbohydrate intake affects blood glucose. But yet, fasting glucose, fasting blood glucose, by definition, that's not after a meal. And so when someone has high glucose in the morning, that's not based upon what they ate recently. So, what's happening is their liver is leaking out too much glucose throughout the course of the night.

And they've even shown now through some pretty fascinating studies, they can differentiate the glucose in your blood whether or not your liver produced it or it came from your meal even in the daytime, even, like, right after a meal. And what we're seeing is that people who are prone towards diabetes that about two-thirds of their blood sugar has nothing to do with a meal they just ate. It's what their body is making all by themselves.

So, other things that show up in tests would include triglycerides and cholesterol. And in many circumstances, these are also types of fuel that are leaking out of the liver. So, yeah, it's awesome to see all of those things shift, and they can quite readily.

Katie: Yeah. That's encouraging for sure. And I'm curious, I would guess that as someone starts this process and tries to improve their liver, first of all, that's a much better metric, I think, to focus on than just calories or weight, because it's more tangible, more measurable. But is it one of those things that as the body heals itself or as the body improves over time, it gets easier in a sense? Like in other words, the more we support the liver, do these cycles actually become more effective because the body is able to more effectively utilize fuel?

Dr. Christianson: That's an awesome insight and you're spot on right there, too. So, when the liver is healthy, then you've got that metabolic flexibility and you'll be able to make use of a broader range of fuel types, a broader quantity of them and still maintain good health and function. You know, it's kind of funny. We focused for a long time about the importance of the gut and the gut flora, and it's a big deal. It's super important. But conceptually, all that is occurring outside of your body still.

So, your gut is really a tube that goes from, you know, mouth to butt, but what's inside the tube is not yet really interacting with your body. But when you assimilate things and they come into your bloodstream, the first stop is the liver. And there's a group of specialized cells called kupffer cells that are immune cells unique to the liver. And they're the sentinels that see what's coming in from the outside world from the intestinal tract. And there's a lot of feedback between the bile and the gut flora, and the gut and the liver and the bile. There's this gut-liver access.

And what we're learning is that, yes, harm to the gut can affect the liver in terms of things like leaky gut or they call it the bacterial translocation. But it works both directions. When the liver is not functioning well, the properties of the bile are not correct to support the desirable flora to prevent the leaky gut in the first place. So, it's a hugely important facet of health.

Katie: That's fascinating. And I feel like that's something that even...it tripped me up for a while to understand that the gut is actually external to the body because when you first think of it you're like, "No, it's inside." But really, it's truly like...I think of those...I don't know if you ever had one, but when I was a kid, we had these little tubes that were supposed to be, like, seawater and they were like a never-ending tube that you could put your finger through and it would just keep going basically.

That's how the gut is. It's almost like a straw that just goes through your body. And so that's a helpful analogy for people to understand.

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Katie: I love how also in the book, you frame so much...instead of just talking about food and calories, you talk about fuel and you talk about the beneficial side, and I think that's such a helpful just paradigm shift. Because I think we have gotten to a place in society where so many foods are demonized. And I think there are a large number of people who truly don't even know what to eat anymore because everything is bad in some way. So, I love that you're helping to shift that conversation as well. And on that note, what are some of the things...can you just walk us through some of the basics of the dietary side of what you feel like are most supportive of the liver?

Dr. Christianson: Well, yeah. So, in the diet, we get things that come in different categories, and one category would be fuel. And we need things from the fuel. And all sources of fuel independent of their ability to supply energy have some things to offer. You know, so carbs can give fiber, fat can get essential fatty acids. Sources of ketones whether we make them or not can be useful for the structure of brain cells and regulation of metabolism. They all have some good roles to play. Then we think about protein and then that's an important part of maintaining the muscle mass and especially so for good liver function and then just maintaining good basal metabolic rate.

