Introduction and Background

– Hello, everybody. Welcome to another episode of Reversing Inflammation, Summit Body and Mind Longevity Medicine. And I'm very pleased today to in this session to have Dr. David Perlmutter here as our guest, Dr. Perlmutter is a board certified neurologist and he's a six time best selling author and I'm very pleased to have him here, but because he has helped to really bring the conversation to the table for the public about our diet and how it affects our health and in particular how it affects our brain. So Dr. Perlmutter is so nice to have you here.

Welcome. – Well, I'm very, very delighted to be here with you today and especially to spend time with you today Dr. Sideroff. This is a lot of fun. It's going to be a lot of fun.

– I want to mention one thing we have in common. You received your MD degree at the University of Miami and I received my phd at the University of Miami in Physiological Psychology, so that in, in common as well. – Well, I was actually just last week over at the campus again and you, you would not believe what's going on there in a very positive way.

So it was nothing like it was for me and medical school, our son went to medical school there as well. And even since his day has transformed, so you come from good roots. – Right. And we have interviewed your son and it was, it was wonderful to talk with him. He's just really brilliant and I love the level of compassion that he demonstrates in our conversation.

So that was also really great. – Well, that, that makes me feel really, really good as you can imagine. – Yeah. Can you tell our audience how you first got interested in this area that you've written so well on?

– Well, let me, I'm not sure of the area that we're talking about. But I think I know and I think I know the answer to the question and that is, you know, as a practicing neurologist, I began to wonder, well, why are these patients coming into my office in the first place?

What, you know, what's the underlying reason that they're having neurological issues? Because I found myself becoming frustrated with the fact that we were only treating symptoms, we were treating the smoke and ignoring the fire.

And I began to recognize that there was, even though we had various diverse types of disease by names that we were treating, whether it's Parkinson's Alzheimer's Huntington's, you name it, that there were some commonalities and among those commonalities was a mechanism called inflammation. And interestingly as I just said, well, we were focusing on the smoke and not the fire.

The word inflammation comes from the Latin inflammation, which means to burn, to light a fire. And we've now come to recognize that this unbridled inflammatory activity seems to be underlying so many of the chronic neurological degenerative conditions that we as neurologists encounter.

And, you know, I think that the role of inflammation, I think has taken a lot more prominent posture in in society these days vis a vis COVID because people are familiar with the so called cytokine storm, whereby there's a sudden explosion of inflammatory mediators, which we call cytokines. And that characterizes the sudden explosion of inflammation in the human body, which as we know, has profoundly detrimental effects.

But at the same time, we need to embrace the notion that even a chronic elevation to a much smaller degree of these inflammatory chemicals called cytokines can be problematic as well.

Let's call it the cytokine drizzle, whereby just a bit of a tweak up of the level of these chemicals, inflammation over time can still wreak havoc in the body and certainly in the brain. So what I'm saying is that we need to embrace this

notion that inflammation is playing a central role in the progression of the degeneration, not just of the brain, but of multiple body parts, including the heart. And importantly, including the immune system itself, which means that the very system that's creating the inflammation in the first place, is susceptible to damage from the very process inflammation that it creates.

So to go back to the original question, as I began to get my arms around this, I began to ask, well, if that's what's going on. Well, why is it happening?

Inflammation, Aging, and Longevity

And once we went to gain an understanding in terms of why this inflammation is happening, what can we do about it? How can we be preemptive or preventative as it relates to inflammations role in causing the brain to degenerate because you know, wind the tape back, we don't have any effective treatments for Alzheimer's, for example. So if we can get to the root of the causality of the problem, maybe, then we can develop strategies to be preventive as it relates to a devastating condition affecting some six million Americans stay that number expected to double by the year 2030. So that's really what brought me into the fold as it relates to, you know, really embracing inflammations role.

– And can you tie this into your own perspective on aging and longevity? – Well, that's $1 million dollar question, isn't it? Everybody wants to know what is the key for aging and therefore helping to extend both our health span and our lifespan.

And I think that inflammation is a central player. I don't think it is the player. I think it's intertwined with a lot of players be the down regulation overtime of mitochondrial functionality, those energy organelles within virtually every cell in our bodies.

