Introduction and Guest Welcome

– Hello and welcome to this episode of the Environmental Toxicants Autoimmunity and Chronic Diseases Summit. We're your hosts, I'm Dr. Wendie Trubow. And this is Dr. Edward Levitan.

And our guest today is Dr. David Jockers super psyched. I know I say this all the time, but I really am super psyched. He is a doctor of Natural Medicine. He runs one of the most popular natural health website in Drjockers.com. He's been seen on popular media such as the Dr.

Oz Show and Hallmark Home and Health Family and is the author of the Keto Metabolic Breakthrough. He's world renowned in the area of ketosis and is the host of the popular Dr. Jockers Functional Nutrition podcast.

Welcome. We're so psyched to have you. – Well, thanks so much Wendie. I really appreciate you guys having me. And this is such a great topic that people really need to know about.

– Yeah, we're gonna, we're gonna talk about. I'm sorry, I know you want to talk. – I like this is like, I love the subject. This is like awesome subject. So many people tell them the subject.

Well, it's ketosis and it's a top a G and it's, it's with all when I've recently really gotten into deep into longevity and that this is the, this is the bee's knees. So I'm very sick to have you to have an expert on, to talk about this – In the future. Right. – Yeah.

– All right. So, I think the first thing we have to ask our, to talk about for our listeners is what is ontology and how does it work? – Yeah. So autopsy, gee is actually a Greek word and it means self eating.

What Autophagy Is and Why It Matters

And so basically, the way it works in our body is we have this amazing and intelligence that God put within us that is constantly coordinating all of our processes in our body to give us the greatest possible survival advantage. And so when we are, when when our nutrient levels go down, our body needs to obviously, it needs a continual supply of either glucose or fatty acids for energy, right? And so if we're not eating, if we're, you know, in a time of famine, all of our ancestors went through periods of feasting and famine. So we went through a period of famine, our body would start to break down stored sugar. We call that glycogen in our muscles and our liver and stored fat, right? So we have that stored body fat and it would use that for energy.

But another thing, the body needs amino acids. And so it needs amino acids to produce white blood cells to produce albumin and all these different carrying proteins, sex hormone binding globulin, right, thyroid hormone, right, all these different compounds that have protein backbones inside of our system or our proteins.

You know, we hear about things like c reactive protein and things like that. So these are proteins in the body and we need to create those. And so if we don't have a supply of amino acids coming in our body, the innate intelligence will start to break down uh proteins that are not functioning well, right? And this is the amazing thing about the body is it knows where the inferior cells, right? And inferior cellular organelles within all of our cells, we have organs within the cells like the mitochondria, golgi apparatus, endo plasmid particular um these all have to do with cellular function.

The mitochondria are the most well known. And when we think about mitochondria, we think about cellular energy production, they also have a sensory component as well where they help to adapt their energy production to the needs of the environment and environmental stressors and toxins and things like that can actually cause them to go into more of a hippo metabolic state as well.

And so going back to this idea of autopsy, gee the body needs to constantly create new mitochondria, it needs to constantly create new proteins. And so it will go in and find areas where proteins are dysfunctional, right. So if we have dysfunctional proteins they're not functioning the way that they should a large build up of dysfunctional proteins will actually cause chronic disease development. And so when we have this period of famine, and one of the ways the body knows we're in a period of famine is this hormone insulin goes down. So when we're constantly consuming food, we are increasing our insulin levels, particularly if we're eating carbohydrate rich foods, we're gonna have higher and higher amounts of insulin when insulin drops down past a certain threshold. So when it gets low enough, it triggers our body to start to burn fat. And then also we can start to go into this state of autopsy, ge breakdown um these proteins and create new amino acids and those new amino acids. Again, you know, we'll take those and we'll start to actually repair different cellular structures.

Like for example, the mitochondria will start to create new mitochondria. And all of us have a lot of damaged mitochondria within ourselves. Just the process of oxidative stress um in the process of creating energy, creates a rusting process or we call that oxidative stress inside the cells.

And particularly the mitochondria really get affected by this. And if we don't turn those mitochondria over, they become very dysfunctional and they become metabolically inflexible. Normally, the mitochondria should be able to burn fat for fuel and also burn sugar.

And when they become dysfunctional, they can no longer burn fat effectively for fuel and they become obligate glucose metabolize Urz, meaning that they basically are just stuck in this kind of sugar burning mode. We call that guy colossus and they sputter out a whole lot of free radicals and just a little bit of cellular energy.

And so we start to break down these mitochondria and we call these, when mitochondria become dysfunctional, we call them senescent mitochondria or older aged mitochondria, we start to break those down and we take the raw materials and we turn that into new healthy stress, resilient mitochondria. And ultimately, the quality of our life is going to come down to mitochondria is so important that the quality of our life really comes down to the amount of stress, resilient, healthy functioning mitochondria that we have inside the cells of our body.

And so if we have a whole lot, if we have a build up of senescent mitochondria, we're gonna have really poor function. We're gonna pour cellular function, poor organ function, poor overall function. If we can get rid of those and turn those into new young uh stress resilient mitochondria, then we're gonna have significantly elevated overall physiology and overall function.

– All right. – I have a question about you. – Well, I wanna actually, I have a lot of questions but I want to really make sure to go back down because the, I just wanna make, I wanna dumb it down for me and then maybe for our listeners. So, what you're saying is the process of Khafaji is getting rid of old bad cells, breaking them down, then re using them to build new ones. But really making sure that get rid of all the waste and all the things, all the cells that aren't serving us is that kind of the very, – Yeah. It's a cellular repair process.

