Plant-Based: Mastering Diabetes And Insulin Resistance With A Vegan Diet Transcript

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Introduction to Reversing Insulin Resistance

– All right everybody, Another amazing, maybe the most amazing segment we've done here reverse heart disease naturally. We're going to shift gears a little to reverse insulin resistance naturally, which is a crucial part of reversing heart disease since some people argue insulin resistance may be the most essential root cause of atherosclerosis and narrative arteries. Others will debate at certain lipid particles like LDL cholesterol, lipoprotein. But let's dive deep with a real hero.

Some of you know the term bio hacker and a person that plays around with their health with various techniques. Well, Robby Barbaro, our interview guest right now is not playing around because he is experimenting in a way that could end up with his own health and health of others. Very detrimental or very beneficial because to read Robbie's bio is so exciting a friend and just watching him blossom, but he is now a masters in public health, he went back to school and got a degree.

His coworker is a PhD from Stanford in nutritional biochemistry and they as a team make up what's called mastering diabetes with a New York times. Bestselling book of which Robby's co author of mastering diabetes, the revolutionary method to reverse insulin resistance permanently in type 1.5 to pre diabetes and gestational diabetes. You may know Robby from Forks over knives.

The years that he spent their working uh with Brian Wendell and then about 6, 7 years ago went off in this amazing venture of coaching people all over the world Robbie.

I could keep going. I want to stop because we want to get the information. Thank you for taking the time and meeting with us for this summit. – Dr. Kahn, what an amazing introduction.

Robby Barbarou2019s Type 1 Diabetes Biohacking

Thank you so much. I'm honored to be here and can't wait to share some important information with your listeners. – And I just got to share on a personal note.

I'm not sure it was the first time I met you, but I think it was we walked through the west Hollywood produce market, you didn't have a little sack, You had a, you know, an entire truck basically that you were filling up with fresh produce predominantly fruit. You introduced me to Alicia Silverstone at that time and her little sun bear who's not so little anymore and I was at this Hollywood stuff is great and this Robby is amazing. But I want to take a different path.

Everybody listening Robby is a Type one diabetic for one age 12, right? You look like you're 18, but I know you're a little beyond 18 at this point. So you've been type one diabetic.

You have to have some insulin exogenous to survive at this can be an injection, could be a bump. People talk about nasal spray, but you have to have your body requires it but you've done some real bio hacking so that you are on a different path than most diabetics. Tell us what was your breakfast yesterday?

A full day yesterday? Standard day, any day. – kay, so a full day of eating right. I have to be clear right now. I am training for a full iron Man. So, that has definitely impacted how much I'm eating to a certain extent. But nonetheless, I still eat a large volume of carbohydrates for breakfast.

– I eat a large volume of carbohydrates. Anybody with the American diabetes association just fell off their chairs. So I wanted to point out, you're already bio hacking in rare air dangerous territory for standard dietitian

recommendation to a Type one diabetic. But please, even though you're training for an ironman, I thought you looked bulked up, tell us what you're doing.

– Yeah, that is correct. We will talk about the history of adding more carbohydrates to uh, diet for anybody living with diabetes. But for my own experimentation, like you're saying here, a breakfast will be roughly 225g of total carbohydrate, which is for somebody who's following a really, really strict ketogenic diet.

They'll that's like, that's more carbohydrates than like an entire week. But I just had a breakfast. – 25 g a day, would be a strict ketogenic diet. You just said 225 g of carbohydrate for breakfast.

– That's correct. That's correct. – That's like, and remember four calories per gram per carbohydrates more than 1000 calories from carbohydrates for breakfast during this training period.

– Correct. And I specifically do my training in the morning. So I make that's likely my biggest meal of the day. And so I'm actually looking at it right now.

So this, this morning, it was exactly 225 g of carbohydrate. It was 10 g of protein, five g of fat, which was 847 calories for this specific smoothie.

– And what I know I asked you right before we went on if those are props behind you and you pulled produce off the shelf, the real deal treat tomatoes.

– And so this is a psapodia. It tastes like a pear baked in brown sugar with cinnamon on top, also known as nice burrow. So your listeners may be familiar with that.

