Introduction and Speaker Background

Thank you, David, for joining me today. And let me read your intro to everyone. and, again, thank you for being part of the MS and Neuroimmune Summit.

Dr. David Jockers is a doctor of natural medicine. He runs one of the most popular and natural health websites. In DrJockers.com, which has gotten over a million monthly visitors, and his work has been seen on, such popular media as The Dr. Oz show and Hallmark Home and Family He is the author of the bestselling book “The Keto Metabolic Breakthrough” by Victory Belt publishing and “The Fasting Transformation.” He's a world renowned expert in the area of ketosis, fasting, brain health, inflammation and functional nutrition.

He's also host to the popular Dr. Jockers Functional Nutrition Podcast. you know, I love that you are so passionate about ketosis and brain health. that's a, area that's near and dear to my heart.

so with that, did I miss anything in your intro that you want to, bring up? No. That's great. Thanks so much for having me. It's an honor to be on with you.

And I'm so grateful that you're doing a great summit like this. So a lot of people out there that need help, and you're a leading voice, obviously, when it comes to reversing multiple sclerosis or really healing.

I mean, your story is amazing and you're giving hope to so many. So thanks for having me. Well, thank you. Let's talk about why blood sugar matters so much to the brain.

Yeah. Absolutely. So the so the brain is going to run off of two main fuels okay. The primary fuel is glucose. That's what we call blood sugar. It's blood glucose.

The brain can also run off of ketones. And we'll come back to that. But the brain is so metabolically active and it's constantly gobbling up glucose in order to create cellular energy.

Why Blood Sugar Matters for Brain Health

And when that glucose, you know, it should be kind of in this sweet spot range. And when our blood glucose goes to high, we call that hypoglycemia. Hypoglycemia the blood the glucose molecules will actually bind to proteins in the blood.

And they'll create something called advanced glycation end products. Or we use the acronym Ages Advanced glycation end products AGS. What do you think that does to us ages us right.

Because these sticky proteins actually will damage the endothelial lining, the internal lining of the blood vessels and create poorer elasticity of the blood vessels will create plaque formation, which restricts the amount of oxygen that we can get to all the major areas of our body and including our brain.

So it's going to have a big impact there. And this is why people with uncontrolled, hyperglycemia or diabetes, what happens to them? They end up with congestive heart failure.

They end up with Alzheimer's or dementia or optic neuritis, where they damage the nerves going to their eyes, or peripheral neuropathy, where they can't even feel their feet because the nerves have been so damaged by these advanced glycation end products or kidney failure.

And so it's so important that we keep that blood sugar under control. So the body uses a hormone called insulin in order to do that. And Insulin's job is to take the glucose out of the bloodstream and get it into the cells, where it can

be used for energy.

The more that we're triggering our blood glucose to go up, the more insulin we need. And ultimately the cells can only produce so, so much energy. And when we're using glucose as an energy source, there is, you know, a byproduct of that is a lot of free radicals, what we call oxidative stress.

So there's internal rusting of the cell and of the mitochondria. When we're using glucose now under normal conditions, totally normal. You know, all metabolic activity has some level of oxidative stress.

And under normal conditions it actually primes our body. We get actually more endogenous antioxidant defense systems to help work with that. However, when we're constantly elevating our blood sugar and our insulin, we are overloading the system, the cell, with glucose producing high levels of oxidative stress, driving up inflammation, and then the cell to protect itself.

It becomes more insulin resistant. So now we need more and more insulin to get the sugar out of the bloodstream and get it into the cell. And it's almost like, you know, if I were to go over your house, Terry and I'm knocking on the door, first time, you're like, oh, somebody at the door, you come over there.

But, you know, like, my kids have young kids, so they'll play games or they'll ring the doorbell or they'll knock on the door. I'll open it and they run off it.

And so over time it's like, okay, the boy who cried wolf, it's like, okay, I'm not I'm not listening to that anymore. I know they're trying to play a game with me.

It's kind of the same thing. The cells stop listening to the message of insulin, and now we end up with higher and higher blood sugar, higher and higher insulin levels.