Now, there's a couple different terms if we really want to be, you know, if we want to use the proper terminology, when we get rid of, when we, when we kill a bad cell, we call that apoptosis, right?

And so kind of programmed cell death. We kill the bad sell when we break down and organelles within a cell, right? So a component of a cell, we call that autopsy ji or you know, depending on the the like of its mitochondria, we call that Mitofsky because they are a form of autopsy gee specific to the mitochondria.

So that's really how it works. Now. Now, apoptosis is a very powerful way of getting rid of these bad cells and it's very important mechanism within our our body.

However, it's also very energy demanding and it creates a creates a increase in endo toxic debris within our, within our our system, right? And you know, we're talking about toxicity.

Of course, we think about toxicity, we think about things coming from the outside in, but our body itself is producing a lot of toxic and noxious components.

And so when we kill off a cell through apoptosis, it's gonna actually cause damage to cells around it. Now, it's necessary in certain circumstances if that cell is really malfunctioning. Right. And as senescent it is old and age, we don't want that, sell reproducing and creating more and more of itself.

Right. And so we've got to get rid of it. But our innate intelligence would prefer to undergo autopsy. Gee because it creates less of this endo toxic debris and it's, it's less energy demanding, less stressful on the system.

And so that's kind of the first mechanism. Apoptosis is kind of like the backup system, right? So if we haven't been able to repair the cellular organelles on the front end, then we'll go ahead, we'll kill those cells and deal with the ramifications from there.

Recognizing Mitochondrial Dysfunction

– So, outside of fatigue, how might our listeners recognize? Oh, you're talking about me, what are the things that people will notice if their mitochondria are dysfunctional and if autopsy ji needs to take place, like, how do people know?

– Well, a number of different ways, you know. So if you're dealing with chronic inflammation, so for example, auto immunity, we know that there's a whole lot of sin essence, dysfunctional immune cells, right? And that can be a major player in auto immunity or any sort of chronic inflammatory conditions. So, if you're dealing with skin issues, skin inflammation, eczema, you know, gut issues, digestive issues, if you're dealing with thyroid problems, right, that's going to be an issue if you're dealing with brain fog. So when we think about mitochondria, we have about 10 times more mitochondria per neuron, which is basically the nervous system cells, the cells in the nervous system, then we do muscle cells.

So mitochondria start to not function properly, we start to see a lot of cognitive issues typically. Right? Well, you know, we'll typically see brain fog, possibly anxiety, depression, trouble sleeping, um issues like that.

And so that's a big factor. So really any, almost any unwanted chronic condition can be related to mitochondrial issues. And so we've got to address that. And look at that.

– That's great. – So how does fasting play into this? – Yeah. So like I talked about before with feast and famine. So our ancestors, when they had a good hunt or a good harvest, they had plenty of food, but they didn't have very good food storage systems.

They didn't have refrigerators, you know, things like that. So when they ate, they ate until they were really fully satiated, they weren't trying to count calories or anything like that.

They ate and they, well, because that food could spoil and they never knew when their next meal was going to be. And so they would feast, but then there would be times where they wouldn't have a good harvest or a good hunt and they would have to fast or they would eat, you know, very little because food was scarce.

And so this is a natural mechanism that all of our ancestors dealt with, excuse me. And so it's built into our genetic blueprint to undergo these kind of cycles of feast and famine. And so when we fast, this hormone insulin like I talked about before, which is kind of the key that opens the receptor on the cell that allows sugar as well as nutrients like magnesium into the cell that goes down.

And when insulin goes down to trigger inside of our system, that says, okay, food is scarce, we're not getting the nutrients we need. So let's start to break down our storage forms of energy and use those as an energy source.

And let's also break down the older damaged proteins. So we can recycle those amino acids and use those to create new healthy cellular organelles, healthy white blood cells, right? Healthy cellular structures.

How Fasting Triggers Autophagy

And so when we fast in our society today, you know, particularly in a first world country, if you're listening to this summit, you've probably got plenty of access to food, right? So like in my house, I mean, I could probably live, you know, without going shopping for a month on all the food that I have sitting around. And so we have to be intentional about undergoing times when we're not actually eating. And the average individuals eating six meals a day and that may even just be like a drink of, you know, it could just be, you know, a gulp of sweet tea or something like that every time you're taking in calories, right? Particularly high glycemic or carbohydrate based calories, you are increasing your insulin levels.

And so when we do that, we are stopping our body from burning fat and from undergoing autopsy. Gee, so we actually need a length of time and depending on how metabolically flexible the individual is, that means how insulin sensitive is their system and how good are they at burning fat for fuel, the amount of time is gonna range, right? So the better you are at burning fat if you're very fit, if you're exercising regularly, you're thin, you're lean and you're able to go longer periods of time without food without having cravings. Okay. That's a sign you're metabolically fit.

And that means that you're gonna undergo autopsy, gee quicker during a fast than somebody who perhaps has a lot of extra body fat that has constant cravings.

You know, it's very hard for them to go long periods of time without food. Those people are very metabolically inflexible. They're not good at burning fat.

They've got a whole bunch of these senescent mitochondria again, that are not good at burning fat. And so they really need to undergo autopsy. Gee, but it's more stressful on their system.

And so fasting again is an intentional process. Where we are restricting ourselves from food and nutrients and getting that insulin down and triggering our body to undergo autopsy.

