Balance Your Blood Sugar To Beat Inflammation Transcript

(Transcripts are generated by AI and may contain errors)

Introduction to Blood Sugar and Inflammation

Welcome to the conquering chronic Inflammation Summit. I'm your host, Dr. David Jockers. And today we are talking about the connection between blood sugar, insulin resistance, visceral fat and inflammation.

My guest is Dr. Brian Mowll. He's the founder of medical director of Suite Life Diabetes Health Centers. He serves clients worldwide as the diabetes coach.

And for over 20 years, Dr. Mowll has been helping people around the world to optimize their health and metabolism, control blood sugar, and reverse type two diabetes using a natural, personalized lifestyle approach.

In addition, he's the host of the number one rated Mastering Blood Sugar podcast, and he's the author of the number one international bestselling book, The Pro Fast Diet Burn Fat and Reverse Type two Diabetes in just six weeks.

You can find his website at DrMowll. That's D R M O W L L.com (drmowll.com) And we're going to go through some great information on insulin resistance, diabetes, blood sugar balance, everything you need to know.

So without further ado, let's go into the interview. Well, Dr. Brian Mowll always great to connect with you. And I know we're talking about blood sugar, diabetes, insulin resistance right up your wheelhouse.

Let's start by talking about the importance of having stable blood sugar.

Why Stable Blood Sugar Matters

Yeah, that's a really good point and a good question. I think it's something that people don't think enough about. You know, we think about high blood sugar and low blood sugar, but stable blood sugar is the natural state.

And I think it's really important to try to achieve that. I think one of the challenges is most people don't have a good way to measure that, and you can't really depend on how you feel to tell whether your blood sugar stable or not.

If you know, if you're feeling like your blood sugar is low, it's probably pretty darn low at that point. And we don't feel high blood sugar really, until it gets super, super high.

And then it's going to be headaches and dizziness and, you know, going to the bathroom a lot and that kind of thing. So those are, those are the extremes and everything in between that there really aren't any symptoms per se.

So it's hard to track now with the, with the adoption of CGM, FMS, continuous glucose monitors that more and more people are using, that becomes a great tool where you can actually look at your blood sugar on a continuous basis and try to achieve a pretty tight range.

But I think until, you know, just the past few years, that wasn't really possible unless you were going to check your blood sugar, you know, prick your finger dozens of times a day, which most people don't want to do.

So again, I think it's an important question and important point. If you think about it, blood sugar swings is a major stress to the body. So if your blood sugar is shooting up 50 or 60 points and then dropping, you know, another 50 or 60 points, that puts a lot of stress on the adrenals.

Many people don't realize this, but sure, when you're, when you're fasting, your blood sugar is largely controlled by your liver. And, to a lesser extent, your adrenal glands and your pancreas, but, mainly your liver, because you're

not eating any food.

So you don't have any, you know, excess glucose coming in. So the blood sugars got to be kept in a pretty tight range. And the liver really does most of that work.

When you eat food. Now you've got to deal with this glucose coming in from whatever carbohydrates you ate. And it becomes a little bit more complicated.

But there are other hormones. And, you know, the pancreas obviously releases insulin, which which helps to, control our blood sugar. but sometimes that doesn't work all that well.

So we get this, you know, we get this spike of glucose if we're if we're eating sort of a lot of sugar and a lot of processed, refined carbohydrates. And then we get this surge of insulin from the pancreas and the blood sugar drops and the adrenal glands have to try to stable re stabilize the blood sugar by releasing hormones like cortisol and adrenaline, which will kind of bring the blood sugar back up a bit.

So when you're dealing with that spike in glucose from, you know, eating the wrong foods and then that drop in glucose from the insulin surge, all that puts a huge stress on the body.

And, you know, it can lead to all sorts of problems. We see chronic inflammation. We see, you know, everything that cortisol can do to the body that's negative, including central weight gain.

Healthy Glucose Ranges and Meal Responses

And, the other effects of stress on the body, we cardiovascular stress, we see all that sort of as a result of these highs and lows. So when we look at a CGM graph and we can talk more about what that is, and if you want to in a few minutes, we love to see a glucose curve or glucose graph that is very stable, that is almost straight.

If there's going to be obviously some waves and fluctuations throughout the day. But if you look at it over a long period of time, sort of a global view, it should be pretty flat.