And before we get to the hypoglycemia, we end up with high insulin and insulin resistance. You know, we can call that prediabetes or, you know, even before it gets diagnosed or prediabetes.

If you're testing fasting insulin, you'll see it elevated. And the problem there is that the more insulin we're producing, insulin also is a precursor to inflammation.

So higher levels of insulin, once it gets up over a certain threshold, we're going to we're going to produce more inflammation. And insulin stops fat burning.

So when insulin elevated beyond this certain threshold we're not going to be able to burn fat for fuel. And that's really important. Now let's talk about the flip side of blood sugar, which we talk about hypoglycemia.

And I'll talk about hypo or low blood sugar. So for some individuals if we eat, you know, a high carbohydrate meal like this is the way that I was growing up.

My breakfast growing up was a bullet. Cheerios, skim milk, banana, and maybe a cup of orange juice. Right. And so there was very little fat, not a whole lot of protein.

All of those things were high glycemic. So my blood sugar would go way up. My body would produce a lot of insulin and drag that blood sugar down. So I'm getting the glucose into the cells.

It's being used for energy. But now my glucose goes way down and so two hours later, here I am and, you know, high school English class. And I feel exhausted.

I'm tired, I can't focus, I can't concentrate because I'm not getting enough glucose into my brain, and my body can't burn fat because my insulin is elevated.

And that's that's key, because if we don't have enough glucose, the brain needs ketones in order to, to produce

energy. Ketones are a most of the cells can use fatty acids for energy.

But the brain we have a blood brain barrier. Fatty acids are very large. And we can't we can't get enough of the fatty acids across that blood brain barrier.

So what the body does is the liver will actually take fatty acids, convert them into a small chain, water soluble molecule. We call that ketones or beta hydroxy butyrate is kind of the most well well known ketone that crosses the blood brain barrier, gets into the brain.

It can be used for energy in the brain, but it also has epigenetic modulate eating effects. Right. And in a sense, it's like a messenger molecule as well where it dampens brain inflammation, neuroinflammation, which obviously is really key with this.

You know, the the what we're talking about today. And so it turns down overall inflammation in the brain. It also helps to balance what we call the the glutamate to Gaba ratio.

Glutamate is an excitatory neurotransmitter kind of like the gas in the brain. Gaba is the brakes when we have inflammation in our brain, because one of the mechanisms for inflammation in the brain could be poor blood sugar regulation, we're going up and down with our blood sugar can drive up inflammation.

Well, the ketones in the brain will help to balance the inflammation. And also when we have chronic brain inflammation, we end up with a poor glutamate to Gaba ratio.

So we end up with more glutamate. So we're stepping on the gas more and we're not getting enough breaks right. So that's going to be disruptive in the brain and can can result in anxiety irritability cravings depression things like that.

So ketones really help to balance that. But if we don't have that like for me growing up, I would get really exhausted. I would get really thirsty. I couldn't focus, I couldn't concentrate, and this is combat hypoglycemia.

Most people, you know, when we think about hypoglycemia, we think about the hangry symptoms, right? We're hungry and we're angry, irritable, right? We have cravings.

Some people don't get hungry, they get nauseous. Right? Or they have a headache or something along those lines. So we need and what's actually happening there is when we don't have enough fuel, we don't have enough glucose or ketones in the brain.

The neurons can't produce enough energy and they start to die. And when they die, they actually spill out contents that almost in a sense, will over excite.

So it's called neuro cytotoxicity. These neurons will over excite the neurons next to them, creating almost like a domino effect of neurons actually dying in the brain.

So this is really problematic because we don't want to kill off these neurons.

Stabilizing Blood Sugar Through Diet

I want to stop here a little bit. Yeah. Let's come back. We've talked about blood sugar stability, and how important that is. and so everyone who's listening here, if we want to have a stable blood sugar, does that mean I'm supposed to be eating carbs all day long to keep my glucose stable, or is that a problem?

What's what's the worst food that, what would drive this, blood sugar instability? Yeah, and that's a great question. A lot of people would think that.

And for a lot of people, you know, you know, especially growing up in the 90s, people used to say things like eat six

meals a day, six more meals. You got to keep that blood sugar, right?