This is a tree tomato also known as tamario. It's sweet and it's a little bit tart. It's an incredible combination. So people that are thinking 225 g of carbohydrate, number one.

– You're not eating donuts, bagels, whole wheat bread, you've got these gigantic bowls of fruits and vegetables that make up, as you said, about 850 calories for your breakfast. But they're the most gorgeous, colorful route rich. I mean you're not drinking fruit juice and you're not eating refined products, correct? Just gigantic amounts of whole fruits with some vegetables. – Let's talk about this.

So the other important point here is you establish that I'm living with Type one diabetes and that I must inject exogenous insulin to survive. And it's that fat which gives me and all the other type ones an advantage for assessing what lifestyle behaviors improve or worsen insulin sensitivity meal by meal. Because I wear a C.

G. M. I wear a continuous glucose monitor, a G six. I count the carbohydrate time consuming. I put it into a chronometer and I know how much insulin is required to metabolize the carbohydrate that I'm consuming.

Whereas somebody like you and most of your listeners, you're missing a key data point.

High-Carb Plant-Based Meals and CGM Insights

You can count the carbs you're consuming, you can test your blood glucose but you don't know how much insulin your pancreas is secrete ng on a meal by meal basis.

The person who is able to create that device that can give insulin levels on a moment by moment basis. Like the C. G. M's. That's gonna be an amazing invention. But I ate that 225 g of total carbohydrate.

And I injected five units of NovoLOG insulin. So that is a very very high level of insulin sensitivity. Most people so that's like a 45 to 1 ratio. Most people living with Type one. If we're going to be generous, they would be like 15 to 1 side due to 25 divided by… – 55 g of carbohydrate.

Five units of insulin. So that's the ratio you're coming up. – That's right. That's right – The ratio is very little insulin

for the amount of carbohydrate and you were about to say a typical diabetic on an A.

D. A. diet would be. – If you put them at 15 to 1 that be generous. So they would need to inject 15 units of insulin for that same meal. – And you have basically restored you know near ideal insulin sensitivity.

You know the little bit of insulin you inject is going a long way where potentially the average American type one or type two diabetic injecting insulin is in count.

Resistance to the actions. – Correct correct. So as a person living with type one diabetes, your goal is to inject the same amount of insulin. Your pancreas would have secreted before your beta cells were damaged.

And that's roughly 25 to 50 units of total insulin per day. So on my high carbohydrate diet where again on the day I'm very active, I can eat over 900 g of total carbohydrate per day.

I still inject roughly 30 units of total insulin per day with that level of consumption. Whereas there's published research on people living with type one diabetes following a ketogenic diet who will consume 30 g of carbohydrate per day and still inject 30 units of insulin. So the magnitude of difference of the insulin sensitivity of again the approach that you know, we're teaching here at Master diabetes, low fat plant based whole food nutrition. It's not just me this is repeated in client after client or client. We happen to end up working with a lot of people who are living with insulin dependent diabetes because both Cyrus and myself, the two founders of master diabetes were both living with type one.

But the majority of our clients are people living with prediabetes and type two diabetes and they experience the same benefits. Once you reverse in some resistance for prediabetes and type two, you completely eliminate the condition for those people.

– Low fat, whole food, plant based diets. Again, you said that quickly, I want everybody to understand what your sector of the nutrition world is. Obviously we've interviewed Dr. Dean Ornish, we've interviewed Dr. Caldwell Esselstyn, we've interviewed Juliana Hever and other amazing people and people have heard over and over but you're the test case. It's what you said a Type one diabetic is basically a bio hacking experiment that is critically important to get it right.

I mean this is your health, it's your brain cells. So it's wonderful just before we close the chapter lunch and dinner um you know now while you're training just blow us away what you're eating day after day.

– So I do have my four meals per day. So the lunch meal is usually gonna be mangoes, papaya and arugula. That's my like go to… – What happens to your dexcom six after that gorgeous tasty meal. – I love that you're asking that question.

