## Summit Introduction and Guest Bio

Hey, everyone. Welcome to the Reversing Type 2 Diabetes Summit. I'm your host, Dr. Beverly Yates, ND It's my distinct privilege and honor to interview a wonderful colleague of mine, Dr.

David Jockers. He's been a leader in many aspects of health and continues to help people have clarity about their health. One of the things that's so interesting as we do all the episodes here for the summit is I'm trying very consciously.

We give people different points of view and different aspects of what it takes for Blood Sugar success to be well. So with Dr. David Jockers, we're going to introduce him in just a moment here.

He's a doctor of natural medicine. He runs one of the most popular health natural health websites online and drjockers.com. And he's gotten over a million views from monthly visitors.

And his work is really popular. It's been seen on shows like the Dr. Oz Show and Hallmark Home and Family. He's the author of the bestselling bookThe Keto Metabolic Breakthrough and also the Fasting Transformation.

He's a world renowned expert in the area of ketosis, fasting, brain health, inflammation and functional nutrition. He also hosts his popular Dr. Jockers functional Nutrition podcast.

Be sure to look up his work. Check out what he's offering. Dr. Jockers, welcome to our summit. Thanks so much, Dr. Beverly. Great to be with you. Yeah, you know, I'm really excited for our talk because I think that there are so many ways in which people can eat and nourish themselves.

And some things are certainly more helpful or successful when it comes to blood sugar control and glycemic regulation than others. So with that in mind, let's dig in right away here.

So please, if you would, share with us your perspective here. What is inflammation and how does it develop? Yeah, inflammation is just a natural process of healing.

In fact, it's actually designed to help protect our body from some sort of chronic systemic infection. And so well, not chronic infection, but some sort of systemic acute infection from killing us quickly.

And so I think we look at the history of mankind, more people have died from infections that got into our bloodstream.

## What Inflammation Is and How It Develops

Bloodstream spread throughout our body, went into major vital organs and killed us, is what used to kill most of our ancestors. And so our body has created this inflammatory process to help protect against that.

So the infection that gets in doesn't get into our lungs and caused pneumonia or our nervous system. It caused meningitis. And so in order to do that, we created this inflammatory process to keep basically infection under control.

And it's also part of the healing process. We break down damaged tissue and we try to remove that in order to build new healthy tissue. So, for example, if we sprain her ankle, we're going to break down that tissue and try to rebuild new healthy tissue in that in that area.

So inflammation itself is life saving. The issue is that it should be turned off when the appropriate area is healed.

And so in our society we have certain vectors that are turning up inflammation.

For example, one one is called leaky gut. So when somebody has leaky gut, there's damage, micro damage to the intestinal lining. And every time that person's eating food, particularly food that causes more gut irritation, they are further tearing that that gut lining and they're not really allowing their body to heal properly.

And therefore they're spewing out bacteria and endo toxins into their bloodstream through that lining through that hole. And that's driving up inflammation in the body because the body thinks that it's under attack from some sort of systemic infection or some sort of, you know, basically an infectious process that could be life threatening.

And so we've got to do what we can to get inflammation under control in our society. And so I think about it like a fire in a fireplace. You know, if the fire is on in the fireplace, it's great.

It warms the house. You know, it's it creates a great a great, great environment. On the ash. However, when we dump gasoline on the fire right now, it spreads on the walls and starts to burn our home.

And obviously that's when it's a major issue. And so in our society, we have lifestyle habits that are dumping gasoline on the fire and causing us to burn up our home.

And we just don't really understand it. We don't realize that's actually what we're doing to our body. And then we later, you know, after doing this for years and years and years, we get diagnosed with the chronic disease.

But this is many years of chronic inflammation, damaging cells, tissues and organ systems of our body leading to, you know, that that that disease diagnosis.

Absolutely. Absolutely. Thank you for laying that out. So clearly, you know, it's so interesting excuse me, in clinical work sometimes it comes up. People are like, this just happened to me overnight thinking that their body has attacked them or betrayed them and that their diagnosis has come on all of a sudden when in reality, nope, this was years in the making.