You gotta just keep priming the blood sugar. The problem there is every time we eat, especially if we're eating higher carbohydrate, higher glycemic foods, we're going to get, we're going to really boost up our insulin levels, okay.

And ultimately over time, if we're doing that, eating a lot of processed types of foods that are have a high glycemic index or a high glycemic load, glycemic index means you eat that food.

Your blood sugar goes up quickly. Okay, now, it may not stay up, you know, for a long period of time. That's what we call glycemic load. Glycemic load is a food that we eat.

And it doesn't. The our blood sugar doesn't go up quickly, but over time it goes up and stays up. And that's causing a, a consistent elevation of insulin.

The more insulin we're elevating, the less we're able to burn fat. And we get more what we call metabolically inflexible. This is a key term. Metabolic flexibility means our body's good at burning both glucose and fat and ketones as energy sources, depending on where the insulin is for insulin is a little elevated, like after a meal kind of normal.

you know, we're going to have a little bit more insulin. Even if we have a low carb meal, we're going to get a little bit more insulin after a meal. Good.

We're good at burning glucose during that period of time. But then an hour or two hours after the meal, insulin goes down. Now we turn into fat burning, right?

We're creating ketones and we want our body to be really good at shifting back and forth between using glucose, fat, and ketones. and how how do we help our body get more effective at moving between fat and ketones?

Yeah, a couple things. So from a nutrition perspective, you know, three big, three big changes to begin with, I always recommend reducing sugars and grains and just overall processed foods.

You know how many people are out there. They're eating crackers chips right. All kinds of stuff like that. Pretzels. These are all very high glycemic processed foods, cereals in the morning like I was talking about.

Those things are going to drive up your blood sugar, drive up your insulin levels. So we want to reduce sugars and grains. Number one. Number two is we want to get rid of bad fats.

So it's going to be all of our processed vegetable oils corn oils soybean oil, safflower, cottonseed, peanut, canola oil. Those oils are highly processed.

And they create they drive up inflammatory activity in the body which will cause more insulin resistance. with the cell. Right. They actually will get into the cell, and they'll cause problems with insulin resistance and drive up overall inflammatory oxidative stress and inflammatory activity.

So that's number two. And the number three is doing our best to try to reduce toxins in our food where our toxins coming from. Well they're going to come from things that are highly sprayed with pesticides herbicides and then animals that are eating foods that are highly sprayed with pesticides and herbicides.

So I would say do your best to try to get like with animal products, grass fed, organic pasture raised with your fruits and vegetables, your produce, trying to get organic as much as possible.

You know, the environmental working group has a list of dirty dozen, right? The one the foods, the produce that's most highly sprayed with these chemicals.

These chemicals drive up inflammation. Anything that's driving up inflammation is going to cause issues with blood sugar and insulin resistance. Typically, the general rule with with produce is if you're going to eat the outer layer of it like a berry, for example, you want to get it organic.

If you're going to peel the outer layer, think about an avocado or a banana, okay, it's got a thick peel and that's harder for pests to penetrate. Therefore there's less chemicals used in that.

Not as important to get it organic. So when you're looking at that anything you're eating the outer layer really do your best to try to get organic as much as possible.

That's going to reduce your overall toxic load, reduce inflammation in your system. So that's kind of where we start. But then when we set up a meal plan, I always recommend with your meals, you want to focus on protein.

So I recommend 30 to 50g of protein in a meal. And it seems like a lot. And if you are, if you're a child or if you're maybe under 120 pounds, you might not need quite as much as 30g.

Maybe 2020 five grams would be fine, but we want to hit what's called our leucine threshold, which the average individual hundred and 50 pound person, you know, the the leucine thresholds, roughly about three grams.

Leucine is a branch chain amino acid that stimulates muscle protein synthesis. And so we want to help build lean body tissue. Most proteins are roughly about 10% leucine.

If you're looking at like collagen protein or bone broth protein, it's very low in leucine. So I don't count that. but like your animal protein means your plant.

If you're doing like a plant protein powder or something like that. those are going to be about 10% leucine. So you're going to get 30g, you're going to get about three grams of leucine.