Gee so a common fasting strategy would be something like a 168 where you fast for 16 hours and typically that's gonna be overnight. So let's say you finished dinner at eight p.m.

and then you would fast until 12 p.m. the next day. Now, during that fast, you can drink water, herbal tea, black coffee, but you're not consuming any calories and ideally no sweeteners or anything like that, even if they're non caloric sweeteners, because that could trigger some insulin and can trigger cravings. And so when you do that again, your body has got to start to break down body fat.

It's gonna start to break down and start the early process of autopsy. Gee. Okay. And so like a 16-8 process. Now, What I like to do with people is get them to where they're able to do a 20-24 hour fast once a week. And when you're doing that, now you're gonna go into a deeper level of autopsy. Gee.

And so, and when you're metabolically flexible enough and so for somebody that's very metabolically inflexible where going a few hours without food is very stressful on their body, they have cravings, they feel irritable. They um maybe get nauseous or angry.

Those individuals were going to start to kind of gradually um try to, first we're gonna make dietary changes to try to stabilize their blood sugar and then gradually expand the time between their meals. So they can gradually build this level of metabolic fitness. And, but, you know, without, with that said, kind of the end goal is to get people to do a 20 to 24 hour fast.

It's kind of a sweet spot for autopsy. Gee, so I do this actually every Wednesday to Thursday. So on Wednesday, usually lunch around 12 o'clock, somewhere in that time frame and then I'll fast until around the same time on Thursday, somewhere around two o'clock or so. And I'll break my fast.

Now, the first thing I actually do to break my fast is I exercise. So I exercise usually About 20-23 hours fasted. I'm well hydrated, but I'm fully fasted. Exercise is another great stimulus for autopsy.

Gee. So I'm stacking the fasting along with the exercise. Um, those two together, trigger a large amount of autopsy

jian my system and then I'll wait usually about a half hour or so after I finish eating. And normally I'm not even hungry at this point.

Like I don't even feel hungry because my body is actually really good at burning fat for fuel. And I'm satiated, I'm feeling satiated. My key tones are elevated in my brain which increases this feeling of satiety.

And when that happens again, I don't really necessarily feel hungry, but I'll break my fast usually about 30 minutes or so after my workout to get some more fuel and nutrients into my system.

And that way I know I get a great level of autopsy. Gee, and I do this every single week. So over the course of a year, my body is really doing a good job. It's I'm creating the environment that allows it to break down these senescent cells, these senescent mitochondria and regenerate itself from the inside out. – And I think what's so poignant about this is this has real world implications because as you were talking, I just kept thinking about, I always forget is that Sweden where the epidemiologist looked at your grandparents and if they went through a feast when they hit puberty, their offspring were significantly more likely to die earlier, six years earlier of diabetes and cardiovascular disease.

And the flip was true that if your grandparent, particularly a grandfather went through puberty during a famine And didn't have food that their offspring were significantly less likely to die of diabetes and cardiovascular disease and on average, lived 25 years longer. So the spread and lifespans is 31 years between the Grandparent feasting and the grandparents fasting during critical times of life.

I mean, this really does, obviously you don't have control over what your grandparents did, but this does come into real world applicability that it influences your health.

– Yeah, for sure. I mean, it's, I think of the eating period. So like if you take a 24 hour day and let's say you eat your meals, two or three meals. And let's say an eight hour window.

I consider that the building phase. So when you're eating, you are producing hormones like insulin that have to do with cell reproduction and building.

Right? So you're building your storing and you're reproducing cells and then the time period between your last meal and then your first meal the next day. Right. That's your fasting or you're cleansing window, your body's cleaning itself up from the inside, right?

And so it's again becoming, uh, you know, more thrifty and its recycling itself, clearing out toxins, clearing out bad abnormal cells or abnormal cellular organelles and doing a deep healing. And so that's kind of how I try to break it down for people. – So I have a question because this is always, I started fasting way before. – It was a thing.

– That was a thing. This is how it felt good. Well, yeah, but I also read who was the? Not Paul Bragg. Anyways, I forgot the name. There was a, a person that was doing a lot of fasting, I mimicked him.

But a lot of times you're talking about either intermittent fasting or 24 hour passing. Is there a benefit that's shown at a three days, five days, 10 day fast that like I've talked a lot of people I talked to say, okay, the once, 24 hours is great. Once a week, but maybe once a quarter, you do a 3 to 5 day fast.

Is there a benefit to that? Has what has science show? – Yeah, I think that there's tremendous benefit to it. And so the biggest science has not been done on like a water fast.

It's mostly done on something called the fasting mimicking diet, which is, which is, you know, a fasting plan where you're consuming calories. But it's roughly around 40% of your normal caloric needs most people out there.

The average adult, I guess you could say needs about 2000 calories a day if you're more active.

Longer Fasts, Stem Cells, and Ketones

If you have more lean body mass, you may need more. I know for myself, I can usually consume about 3000 a day. But the average individuals roughly around 2000 calories.

And so the fasting mimicking diet, it's a five day plan where the first day you consume, I believe, 1200 calories and then all the rest of the days you're consuming 800 calories and they give you, you know, little box that shows you kind of basically exactly what to eat.

So it's all counted out for you. And they've done studies on this and they've shown, you know, autopsy starts to really peak on day three and four. And then also you get a big, big increase in stem cells, right? Kind of these young embryonic cells that are very stress resilient.