So thank you so much for pointing that out for us. So anyone listening to this, if you have an inflammatory problem, please know it took time for it to develop and it will take some time for it to heal.

The good news is if healing is possible, that it's likely to be a lot faster compared to the silent onset process. It's like, too bad. It would be great if our body, as we get more and more inflamed, gave us a sound or a noise.

Or maybe we turned polkadot in or something so we could know that something's going on here, you know? Yeah, for sure. And many times people do have chronic symptoms that are giving them a warning sign.

We just don't we just ignore it in our society, right? It's kind of like a check engine light goes on in our car. You know, typically we know, okay, I need to bring this in and, you know, get it looked at.

But, you know, in our society, if we have headaches, chronic headaches, if we have chronic gut pain, if we have chronic joint pain, if we have skin rashes, acne, eczema, if we are gaining weight and we try some lifestyle strategies and we're just not losing weight.

Right. If we're having a lot of these conditions, insomnia, I mean, we can go on and on in our society. Oftentimes the first thing we do is we go right to some sort of medication or we try to just ignore it.

It's like we just let the check engine light stay on, or we take some duct tape and just kind of stick it over it and pretend that everything's okay with the car.

And that's really what we're doing. We're not actually getting to the root cause. Exactly. So that brings me to my next question for you, which is this What are some of the root causes of inflammation and how can this be measured quantitatively with lab testing?

Yeah. So when we look at root causes of chronic inflammation, one and this is what you're really addressing in this summit is a diet and lifestyle that is is not right.

## Root Causes of Chronic Inflammation

Right. So high blood sugar and insulin resistance, it's primarily driven by the food that we're consuming and lack of exercise, Right. Lack of movement, food that we're consuming.

Obviously, stress plays a role so high stress, poor sleep hygiene and poor sleep quality, sleep quality is super important. We got to make sure we're sleeping really well when we are sleeping, but also proper hygiene when it comes to sleep.

That plays a big role with our sleep quality. For example, shift workers, they might sleep eight or 9 hours, but because they're sleeping at the wrong hours that are not right with, you know, humans natural circadian rhythm or we're supposed to be sleeping at night, they tend to have higher levels of blood sugar and insulin resistance compared to people that are sleeping the same amount of hours and working kind of a normal shift.

And then sleeping overnight. So those are major factors. And then beyond that, we have things like chronic infections. So we know that when we have different infections, whether it's a Candida overgrowth in our gut, small intestinal bacterial overgrowth, pylori infections in our stomach, parasite infections, Lyme disease, things like that, that all drives up inflammatory processes in our body, chronic overload of toxicity.

All of us are exposed to chemicals in our air, water and food. So all of us have levels of toxicity coming into our system. But if our drainage and detoxification pathways are working properly, we should be eliminating a good amount of those and keeping our toxic bucket under control.

Right. And so we all have kind of like a toxic threshold. And so if we keep things under that threshold by keeping, you know, by by limiting our exposure to toxins and then by allowing our body to detox and drain effectively, then, you know, that doesn't drive inflammation.

However, if we're consuming lots of toxins from the food we eat, the air we breathe, the things we're putting on our skin, the water we're drinking, and then we're not doing things to help improve our lymphatic system, our liver, our gut, our kidneys.

Right? We're not we're not peeing. You know, we should be urinating, right? We should be peeing out toxins. We should be breathing them out. So respiration, perspiration that's sweating, urination and defecation.

Right. So we should be peeing, pooping, breathing and sweating out these toxins. If we're not doing that, then our toxic load goes up, goes over that threshold, drives inflammation in the body.

So toxicity is a big factor. You know, I mentioned stress. There can also be things like post-traumatic stress disorder, right? So where somebody has had major trauma and their body never really recovered from that trauma and they're kind of reliving that trauma, maybe somebody that was a war veteran or perhaps they were sexually abused or something along those lines.

Right. They may relive those traumas on a regular basis, driving up inflammation in the body. So all of these things need to be addressed and and considered.

Somebody might be living in a mold. Toxic house. Right. And breathing in mold and mycotoxins on a daily basis. They're trying to live a healthy lifestyle, but they're constantly overloading their their system with toxins.