And that tells us that the diet's good, the blood sugar control is good, and there's, very little stress on the body coming from these glucose fluctuations.

Yeah. Let's talk about that. So like what what would be a good number kind of a healthy blood glucose range. And then what it should what should it look like.

Let's say you know, postprandial or right after a meal, you know, and then the next hour, the next two hours. And what's kind of a dysfunctional blood glucose regulation.

What does that what are the numbers look like for that. Let's compare that. To for sure. Yeah. So a good range is 80 to 120mg per deciliter. So, you know, if I was going to set my CGM.

What? You can do this if you have one, you in your app. But, I would set it between 80 and 120. That's know it may go a little bit above that sometimes.

That's okay. You want to be in that range about 90% of the time. So, if you said most of those are set to high, like you'll see them set to 140 or even 180 oftentimes.

And so people say, oh, I'm in range all the time. Well the range is way too big, right. So, 80 to 120 is a is a good range. some people do tend to have a little bit lower blood sugar.

And, and you know, that can be okay. It's mostly people who are doing like plant based diets or reading a lot of carbohydrates, but are still very insulin sensitive and healthy and lean and fit their blood sugar can sometimes run a little bit at the low end of that, so they may need to adjust that down a bit, like maybe 70 is okay for them.

But for most people, 80 to 120 is a good range. If you're looking at pre and post meal, blood sugar changes what we call the, glycemic response to a meal, typically about 30 points is is sort of considered acceptable tolerable ideal.

So if your blood sugars 90 before you eat, you don't want it to go above 120. In that situation. Now that does sort of depend on what you're eating. So, you know, if you let's say you are an athlete and you're active and you fit in and you're fit and you decide you want to eat a couple servings of fruit with nothing else.

So you have an apple or a banana, and, you know, and some grapes or something. I mean, these aren't ideal for somebody with diabetes. But again, if you're active and fit and metabolically healthy and you feel like you can tolerate those well, you might see a little bit more of a glucose, excursion from those.

Your blood sugar might go up 40 points or 45 points, as long as it comes down pretty quickly and doesn't come down too low. I'm okay with that. I think if, you know, if you look at it an hour after your meal and your blood glucose went up by, say, 40 points and an hour later it's right back down to baseline, it didn't you didn't have like, it didn't drop, you know, too low where you went.

Hypoglycemic then. That's totally fine. You know, your, your area under the curve or the amount of time where your blood sugar was above baseline and was still very small period of time.

And so that's not really unhealthy or dangerous. We'll see those same glucose excursions, by the way, sometimes from exercise you might go do a high intensity interval training program or a sprint, and you might see your blood sugar go up by 50 or 60 points.

But usually again within an hour it's going to be right back down to baseline. So I'm okay with that. But generally we're typically looking for about 30 points from from a normal meal, you know, a meal that is, you know, consists of some sort of protein and vegetables or, you know, something that most of us would eat for lunch or dinner.

And that's like in the first hour or two. When should it go back to baseline? How long should it take? Yeah, that's another good question. And this is a good way to assess your insulin sensitivity.

How Insulin Works and Insulin Resistance Develops

If you, if your blood sugar goes up, let's say it goes up by 30 or 40 points and it takes five hours to recover back to baseline. you are likely insulin resistant.

And the insulin resistance there is likely in the muscles and or fat cells, because that's where the glucose is going to go after a meal. Mostly in the muscles.

So what we should see is within two hours we want to see your blood sugar come back to baseline after a normal meal. So, after like a high sugar meal.

And, I'm not talking about, you know, a candy bar or a bag of Skittles. I'm talking about, like, maybe a couple pieces of fruit here, but after a high sugar meal, like a couple pieces of fruit with nothing else, we'd like to see that recovery even faster.

one interesting thing is fat in your meal will delay your, glycemic recovery. So you are going to see a little bit of a longer curve. It shouldn't go up as much, but it will take a little bit longer to recover because the fat from your meal is holding, basically sort of making you temporarily a little bit more insulin resistant because the body wants to hold the fat back in the fat cells because you got to process this fat that you're eating.

So you will see a little bit of a longer, recovery from like a high fat meal. So it may take up to four hours for it to come back to baseline. But again, you shouldn't see it go up as much.

So again, that area of protein is pretty rough. How about a high protein meal? Yeah. protein does. Protein and

carbs. Yeah. Protein doesn't do that as much, but it will delay the glucose absorption.