Then there's micronutrients, and the liver needs a good diversity of those. You know, there's about 9,000 different chemical reactions that occur in the body and the bulk of those are managed by the liver in some way or another. And they depend upon a big variety of micronutrients, vitamins, and minerals. Some common things that can be lacking can include zinc or B12 or folate or converted forms of B6. And in the deficit of any of these, the liver's function gets impaired both in terms of how it makes its own reactions, and also how it forms protective antioxidants that keep it from being harmed from these chemical processes.

And then the existing other category that I put a lot of thought into, selecting foods from would be the phytonutrients. And I say that with an uplift, I guess because they're really phytotoxins. So, this is weird but there's a lot of things in foods that are probably there as pesticides from the plant itself or insecticides from the plant. But in the microscopic amounts we find them from in foods, they really seem to scare our liver into working better.

So, we think about, like broccoli and glucosinolates, for example, if you could take a lot of that, it would be deadly. But the tiny amounts in food ramp up a set of pathways called the Nrf2 pathways or some phase II conjugation pathways. But a big variety of fruits and vegetables supplies us with things that make the liver startled enough to work better. So, it's not a concept but they're good for us because they are just a little bit bad for us.

Katie: That's super interesting. And on the note of broccoli, a little bit of a tangent, I remember when I first was diagnosed, one of the things you recommended that I just occasionally work into my diet was broccoli sprouts. And I know it wasn't just for that. There's sulforaphane as well. But can you talk about that just as a side note, the benefits?

Dr. Christianson: For sure. Yeah. They're a rich source of sulforaphanes. And your liver, there's a lot of chemical reactions that go on, but they've been categorized in two groups called phase I and phase II. And generally, phase I reactions involved taking chemicals you'd like to get rid of and stirring them up, like, making them agitated, making them more volatile. And that's only good as a means to an end. And the end would be phase II in which you take that activated chemical, and then you stick something onto it.

So almost imagine like an epoxy glue where you've got two stages. The first one is like one layer and the second one that makes it hold on. And so what happens commonly is that with thyroid strain and also from a lot of facets in modern life that first phase gets too active relative to that second phase. And we call that pathologic detoxification.

So, your liver is trying to get rid of normal wastes of metabolism or just junk from the modern world, you know, all the toxicants we're exposed to. But in doing so, if it's doing so poorly, it can make these things even worse, even more harmful chemically than they were beforehand. So, there's common situations which is beneficial to coax up these two relative to phase I. And sulforaphanes, they're powerful agents for that. And one of the densest sources by far are the broccoli sprouts.

Katie: And they're super easy to make. I'll make sure I put a link in the show notes as well in case any of you guys are interested in growing them at home. They're really inexpensive and I think they're really delicious. Another thing I feel like that...it seems like is a big factor here, and I would love for you to speak on if it is the importance of sleep. And I say that only because I know from my own research if you don't get enough sleep in one day, you'll start showing the signs of potentially prediabetes. All your hormones get out of whack. I'm assuming there has to be a liver effect. So, does sleep quality and sleep time come into play at all as well?

Dr. Christianson: They're completely relevant, yeah. You're exactly right on that, too. In Chinese medicine, they talked a lot about these clocks the body would go through and how the early hours of the morning was the liver time. And we know that. The liver has these various jobs but it's also storing fuel for future use. We call this the formation of glycogen especially. And it does take being in REM sleep to do a good job of forming glycogen. And glycogen is a type of carbohydrate that's stored in the liver. And it's great to be able as a fuel for just daily activity, but also the liver needs to carry out a lot of chemical reactions.

Paradoxically, it needs glycogen to burn fat effectively, and burning fat is important just to take that at face value like burning body fat. But it's also a big part of making sure the liver is not getting clogged and able to help break down the ways that are inside of it. So, without a good supply of glycogen, the liver can't do a process called beta-oxidation and burn fat as effectively for fuel.

In glycogen production, it's hard to do during the day when our cortisol levels are fluctuating. Our blood sugar is rising and falling because of our activity. So, it's one of the many maintenance tasks that our body has to focus on during deep stages of sleep. And you're exactly right. You can compromise one night and see measurable changes in blood sugar that can be worrisome. So, sleep is essential for all that.