And so we've got to be able to look at all of those factors and make sure that we're addressing those. Keep inflammation under control. Now, when we're measuring inflammation on labs, there's some easy labs that we can look at.

You know, you can get done on bloodwork, for example. One of the most common is high sensitivity. C-reactive protein. CRP is a protein that our body, our immune system produces in response to inflammation.

And, you know, so long as you don't get a false negative, like if you work out really intensely right before you get your blood test on your CRP will be through the roof.

That's actually a healthy level of inflammation because after we exercise, we have inflammation to help our body heal and recover. So normally you want to not work out roughly 48 hours before getting the test done, ideally at least 24 hours.

So you get the right measurementand your HSCR should ideally be under one and really as close to zero as possible. And so typically it's not flag tie unless it's up over two or three somewhere in that range.

But anything over one is a sign that there's underlying inflammation there. And that's something that we definitely want to look at and address. So that's a big factor.

You know, I know in this in this summit, I'm sure you've got people talking about things like hemoglobin, A1, C, you know, hemoglobin A1, C, that's a sign of the glycation process.

Or basically when a sugar molecule binds to a major protein, like in this case, when it binds to hemoglobin major protein, that helps bring oxygen to the cells in the body and denature is the hemoglobin.

And so it causes a sticky protein process. So we should have ideally like the optimal range really is, is really under, under 5.2 on the hemoglobin, right, 5.2% under.

And so typically in our society nothing is flagged until it's up over six, right up over 6%. I like to keep mine under five. Right. Right between 4.5 and five.

Some are in that range to make sure that my hemoglobin in my red blood cells have great capacity to bring oxygen to the cells so I can create the cellular energy I need to really thrive.

So hemoglobin A1 sees a really good marker. There's another one that actually that you can test to. It's it's it's called a novel marker for systemic inflammation.

It's called like a right. And so it's also a marker of glycosylation and again, a sugar molecule binding to proteins. In this case, Glycan looks at proteins, particularly involved in the immune system.

And so when that's elevated, I like to see it between 103 hundred somewhere in that range, more closer to 100 when it's up over 300. We know that's a sign of systemic inflammation.

In fact, there are some individuals that will have normal hs-crp but will see the like elevated. And so that's a really good it's a novel marker. They've just been doing a number of studies on that, really starting just in the last five years.

Very interesting marker. We know, for example, statin drugs will have a cholesterol lowering medications, can have a mild anti-inflammatory effect that may bring CERP down, but they don't bring clay K down, whereas a lot of lifestyle strategies that you're talking about in the summit will help bring both of those markers down.

And so that's a that's a really important thing to be looking at. Another key marker is LDH lack lactate dehydrogenase, which is part of our natural energy, you know, our glycolysis and Krebs cycle.

It's kind of a Krebs cycle. Glycolysis, this intermediary enzyme. And so when that's elevated, it's a sign that there's inflammation, particularly heart tissue related as well as liver, right.

Could be related to liver. And speaking of liver, liver enzymes are another really good marker. So we're seeing liver

enzymes like alt as t GTI, when these when these are elevated up over roughly up over 25, that's a sign that there's inflammation affecting the liver cells.

Okay. And then based on the ratios, for example, if alt is real high, ASTI is kind of in the normal range, roughly 10 to 25. In that normal range, we know that inflammation is really affecting the liver.

When ASTI is high and alt is more in the normal range or a lot lower than ASTI, we start thinking about that inflammation affecting muscle tissues or affecting the heart in particular.

So that's a key marker for that when GTI is real high up over 25 again and the Asti and Alt are lower than the GTI, then we start thinking about biliary tree gallbladder bile ducts, that region.

So kind of helps us understand more of where that inflammation may be located. So these are just some of the markers. You know, if you get a good a good you know, you can also look at just a lipid panel like where you're looking at your LDL, which is considered the bad cholesterol, your triglycerides, your HDL levels.

We like to see the triglyceride to HDL ratio. There was one thing I was going to look at on a lipid panel. I think all the markers can have some importance.

We can get some good clinical data from all those markers, but if there was one marker I think is most important to look at, it would be the triglyceride to HDL ratio.