So like let's say you have a high protein, high carb meal, you know, steak and potatoes or something like that. there you probably won't see as high of a glucose excursion as you would if you just had the potato, but it may take a little bit longer to recover, because that glucose is getting into your system over a longer period of time.

So it's more of, a trickle effect than it is a surge of of glucose. Yeah, yeah. Makes sense. Now you mentioned insulin earlier. What's what is the role of insulin.

What is its job. And how does somebody develop insulin resistance. Yeah. So insulin has several several important jobs. The two main jobs from a metabolic and blood sugar perspective are its anabolic effect, which means it stimulates growth and its anti catabolic effect, which means it stops the breakdown of tissue.

Okay. So those are two different things. They sound like maybe they're the same. But I'll explain how it works. So when you eat a meal with any type of fuel. But glucose is the primary stimulator of insulin release.

So your pancreas is a is a glucose sensor. Think of a thermostat, your pancreas actually has its toe dipped in your blood all the time, and it's checking for glucose.

And when it registers a little bit of extra glucose, it starts ramping up the machinery to release some insulin in order for the body to use that glucose.

Now, when I say the body, we're mainly talking about the muscles here. And that could be your heart muscle or your skeletal muscle. glucose will will just flow right into your liver.

It'll flow right into your brain. Not all parts of the brain, but most of your brain and several other areas. But muscles need insulin to take in glucose.

So without insulin, that glucose floats around and the muscles don't get it. so as soon as the pancreas sees a little extra glucose, it releases that insulin that activates the glucose channels in the muscles for them to take that up.

And what it's doing essentially is refilling its stored sugar. So most of the stored sugar in your body, like 8/10 of it, over 75% of it is stored in the muscles.

That's your main storage depot for glucose. It's called glycogen, and it's storage for and, muscles need insulin to take that glucose back up out of the blood.

So that's its anabolic job. Now it also acts on fat cells. And fat cells will also take up glucose. That's mainly to make triglycerides in the fat cells.

So the fat will, you know, will fill itself with fatty acids combined with with glucose essentially to make stored fat. But most of that glucose is going to go into your muscle cells in less.

You are highly sedentary and you're not burning any of that storage glycogen. Then the muscles don't need any glucose. So it most of that's going to go to the fat or it's going to keep circulating and the liver is going to get so fat or filled with glucose which gets turned into fat.

So that's insulin's anabolic job. On the other side I said anti catabolic. So catabolic is is when we break down stored things. So the liver has stored glucose as glycogen also.

That's where the other 20% is in the body. The fat cells are adipocytes have stored fat in them. And when you're not eating the liver releases glucose into your bloodstream.

And the fat cells release fat into your bloodstream. And that's the fuel for our body to work. Insulin stops those, too, from happening. So when your pancreas releases that surge of insulin, it tells your liver, no, stop that.

We got plenty coming in. We don't need any glucose stored glucose released in the bloodstream. And it tells your fat cells hold back that fat. We got plenty of energy coming in.

Signs, Labs, and Early Warning Markers

And so that's an important function because if you have high blood sugar or high triglycerides or a LDL particle number when you are fasting, that's when most of us go get bloodwork and we say, oh, our blood sugar is high or triglycerides are high.

That's from that's because this anti catabolic effect of insulin is not working properly. Right. So insulin supposed to hold that back in your liver to keep it in a good range.

It's not doing that. And we call that insulin resistance. So that's in a fasted state. Insulin resistance in a fast assay that mostly happens in the liver and to a lesser extent in the fat cells. So, how does it happen?

We can talk about that in a few minutes. There's there's four main drivers for insulin resistance. But, any follow up on what I just talked about there.

Yeah. And also does does insulin have an effect on cell division, cell reproduction. does it speed up cell division? I was wondering about that as well.

Yeah. Well, insulin will stimulate muscle protein synthesis. it has a less of an effect, but it can have an effect on, adipocyte cell differentiation.

So it can stimulate the production of new, fat cells in the subcutaneous tissue, mostly. but that's a little bit more complicated. Insulin has an effect on the brain.

and not only a glucose. so insulin acts on certain brain cells, particularly the brain cells in the area that's associated with Alzheimer's disease or dementia.