This is why this is all so much fun because you're like oh that A D. A person who hears this just fell out of their chair. But wait till you hear the Dexcom numbers. So I have a time and range consistently above 90%. Whereas the average person living with Type one is roughly 55 to 60%. Okay, well that's right. So for people living with type one diabetes, the agreed upon target range is between 70 and 180 mg per death leader.

Your goal as a person living with type one or any insulin dependent form of diabetes is to stay in that range as much as possible. And the goal is to have a minimum of 70% of that of time and range. And that could be over any period of time.

I'm talking about a 90 day average and again, so I'm doing this without an automatic pump. So I use multiple daily injections. I inject basically for my long acting insulin NovoLOG for my short acting insulin and I have a Dexcom on G six.

So those are my tools. The people who are using automatic pumps that make decisions for them that they're seeing a higher average paper published in New England Journal of Medicine was upwards of 70% for that category.

But again, so my timing range is excellent. – 90%? – Correct 90%. – Okay. And what if I may ask I know what your personal medical data but you share one. See people are familiar with hemoglobin A one C.

– Correct. Okay. Very absolutely. I'm happy to share my personal data. I love sharing it. So my A one C. Is 5.3% and here's what's really important about that. That is that's technically non diabetic A one C.

But that when we teach people who come in our program for type one we're trying to have people stay between 5.5 and 6.5. That's the target. If you have a very low A one C. As a person living with insulin dependent diabetes, it is possible to artificially make that number look good by having a lot of low blood glucose readings. So if you have a lot the lows that balance out your highs you can come up with a decent average but that's not healthy.

Nobody's looking for that. So my C. G. M. Data where I have less than 4% of my time in time being below 70 being 69 or below. That is excellent. So I'm showing that I don't have a 5.3 A one C. Because I'm going low all the time.

I have a 5.3 A one C. Because my blood glucose management is terrific. – What have you altered with wearing a C. G. M. Other than it being this basis to report, have you actually stopped eating a fruit or a vegetable?

Because it did spike it consistently. – I made two big changes because of the C. G. M. Number one. Actually I would say three big changes. Number one I put a lot of emphasis on insulin timing. We wrote about this in our book.

But as a person living with Type one, you are taught that insulin doesn't work right away and that you should inject before eating. That's the basic guidelines.

Like I wait 10 to 15 minutes. Most people don't really follow it. But until I got the C. G. M. I didn't fully understand how important that was. And I learned a lot of nuances because meal after meal after meal you start getting these insights day after day.

I've been wearing a C. G. M. For well over I think it's been eight or nine years now. So what I learned is that sometimes again as a person living with type one there's a lot of nuances.

Sometimes if your blood glucose was going up before injecting the insulin you're gonna have to wait more than 15 minutes because by the time the insulin started working you were a little bit higher than you thought you were.

So let's say you're starting a meal and you're maybe you're like 1 21 30 or something and you're slowly creeping up. By the time the insulin starts to work you might be 140, 150. So you have to wait another 10-15 minutes for it to start coming down. So I learned how important it was to make sure I was at a blood glucose level of 120 and going down before I started eating.

if you're going to eat a low fat, high carbohydrate meal that glucose is going to get in your bloodstream very fast. You must have insulin that's working.

That's ready to take it out of your bloodstream and into your cells. You have, you're playing a matching game as a person living with type one, you're matching your manual insulin injection to the carbohydrate you're consuming And that timing is very important. So insulin time, it became a key key for me for keeping my time and range and not seeing again. This has a big mistake.

People see people make this mistake with type one and definitely with type two as well, they will eat a meal. I'm sure there's many people listening right now being like, he is just some exception because I've done this, I had a bunch of bananas and I saw my blood glucose spike to 200.

He's crazy. This and this happens a lot with type ones. The insulin timing was completely off. And they basically, they basically, if I told the type one, hey, look, go ahead and eat this banana and and don't take any insulin, they'd be like, what's gonna happen. Well, you, I'm going to go through the roof. Okay, that's what happens if you inject insulin and you eat, it's as if you didn't inject insulin because it's not doing anything for at least 10 to 15 minutes. –

What valuable lessons. So basically like an artificial intelligence supercomputer. But just out of years of experience that you can teach you believe what you are seeing in your own physiology is you know you teach this you coach people to do the same throws there for a second.