So how many triglycerides, which are basically free fatty fatty acids that our body can use as an energy source that are circulating in the bloodstream versus the high density lipoproteins, which are a carrier molecule that helps bring fats, lipids, all different types of molecules back to the liver from the cells.

And so when we're looking at that ratio, we ideally should be under two. So under two parts triglyceride to HDL, roughly close to one. Right. And that kind of close, as close to one as possible, one part triglyceride, one part HDL, like to see that triglyceride level certainly under 100.

Okay. And if we look at that, that is a key marker for insulin resistance and inflammation. If your triglyceride to HDL ratio is up over two, if your HDL is under 50, you know, triglycerides are up over 100, you know, definitely a sign of insulin resistance and inflammation taking place in the body.

As long as it's the test is done. Fasting, right. We always want to make sure with the lipid panel definitely can be affected if we eat a meal right before we we get that lab done.

But that's a really key marker to look at and helps us understand how well our body is responding to getting nutrients into the cells. So much for besides a real high.

We're not good at burning fat for fuel. We've got all these extra fats out in the cell or outside in the bloodstream and those fats can become denatured and and cause more reactive oxygen species and drive up oxidative stress and inflammation in the system.

So all very important markers to be looking at. A lot of these tests are not expensive. Look like a is a little bit more pricey but most of the other ones you can easily get from your your your, your physician.

Just go in, ask for the high sensitivity high sensitivity, C-reactive protein, lipid panel, liver enzymes, right. They'll run all of those. And then one other marker that we should look at, as well as vitamin D levels are 25 hydroxy vitamin D, A lot of research out showing that levels on certainly under 30 nanograms per milliliter where you're you're at the lab will actually flag you as deficient you know linked with all cause mortality.

So if you have levels under 30 you're all cause mortality, cancer, diabetes, heart disease, osteoporosis, neurodegenerative condition.

## Key Lab Tests for Inflammation and Metabolic Health

We talk about any sort of chronic disease and then dying of anything goes up, right? So it's really easy actually to bump that up. Ideally, we do it by getting in the sun.

However, most of us just not getting enough sunshine. We may not be living in an area where the sun is going to impact us in a in a significant way to get the vitamin D if we're up.

Let's say we live in Canada, we live in Maine, we live in these northern climates. It's going to be harder to get enough vitamin D from the sun. But if we are in a you know, even if we are in that location, like in the summer months trying to get as much sun on as much of your body as possible, obviously don't want to burn.

But outside of that, trying to get the sunshine is key. Sun offers a lot more benefits than just a vitamin D supplement. However, taking a vitamin D supplement as well can be really helpful.

I usually recommend about 1000 international units per £25 of body weight taken with meals you do at one or two doses, depending on how much of that you need.

And that will definitely get your vitamin D levels up. You want to test, you know, every 3 to 6 months or so and kind of look at where you're at. Ideally, I'd like to see it up over 60 nanograms per milliliter, usually not concerned about overdosing.

The research shows that as long as you keep it really under about 150 nanograms per milliliter, you won't deal with any sort of, you know, toxicity, vitamin D, toxicity.

It's really hard to get it up over 150, although it can be done if you're taking like 50,000 units every single day. So if you're taking roughly five, ten, 15,000 units every day, you're probably going to optimize your vitamin D and do really well.

And so those would be some of the key labs I would definitely recommend. All right, great. Thank you for that list. Our people listening friends, you know, only here in the audience, please do take out your notes, get your paper and pen ready.

Or if you're keeping a Google doc or however you keeping track and look at this list, because it'll be helpful to you to help guide your own health and be aware.

And you may find you're already working with a doctor who's doing this kind of testing, if not time to time up level. Okay, so you've been talking about detoxification and there's pathways, inflammation, other topics that are certainly of interest here for reversing type 2 diabetes or pre-diabetes.

Please share with us the significance. What's the importance of having the proper amount of stomach acid and bile flow? Yeah, and this is an important topic.

Right before I get to that, I forgot one really important test. You know, we're talking about diabetes. We should be testing our fasting insulin, right?