So sometimes we'll see, those cells become insulin resistant and not able to take up glucose properly. Like the hippocampus. Temporal lobes. Yes. Regions. Exactly.

yeah. Yeah. So, yeah, it has a it has a wide range of of every cell in the body actually has insulin receptors. They haven't found one that doesn't yet. So these, you know, insulin can act in, in every cell, mainly metabolic effects or stimulating growth.

What are some warning signs. Because, you know, insulin resistance and high blood sugar are not necessarily things people feel, at least in the early stages.

But what are some signs and symptoms that somebody may have that, you know, perhaps they have insulin resistance. Yeah. So I mentioned earlier that there really aren't, a lot of clear signs of that blood sugar that's fluctuating too much or if it's, you know, if it's a little low or a little high.

So blood work is really important. I encourage people to, you know, make sure every time you get blood work, I would have an A-1 C test, a hemoglobin A1, C test.

That kind of gives you your average blood sugar over 3 to 4 months. It's actually a measure of glycation of sort of, sugars stuck to red blood cells. And so it's a it's an important test.

definitely want to do fasting glucose. I love a CGM because of all the reasons we talked about. It's a great way to monitor your blood sugar, but there are some signs and symptoms that people will often get when they have insulin resistance.

One of them is a little bit of a pouch around the midsection. The, one of the things that's most associated with

insulin resistance is visceral fat and or liver fat.

And so people can still be have a low body fat percentage. They can, you know, if you if you track BMI, could be a BMI of 20 or 20 1 or 22 and still have liver fat or visceral fat and insulin resistance, so you don't have to be obese or even overweight.

But, you know, if you notice that over time you're sort of developing this round, harder belly, that wasn't there. Maybe when you were younger, that's a sign, a possible sign of insulin resistance.

another one is how you feel while fasting. So often times, people who have insulin resistance are not able to tap into their fat stores optimally, so they get really hungry or hangry between meals, and they're not able to go a full day, for example, without eating, without feeling the negative effects of that.

likewise, sometimes if you eat and then notice an hour later that you're craving something sweet or some sort of carbohydrate food, or, you know, you feel like, you just don't feel good an hour after eating, especially higher carb foods or sweets, that's a sign of insulin resistance.

brain fog sometimes can be associated with insulin resistance. Insulin resistance drives inflammation. As you know. So, oftentimes you'll see signs of inflammation.

And that can be something like brain fog, stiff achy joints in the morning, puffiness. Sometimes, you know, your face just looks old or swollen or you've got the dark circles under the eyes.

So, these are all possibilities. Not any of them is sort of a clear. Yes. You definitely have insulin resistance, but those are all the things that are most associated with it.

Yeah that's good. And you mentioned several different labs. Hemoglobin A1, C you mentioned obviously blood glucose fasting glucose fasting insulin. What are the ranges that you want to see on some of these labs.

Yeah. Fasting insulin is an important one to measure. but you've got to be careful analyzing it as well. And most doctors are totally unfamiliar with how to kind of read a fasting insulin.

It's mainly done if you kind of read the lab literature, it's mainly done to screen for insulin, OMA, which is, like a, you know, a cancer or a tumor on the pancreas, which causes a really high amount of insulin to be released.

So like the ranges for insulin are really broad. for a fasting insulin test. And so what you're looking for on fasting insulin ideal is around five. And there's a there's a calculation you could do called homa er to assess your insulin sensitivity.

It works for most people. the only time it sort of breaks down is if you're insulin is low, like if you're kind of late stage type two diabetes or type one diabetic, that doesn't really work.

But as long as your, insulin is at least, say, for, three and a half or four, it works pretty well to home. Higher score.

Visceral Fat and Metabolic Damage

And, it's, sort of standardized to a blood sugar of 80 and an insulin of five. So that would give you a home, er, score of right around one, which is, is considered ideal.

So as your insulin starts to go up from five, you, you're becoming more and more hyperinsulinemia. So your pancreas is releasing more insulin than it should need to release to keep your blood sugar down.

And as that increases, like two fold, three fold, four fold, you're becoming more and more and more insulin resistant. And that's going to drive that home er score up quite a bit.

So there's several phases in the development of type two diabetes. The first phase will typically see the insulin start to rise and the blood sugar stays normal.

And that's a sign of insulin resistance. So you're having to make more insulin to have the same blood sugar lowering effect. And this is all in a fasted state.

The second phase is where we start to see insulin or insulin continues to rise. We start to see glucose rise. And this is what's termed prediabetes. So typically in prediabetes we have a pretty high insulin.