Katie: Yeah. I feel like that's potentially one of the bigger problems in the modern world that we all know we should sleep but I don't know that we fully understand just how drastically that impacts our health and how just...and I know you've read about this in "The Adrenal Reset Diet." But looking at blue screens at night and all the exposure to artificial light and not getting enough sunlight, all of those are so important for our hormone levels. And it's sometimes hard, I feel like, to really understand that because it's not as immediately measurable as if you eat a food that isn't as great for you. You sometimes feel bad pretty quickly. You don't necessarily see those changes as immediately, so they're harder to pinpoint. But I love that you're spreading information about that as well.

Dr. Christianson: You know, and something that I didn't even mention in the book but I've stumbled across recently that I wish I would've put more in the book is about there's more data mounting that sleep timing, when your sleep is occurring may be as close to as important as how much that you're getting. And emerging data suggests that the hours closer to sunset for wherever you are, whatever your time zones and daylight and darkness cycles are like, that the hours closer to sunset maybe more productive for liver health than the hours afterward. So, you have the whole early to bed early to rise thing. Even if it's the same amount of sleep, you may get more mileage out of it.

Katie: Interesting. And at this point, I think there might also be people wondering when it comes to especially the Metabolism Reset Diet and getting back to that metabolic flexibility, how is this different, for instance, than just straight caloric restriction or what's the difference in the process there?

Dr. Christianson: Yeah. So caloric restriction, the drawback there is you can end up compromising protein. And there's also quantities of caloric restriction that we know are just setting the stage for rebound weight gain. I remember way back when Oprah had one of her hallmark moments where she carted out the big wagon of 72 pounds of fat. I remember correctly the number that she lost from liquid protein diets, and we don't have those anymore because they're illegal because a lot of people died from that. So, if there's too big of a caloric deficit, it can be fatal, especially if it's with only poor quality incomplete proteins like those were.

So yeah, just the caloric deficit alone. It's a sad thing because in controlled situations, it is a strong predictor of weight changes in the short term. But in the real world, it's not a great predictor of long-term waist loss, and that's the goal. So, the difference is that this is meant to be a program that is done short term. It's not the idea

of a crash diet in the negative sense, but it's something that's meant to really elicit a lasting change towards long-term lasting waist loss.

Katie: Got it. And I know another thing that's incredibly trendy right now is various versions of the keto diet, which is obviously...well, it ranges a lot depending on who you ask, but typically, higher fat and moderate-ish protein and very low carb. And I'm curious, just your take on that from a liver perspective and from an overall health and long-term weight loss perspective.

Dr. Christianson: So, there's ketogenic and there's ketosis. And it's a funny thing we often get conflated or thought to be interchangeable. And any way that you have a deficit of fuel for a period of time, your body will start to burn some ketones. And if there's a mild fuel deficit that may be advantageous for helping to decrease appetite. But the question often arises is that are those ketones themselves somehow causing weight loss, and they're not. They're just normal things that show up when the body is low in fuel. So, the idea about forcing the body to make ketones and somehow that these high amounts of ketones themselves drive weight loss, it's just not a solid understanding of biochemistry.

You know, ketones themselves are another fuel source, and like fats, like carbs, they ultimately break down into oxaloacetate. And so far, all the studies that have controlled the food intake have shown that if you are on a ketogenic diet and you're on a lower food intake overall, you'll lose weight but not to a greater degree than you would have on some different diet, on that same food intake. And it's quite possible to gain weight on a ketogenic diet as well.

So, there can be a benefit in terms of controlling appetite, but you can achieve that benefit with any food combination that gives a gentle food deficit. It doesn't require high intakes of just one food type. As far as general overall health, we've had a pretty decent amount of data in terms of thyroid function. The largest amount of evidence we have on ketogenic diets comes from...I'm actually looking outside my window about at that center, it's Barrows Neurologic Center in Downtown Phoenix.