– Okay so I got to tell you the second thing Dr. Kahn. – Okay. – The second thing is I learned how important it is to eat slowly to and to chew your food. Okay. That's number two.

So how do I see these really nice profiles on my C. G. M. While eating 225 g of carbohydrate is when I have that particularly in the morning. Okay. And you'll know this from your research and your work. Humans are more insulin resistant in the morning. So that meal in particular you have to eat uh slowly so I will consume my smoothie over the course of about 45 minutes.

I take my time.

Daily Routine, Exercise, and Meal Timing

I eat it with a spoon and that helps keep a consistent steady blood glucose number three I make sure to add leafy greens or non starchy vegetables to pretty much every meal. And that also helps blunt any bug glucose spike.

And this is a very important tenant of our method and how we help people who are coming to us in a very very insulin resistant state to eat themselves out of that state in an intelligent way. And not see crazy spikes greens and non starchy vegetables are very powerful. And the fourth thing here doctor come is the C.

G. M. Taught me how impactful walking is. I'm controlling blood glucose levels. I learned that if I went for a 10,15, 20 minute walk after a meal I would immediately go low. I would go and I was like wow I have to plan if I'm gonna go for a meal. If I'm gonna go for a walk after a meal I have to take less insulin I have to account if I'm going to do that or I have to eat a snack before going for the walk. Like again you're balancing these blood glucose lowering activities with the food you're eating and this walking is very powerful.

It's published very clearly in the research of people living with diabetes. Walking is powerful, powerful. It doesn't have to be ridiculously strenuous exercise to see blood glucose management improvements.

– Crazy useful data. Your non starchy vegetables. I imagine your fruits are raw. I mean they're out of the refrigerator, your leafy greens are raw, uncooked. Your starchy vegetables would be an example and they're lightly cooked or steamed or what? – I usually just keep it raw for simplicity sake.

I will have bell peppers, I will have zucchini cucumber carrots, stuff like that dressing on top. So my fruit is usually so ripe and so and there's such a great volume of it that the fruit juice becomes the dressing and I do want to address the volume component because people will see all the food I'm consuming to see these large meals and just like, wow, that's so much food and I like to reframe it and say no, actually that's a lot of water.

The foods that I'm eating are high in their water content and the most pure form of water that you can consume is the water that nature has filtered in, high water content Plants.

– Thank you. And I will say we're not at the end where we're going to give all of Robby's credentials to look him up online, but his Instagram, mindful diabetic Robby has some of the best videos of Robby eating these large bowls of very high carbohydrate, complex carbohydrate selected fruits and vegetables, very rich in water. You can be at a meal with Robby by just going over to mindful diabetic Robbie on Instagram. They're very educational to me and I lick my lips over how delicious everything looks. So just to finish up four meals a day, Number three, number four, pretty similar learning nuances there for – So number three is going to be another meal that is seasonal fruit.

So it might include a lot of berries, still might include more papaya, more mangoes, like those are staples in my diet. It could include some lunch is like a sweet fruit meal. Then pre dinner and dinner is more into like acid and sub acid fruit. So it could have like grapes in that pre dinner meal. I'm basically just trying to get the enough calories in there. So then I can have a pretty light dinner that's very high in greens and non starchy vegetables and basically

finished my day.

So I'm not eating any food past seven o'clock. That's a that's a good cut off for me earlier, it would be even better. But again, as a person living with Type one diabetes, this is a huge, huge learning point.

If you can finish, if you could have at least a three hour gap between when you finished your dinner meal and when you go to bed you will have let your fast acting insulin run its course so that that blood glucose reading that you have before you go to bed. As long as your basil, insulin is on point, your chance of staying steady throughout the rest of the evening is much more likely.

Whereas if you're trying to play this game of injecting fast acting insulin and having a snack before you go to bed, the digestion and how that is metabolized.