It's going to be usually ten or above. And blood sugar is up over 100. Then as you move more towards type two diabetes, insulin will will peak at some point and then it'll start to drop again.

And as it's dropping, blood sugar is going higher and higher. And this is where you need to be a little bit careful because we'll you know, we'll screen some people and maybe insulin is seven.

And you say well that doesn't look too bad but blood sugar is 150. Yeah. That's not good. Right. You would want your pancreas to be making more insulin there to bring the blood sugar down.

So at that point you've got to say, okay, there's some sort of disconnect there or the pancreas maybe isn't isn't able to keep up any longer. You know, you're not the fish in in the insulin.

You're still making plenty of insulin, but not enough to overcome whatever that level of insulin resistance is. Because that real high blood sugar, high blood sugar like that is toxic to the system, right?

So we didn't talk about that. But you have advanced glycation end products, right? So the sugar molecules will bind to proteins. And it's like shrapnel going through the bloodstream drives up inflammation in the endothelial lining.

And so insulin's trying to in a sense insulin is obviously helping our metabolic machinery produce energy by getting the glucose into the cell for energy.

But it's also preventing the damage. The glycation damage. This is the double edged sword of three diabetes, type two diabetes. This entire spectrum is you've got the damage from the elevated glucose, but you also have damage from elevated insulin.

insulin acts on the kidneys and can lead to, high blood pressure, which can drive cardiovascular disease. it takes a toll on the kidneys. Okay. So it it tells the the system to retain sodium.

Exactly. Yeah. Which increases blood volume because water goes with the sodium, which increases overall pressure. That's right, that's right. So there's, we talk about it a lot, but there's sort of, doctors have sort of a head scratcher over patients who come in brand newly diagnosed with type two diabetes or even in the pre-diabetic range that already have developed diabetes complications, peripheral neuropathy, some kidney impairment.

I, you know, I disease, retinopathy and so forth. And what's driving those isn't so much the blood sugar. It's actually the high insulin over many, many years.

So yeah, you've got to look at both. And most doctors just unfortunately still don't look at insulin because it is a little bit complicated. But so so we talked about glucose hemoglobin A1, C, which should be around 5 to 5.5% is considered ideal over five set 5.7 and above is considered dysfunctional pre-diabetic hemoglobin A1 sees an important test.

And then lipids. You know a lot of people ignore their basic lipid test. If you see triglycerides over 100, you know, you not only have high blood sugar, but you've got high fat.

And a lot of scientists believe that elevated fat predates the elevated glucose and diabetes. So a lot of scientists actually think that diabetes is more of a fat metabolism issue than a sugar one.

So, you got to look at the triglycerides. And, you know, I'm not a big fan of demonizing, high cholesterol, but it is a it is a an indicator to look a little deeper.

So, you know, if if we see certainly if we see a high LDL cholesterol test, we're going to want to do a particle test to check for elevated LDL particles.

And then we're going to want to screen for metabolic health, because certainly in the presence of other signs of poor metabolic health, central gain, high blood pressure, for example, high blood sugar, that's where we start to worry about high LDL particles.

Yeah. And insulin resistance is also strongly associated with low HDL. And low HDL. Absolutely. Yeah. Yeah, yeah yeah it's a big one. And that high triglyceride to HDL ratio it's always a big one.

It's a good one to look at too. Yeah it's a good surrogate for metabolic health. one other one that you can look up if you're listening in. And all you need is a triglyceride and a glucose is.

It's called the triglyceride glucose index. it's a logarithmic calculation. You can do it on your phone, but it's easier just to type it into a, an online calculator.

So just if you just punch that in triglyceride glucose index, put those two numbers in. It should be under four and a half. If it's over four and a half, that's a sign of insulin resistance also.

That's interesting. I haven't heard of that one before. That's good good information. And let's talk about like the the correlation between insulin resistance and this dangerous visceral fat, this kind of fat that goes around our organs and how that impacts us.

Yeah. So visceral fat is particularly dangerous. it's something that we encourage most of our clients to measure, unless it's obvious that they have it.

you know, which would be sort of that big round belly that I talked about. best way to measure it is with a Dexa, you know, minimal radiation. There is some, but and it really gives you a great quantification of, of your body, composition.

So it'll tell you how much lean mass you have, how much fat mass, how much visceral fat. It doesn't give you liver fat, unfortunately, but it will give you visceral fat.