Usually on day four and five, right. So kind of towards the end of that, you get this peak there, you also get an increase in growth hormone, which is your quintessential anti aging hormone that helps with strengthen your immune system.

It helps with burning fat, preserving lean body tissue. A lot of people are, are concerned when they fast that they're gonna lose muscle tissue. And you may just because typically you're not, you know, doing strength training to, to, to preserve it. However, your body actually has built in hormonal mechanisms like growth hormone that tell the system, let's preserve lean body mass, don't break down your muscle to provide fuel, right? Because that is a potential fuel source is actually breaking down your muscle. It says instead burn body fat.

Why is that? Because, you know, our body, you know, our ancestors, when they would go through a time of famine, if they lost muscle tissue and their body became really cata bolic and broke down all their muscle tissue, they wouldn't have the strength to go out and hunt, right? Or, or find a new harvest.

And so our bodies built for survival. So we actually get primed, we get stronger, our senses become heightened. Um as we're going through this sort of extended fast, and a lot of people feel this kind of natural euphoria, natural high, we get an endorphin release. Um ketones become, you know, elevated at even higher levels in the brain.

And when ketones are elevated in the brain, they shut down something called the neuro inflammatory ohm, which is this inflammation amplifying system. So they shut that down. They help balance your glutamate to Gaba ratio in the brain, which gives you very good, peaceful, very peaceful mind.

When people are inflamed, when there's inflammation in the system, we tend to have elevated glutamate, which is kind of the the gas pedal in your brain, right? Helps you think sharply and quickly.

But it needs to be balanced by Gaba, which is kind of the break, which is the breaks of the brain, right? So it helps slow down the brain. So we don't get hyperactivity, anxiety, different things like that.

And so the ketones naturally bring calmness and peace to the brain. People notice that their senses are heightened, right? And it has to do with kind of this hormonal flux that takes place.

So there is some incredible things that take place there. As far as cellular regeneration, we've never compared those benefits to head to head with somebody that's doing a. So we haven't compared what's happening with, with somebody when they're doing this sort of fasting mimicking diet for five days with somebody who's doing a straight water fast for five days.

So we don't know necessarily okay when somebody gets, you know, benefits when they're doing the water fast versus the fasting mimicking diets were not, not fully. Sure. But we do know what happens with the fasting mimicking diet. We also aren't comparing what happens when somebody is doing something like a 24 hour fast, once a week, every week, you know, for a year. Right. And how much tautology, how much stem cells are developing? So, it's really a new, it's a new area that we haven't done a whole lot of research on, particularly because, you know, nobody makes money off fasting, right? And so fortunately, the fasting mimicking diet, they do make some money because they sell a box of food and they put that money and people buy that and they put that money back into the research and that's why we're getting some of this research. So definitely support them.

Um because they're the ones that are actually Walter Longo is actually doing the research on this. But in general, you know, it's, it's, there's not a whole lot of money going into fasting research, but there should be because we're seeing incredible health benefits from people.

So I believe that you're gonna go into deeper levels of autopsy, you're gonna have higher levels of ketones, which are gonna have even better brain benefits because we know ketones, not only shut down inflammation in the brain, but they also are um epigenetic modulators, meaning that they helped to modulate or turn on and off certain genetic switches, particularly in the brain and in the neurons.

Um And you know, those genetic switches can help reduce risk of chronic disease, um of anxiety, depression, right. All these different unwanted symptoms and turn on longevity components, right. So you have a healthier, stronger brain later in life. And so I think that there are benefits to doing a longer fast.

Um you know, and I think it's more of a case by case basis. Somebody that has higher levels of inflammation is dealing with chronic inflammation, auto immunity and perhaps they're a little bit overweight.

Um, they would do really well. I think with a longer fast, once their body was trained to be more metabolically flexible and perhaps, or, or a fasting mimicking diet and doing that perhaps even once a month, right, 3 to 5 day fast. Somebody that's very, very lean, very thin, already low body fat, okay.

Maybe they're very active, trying to preserve lean, you know, trying to maintain muscle mass may not do as good with that style of fasting and may do better with something like a 24 hour fast every week, right on like a rest day, you know, and then breaking it with a workout followed by nutrients after that.

So I think it needs to be customized. But, you know, I think there are a range of benefits that can come with doing a longer fast, – You know, I'll share that we did a five day mainly water fast.

And I was, that was the first time I ever did that and I was quite nervous because I'm comfortable intermittent fasting. But that five day thing really mentally was very difficult for me to get my head around. And what I was so, so amazing that I noticed that I'll just share with the listeners is that I never, I got hungry and I got very hungry and then it would pass.

I always imagined if I did a five day fast that it would continue to grow and I would just keep getting hungrier until I couldn't cope anymore. But it never got past.

Oh, I'm really hungry and then it passed, which was the match. The thing about that. So there, there it, I want to, for the listeners, it's not as hard as it seems you get hungry, but then it goes away and you're done. – Yeah, for sure.

My, my experience has been usually day two, day three is kind of where I feel the worst. They want it super easy because I do it all the time. I don't even think about it but day to day three, you know, your body is starting to you're starting to get more, more endo toxins actually increase into your system.

So you've got bacteria are dying, they're releasing endo toxins. You've got fat cells that may be releasing toxins, things like that. So taking some binders can be really helpful water.