That's roughly the leucine threshold depending on you know, how much you weigh. And so we want to do that. And also the protein really helps with satiety.

So muscle protein synthesis you also get satiety meaning you feel more satiated. And it helps balance and stabilize your blood sugar. Now we also want to pair that with healthy fats.

I recommend at least 15 to 30g of healthy fats. And it's going to depend on how well your body digests and metabolizes fats. I can do a lot. I typically two meals a day, very high protein, high fats, lots of colors.

And my my my food. You know, it's kind of third principle get lots and lots of phyto, nutrient rich, rich fruits and vegetables, lots of colors. And I'll go into that in a second.

But I can handle high amount of fat in a meal and feel great. Other people, they 2020 five grams of fat and because their, their, their bile ducts in their liver are so congested, or maybe they've had their gallbladder taken out, they get nauseous, they don't feel good. Right?

So you got to kind of find your fat threshold. Most people that I found do fine with 15g, 15g of healthy fats. And if you can get a little bit more great 2025 30g of healthy fats in the meal, great!

Where are healthy fats coming from? They're going to come from your grass fed, pasture raised animal products. Your wild caught fish. They're going to come from extroversion.

High polyphenol olive oil. avocados are a great source. Coconut oil. So they're going to come from those things. And so typically your proteins, unless you're doing like chicken breast okay.

Then you want to kind of cover it with olive oil right. Put some olive oil with it or guacamole. Most of it like your grass fed meats and stuff like that.

You're going to have a good pairing of healthy fats with the protein, right? So once you kind of get the idea of, hey, what does that look like, 30g of protein, 15 or 30g of fat in a meal, and you kind of understand how to set your meal up.

And then from there you just cover it with, you know, healthy, phyto, nutrient rich fruits and vegetables. Right. Lots of colors. I know you're a big fan of, you know, things like onions.

you know, mushrooms can be really beneficial. Dark green, leafy, you know, all the vegetables that you tolerate the best, right? If there's certain vegetables you eat, you don't feel as good.

Take those out. There's plenty of other things. Right. And so you focus on those. Everybody has a little bit different fiber threshold. Some people, they thrive on real high fiber.

Other people can't handle as much fiber. Right. They don't do as good with fiber. So try to find your fiber threshold. Just kind of like I was talking about that kind of experiment a little bit.

See what your fiber threshold is. you know, for most of it's going to be kind of in the middle, right? which the middle is probably going to be 15, you know, 15g or so in a, in a meal.

Right? Something like that. 10 to 15g in a meal. So, that's basically what you're trying to do, trying to get a lot of nutrients, high nutrients, low toxins, really prioritizing protein and healthy fats.

That's going to help stabilize your blood sugar. From a meal planning perspective. A lot of other things we could talk about, too. Okay. Thank you so much for joining us today, and I hope you found our conversation with David insightful, engaging.

And if you're a summit purchaser, stay right here. Because we're about to dive in even deeper into this wonderful conversation. And if you're not, click on the button below or to the side to get access to a world of information.

Get ready to reclaim your health. Now, if you're watching this, thank you for being a valuable member of our community. Let's dive in and keep on going.

Now let's let's talk more about fasting. because I know that is part of your plan as well, David. So, walk me through your fasting pattern and then I'll, we'll compare notes.

I'll tell you a bit about, what I'm doing. Yeah, for sure. So I think the prerequisite, you know, before we start getting into more in-depth intermittent fasting, I think everybody can do 12 hours overnight.

So you finish your dinner at 7 p.m.. You don't need anything with calories till 7 a.m. in the morning. If you want to drink herbal tea, that's great. If you want to do like black coffee and you feel good with that, that's fine.

Hydration is good.

Intermittent Fasting and Metabolic Flexibility

However, as we start to kind of advance beyond, let's say, 12 to 14 hours, I always recommend trying to get your sleep dialed in, like get really good night's asleep, keep your stress under control because intermittent fasting is one of the most powerful healing strategies.

I really think it's a most powerful healing strategy known to mankind, but it is a stressor on the body and if your body's already overwhelmed with stress and you're not sleeping at night, adding one more stressor could actually be, you know, at that period of time that seasonal life could actually, cause more issues.