Is it the accumulation of damage to our D N A? Is it the excessive action of free radicals? For example, are these is aging in the compromise of our longevity, longevity, a consequence of metabolic changes, insulin resistance, for example, hypertension changes in the blood lipids, increased waist circumference, increased body mass index. And I think to be fair, we recognize that these factors are all contributory and also serve as markers to predict shortened link lifespan, shortened health span.

We have certain biomarkers like telomeres and markers of free radical media stress markers of insulin resistance, for example, markers importantly of mitochondrial functionality that are all very valid in terms of predicting shortened lifespan.

We know that you know, other more sophisticated markers like looking at changes in D N A vis A vis, the horvath clock can also be very instructive in terms of predicting where a person might stand on his or her, not chronological age.

But what is their biological age? How far along are they on the continuum of being born and then ultimately failing and die? So, inflammation plays an important role in inflammation in and of itself is important. But inflammation has metabolic implications, inflammation affects various metabolic parameters like our blood sugar, like the function of insulin, like the function of our mitochondria.

So all of these very important factors interplay significantly and ultimately conspire to read out as to will our lifespan be lengthened above what is considered normal or will it be foreshortened?

– It's like a puzzle with all of these pieces, but they're all interlocking because they all affect each other. So it's a great field of play to work in, to find out how all of these pieces tied together – And really what you just said, absolutely is confronted by modern medicine, the, the underlying doctrine of modern medicine, which is to find the cause and therefore create the cure meaning singularity.

And we recognize that's just not how it works that there are multiple inroads, for example, to Alzheimer's disease. And as such, we can't leverage one pill, one approach to take care of a problem like Alzheimer's diabetes, coronary

heart disease. So many of our chronic degenerative conditions, we have to embrace the notion that the body is highly integrated, that things that are going on in the gut, for example, in the liver and the kidneys and the thyroid and the immune system, all are inter playing in such a way as to affect outcome in terms of the health of any body part and that affects the health of the entire organism.

You know, this very much stands in contrast to the reductionist view that the brain stands alone from the gut, from the heart, from the immunity and modern medicine really refutes that aggressively that the brain, for example, is highly influenced by the functionality of the immune system, who knew that the gut things going on in the gut matter a heck of a lot in terms of the brain's function right now and the brain's resistance to disease in the long run as well. And, you know, that's a tough pill to swallow for mainstream medicine. And certainly mainstream neurologists that what's causing neurological problems may often be found elsewhere in the body like the gut and therefore nutrition becomes important. And you know, other aspects of our lifestyle choices that affect the gut are, are very important. – Yeah, so I appreciate when you've talked about sugar and diet, I've appreciated how you've related this to their impact on brain and behavior. Could you start diving into your perspective on sugar? And by the way, I was, I enjoyed one of your talks that I, one of your interviews that you did where one of the people interviewing, you started out her conversation by telling you that she had a jelly donut for breakfast.

And that was the handoff to you to talk about the impact of, of stress, but you didn't have a, a, a friendly audience, so to speak.

Sugar, Stress, and Brain Health

And that's really true for a lot of people. – Well, it's true. And that certainly was not the first time I was confronted by adversaries. And what you're referring to was a national morning show on one of the networks.

And the interviewer who at least began the interview then I was accosted by the other four people sitting at the table, uh indicated that, you know, Dr. Perlmutter, you just revised one of your books and one of your main themes is that eating sugar, a lot of sugar is bad for your health.

But I had this croissant for breakfast or jelly donut, whatever it may have been. And then she continued to say, and before I had a chance to respond, we reached out to the sugar industry and they told us that consuming sugar in modest amounts is perfectly fine for your health. And my response, as you'll recall was, in fact, you're right, there was a time when the tobacco industry told us that smoking cigarettes was a good idea for our health.

So, you know, people tend to be down on what they're not up on. And you know what if people don't challenge you? It means you are status quo and status quo doesn't move the ball down the field. We have to challenge dogma.

We have to challenge commonly accepted ideas that maybe not beliefs but at least ideas because you know, it's very clear that certain ideas have been perpetrated upon us.