Getting a massage, right. So a lot of people just have trouble with the idea because, you know, eating is a dopamine release for many of us, right? And it's a lot of the not feeling good as you're going through a fast like that is not getting the dopamine hit, the feel good hit that we get whenever we're consuming food, particularly, you know, food that is sweet or, you know, has a lot of flavor to it. And, and so most of us have some level of food addiction from that perspective. And so as the dopamine goes down, we're not feeling good. And so doing something like getting a massage, right? So you're not spending money on food.

So go get a massage, you know, on the, especially in those tough days, day two, day three. And um that can be really, really helpful, very relaxing for you.

And so sometimes you gotta put yourself in the right environment usually by day four, it's like you're kind of, you're over that you feel significantly better by day four, day five, somewhere in that range.

Um And then, you know, when you do a fast like that, you want to come out of it gently, right? And so usually doing it with like liquid nutrition, bone broth, maybe protein shake. If you're doing vegetables, something well steamed, like well steamed broccoli, you don't want to do a whole lot of fat at once, right? Like, you know, you wouldn't want to do um you know, a cheeseburger, right? Um Or even like a big avocado or something like that.

Fasting, Stress, and Womenu2019s Cycles

So you want to do, you want to kind of gently reintroduce your system after about two days of fasting your digestive system stops, it shuts down, it stops producing stomach acid bile pancreatic enzymes.

So it goes into hibernation mode and which is good because that diverts more energy to healing and repair. But we got to reawaken it gently. And so that's really the idea there as you're breaking an extended fast, – The best cabbage I've ever tasted right after a five day fast, likely steep, actually pretty well steamed cabbage and the best with no flavor whatsoever is just the best. – Yeah, fermented foods are also good.

Their kimchi sauerkraut good, good way to kind of break your fast. The natural sour nous, right? Foods that are sour or astringent um really helps stimulate your digestive juices to stimulate your vagus nerve.

And so that helps reactivate stomach acid production, bio pancreatic enzymes, ginger tea or even just chewing on some ginger root. You know, before you break your fast, there can be really helpful too.

– So you do just bring up unless you want to stick on this. I'd like to talk about foods that support. I withdraw my question. – Difference between men and women because I found in our practice that woman tend to do better on a shorter cycle than men do. Men tend to be able to do longer for whatever reason – You just stop looking at food and you lose weight and I actually have to stop eating the food to lose weight – Or not in terms of intermittent fasting woman.

– No, you're, you're absolutely right, particularly when, when a woman is going through her menstrual cycle, we know that that menstrual cycle is very dependent upon nutrient information. And so if, if the body of the innate intelligence realizes that we're not getting enough nutrients, enough calories that we're in a time of famine, it's going, it's going to say, you know, this is not a good time to bring a baby onto the planet, right? And the woman might die during, you know, you know, as she's pregnant because she's not getting enough nutrients.

So it'll shut down the menstrual cycle and shut down fertility. So this is why it's really important to go through this feast, famine, cycling. So the general pattern that seems to work best is the week before the menstrual cycle that last week, part of that Lucille phase there at the end, um the woman actually should be consuming and going through more of a feasting period, right? Where they're consuming obviously healthy foods, but higher amounts of carbohydrates, maybe root vegetables, fruits, things like that and just a higher amount of overall calories.

And then as the menstrual cycle hits. So like day one menstruation starts, that's actually a good time to go into fasting mode because all the hormones, progesterone esta Rhone and estrogen are lower and that is a great time to go into if you want to do a three or five day fast or, you know, intermittent fasting, fantastic time to do it up until close to ovulation.

Right, ovulation. Again. You need a spike of estrogen progesterone at that period of time and those hormones are gonna, are gonna do best when we have lots of calories on board when we've got, um, you know, basically telling the body that food is abundant, right? Food is around, we've got the food to carry out, you know, a pregnancy here if you know, that takes place. And so that's when again, we go into a period where we're doing less fasting, maybe like 12, you know, I still recommend 12 to 14 hours overnight during that period of time.

So it's like you finished dinner at seven, you eat again at eight a.m. nine A M somewhere in that range. That's great. Right. That's kind of like just a normal, I call it a simple fast, right? Just an overnight fast.

It's good for your liver. It's good for your gut. Just good for all your detoxification systems, but you're not really getting any, any level of tautology in that period of time, but that's okay, you know, for that short window.

So let's say from day 12 to day 14 or 15 because ovulation technically is day 14. Although, you know, most women will say that they're, you know, they're not always textbook, right. So somewhere in that timeframe, you know, consuming more food, more calories, less uh the fasting after ovulation for several days there, five or six days you can go back into intermittent fasting, Low carb, right. That sort of thing.

But then the week, roughly around day, 20, um of the cycle, most women will say they actually get more cravings, they actually feel more hungry. And that's a sign from the body that says, hey, we need to make sure that, you know, we're in a time of feasting in a time where food is abundant to really be able to carry out this cycle properly. And so that's when again, you're consuming those calories. So that's what I notice is, it's really about timing it with the menstrual cycle.

And uh and that's super key. And so when, when women go into menopause, the perimenopause and then into menopause, the next thing that's really important is they get this overall reduction in estrogen and progesterone.

And we know that cortisol is a antagonist to progesterone, right. They kind of compete for some of the same precursors, right? Pregnant alone steel. And this whole idea as far as going down the cortisol pathway or the progesterone pathway. So that is where a woman that is in menopause may have issues at times with fasting or extended fasting.