Most people are not testing fasting insulin. You should ask your doctor, test My, my insulin. Of course, fasting means you just haven't eaten in roughly about 12 hours or so.

Say dinner, you go in in the morning, get your blood work done, Say please put the put my insulin levels, test my insulin and really it should be under six.

Right. So under six roughly between two and six, you don't want it to be too low. Most people out there are going to be way up above that. In fact, even if your blood glucose and your hemoglobin A1 C levels look normal in that normal optimal range, you may still have very high fasting insulin.

That's kind of the first thing that goes up with insulin resistance. So definitely take a look at that. Try to get that down with the strategies we're talking about now shifting into stomach acid and bile flow.

Supercritical, whenever we eat food, stomach acid comes out. Stomach acid job is to sterilize the food that's coming in, meaning kill off a lot of the bacteria we talked about.

You know, when we have too much microbial or microbial load gets too high in our system, it drives up inflammation. So when we are eating food, that's one vector, one way that microbial microbes, some good, some pathogenic get into our system.

We should be killing a good amount of them in our stomach with very strong stomach acid. Normally at rest, as I'm sitting here, I haven't eaten in a few hours.

My stomach acid should roughly be between three and 3.5 when I start eating food, I want to get that stomach acid down around 1.5 to 2.2, which is actually a pretty big jump.

You know, water is neutral at seven, so roughly three down to dropping it down to around two actually is very energy demanding in order to do that. And so but it's super key.

Not only does it help sterilize the food, but it also helps break down protein. It helps us absorb vitamin B12 as well as key minerals like iron, zinc, magnesium, calcium, all supercritical, and then the digestive process is key because if we don't produce enough stomach acid, their food just sits in our stomach, and when food sits there, it starts to purify basically bacteria start to break it down and they produce gas.

And that gas can come up, put pressure on the esophageal sphincter, open up that sphincter and cause acid, which is not low enough, not where we want it to be, but it's still more acidic than what the esophageal tissue can handle in our stomach.

We have this mucous membrane that protects the stomach so we don't actually feel the harshness of the acid. We don't have that in our esophagus. So when it pushes up that esophageal sphincter, now it gets into the esophagus, we can experience it as heartburn.

Right? Or if for some people silent reflux where they got to clear their throat all the time and have issues like that, sometimes issues with that, with with trying to speak and communicate.

And so it needs it's good stomach acid helps digest that food, push it through the lower sphincter we call that that's called the pyloric sphincter and into the small intestine.

Now, in the intestine, we have we need an alkaline environment. So we have this very acidic, predigested food. We call that a bolus. So so an acidic bolus moving through the stomach into the small intestine triggers certain receptors that now activate the release of bile.

Bile comes out. Most people think about bile as fat, digestion, fat emulsification, kind of like soap breaking down the fatty acids and a much smaller component that can then get out in the bloodstream to be absorbed as as an energy source.

And that is an important component. But but bile is also an alkaline substance. So it helps create an alkaline environment in the small intestine. Also, we get this release of bicarbonate and pancreatic enzymes from the pancreas.

And so all of that process makes this bolus moving through the small intestine and makes it alkaline. And that's really key for digesting properly, but also to kill off some of the bacteria and microbes that actually love acid.

Right? So some of them survive through the stomach acid, but they don't like the alkaline environment. So bile is antimicrobial helps to kill those off to keep the overall microbial load on the food down.

And that's really key because the bacteria we really want located mostly in the lower urge intestine. And that's kind of where some of the major digestion goes on post biotic byproduct acts that are released there.

If we get too much fermentation and digestion in the small intestine from from bacteria and microbes, they'll create a lot of gas and create a lot of endo toxins, which are these these inflammatory agents.

So endo toxins are basically toxins that are produced within our body by bacterial fermentation. And so they they get released and they cause inflammation in our small intestine.

They can also do things like driving up inflammation. A lot of research on one major endotoxin. We call that Lipopolysaccharide or LPs being high LPs levels in the blood related to insulin resistance and type 2 diabetes.

And so good stomach acid production, good bile flow, good pancreatic enzyme production all will help keep LPs down and under control and reduce that, you know, inflammatory agent.