For example, the notion that dietary fat was a bad thing that was perpetrated upon us actively by industry wanting us to consume higher and higher amounts of sugar and their effort to, you know, massaging this method message to get us to eat more sugar was profoundly effective that we were told that eat all the sugar and carbs you want.

It's the fat that's killing you. And really nothing is further from the truth and really nothing is further from the diet that humans have eaten until just the past few minutes. We've always had a diet that's had much higher levels of fat, which paved the way for our survival.

And we didn't eat refined carbohydrates because quite simply there weren't any, we didn't find cartons of soda or even juice, fruit juice hanging from trees during our hunter gatherer days. And therefore, we weren't bombarding our bodies with these high levels of refined carbohydrates that set the stage for insulin resistance, that is really quite threatening throughout the body.

– Can you go into how it impacts brain and behavior and perhaps the mechanism by which it does that – Well. – A

lot of these mimic the impact of chronic stress by the way. Also. – It's true.

Well, I think, let me rephrase the question then. And that would be, is there some relationship or similarity between the detrimental effects of chronic stress and some dietary indiscretions that we may engage uh to be fair eating a diet that's high end refined foods, ultra processed foods, devoid of nutrients, especially devoid of fiber. Similarly similar to rather chronic stress, both challenge the health of the gut and specifically the organisms that live there. And that's important because both elevation of stress over time and its creation increase of a chemical called cortisol, as well as eating bad food, ultimately lead to changes in the gut that leads to the gut becoming permeable or in more common parlance leaky.

And why that's an issue is it gets right back to the beginning of our conversation that sets the stage for inflammation when the lining of the gut is threatened because the gut bacteria have been challenged and can't do their job to shore up the gut lining.

Then the gut becoming permeable, allows various types of chemicals to make their way and other components, even bacterial components make their way across this now permeable membrane if you will and leads to an uptick in inflammation.

So what we've just connected, which really is, I think right on message for our time together today is a relationship between chronic stress by virtue of the increase in cortisol, as well as changes in appropriate changes to our diet and ultimately leading to inflammation that is so threatening to the human brain.

And if I may, I'm going to take this conversation a little bit further. Why is that such an issue? We'll get back in a moment to the direct effects of inflammation in the human brain.

We've already talked about the the uptick in inflammation being threatening to the health and functionality of the brain cells. But I'm gonna take it to a different place because it just came to mind. I think it's really very important.

One important threat to the brain of chronic inflammation is it actually leads to changes in our ability to make good decisions. I need to take a couple of steps back. I want to just state that for simplicity, there are two main decision making parts of the brain and impulsive.

I want it right now. I don't care about other people. I don't care about my future self area of the brain called the Amygdala. That doesn't look at, looking at various factors, looking at, considering the future, etcetera. It's I want to do it.

Now, I'm going to make that decision. Now, another area of the brain, the adult in the room, if you will is called the prefrontal cortex that lives behind your forehead.

And that's an area of the brain that says, whoa, we're going to look at data, we're going to consider other opportunities or choices. We're going to ask ourselves, what is the long term effect of this choice that you're going to make on you and on others around you, etcetera. Now, fortunately, this prefrontal cortex is generally in the driver's seat and can control that other area.

The amygdala, the impulsivity area, the child in the room, we call this top down control whereby the adult we hope is in the driver's seat, making better lifestyle choices, reducing our consumption of foods that are threatening to our health, getting out and exercising, going to bed on time, interacting with other people having social relationships, doing all the right things we require and need this top down control whereby the adults in the room is in charge that relationship, whereby the adult in the room is helping make the better decisions, is damaged and even destroyed by inflammation.

Think about that when you are engaged in any lifestyle, habit, choice that increases inflammation in your body. It means that moving forward, you're gonna make worse choices. You're gonna make worse choices as it relates to your food choices. Staying up too late binge, watching whatever the show may be sitting on the couch, not exercising, not interacting with other people.

And that's gonna make the situation worse. So, yes, inflammation threatening to the brain and the heart, the immune system, insulin functionality, etcetera, but importantly, inflammation threatens our ability to make good decisions.