It just becomes much more complicated and your blood glucose control overnight becomes a little bit more stressful and again for people who want to improve their time and range to improve their A one C controlling your blood glucose while your sleep is one third of your day. That's going to have the biggest impact if you want to, you know, pick at the lowest hanging fruit, control your blood glucose while you're sleeping, your A one C will improve, your timing range will improve.

And starting with an early dinner is a key component to that. Okay. – Odd question. Maybe. But people are buying cinnamon, fenugreek seeds, black cumin, nigella sativa seeds. Have you experimented with any of those in your goal and seen any difference or it's not worth it?

– You know, the only medicinal plant that I've experimented with is um so cyrus and we actually created a t to make it more palatable. It's called the green and I consumed the hibiscus version on a daily basis.

And so this is an extremely powerful plant. They don't really actually know exactly what is happening on the side of the level that makes it so effective.

There's been plenty of research comparing it to that diabetes medications, cholesterol lowering medications and this powerful medicinal plant outperforms them in many situations. It's incredible.

Amla berries are literally the most antioxidant rich whole foods on the planet. The problem is the berries taste terrible. So we have taken the powder and put it into a tea and made it palatable. So you can get all the benefits and the antioxidants. So for me, what that has done is that has lowered my insulin requirement to treat the dawn phenomenon.

So for everybody living with type one diabetes, they wake up in the morning when they start becoming active and getting ready for the day. Their liver take some glucose, puts it in the bloodstream and you have to take a little bit of insulin to cover that.

And if you don't you have a lot of blood glucose challenges. A lot of people are very confused about that topic. But my insulin requirement to treat the dawn phenomenon decreases when I'm consistently consuming. I've gone with periods of time where I was consistent, that I wasn't consistent and now I learned you know what, I just have to stay consistent. So I have that on the green hibiscus in that morning smoothie every day and again it keeps my don phenomenon in check.

So that's been powerful. I would love to experiment with those others. I really should. I feel like I'm already so insulin sensitive. It's gonna be crazy to see what happens with those other plants.

But yeah that's what I've done. – And I'll back your testimonial I drink I'm like green.com. That's the U. R. L. Anybody can find it at and I like the one mixed with hibiscus.

So it has both blood sugar and maybe some additional nitric oxide blood pressure benefits. It's delicious. It's a powder, you know it's a cup of tea. It's a very simple cup of tea. It's a very frankly inexpensive product for high how

how high quality and science back. So Thanks for bringing that up.

So let's shift gears in the last critical maybe 10 minutes of this interview you know, I introduced that this is really, you know, what a fascinating discussion you let us into your life and what you're doing today and all the lessons.

But you know, insulin sensitivity versus insulin resistance. You guys have some unbelievably informative videos on masteringdiabetes.org or I thought it was org. Thank you mastering diabetes dot org.

Medicinal Plants and Amla Green

On what is insulin resistance but share with us a little bit Gerald Shulman, a Yale. And why does a low fat diet restore insulin sensitivity? Whether it's a type one, Type two, type one 0.5 overweight individual. That's where we get back to reversing heart disease.

I mean how does a low fat diet? We've heard about it from Dr. Esselstyn and Dr. Ornish and Juliana Ever. And my co host Dr. Joel Fuhrman, how does a low fat diet restore insulin sensitivity no matter what type of human you are? – Okay, I'm going to take us back to the beginning. Okay, insulin was first discovered in 1921.

It was first used in humans in 1922. And Dr. Sansum published a paper in the Journal of the American Medical Association in 1926. The paper was titled the use of the high carbohydrate diet in the treatment of diabetes mellitus. Okay, so we know going all this is this again.

As soon as insulin was discovered, you start to see some papers on this topic and here's what he did. So basically, before there was insulin, Diabetes was pretty much a death sentence. Like they really didn't know what to do.

They were just trying to keep people alive. And so he did what he called, in his own words a radical experiment with 150 of his patients, he started adding in more high carbohydrate foods.

Because now they had insulin, they could they could they could handle this. And what shocked him after adding in bread, potatoes, milk and fruit. Those were the higher carbohydrate foods that were restricted in the past.