And they've done most of the work on ketogenic diets and epilepsy. And there certainly is a place to where kids that have non-responsive seizures that don't respond to medications, they can benefit for some periods of time with ketogenic diets and have fewer seizures. It's quite clear. But they've tracked so many kids that they've also seen that there are certain side effects that are predictable. And one of the biggest ones involves changes in thyroid function.

So, thyroid disease, it's quite common amongst adults, you know, based on where we draw the line for someone having thyroid disease. You can say that's a quarter of adults in any given age or even higher. But amongst children, it can be quite rare. It may be even a few cases per thousand amongst preschool or early school-aged children. But when those same kids are on ketogenic diets for their seizures, we'll then see rates of thyroid disease as high as 20%. So, it becomes quite prevalent. And that same thing doesn't happen to these same kids because of their seizures or because of their seizure medications. It only happens to those who are on ketogenic diets. And many have lasting thyroid disease afterward.

So, we know that the body has ways to spirits metabolism, and that's just what it does in the case of high states of ketone formation as we suppress our metabolic rate by changing our thyroid output. And the pitfall is that for many, that can then be lasting. And I guess the other general concern is whenever a diet cuts out too many food categories, especially all the food categories that involve the many types of fibers. You know, we often think about fiber as a thing, but it's really a category. And there's at least 15, 16 types of fiber that have been described that we get from a full range of food categories. And when one is ketogenic, you have to restrict food categories so much that your total fiber diversity plummets.

So, even if you were to add in Metamucil or fiber supplements, just your food categories are so low that we often do see negative changes to the bowel flora and we know that it's important. So, yeah, if anyone has had their health improved from that, that's awesome. Anything that works is wonderful, but there are pitfalls. And as far as just overall group effects, it doesn't seem to be advantageous over just lower food diets for weight loss.

Katie: Got it. And I'm curious if you could speak to...because obviously, all these diets, they have their place in society at different times because they've worked at least for a subset of the population at some point. But can you kind of explain how both, like, diets that seem polar opposite, like for instance, a raw vegan diet and also a more high-fat keto type diet, they can both be effective for people and kind of accomplish the same thing?

Dr. Christianson: Yeah. That can seem so bizarre. And the response that we'll often hear is that, "People are all different." And for sure, we've got distinct personalities and preferences and whatnot, but I don't know. I think that...and yes, we certainly can have different food intolerances and food tastes. But really, you know, none of us photosynthesize. You know, we're not...at the core base of our biochemistry, we're not that different from one to the next. So, it can happen that you do the same thing from different angles. So, if you go raw food vegan, for example, you often cut out on a lot of fuel density that would come from many types of fats, many processed foods, processed carbohydrates. And if one does go very strict paleo or keto, they'll cut out a lot of fuel from many types of carbs and many types of...and obviously all processed carbs.

So, both those cases, you can really be cutting fuel intake. And that by itself can be a good thing. I would argue that if that's the part that matters the most, let's just be aware of that and still have a variety of fuel for what we've got, and then also make sure that we're supporting our muscle mass along the way. So, yeah, it's completely possible like the whole all roads lead to Rome, but knowing that and figuring out what's the best way to travel along that road.

Katie: Yeah, exactly. What about...I often hear the term especially related to why people struggle with long-term weight loss the idea of a metabolic set point or the idea that your body gets comfortable at a certain weight. And I'm curious if people are addressing the liver side and actually like the biochemical side of this versus just trying to lose weight on a scale. Is that something that you feel like can shift over time? In other words, can the body become comfortable at a lower weight once it's been there for a while?

Dr. Christianson: You know, it certainly can shift. And the term set point, one really could think about rather interchangeably with metabolic flexibility. So, when someone loses their metabolic flexibility, their set point gets higher and can't really change. And what's happening is, because their liver is so full of triglycerides, it's so jammed up with triglyceride and because it's so devoid of glycogen that it doesn't have the capacity to store any spare fuel. So, whenever you get extra food, that has to get stored as subcutaneous fat, or visceral fat, or organ fat. And then on the flip side, when someone lowers their food intake with an attempt to lose weight, the liver has no ability to really break down stored fat safely.