So super key that we're getting the right amount of stomach acid, bile flow and digestive enzymes. Absolutely. It really is all about balance, isn't it?

And the effectivity of what our body is doing to help us, that's for sure. Okay. So now what are the best foods that support blood sugar control, Glycemic control, Right.

And hormonal health? Yeah, for sure. So I always recommend with the meals, think about when you're planning out your meal. Think about where is my protein coming from, where is my healthy fats?

Okay, So I recommend roughly 30, at least 30 grams of good quality protein in every meal. And so where do you get your protein? The best source is going to be grass fed, pasture raised animal products, organic if possible.

Wild caught fish pasture raised eggs, grass fed beef or organic poultry, things like that. So that's what you're looking at. That's going to be the best source obviously, there.

You know, some other things like if you're doing a protein shake, you might do, you know, a grass fed whey protein or egg protein or something along those lines or a pea protein.

But you should be thinking about good quality animal protein, at least 30 grams and every meal you might need more if you're very active trying to build muscle.

Most people that are listening to this probably do great with about 30 grams of protein. Protein is your most satiating macronutrient, and it really helps stabilize your blood sugar and reduce cravings.

Now, with the protein, you want to make sure you have some healthy fats. Those healthy fats are going to be coming from things like avocados, extra virgin olive oil or olives in general, grass fed butter, eggs, pasteurized eggs, coconut oil or coconut milk or something along those lines, possibly some nuts and seeds that's going to provide your healthy fats.

So for most people, I recommend roughly 20 to maybe 40 grams of fat of healthy fats in a meal, depending on how well you digest fat. Some people like myself, I can easily do 40 grams of healthy fat in a meal.

I have no issues, right? I feel great.

## Stomach Acid, Bile Flow, and Digestion

It helps me stabilize my blood sugar, helps me go longer periods of time without feeling hungry so other people have trouble digesting fats. They might have very sluggish bile flow like some of the things we talked about, low stomach acid, things like that.

Maybe no gallbladder. So they might need more like 20 grams of healthy fats in a meal. So kind of see where you're at as far as your ability to digest fat, but get those healthy fats like I talked about, get rid of all that corn oil, soybean oil, all the process vegetable oils we want to get rid of those.

We want to get rid of as much sugar and grains, processed sugars, as well as grains. They're really not a good component of a healthy diet. And so you want to get rid of those and you want to instead eat the healthy fats, the proteins.

Right. And get your if you want carbohydrates, get them from fruit and root vegetables, those would be your better sources. I'm a big advocate of fruit.

I think it's a healthy part of a diet, a lot of polyphenols and a lot of nutrients in there so that you'll get all the carbohydrates you need from eating fruit and really just focus on as much as possible non-starchy vegetables as well as healthy fats and protein.

And, you know, make sure you dial in those macronutrients. Right. Getting the protein and fat right is super key. And then you kind of polish off your meal with, okay, I'm going to have these vegetables or this fruit or whatever it is, you know, that you're going to do for your fiber and your your micronutrients.

Right. So that's really what you want to do as far as dietary goes. And then what you'll notice is when you're eating like this, it's going to reduce hunger and cravings and that's going to allow you to go longer periods of time without food.

So I recommend in the beginning at least try to kind of this is more of like a mental note, try to go at least 12 hours between your last meal and your first meal.

Meaning if you finish dinner at 7 p.m., you have no reason to eat anything until 7 a.m. the next morning. Okay. That's what we call a very simple overnight 12 hour fast.

Now that's not going to reverse insulin resistance alone. Okay? Obviously you need the diet principles like I'm talking about, which you'll notice is as you do this, you're following this sort of diet.

You're doing the 12 hours that really you're not going to be as hungry. And so that's where you could start condensing or compressing your eating window.

And we call this intermittent fasting. And I would I recommend when when I'm dealing with somebody's insulin resistance that we compress that eating window into roughly 6 to 8 hours.

So eating your first meal, let's say at 10 a.m. or 11 a.m. and eating your last meal at 4 p.m., 5 p.m. 6 p.m. somewhere in that range. So most people in insulin resistance, they do great just eating two meals a day and compressing the eating window into that roughly 6 to 8 hour eating window following the principles.