And most people have elevated visceral fat will have, fat in their liver also. So it's a good surrogate. visceral fat is particularly dangerous. This is the fat that is acting around the organs.

So these are fat cells. They are adipocytes. they're they're typically white adipose tissue, as opposed to liver fat, which is actually fat droplets inside liver cells.

So these are fat droplets inside fat cells, but they're the fat cells that are right around your organs. And they drain right into the portal vein, which goes right to the liver.

That's the problem. So, if these fat cells become overfilled, which is easy for them to do because they don't replicate easily.

Strategies to Improve Blood Sugar and Insulin Sensitivity

So our our subcutaneous fat, fat cells have a lot of what are called pre adipocytes. They're sort of stem cells for adipocytes. You can think about it that way.

And if we gain weight oftentimes we're going to sprout new fat cells in our subcutaneous tissue. Not always. And this is different vary from person to person based on genetics.

But most people will. The visceral fat cells don't tend to do that. They tend to just get bigger and bigger and bigger. And they what's called hypertrophy and they get swollen and then they start releasing inflammatory cytokines which drive inflammation.

And they become leaky. So when these fat cells become leaky, you've got fatty acids just oozing out of them and they become insulin resistant. So, when the fat cells ooze out of them, that fat goes right to your liver and starts building up in the liver cells.

Because these are these are non-steroidal fatty acids. And those can get right into your liver cells and they can get, they start to saturate the liver cells.

And when those liver cells get filled with fat, they become insulin resistant very quickly. That's when we start to see that fasting blood sugar go up.

So the visceral fat is the most dangerous. That is usually will gain visceral fat sometimes. Again, it can happen genetically like some people tend to, have more visceral fat than others, but typically it's from high cortisol and stress, periods of overconsumption.

So, you know, oftentimes people will go through periods of their life where they didn't eat all that well or stopped exercising, and they gained 20 pounds.

Yeah, oftentimes that's when the visceral fat comes on, because you've got this huge energy load and the body doesn't have anywhere to put all this excess energy.

And so it starts packing it wherever it can. And oftentimes that's in the viscera around the viscera. and then post menopause for women, estrogen directs fat to the buttocks and the legs and the breast tissue as it, as estrogen drops, women tend to store more of that fat around the midsection.

A lot of that becomes visceral fat. and same with men. When they have a testosterone drop, same thing, they'll start to store more belly fat. So, those are the those are the three main drivers for visceral fat.

We've got to watch. And then insulin resistance also, you know, it will, when the, when our, our fat cells and our muscle cells become insulin resistant, as I said, that glucose just keeps circulating and it's got to go somewhere.

So oftentimes it gets put into the visceral fat. Yeah. And that's kind of associated with that period of overconsumption right. It's can lead to insulin resistance.

Now you've got your your book the Pro Fast Diet. So let's finish up here with your best strategies for helping stabilize blood sugar and improve insulin resistance.

Yeah. So you can approach this one of a couple different ways. Some people like the slow steady approach. And that works really well. for people who that's a good match for, you know, that's the kind of people who say, I want to go on a, a long term eating strategy that I can do for years that's, going to improve my health, put me in enough of a energy deficit where I'm going to lose weight slowly over time.

that could be a ketogenic diet or a low carb diet or, just a healthy Mediterranean style diet. Whatever works for you. It's got to be high satiety, and it should be very low in processed, refined foods because those foods are very hedonic.

They drive hunger, they drive over consumption. So, and that's why, for most people, a low carb or ketogenic or even a plant based diet, if that's what, you want to do, that's why those programs work, is because they're filled with whole natural foods, fiber, good quality protein.

Hopefully that, that makes you feel full. And so you don't eat as much over time, and you do it naturally. And that works really well for a lot of people.

Some people just have a hard time with that, you know, they'll do it for a couple days and they'll be then they, you know, go binge for a day or they'll be good for a month, and then they have a month where they're not so good.

And for those people, we find, a more aggressive approach that that has a certain time associated can work really well. So that's what Pro Fast is all about.

It's an intensive four week or six week period of time where you're putting a high energy demand on, on the body, by restricting, you know, food intake.

Essentially, we don't restrict protein. So you're getting your adequate, you know, optimal amount of protein, which protects your metabolic rate and lean body mass.

but we're actually pulling down your carbs pretty low and even pulling back the fat for that period of time. The dietary fat, so that your body is forced to burn your stored body fat.