What shocked him is that the insulin requirements maintained it's the same. They did not change throughout this approach. And what happened is there were a bunch of benefits.

So these patients got back to normal physical and mental activity. There was no difficulty in managing their blood glucose, they improved their cardiovascular health. The diet was more palatable.

It reduced cravings for forbidden foods and it was cheaper. So this is the beginning of researchers beginning to see, okay, wait a minute. There could be something here and then in the thirties, Dr. Rabinovich published papers in the Canadian Medical Journal Canadian Medical Association Journal, Okay, it's like Jama but for Canada Alright.

And he also started incorporating more high carbohydrate foods. He added fruit, he added bread and he added low fat milk. He added also non starchy vegetables and he kept the animal product consumption to a minimum. He said bacon, fatty meats and fish and cream were forbidden. And this was about 24% of calories coming from fat. About 56 g of fat per day.

So a little bit higher than we recommend. But what he said what he saw was incredible. So people living with insulin dependent diabetes they had less insulin, less injections. Non insulin dependent people did not need to add insulin when they increased their carbohydrate consumption.

These patients they were satisfied with their diet, their blood glucose control improved. They had lower cholesterol levels. And it's important to note that in the paper the quote is he's he fed them a practically isil caloric value.

So they did not see these benefits just because he was feeding them a low calorie diet. And so in his 1932 paper he concludes diabetes does not appear to be due to defective production of insulin but to interference with the

action of normal supply.

Then he did another another paper it was like a randomized controlled trial. He compared to different groups. He concluded this paper saying carbohydrates increase whereas fats decrease the sensitivity of the individual animal and man to insulin. So this is 1935 Canadian Medical Association journal. We are seeing researchers observing clearly in humans that if you lower the fat intake insulin works more efficiently and then this continues Dr. Hemsworth. Okay he published papers in the British medical journal. He was a researcher in the U. K.

He says that a conclusion of a 1934 paper it is evident that on the high fat diet insulin takes longer to act and then acts more slowly on the blood sugar than when the subject is given a high carbohydrate diet. And he did a lot of very very sophisticated elaborate studies that you can't even do today where he would inject insulin into healthy normal weight men. Okay. And then he would publish what was called an insulin depression curve. So he did.

There's this one particular study um published in let's see this one is titled the dietetic factor determining the glucose tolerance and sensitivity to insulin in healthy men.

This is published in clinical science in 1935.

Science of Insulin Sensitivity and Low-Fat Diets

These are small groups of people but still fascinating research when you look at the history of this. Okay so there was one particular study where subjects 87 different diets for seven days and so this took a good chunk of time.

Was very thorough very controlled in a metabolic ward. And I don't know if this is a video or not. And people can see that maybe we can publish some pictures.

Okay well maybe actually I'll give a picture so you can insert and share the screen but the picture is unbelievable when you see he has an 80% of calories from fat diet 69% 58% 47, 36, 25, 13, those are the seven different percent of calories coming from fat. And in the images you see a clear clear distinction into into the size of the depression curve.

So when the subject was fed an 80% fat diet, It took insulin approximately four minutes to work and then it dropped their blood glucose to approximately approximately 85 I think. Okay, then when it was 13% of calories from fat, the insulin started working in two minutes and a drop the blood glucose below 70.

And you can see it improving slide by slide. So he concludes this study. This is Dr. Hemsworth saying it is demonstrated that the efficiency with which a standard dose of crystalline insulin acts on the blood sugar is determined by the carbohydrate content of the diet.

So that the greater the amount of carbohydrate in the diet, the greater the sensitivity of the organism to insulin. And this goes on. I know we don't have time to go through all the history, but. – I mean, I just want to stress every time you say carbohydrate, you obviously could say complex carbohydrate because what we're seeing behind you is obviously not bagels, not cookies, not white bread, not white rice, not sugar. You have to stick, you know to what you guys teach, fruits and vegetables and starchy vegetables.

And I mean, what is it about high dietary fat diets people here all the time ketogenic and maybe high fat versions of paleolithic diets. What is it about the dietary fat that's so toxic to the insulin signaling system?