And so let's get your sleep dialed in. Let's get those meals like I was talking about. Get your blood sugar stabilized. When you do that. Now your blood sugar is stable.

Now fasting becomes less of a stress. Okay. If you're eating lots of processed foods, high glycemic foods, and then you try to do intermittent fasting, it can be a major stressor because your body's just it's in a state of such blood sugar dysregulation that it's it becomes more stress stressful.

So I recommend hey, take two weeks, you know, do an overnight fast 12 to 14 hours somewhere in that range, hydrate in the morning and then make sure we get the meals set up right, just like I was talking about.

Make sure we're doing everything we can to help support good sleep and keep stress under control. And then let's start really kind of pushing into intermittent fasting a little bit more.

And the reason why is that intermittent fasting turns on it. It brings insulin down. And when insulin gets down under this critical threshold, our body says the innate intelligence within us says, okay, now it's time to heal and repair.

We're not in a building phase. Insulin is a building hormone tells us to build cells to divide, store fat, store glycogen. Right now we now we go into more of, in a sense a catabolic but a healthy catabolic state.

where the body says, okay, now we're going to burn fat for fuel. We also need protein and amino acids. We're not getting them from our diet because we haven't eaten in 16 hours or 18 hours or whatever it is.

So I'm going to go into the cell. I'm going to find the mitochondria that are senescent. And this is kind of a term we use for an age damage. Dysfunctional mitochondria.

Mitochondria produce all the energy in the cell. The health and stress resilience of the mitochondria dictate your overall quality of life. If you're if you have a lot of these older, damaged, senescent mitochondria that are just clogging up cells, they're not they're not going to produce the energy they need, and you're not going to feel good, right.

You're going to more inflammation. You're going to be more tired, more brain fog. Right? A lot of different issues like that. So the innate intelligence says, you know, these mitochondria are really not serving us well, but we do need the amino acids.

So we can actually recycle this and actually create something healthy from it. So it'll break down those senescent mitochondria and turn them into new healthy, stress resilient mitochondria.

We call that Mitford G. And it's kind of like a subset of what we call autophagy, where the body breaks down all these different cellular organelles, takes the raw material, raw materials, and rebuilds them.

This is one of the most powerful things our body does. And so getting into a fasted state is the is the primary trigger for autophagy in my autophagy, because we have to get insulin down insulin.

As long as it's elevated, we're not going to undergo my autophagy and autophagy, at least not at a level that's going to give us any real significant health benefit.

So for me personally, I typically eat my meals in a in a six hour eating window. I usually eat two meals a day. Sometimes I do a lot of resistance training.

So every now and then, you know, I will eat like a small snack in between, high protein snack in between. But typically it's two meals a day. Usually first meal is between 1 and 2 p.m., and then dinner is usually between 6 and 7 p.m..

Something along those lines. one day a week, I do a 24 hour fast. It's usually lunch to lunch. Wednesday I eat lunch and I fast till Thursday at lunch, and then I'll actually break my fast with strength training first, and then I'll eat, you know, eat food.

And then, you know, especially on Thursday, I'll probably eat like a protein shake when I finish. And then, you

know, a maybe a salad with, with, some grass fed beef or something like that a few hours later and then a good, healthy dinner.

and that's kind of typically how I'll do it. and then that longer fast really gets me into a deeper state of autophagy. I mean, I feel it like my brain feels great.

And when I'm doing this on a consistent weekly basis, I feel amazing because my body's good at getting the ketones. I'm metabolically flexible, so I get the ketones elevated.

And I really notice that when I'm doing the 24 hour fast, that my ketones are elevated in my brain and my brain feels fantastic. And I actually have tons of energy for my workout, even though I've been fasting 2320 four hours.

Usually feel great for my workout. Great strength performance because human growth hormone. When we are fasting, our insulin goes down and insulin to some degree is like an antagonist to a hormone called growth hormone.

Growth hormone helps us preserve lean body tissue. So as insulin goes down, human growth hormone will go up. And that and that tells the body, okay, hold on to lean body tissue.