And, you know, we usually do that in a, you know, in a way that's kind of monitored. Obviously, we want to be careful with it. but it can be very, very effective to help people, break through plateaus and burn through a lot of that stubborn weight gain that they've had a hard time getting rid of.

And then, of course, there's a maintenance plan, a four week maintenance plan following that to make sure we go back to a long term healthy maintenance diet, something like a low carb or even a ketogenic style diet.

Yeah for sure. So you go through that in your book, kind of like a protein sparing modified fast. That's exactly what it's based on protein. It's very modified fast.

It's just a sort of a, we, you know, it's a whole food version of that where we, you know, made some adaptations and some some, and a more modern recommendations based on the food that's available to us today.

Yeah, yeah. For sure. Yeah. That's good. Now, what else do you incorporate? Like, what are some other things that people can be doing as far as their overall lifestyle?

Intermittent fasting, maybe exercise? Any particular herbs or supplements that you're a fan of for supporting blood sugar? Stability. Yeah. I mean, movement is critical for people.

You know, if you can't move for some reason, you have, you know, terrible joints or arthritis, something like that, where, you know, you just have a hard time.

You do what you can, obviously, you can do upper body movements or you can do some sort of resistance training. But I just think exercise is so critical. And, you know, you either have low energy flux or high energy flux.

So that means low energy flux means you're you're not eating much and you're not burning much. And, that's a tough state to be in. And it's it can be dangerous for people because 1 or 2 days of overeating and, you know, wow, you just, you know, gained 3 pounds, high energy flux would mean that you're eating more.

And I'm talking about more on a sort of a regular maintenance basis here. You're eating more, but you're also burning more energy. And, that tends to work better, I think, for humans.

I think I think we're more designed for that type of situation. and so to get to that point, to be able to eat more and burn more energy, you've got to be more active.

So I'm a big believer in daily exercise, you know, walk as much as you can. I love to walk after every meal or, you know, almost every meal. Resistance training 2 to 4 times a week, some high intensity interval training, get in the sauna or ice baths or whatever, you know, whatever type of, you know, hermetic stimulation.

You like, like that, red light therapy. There's all sorts of things you can do like that to, work on, supporting the

healing process of the body and supplements can be really helpful to, berberine has got a lot of attention recently.

It's a great supplement. seems to have positive effects on the gut and on our hunger hormones. Like, you know, everybody's heard about GLP one. Now, there's lots of other hunger hormones.

There's amylin, there's, cascade, you know, neuropeptide. Y'all, these hunger hormones and berberine seems to have an effect on almost all of them. It also can help blood sugar and lipids.

So that's a great supplement. 500 to maybe 1000mg a day of berberine with meals. I love curcumin for its anti-inflammatory benefits. you know, some people rail against polyphenols and call them toxins and poisons.

You there they are in a way, stimulating the antioxidant defense system like a toxin would. But you think of it like a really, really minor toxin. So, they raised a lot of folks hormedic stress.

Yeah. Similar to exercising. Yeah. And fasting. Right. so, yeah. So they, they're I think they're beneficial. so, you know, I like, you know, broccoli extract is good.

So if you're a famous, you can do a black seed oil is another one that we've, we've had good success with, improving insulin sensitivity, pancreatic function.

so, I don't know. I'll leave it there. We could probably go on and on about supplements, but those are some really good ones. Yeah. For sure. Well, great information, Dr. Brian, I really appreciate that. Guys.

You could check out his book again. It's the pro fast diet burn fat and reverse type two diabetes in just six weeks. And his website, Dr. Mowll. That's drmowll.com So check him out there.

And Dr. Mowll, any last words of inspiration here for our audience? yeah, I would just say that, you know, blood sugar, I think is a great surrogate for overall health.

Metabolic health is such, is the issue of our time, I think, and it's associated with almost all the major killers in our country right now. Poor metabolic health research shows nine out of ten of us are not metabolically, optimally healthy.

So, blood sugar is a great way to sort of check, you know, your metabolic health. And so check your blood sugar, grab a CGM for a couple of weeks or a month just to see what your Lucas curve looks like and, work on it.

You know, as we improve our metabolic health, we reduce our risk for heart disease, Alzheimer's disease, kidney failure. We improve our sexual function, our longevity, and everything else.

So, take it seriously. Great. Thanks so much, Dr. Mowll.