So it's just that much more important for a woman when they're doing fasting, that they're reducing stress. Okay, particularly if they're doing an extended fast keeping stress down because fasting itself will increase cortisol because cortisol is a glucocorticoids, meaning that it increases blood glucose.

And when you're fasting, you actually need that Because you're not taking glucose in from your diet. So you actually need this hormone to come out to keep blood sugar elevated to some degree, right?

Not not high but to some degree because your brain needs glucose, right is an energy source. It can run off ketones, but it can't produce all its energy only about 50% from ketones.

It needs glucose. So we need a level of glucose in the blood cortisol providing that for us. But if we also have a lot of other stressors going on, that can cause higher and higher amounts of cortisol to be released and therefore less progesterone to be produced. And then we get this imbalance of estrogen and progesterone and that can cause a lot of the unwanted symptoms associated with, with menopause. Also in general, you know, the more stress we're under, that's also going to cause you know, problems with producing estrogen to.

So some women end up with just low, very low estrogen as well as progesterone. Some women end up with kind of normal levels for for menopausal women of estrogen, but very low progesterone. It's the ratio that causes problems for them.

So, um, either way we gotta keep stress under control as they're going through that fasting fasting window. That's key. – David that's a very easy thing to say. – Yeah. Right. Exactly.

Well, you know, what you want to do is that if you're under a very stressful season in your life, don't do an extended fast. Right. Figure out a fasting strategy and it might just be 14 hours and we call this a lot for a lot of women, especially young, very active and busy type, a type personalities who are exercising and you know, their, their, their mom and they also have a career right at the same time or they are very, very busy lifestyle. We'll do something called crescendo fasting and oftentimes they're very lean as well where we'll do a 14 hour fast.

So on a daily basis, our goal will be 12 to 13 hour fasting and then, you know, twice a week on nonconsecutive days will push it up to 14 hours and kind of just see how their body responds to that if they feel good, if they feel like, wow, I feel great that day. I feel like I've got really good energy, then we might push it up to 16 hours, but we're doing it on nonconsecutive days, okay, where they have time to recover, kind of like exercise.

You know, there are some people like, like myself um at this phase of my life I enjoy exercise six days a week. I love it. I do great. But I also have twin boys that are seven and when they were born, I wasn't getting a whole lot of sleep.

Right. And so I overtrained because I was trying to work out six days a week and I had to cut it back to three or four days a week because I couldn't recover. I wasn't getting the sleep that I needed to recover properly. And so I needed more recovery days, less workout days at that period of time.

And so it's kind of the same thing, the more stress you're under, the less uh quality your sleep is the less overall stressors your body can handle and fasting. Even though it's very healthy for us, we call it a hore medic stressor because it's a stress on the body that actually makes us stronger and more resilient. However, depending on your stress threshold and how much stress your body can handle. You may need to reduce the amount that you're doing. And a lot of people, you know, have kind of gotten caught up in fasting. They hear about all the great benefits, but they don't really tailor it or listen to their body and tailor it to the messages that their body is giving them and the environment and the stress level that they're under.

And so that's really the important thing is you're listening to your body trying to tailor it to your stress load. – No, I think that's really, really important. First of all, listening to your body is key. I think we all just go plow forward and just do what's quote unquote, good for us and not listen to what our body is telling us, which is, then gets us all into trouble. The one thing I'll add to what you're saying.

At least that I found on myself is, yes, 100% agree that during stressful times, we've got to limit the fasting during non stressful times. When I'm pretty religious about my fasting practice, it helps me get endurance for the, for the fasting time, for the stressful times.

– It makes you more resilient. – Yeah. – Yeah. And that's that idea of resilience, right? Resilience. When we break that term down, what does that mean? What it really means your ability to adapt to stress? And so we're always trying to be in a state of homeostasis. Think about homeostasis as kind of your comfort zone. Right?

And then when you're in homeostasis, your body can heal, it can repair, can function well. Right. And there's all these different things that are, that are happening all around us and within us that are, that are pushing us away from homeostasis.

And so resiliency is really your ability to handle whatever those stresses are come out of homeostasis, handle those stressors and then get back into homeostasis.

And fasting is one of those things kind of like exercise that give us greater stress resilience. So your ability again, move out of home and get back into homeostasis.

So you're absolutely right doing fasting during a season when stress isn't overwhelming, will actually help you be more resilient when stress does increase.

And it does become even to a point of overwhelming, you'll be more resilient at handling that. – Alright, now we can transition.

Foods and Herbs That Support Autophagy

So I want to transition off fasting and talk about as listeners are going through their life, there may be able to incorporate the intermittent fasting.

But then what are foods that support a Ta Fiji or herbs that support? And how do we incorporate those into our daily lives? – Yeah, for sure. Well, you know, as a foundational lifestyle, you want to, you want to follow a blood sugar stabilizing diet and so blood sugar stabilizing diet is gonna look like this. I recommend roughly about 30 g of protein per meal. So when you are eating, you want to make sure that you have enough protein onboard protein is very satiating.

It helps when you get about 30 g. That's roughly about three g or so of loosen, particularly if it's from, you know, grass fed animal protein sources, wild caught fish, pasture raised, you know, organic eggs, things like that. You're gonna get roughly about three g of loosen, which is the threshold for preserving lean body mass.

And it also helps stimulate fat burning. And so again, about 30 g of protein, depending on your activity level. You may need more. I mean, I'll eat 50 60 g easy in a meal when I do eat right. But I usually only eat twice a day.