And I think that's really very, very important because when we start making poor decisions, then we amplify inflammation, we create a vicious circle that makes us really, you know, go down this rabbit hole and makes it very difficult to climb out.

– And again, I continue to see the parallels with stress because when a person is stressed, when there's danger, their brain also tends to shift down to the lower centers, the more survival levels or if they're dealing with emotional issues, the more emotional centers, as you mentioned, the Amygdala danger and lose connection with the prefrontal cortex. And again, make poor decisions, reactive decisions as, as you identified. I also heard related to this what you're saying right now that you've connected this to some of the polarization that's going on in our society.

Lack of compassion. Can you say a word or two about that? – Sure. And I think that calling it like it is, we're seeing much more polarization of our society, much more divisiveness, much less of an appreciation of the needs of others.

Decision-Making, Polarization, and Gut-Brain Links

And if you wind the tape back a little bit, I made a relationship, I drew a relationship earlier between the health of the gut bacteria and or lack of health that gut bacteria ultimately increase in inflammation and then inflammation threatening to lock us into a more fear based Amygdala visualization of the world around us.

So if we get to this place of poor bacterial health in the gut, because we're eating crappy food. And if the idea of the western diet, which was the standard American diet, highly processed, devoid of good levels of nutrients now becoming the global diet threatening the gut increasing inflammation.

We've now connected important dots that recognized that the change in global nutrition by virtue of how that's changing the microbiome of people around the world such that leak iness of the gut and therefore increased inflammation is happening and inflammation threatens to lock us into a more Amygdala based worldview.

We create an uh an understanding of how the global change in diet is leading to this polarization, this sense of it's all about me and you know, the rest of the world be damned. – It's a great connection that you're making here. And it's a very important connection because of how universal it has its impact.

Can we bring in the conversation about grain and how you see how grain plays a role in this and what your suggestions are around this subject? – I will discuss that. I first want to say that, you know, I wrote a book years ago called Grain Brain.

And the thesis of the book was basically that grains can present a threat to our health at least through two mechanisms. First, some grains contain a protein called gluten and specifically a sub part of gluten called alpha blyden that has been demonstrated to do exactly what I mentioned before and that is threaten the gut lining and make it more permeable and hence increase inflammation.

Now, that is layered on top of a notion that we've seen that already in a disease called celiac disease, whereby there's a direct immunological challenge that leads to this permeability and can have wide ranging effects in the body.

But we explored the further expansion of this notion of gluten in terms of health threat. With the understanding that a large segment of the global population doesn't necessarily have to have celiac disease but can have what is called non celiac gluten sensitivity, meaning that they can experience increased gut permeability as a consequence of exposure to this protein found in wheat barley and rye without necessarily having celiac disease.

Now, when we wrote the book, that of course, raised a lot of eyebrows, which was a great thing as you indicated before, set the stage for me to be challenged on television in the press, etcetera, which is I think a very good thing.

That's how we make progress. But I think the point I want to make is that's been now validated in our most well regarded peer reviewed medical journals, like the journal of the American Medical Association.

The notion that you don't have to have celiac to have sensitivity to gluten which can cause inflammation in your body. The second message of grain brain was that refined carbohydrates and refined grains, whether they contain gluten or not, can represent a significant health to a threat to our health and specifically our metabolic health by ultimately leading to increased insulin resistance and raising our blood sugar. Why is that a brain?

Hence the name grain brain relationship? Because we know that even subtle elevations of blood sugar pose a threat to the brain and ultimately may serve as a mechanism whereby we've increased our risk for an incurable disease called Alzheimer's. Those are the central tenets of grain brain.

Now, that's not to say that grain brain categorically stated that all grains are bad. There's nothing wrong with some non GMO corn and things like quinoa, which is by definition, not specifically a grain, but often lumped into that category.

And even wild rice, you know, we want to be certainly cognizant are mindful of our portion size. So we don't bump our carbs. But the message was that refined carbohydrates, processed grains and certainly grains containing the protein gluten were things we should be thinking about.

One of the questions that I have and a lot I think a lot of people have is whether if some of the things we're talking about have some negative consequences, is there a lower level of these where the body is perfectly capable of resolving whatever um products we're talking about.