Or insulin sensitivity? Just tell us how that happens because I think we have at least a theory how it happened. – So you mentioned Dr. Shulman's work and basically what researchers have found is that when you consume excess dietary fat, number one, the biggest offender being trans fat, the second biggest offender being saturated fat and then too much on saturated fat can be a problem as well.

But again, research is very clear when it comes to trans fat and saturated fat, too much of that being consumed ends up getting stored in muscle and liver tissue.

And when you have excess fat in those tissues that blocks insulin from working properly. It's essentially as if the lock has been gummed. So insulin is the key. It's supposed to open the door so then glucose can be ushered from your bloodstream into your cells.

But if that key lock, if it's all gummed up, if the signaling is not work and the insulin being the key cannot open the door, then you have glucose that is stuck in your bloodstream.

And it's really a defense mechanism. Because what's happening is your cells are saying, look, they have turned off the signaling inside the cell. It's called intramayasiler lipids.

They have been turned off the ability for the door to open because what they're communicating is that we already have a bunch of fat in here. We don't need more fuel.

I don't want the glucose. So this is a defense mechanism where your body is protecting itself from getting in again too much energy. And as you begin to a low fat diet, you begin to burn away this excess fat.

All of a sudden insulin sensitivity is restored and you are back to becoming more and more insulin sensitive. That's the biggest component here. But Dr. Kahn we also know there are other components here consuming too much advanced location and products. Okay. From you know, like processed meats, that's a problem. All right.

We know we wrote about this in the book. Access loosen is a problem. Excess sodium is a problem. So, there's a there's a whole component of inflammation when it comes to insulin resistance.

So there are other problems, other nuances. And what we have done mastering diabetes is we have created a program that addresses all of these points simultaneously. And that is why I consider at the beginning of this interview and share how I have some extraordinary high level of insulin sensitivity.

It's because I'm not just doing one thing properly. This low fat plant based whole food diet is not just addressing the fat. It's also addressing excess protein. That's another big one I didn't mention.

Okay, so, it's you could say it's a low fat, low protein um diet as well if you wanted to but it's really more like appropriate protein because in our society we're just having too much and that caused caused a delayed insulin spike.

And again, people living with Type one can see it clearly. But the bottom line here is when you follow a diet that is again, it's low and overall fat. Again, particularly low in trans fat and saturated fat and it's high in water content. It's high in fiber, it's high in vitamins, minerals, antioxidants, low in advanced Caucasian end products, low in excess protein. You put together this package Which not only makes you become more insulin sensitive but starts to give you the energy to want to move your body and then movement, which is an essential component of the mask and diabetes method also improves insulin sensitivity dramatically.

– I think that was like the most powerful 5,6,7 minutes of physiology. And you know everything you're quoting is science and Gerald Shuman of Yale. I mean he did muscle biopsies where you can see these fat droplets in muscle cells, then you can see them diminish in using M. R. I. Scans.

So you would imagine just last couple of questions if we did a biopsy of your calf muscle, you probably would have pristine muscles without those little fat droplets.

I'm quite sure. Don't volunteer to readily for that. – I would imagine. So, you know, – I remember this question. – Yeah. – This is the study I don't believe has ever been done, which is to take 50 people in your program that are really successful type one or type two. And take 50 people in a ketogenic diabetic control program of which there are. And I'll and do a two hour glucose tolerance test, which we're going to hear a little bit more from one of our experts for interviewing that's sort of a routine test in their heart disease reversal clinic. What do you think you'd see in that experiment?

And if you think it's been done correctly? But I don't think so. – I don't think it has been done correctly. I think you're correct. And what you would see, what I would imagine you would see is that the people in the low fat group would show a very, very high level of insulin sensitivity.

Right? Like, they would just be like, again, like, you're looking at my numbers like, wow, like the amount of insulin that they had to Secrete. You know, like it would be a 75 g test.

All right. So, you have to figure out like how much insulin it would just be very clear. They're very insulin sensitive. Not just like average insulin sensitive. You would see they are like, beyond like, Wow, there's something really special going on here now in the other group.