But as a minimum, you want about 30 g of protein and roughly 20 to, let's say, 40 g of fat, depending on how, well your body breaks down fat. So somebody doesn't have a gallbladder or has, congested bile ducts.

They may not do well. If they do a higher amount of fat, they feel nauseous, they don't feel well. So Taylor you're fat, but you're trying to get somewhere. Most people can do okay on at least 20 g of good quality healthy fats from things like extra virgin olive oil, grass fed butter, avocados, avocado oil, tallow beef, tallow, pasture, raised eggs, something along those lines where you're getting these healthy fats. And then, you know, obviously make your meals colorful, right? So getting a lot of colorful fruits, vegetables, things like that in your meal that's gonna create, you know, and I always recommend limiting grains, right?

So either reduce or eliminate grains altogether depending on how well your body tolerates them. And then get rid of all your bad fats. That's gonna be your processed vegetable oils, trans fats, margarine, butter, all, you know, you know, fake butters, all that kind of stuff. You want to get rid of those things because that just drives up inflammation in the system. So that's how you kind of tailor your meal in general. And if you have a blood sugar stabilizing diet like that, it's gonna be easier to fast because your body is going to keep your blood sugar very stable. You're not gonna, you're gonna have very good insulin sensitivity and it's gonna be easy. You're gonna be more metabolically flexible where you're able to switch between burning fat, burning sugar more effectively and you're gonna be more satiated between meals.

So that's kind of the foundation there. And then there are certain herbs that actually have been shown to help trigger autopsy G as well. So these are gonna be things like ginger, for example, right?

Ginger has ginger rolls in it, which are these poly phenolic compounds that um you know, are basically help to stimulate, stimulate autopsy. Gee you've got things like curcumin in turmeric, right?

That, that also are very effective. You've got cat dickens in green tea and dark chocolate that have been shown to help stimulate tautology mechanisms.

You got cafe IQ and Claure genic acid and coffee, black coffee, right? Which can actually help stimulate this. So people ask, can I drink coffee when I'm fasting and you absolutely can.

There are certain caveats. So if you drink coffee, there are certain individuals that don't metabolize coffee well, or they may have a sensitivity to coffee.

And so like if you drink coffee, coffee should be a performance enhancement tool, meaning you should feel great after you drink coffee, it actually should help you fast longer.

However, if you notice you're not a good thing, right? So if you're feeling agitated, you've got anxiety or if you have cravings, right? Increases cravings.

That's a sign your body didn't have the desirable reaction, right? In fact, it may have increased insulin. Your body may not be able to metabolize it effectively And therefore you should either reduce your dose or, or um or eliminate it altogether. So – I'll give you one guess as to how I respond to coffee.

I fell asleep jittering like shaking – Really? – Yeah. – Okay. Yeah. Yeah. So you're not not responding well. Right. And some people have a mutation in their C Y P A 12 gene uh in their liver, right? And that creates a slow metabolism, slow caffeine metabolism. Right?

Also a lot of coffees same with dark chocolates can be, can have mycotoxins, they can have molds on them. Typically, if it's grown in shade of shade, shade grown and actually should be tested for, for mycotoxins, you can get, you know, lower no mycotoxin coffee.

And some people that haven't responded to typical coffee actually respond well to that because it's really the mycotoxins that are driving the inflammatory reaction.

So just things to try out and test um that, that, you know, may be beneficial for you. There's other good herbs like all of your kind of Italian Mediterranean style herbs, your oregano basil, thyme, rosemary. These things have, have compounds like carver crawl in them. Rose moronic acid that are, are really great for stimulating autopsy. Gee, there's another compound called electric acid. Electric acid.

We find in all of our stringent types of fruits, cranberries, pomegranates muscadine grapes, right? Like we have a muscadine grape tree in our backyard here and we get them in the fall. Doesn't taste like your typical Concord grapes that you buy at the store. Most grapes at the store, super sweet, right? Muscadine grapes hit you with this kind of astringent sour nous that sour nous is this compound electric acid and also there's corset in in these these compounds as well. These these these different types of fruits and the electric acid, your gut bacteria will actually break that down into something called ura within a and you're a within a will stimulate this mythology process, particularly in the intestinal cells.

So your Antero sites in your intestines and that's really important because we think about our small intestine, small intestine is only one cell wall, right? So it's like one connecting cell, you know, one layer of cells that are just all connected by tight junctions and just the mechanical stress of eating along with toxins that we're taking in from our diet from our environment stress. If we're not, if we're under stress, we're not going to produce enough stomach acid, bio pancreatic enzymes we're gonna end up creating a lot of wear and tear on that, on that one cell wall, right? And then when that breaks, we call that intestinal permeability or leaky gut. And now that allows proteins, bacteria, um endo toxins to get into the bloodstream and that drives up inflammation in the body. In fact, all autoimmune conditions and chronic inflammatory conditions are all associated with leaky gut.

That's one of the components that that individual has this level of intestinal permeability. And so super important that we're keeping those cells as strong and stress resilient as possible.

So that you're a within a that's produced by gut bacteria when they're consuming, electric acid will actually help with that. And actually fasting itself is really key here too because fasting helps to reduce the primary feeders in the, in the, in the gut. So within our gut, our gut microbiome, we've got primary feeders that live above the gut mucosa and we have secondary feeders that live in the mucosa. The most well studied one is called Ackerman's amusing ophelia, which means mucus loving.

So when we're constantly eating every few hours, the primary feeders are eating and they're reproducing and then they crowd out the secondary feeders.