So bone tissue and muscle and burn fat. And when HGH is elevated and ketones are elevated usually have tons of energy. And I feel great when I'm when I'm working out feel really strong and feel fantastic.

And so that's typically how I'm doing it on a regular basis. My meals, just like I talked about, I don't, you know, for the most part because I'm very active.

I don't eat super low carb because I'm active. I eat a lot of fruit. So, I'll put some berries in my protein shake, okay. And then after dinner, fruit is like my dessert.

So for me, you know, I eat, you know, a great meal. you know, my favorite desserts are like, unsweetened Greek yogurt with, with some, like, stevia flavored protein powder, strawberry protein powder in it.

And, you know, I'll eat an orange or berries. I love strawberries, right? So I'll eat strawberries or we'll we'll get a pineapple, you know, and this is actually like, if you ever eat pineapple and they rip you off, if you buy the precut pineapple, you want to get the whole pineapple and cut it up.

And it's like you get so much pineapple out of I love pineapple so it's higher sugar. But if you're very active, okay, it can be part of a healthy lifestyle.

especially if you're able to do intermittent fasting. And one way that you know that you're consuming too many carbs, or maybe too much fruit is if intermittent fasting is hard, if you're getting a lot of cravings, your energy is going down when you're trying to do intermittent fasting.

It's not the way it's supposed to be. Might be eating too many carbs, maybe not enough protein. Kind of look at those macros and see kind of where you're at with that.

Or if some people, they don't respond well to coffee, some people are doing coffee in the morning, but the coffee's actually driving up their insulin. Right.

And they're not feeling good. So, you know, when you drink coffee, you should feel great, right? Like coffee is like a performance enhancement. If you don't feel great for the next few hours after drinking coffee, you're not responding well.

Might be the coffee. It might be you just not responding. Maybe not metabolizing the caffeine. Well. Or, you know, there might be mold or mycotoxins in the coffee, or you just have a sensitivity to coffee.

or maybe you had too much caffeine. So these are all things that, you know, you kind of want to figure out for yourself and kind of personalize this routine.

But, yeah, intermittent fasting is a phenomenal tool. So how are you doing? Intermittent fasting. so it my practice I have people start with, time restricted eating.

Yeah. And gradually, reduce their eating window. and I typically have one meal a day, and I will, like you, occasionally go 24 hours a day. you know, if for several years I ate one meal a day every other day.

but I lost too much weight. Yeah, like, okay, I have to go back to eat more. Yeah, yeah, you gotta watch out for that as well. You do have to watch your weight.

No, I want to speak specifically to, the five two plan for intermittent fasting. because that's another way of doing that. can you comment on that? Sure.

And there's a couple of ways of doing the five two plan. Five two basically means five days. You're eating, you know, multiple meals and two days you're basically eating either nothing or you're eating one meal a day.

There's a couple different ways of doing the five two plan. So you might do a 24 hour fast those two days a week nonconsecutive days. So like let's say Monday and Thursday or something along those lines.

Maybe you just eat dinner on those days and then the other days you're eating typically 2 or 3 meals, right? And let's say an eight hour eating window.

I would say most people that are doing intermittent fasting or time restricted feeding are doing like an eight hour window. That tends to be like the most popular, most common way.

you know, for a lot of people it works out with their schedule. They just, you know, for most people, their schedule, schedule from a schedule perspective, they will, fast through breakfast and then they'll eat lunch at lunch, you know, they'll say 12:00 and then they'll, you know, finish dinner 7 or 8:00 somewhere, somewhere along those lines.

So most people are doing something along those lines. Now, there's research that early time restricted feeding it's healthier makes sense to me. It's just a little easier on your circadian rhythm.

But it's just tough for some people to kind of get into that habit. And dinner tends to be a very social time. Family time. but for me, when I do my 24 hour fast, I like to do it lunch to lunch.

Right? And I still will make dinner for my kids. And, you know, my family a lot of times. and I'm so, you know, once you get really metabolically flexible, it's honestly not hard to, you know, the only issue is if I'm making dinner, I can't taste it, right?