Like I talked about at least 30 grams of protein, at least 20 grams of healthy fats, getting good quality fiber from fruit, vegetables, nuts and seeds.

Right. And if you do that, you're going to feel a lot better. You're going to reduce your overall insulin and your inflammation is going to have a dramatic impact on your on your your body.

All of that is great. Great to know. And, you know, it's within people's means to do This is one of the things I love about these lifestyle aspects. This is something that people can make as a choice and see how this is working for them.

So now you've just touched upon you've just touched upon the idea of that compressed eating window, and other people will think about it or talk about intermittent fasting.

So how does intermittent fasting improve blood sugar levels and inflammation levels? Yeah, intermittent fasting. And it really when we talk about fasting, some people get worried about that.

But I always say it's the most ancient, inexpensive and powerful healing strategy known to mankind. It's ancient because all of our ancestors did it. They didn't have access, they didn't have pantries and refrigerators.

They their diet was dependent upon what they could grow, what they could harvest or find, Right. Gather and what they could hunt. And so sometimes the harvest was good, the hunt was good, sometimes it was in, sometimes it wasn't for days.

And so because of that, you know, if humanity was so dependent upon eating breakfast, for example, every single day, we wouldn't exist right now because there are many days where our species did not have breakfast.

And and so fortunately, we're our body is so good at fasting. It's so good at being very thrifty with how it utilizes fuel. And it's very good at this this idea of metabolic flexibility, metabolic flexibility means your ability to burn sugar or fat for fuel.

If you're eating every few hours, you are primarily burning sugar glucose, blood glucose as your primary energy source, and you're not dipping into fat.

## Foods That Support Blood Sugar Control

You only start burning fat for fuel when you get your insulin levels down below a certain threshold. All right. And so if you're dealing with insulin resistance, you're very rarely ever spending any time with insulin down below the threshold.

It needs to be to burn fat effectively for fuel. So the best way to get insulin down is actually just not eating right now. There are other things you can do, like exercise helps bring insulin down, good sleep, keeping stress under control, all very important.

But what boosts insulin eating, eating anything, even eating protein, you're going to get some level of boost of insulin. Of course, the diet I talked about is very insulin friendly, doesn't give you big spikes of insulin, keeps you in some more stable.

But not eating all together brings insulin down quite a bit. And and so when we fast our insulin goes down, which means we reduce inflammation and oxidative stress in our system.

It also means that we reduce you know, I talk about reducing overall inflammation, we start burning fat for fuel and on top of that we actually start to heal our gut lining.

So our gut lining turns over every 3 to 5 days. And for constantly eating the mechanical stress, if we already have a leaky gut damages that that gut got even more and creates more LPs and more of these endo toxins releasing into the bloodstream, driving up inflammation.

So fasting helps to heal the gut. It also actually improves the diversity of the microbiome and then fasting actually turns on something we call autophagy.

And autophagy is really interesting. So autophagy is really where our cells start to heal and repair themselves. So whenever we are, you know, just really all of us are developing what we call senescent cells, these are aged, damaged and dysfunctional cells.

And within the cells, the reason why they're aged and dysfunctional is they've got all these different components we call those components organelles, things like the mitochondria, the Golgi apparatus and those become damaged by oxidative stress, they become rusted and so they're not working properly.

So all of us are developing these. There's three ways our body can get rid of those. One is the immune system can actually attack it and destroy it. Okay, that works.

But it's also very energy demanding and creates a lot of overall oxidative stress in the body the other way or two other ways. One of those is what we call cellular apoptosis.

It's a cell suicide switch. The cell realizes it's senescent, it's dysfunctional, turns on this switch, boom kills itself, right. Cell suicide. Now, one of the big things, hallmarks of, you know, all chronic disease in particular are things like cancer, things like Alzheimer's disease is that the cells lose their cell suicide switch.

Right. And so now we get these bunch of abnormal cells that live forever. Right. That's really problematic. Also, when we have apoptosis, it's very it's energy demanding and it creates more oxidative stress, right?