And so we get a big reduction in Ackerman Zia and microbiome. Researchers have found that higher levels of Ackerman's Aromasin ophelia are associated across the board with reduce, reduce rates of metabolic disease and chronic inflammatory conditions. And Ackerman Zia helps strengthen the one of the things it does, it will eat the gut mucosa and then will actually stimulate the goblet cells to produce more musician, right? More mucosa, right? Which is kind of the first line of defense.

And that's where the secretary I G A is the immune component of our gut. And the more the better our secretary IJ is, right, the less gut inflammation we're going to produce because it's a non inflammatory producing antibody.

And so what happens here is when we fast, we starve down some of the primary feeders and that actually creates room now for the secondary feeders like Ackerman Zia, which can survive. It loves polyphenols like your religion, but like lactic acid, but it can survive just on the mucosa as well.

So it can survive during the fast and when it's elevated or when it's kind of in its optimal uh levels, it's going to

produce more of the Euro within a by breaking down polyphenols.

So we're going to get more my top Fijian those intestinal cells and kind of the best analogy for the lay person out there that's not familiar with these terms is in my, my yard here, I've got an apple tree and I've got a blueberry bush and the apple tree grows right. Its branches grow and it will crowd out the blueberry bush because they're close to each other and the blueberry bush won't get any sun and we won't get any blueberries. So we actually have to trim the hedges.

We actually have to cut branches off of the apple tree, which limits the amount of apples we're gonna get in order for the blueberry bush to get the sun that it needs. So we get blueberries and we want apples and blueberries, right? And so this is kind of the same thing when we're fasting, we are trimming down primary feeders in order so that the secondary feeders can really thrive. And that creates the the balance.

And um you know, the overall diversity of the microbiome that's so important for keeping inflammation under under control and optimizing our overall health.

– No, this is amazing. My challenges, we have limited time and we have a lot to talk to – Scratch the surface. But I think what's so poignant about what you were just talking about is so, first of all, David, just to acknowledge when you talk about gut permeability, you are talking my love language. Okay.

So that is like my total passion play. I love talking about it. And any listener who has autoimmune disease really does want to start to look at the permeability of the gut gluten by definition will increase the permeability of the gut.

So if you're eating gluten, you want to stop. I know that's like an inflexible approach. But if you have autoimmune disease, you have got permeability, gluten increases gut permeability.

And so we want to tilt the scales towards health. So, I agree with you that, there's just sort of scratching at this. – Is there any way to do any justice? Because I know we, I want to get too hot, cold for a topic is in your way to do that.

And like, and I want to honor your time. So, is there any way to do, like, a two minute quick? – Yeah, for sure. I think, you know, in general, we talked about your medic stress, right? We talked about stressors help create, create more resiliency. Well, it's kind of the same thing when it comes to geographical stressors, like, for example, you know, they say October to what March is cold and flu season.

Well, why is that? Well, the reason why is the temperature drops right in, in, you know, the northern atmosphere here that we're in, it drops. And so when, when we get this big temperature drop, that's a major stress around people's bodies right here in Georgia where I'm at, I mean, it'll be 65°1 day and then it'll drop down to 35° right the next day.

And so that's a significant stressor. And so one way that we can make our body more resilient to the to the temperature change type stress is actually exposing it to extreme heat like we can do a sauna, right? Or you can go out obviously in the heat and work out. And that will get your body heat up.

Heat, Cold, and Building Resilience

And when that happens, you actually activate something called heat shock proteins and those heat shock proteins break down, you know, damaged cellular organelles, they break down damaged cells. And so they trigger that sort of autopsy g apoptosis and mythology process and they just make you more resilient to heat and then it's the same with cold. Right. So, if you're doing a cold shower, like this morning, you know, I finished my shower with 1 to 2 minutes of cold water.

And so what does that do? That's challenging my body to now have to adapt to that cold stressor That stimulates cold shock proteins, which kind of do the same thing, they stimulate autopsy.

Then it also helps my body become more resilient when I face colder temperatures and more resilient. My body

knows it's familiar with how to handle itself and how to adapt to that. So I can be more resilient.

So getting your body uncomfortable for short bouts, right? I was only in the shower for two minutes last night. I was in my sauna for 20 minutes, right? Short bouts of you know, temperature changes like that extreme temperature changes will create a more resilient body and more resilient mind too. And it actually helps stimulate, um you know, like the shower really gives me more dopamine norepinephrine.

So I've got more energy, mental clarity throughout the day as well. So, you'll just notice a lot of performance benefits doing that. But it's really about kind of balancing those stressors.

You don't want too much, right? You want just the right dosage to make you more, more stress resilient? – Perfect. Where can people find more information?

Because this is amazing information – For sure. Yeah, you can find me at drjockers.com. That's my website. And then also I've got a great podcast, doctor, doctors, functional nutrition podcast, and I'm on youtube Instagram, Facebook. You know, all the different social media, just look up Dr. David Jockers. – Awesome.

– Awesome. Thank you. First of all, thank you. This is a wealth of knowledge and I think people can really put this into practice and to the listeners.

Thank you for joining us for this episode of the Environmental Toxicants Autoimmunity and Chronic Diseases Summit. This is Dr. Ed Levitan, I'm Dr. Wendie Trubow. And our guest today is Dr. David Jockers.

Thanks for being here and thank you for speaking Dr. Jockers. – Thank you guys for having me.