I don't taste it. But other than that, like, I'm not craving anything. I actually feel good. I know, like, my body's like, great, I need this reset. and so it feels good.

So, but, you know, the five two plan is a phenomenal strategy, a great way to bring down inflammation in the system, because you're getting two of those 24 hour fasts and especially if you're looking to lose weight, okay, you can extend that to 36 or 40 hours.

So let's say on Mondays you just don't even eat all day. You eat dinner Sunday night. you don't even eat all day Monday. Right? And then, you know, you can wake up and on Tuesday and and eat right, or eat an eight hour window or something like that on Tuesday.

And that really is going to stimulate more autophagy, more fat burning, more ketone production. And it's a great way to get the weight down, get inflammation down.

So if you're you're out there and you're like, okay, I really you know, I need to lose 20 pounds. I feel I feel inflamed. I just really don't feel good.

Once you do the prerequisites right. Get your blood sugar stable, get the sleep right, get stress under control. you know, start with time restricted feeding, like Dr. Terry was saying there. Okay.

And then once you kind of get in a good regimen there, then it's a great way to experiment with doing something like a 36 or 40 hour fast twice a week, but nonconsecutive days, you know, so you're feed, right?

And then a few days later you do the same thing. And there's been a lot of people, I mean, I mean, I know you've worked with a lot of people. I've, I have as well, or a lot of people are like, man, I never want to go back.

Like, I just feel so good, following this sort of eating plan so it can have really dramatic effects. You know, everyone who's listening, I want. The other thing I want you to know is, at least in the animal models, the these fasting powders also stimulate the release of stem cells into circulation.

and, that can be very helpful for mean. I think that's why in our, clinical trials and in our, patients, we see them typically using, 5 to 10 years in that first year that they're working with this.

Is that what you're seeing David? Yeah, it's it's really powerful. I mean, you can in a sense, right. And what I'll tell people is like, hey, if you really get this dialed in, you know, a year from now, right, start now, a year from now, I mean, you're almost an entirely new cellular being because your body's getting rid of all of these damaged and inflamed cells.

So the body, when the our innate intelligence, when we have damage cells, okay. The innate intelligence trying to figure out is this cell repairable or is it beyond repair.

And so once we get that insulin down okay, ketones start elevating in the bloodstream. Now we kind of go into this this mode where we can start repairing these cells.

So the ones that are repairable we go through autophagy and my autophagy, the ones that are not repairable. We go through something called apoptosis. Now the body doesn't really want to do Apoptosis unless it needs to, because apoptosis can create more oxidative stress, more inflammation in the system.

But we got to get rid of these dysfunctional cells. And when we do that then the body replaces them with stem cells. So that's the trigger for the production of stem cells.

So and of course you know apoptosis if you're out there and listening and you're into the natural health world, you probably heard of that. You know, in terms of cancer okay, a lot of cancers, you know, there's genetic damage and things like that where the body's lost the ability to undergo this programed cell death to say, pop ptosis.

Well, this is what happens when we get the insulin down. We get into this sort of fasted state. The body's going to find cells that are just so beyond repair.

We got we got to just kill those off. Okay. And then we'll replace them with these stem cells. That's why stem cells start to rise. And then the other cells let's just repair them okay.

So they're almost like a you know they're still very stress resilient. We want as much healthy, highly functional stress resilient cells as possible. I use that term stress resilience all the time.

Because all of our cells are constantly undergoing stress. We want cells that are going to be able to be resilient under that stress, okay, where they can adapt to it and still be able to perform all of their functions at an optimal level.

And so this is really what this process helps us get more of these stress resilient cells. Well, that is really the perfect

place to wrap this up because I think we're all wanting, to be stress resilient, to be healthy and to be vital.

this was, just a wonderful, wonderful, interview. David, can you tell our, listeners again where they can find you? Yeah. Best place is DrJockers.com.

That's my website. I have tons of content on autophagy and fasting and infographics. And of course, I have a great podcast as well, the Functional Dr. Jockers Functional Nutrition podcast, on YouTube social media.

So you can find me anywhere. Okay. Thank you so much. Thank you Dr. Terry, I appreciate you.