So there's more damage that takes place to the tissues around it when we have to when the cell commits suicide. So the most efficient, most energy efficient and least problematic way of correcting a damaged senescent cell is what we call autophagy, where we go in and we just clean it up from the inside.

You think about it like in your house or like, you know, think about your house if you're busy all the time, like I've got four young kids. So my wife and I, we're very busy, right?

So if we're busy all the time and we never have time to clean up all the dishes, just pile up in the sink, clothes everywhere. We're not doing the laundry. Everything stinks right?

Breeding ground for mold, cockroaches, everything right. It's just a really unhealthy home. We've got to take time to clean up our house right on a regular basis.

That's what we're doing when we get insulin down. Now we go to working clean. High insulin is like having a really busyschedule and a filthy, you know, stinky house.

Right? You're not you're not cleaning it up. And so getting your insulin down by by fasting all right. As kind of our primary strategy will allow your cells to clean house and get rid of all the dysfunction they actually will break down.

This is so cool. They'll break down the damaged proteins, the damaged mitochondria, take the raw materials and recycle it and form a new, healthy, stressed, resilient mitochondria and stress resilient cell.

## How Intermittent Fasting Improves Insulin and Inflammation

And really, the quality of our life is going to come down to the amount of stress resilient cells we have in our body. The more stress resilient cells and the less dysfunctional senescent cells, the better energy we're going to have, the better fat burning, the better brain function right?

The better libido, the better everything that we're going to end up having and the more we're going to thrive in life. So autophagy really allows us the process of doing that absolutely autophagy.

I always think of it as nature's spring cleaning. It's necessary. That's right. That's right. And our ancestors all did it. They would cycle through times of doing it.

And really to get into a state of autophagy, it costs nothing, right? Fasting doesn't cost you anything. Right. As opposed to some of the other things we might talk about.

It's not going to cost us anything. And it's incredibly powerful what it actually does. Definitely, it's very budget friendly and time efficient and a lot of people report feeling much more mentally clear.

Aches and pains go away. All sorts of things really can improve. And it is ancient. You know, Dr. Jockers is actually pointing out the fact that this is something that has been true throughout human history.

All cultures around the world have this. We have it documented in various spiritual traditions as well, which I think is fascinating. I feel like it's a blueprint for a clue of like, how do we care for this human frame, for our spirits, You know, our souls.

Soak it, soak it. All right. So as we wrap this session, Dr. Jockers, is there anything else that you'd like to share with our audience while we're here?

Yeah, you know, I would just say that reversing insulin resistance diabetes is definitely possible. And in fact something that you really can do. Most people can actually do it if they get committed in a very short period of time.

And if you commit to a process that stimulates autophagy like we talked about, it stabilizes your blood sugar. I mean, you can literally be an entirely new cellular being in as little as a year, right?

Six months to a year when you can completely transform your physiology and your life. And so you can do it, you know, you know, obviously committing yourself to a lifestyle where you're stabilizing your blood sugar, following an insulin friendly diet, practicing intermittent and even possibly a partial or extended fast, maybe a fasting mimicking diet or a three or five day fast, you know, can be incredibly powerful tool that you can use and regular exercise.

Right. Just combining those things, keeping stress under control, really good quality sleep can be absolutely life changing. If you want more information on fasting and you have a bestselling book called The Fasting Transformation, right?

Talk all about how to do intermittent fasting, partial and extended fasting the right way. And like I said, it's absolutely life changing. So glad you're putting on this summit, this event.

Definitely a lot of lives are going to be changed and transformed from this. Thank you so much. If people would like to get in touch with you, where can they find you?

## Final Advice and Where to Find Dr. Jockers

Yeah, you can find me on my website. DrJockers.com, also on social media, YouTube. And I have a popular podcast as well called The Dr. Jockers Functional Nutrition Podcast.

Perfect. Perfect. All right. Thank you so much for the time and these wonderful tips and insights and that list of lab tests that people should order and what the meaning will be of what they're looking at.

I always think it's great when we can give people that secret decoder ring. They make this stuff less secret. Well, thanks again, Dr. Beverly. Appreciate your time and your commitment to this.