So, either you've got to make such a big deficit that you're eating up muscle mass because that's the biochemistry is that when there's no stored glycogen or if there's too little protein present, the liver has to utilize muscle mass to convert that into glucose to either burn fat or make ketones. And when you lose muscle mass, you're setting up for just regain and balancing back up again. So, it's important to identify fuel as being the main variable but then keeping protein steady so that's there to keep the muscle mass present, and also to supply for glycogen regrowth again.

Katie: Got it. And I know I said it already once but I wanna echo it again. I got to read a pre-advance copy of your book which was spectacular, which I expected no less because all of your writing is amazing. It's linked in the show notes. I know it's also available anywhere that books are sold. I just would encourage you guys listening to check it out. I think it will really reframe how you think of food and fuel and weight loss and offers a much healthier perspective I feel like on the whole idea. So, highly, highly endorse it and I'll make sure it's linked in the show notes.

But towards the end of the interview. I can't believe our time has already flown by, but I'd love to ask a couple sort of unrelated questions, and I can't wait to hear your answers. The first being if there's a book or books besides your own which will of course already be linked that really have impacted your life. And they don't have to be health related, just I'm always looking for new reading material.

Dr. Christianson: You know, two that have the most and I guess in serendipitous ways, one of which because it drove me into the profession I went in and that was the earlier edition of the "Textbook of Natural Medicine." This was in the early '90s, and it was one of the first, I guess, encyclopedias of all the things that natural medicine has to offer. It's been updated ever since. Now we're on, I think it's the 13th edition. And it's an awesome thing because I got to go from a fan of that and have it bring me into this whole world to be a contributing writer to it now for the 12th and 13th editions on the chapters on thyroid disease. So, that's one.

Another one which, Katie, I know that you're crazy smart and you've got a big range of knowledge in different fields, there was a book series from which...there's a book from which the "Cosmos" series, the original one of Carl Sagan in 1980 was based off of. And big thick book, lots of beautiful illustrations. Much of it was new from the Galileo missions, but very cutting-edge science, but also just really deep explanations on how we understand what we understand about astronomy and astrophysics and how the world works and basic physics. So, yeah, the "Cosmos" book was like...I still have my version of that from sixth grade and just been completely in love with it ever since. So, "Cosmos" by Carl Sagan.

Katie: I love that. Those are both new recommendations no one has recommended before. And lastly, if there was a piece of advice, again, it doesn't have to be health-related but it can be that you could spread far and wide, I'd love to help you do that right now with the couple hundred thousand people who are listening.

Dr. Christianson: Yeah. I think the most important thing nowadays is to think about your thinking and just question data, question trends. When I first got into the whole journey of health, it was just novel to have any information. And now, we've got all the data we could ever...all the artistic endeavors and wisdom from all mankind at our mobile devices 24/7 pretty much. So, the real thing now becomes how well do we filter data.

So, I would encourage everyone to get good at just having some basic knowledge about what are some of the ways in which our brain has bugs and not features. What are the cognitive biases that are built in, and how we often make suppositions that don't serve us in the long-term? But just to get good at questioning our thoughts and our ideas, and if, you know, someone tells you that bananas are bad foods, don't question if that's right or not. Question how they arrived at that conclusion. And that's, I think, the real big thing that's gonna set us apart in the future is how well we can be discriminators of data.

Katie: That's a great point. I love that. And I think that's the perfect place to stop for today, but of course, you're always welcome to come back. And I know that we'll have many future conversations. But for now, thank you for sharing your time and your wisdom with us today.

Dr. Christianson: Yeah, my pleasure. Always good to be with you, and just a huge fan of your work and really appreciate everything that you do.

Katie: Likewise. And thanks to all of you who are listening for sharing your most valuable asset, of your time with us today. And I hope that you will join me again on the next episode of the "Wellness Mama Podcast."

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