What I would imagine you would see is definitely I think if they're truly following a ketogenic diet and they were sticking to that ketogenic diet up until the day of the test, I believe they're gonna fail that oral glucose tolerance test, They can't handle 75 g of glucose. Now what the low carbon community will say is, well I need time to carve adapt. So if you if you did that study in another way where you gave the low carb group a chance to carb adapt and and basically shift their metabolism. I think if they were if they were at an ideal weight, you probably would see some pretty pretty decent readings.

You wouldn't see anything extraordinary. Like wow, like they're super insulin sensitive. But I don't think you would necessarily see something and saying wow like they're super insulin resistant if you let them carve adapt.

And I think again that's where this stuff gets really, really nuanced and really confusing in the research and so we do know people will improve their insulin sensitivity just by losing weight. So of course you can see the low carb crew, the keto crew seeing improvements just because of the weight loss.

You have to really do some um you know, ice a caloric testing here as well. It would be a lot of nuances to doing so, such a such a paper. But again our position. Again, I love low carb people I have a you know we I think we have a mutual friend who is well known um plant based vegan low carb type one amazing woman like I respect everybody doing that stuff.

I think um our biggest problem in this country is the people who are just apathetic and just aren't carrying it or doing nothing. We have way more in common with the low carb world than we have. We don't have in common.

I love them. It's great. Our position is that look, we don't we don't see the need or the reason or the benefit of perpetually living in a state where you have put yourself into a state of glucose intolerance. Right?

So they would fail that oral glucose tolerance test if they were sticking to the keto diet because they they are adjusting their physiology to be in a place of glucose intolerance. We say look, all the benefits that you can get of being on a low carb diet, whether it's the weight loss, whether it's you know, having more energy, whatever benefits you're seeing out there, you can get the same ones by following a low fat plant based whole food diet and you can become insulin sensitive and you get to choose to follow a diet which has been proven as the diet for the longest lived humans on the planet. The Quetta world doesn't have that research yet.

So they're they're they're like say hello look, well absence of it doesn't mean that it can't happen. I would just prefer to go with the one that's already been proven and stick and stick with that.

– Beautiful, beautiful summary. I agree with you apathy, which is the standard American diet is the real enemy here. And I think you've challenged people so now everybody's stimulated.

They want to go read your book, they want to go to your website, they want to have you and Dr. Cyrus coach and what's the website again? – Okay. The best place to go to is masteringdiabetes.

Comparing Low-Fat and Low-Carb Approaches

org And if you're interested in coaching, you can just click on personalized coaching. You'll get a chance to talk to

an enrollment specialist for free. We want to make sure we can help you.

We want to make sure we're a good fit. We want to get you aligned with the right coach depending on what type of diabetes you living with, depending on your goals.

Do you need to be with a registered dietician? Do you need to be with a certified diabetes care and education specialist? You need to be with the weight loss expert, whatever you need.

We're going to align you with the right person and that's how we help you through our website. – And somebody's thirsty for Amla Green. They're gonna find it the same website or a special website. – They should go to amlagreen.com and absolutely get yourself some alma Green. It is powerful.

It's actually quite delicious and it's an easy way to get started. – And like you said, you can make it into a tea with hot water and you can put it in a smoothie and I'm sure there's other. – Absolutely, you can put it in a dressing, you could add it to any meal that you're cooking, like it's easy to get it in but you want to make it a habit and do it consistently and that's how you see the best results. – Perfect.

Well I gotta say I think this large audience is just rocking with excitement, rocking with information and rocking with respect. Maybe you know you and Dr. Cyrus who I absolutely love you guys are such you know, I think you're celebrated but you are the real bio hackers dealing with not theory dealing now with. I wanna live 280 like some very famous bio hackers talking about, you've got to deal with how my blood sugar is going to get me through the night without coma. And you know you've been very precise and scientific and the bottom line is you're not screwing around, you're serious and you're helping people. So I appreciate that back to you and thank you really been a great foundation for reversing your heart disease naturally.

Thank you Robby. – I appreciate it, thank you so much, Dr. Kahn, you're such an inspiration. I'm so glad to be a part of this. Keep up the great work. – Thank you