If the, if the body can handle a certain minimal amount or is any amount not good, I think clearly getting back to what I just stated, the body can definitely handle small amounts of non gluten containing. We'll get to the other part in the moment, non gluten containing grains. Absolutely. I mean, again, you know, some non GMO corn, rice, other types of grains that are non gluten containing perfectly fine. The part that becomes an issue and maybe threatening is when they're highly processed.

So, you know, puffed rice or some cereal, whereby you know, as soon as you consume this highly processed food, though, it's based on a non gluten containing grain can spike your blood sugar quite dramatically.

And that's what you clearly want to avoid you know, it's why we're gaining such insight into how these foods affect us when we now wear things like continuous glucose monitors and we can determine, you know, within 30 minutes. What was the effect of consuming that type of rice? Did it spike the blood sugar or did it not?

Now, I think the second part of the question might be, can people get away with eating gluten containing foods? The answer is yes. I mean, I think this is a situation unlike the celiac patient where you might be able to tolerate some and do okay with some.

But you know, the mission of the book was to call it out. And you know, we wanted to explore the work of researchers around the world who were really doing the deep dive into this notion of non celiac Lucas sensitivity.

Researchers like Dr.

Grains, Gluten, and Sensitivity

Marius had Java Solu in England who had begun realizing that a lot of neurological problems in my area of interest were rooted in the fact that some people had these experiences when they consume gluten, even though they did not have celiac disease, movement disorders, certainly headaches, depression, fatigue, etcetera that he observed were related to their response to gluten containing food in our clinic.

After reviewing researchers like Dr. Hodge of Oslo and others, we began putting people on a gluten free diet who did not have celiac disease who knew. And we're getting really, really sometimes you don't have to get a lot of great results.

But in some people, certainly not every headache patient was there because they had gluten sensitive. But I can tell you for some headache patients to finally find an answer and stop taking narcotics that they've been on for decades from their, for their headaches and realizing it was just related to gluten.

How did we know that? Because their headaches would go away on a gluten free diet and then we would challenge them with gluten containing foods. And lo and behold there, headaches would return, you know, it made believers out of them and they were happy to come off of their narcotic medications.

So that's what prompted writing that book so many years ago, 2013 now. And, you know, certainly not every medical problem is related to gluten sensitivity, that's for sure.

But some are and we wanted to call that out. – Yeah. Well, that's a great way of testing your hypothesis if you put them back on and then they resume having the symptoms again. So it's a, it's a beautiful demonstration and I'm, I'm wondering we're talking about physical symptoms, but what's your experience in, in changing people's diets in terms of anxiety and depression, other emotional related issues? – Well, dietary interventions for mood disorders, I think is a new area. It's an exciting area and it's got a lot of underpinning in terms of latest science. I mean, when you have uh people like Dr. Romanee do at Harvard that are really getting the word out that diet matters a whole heck of a lot.

It becomes yet another tool in the toolbox to really approach the actual underlying problem as opposed to treating the symptoms. Let's be clear. The medications used, for example, to treat, to treat depression are treating the symptoms.

They're not treating depression though, they're called antidepressants. They work on the symptoms of an underlying problem, which is the manifestation being depression. It's quite clear that modern research and medical literature draws a strong connection between depression and a mechanism called inflammation who knew were right back to inflammation.

Depression is an inflammatory disorder. There is, there are characteristic changes that are demonstrable in the gut bacteria that are seen in conjunction or in association with depression.

What does that tell us? It doesn't tell us that there's necessarily a fingerprint that we can ascertain in terms of evaluating the various species of bacteria in the gut that would correlate specifically every time with depression.

But when we look at various broad pictures of the gut bacteria and importantly, their metabolites, we begin to see relationships to depression, the gut bacteria. As I mentioned earlier, really fundamental for maintaining the gut lining, changes in the gut lining that allow certain chemicals to get into the bloodstream. Like one called LPS are seen to associate with depression, higher levels of blood LPS, which indicates leakiness of the gut correlate with depression and even the antibodies against LPS are seen to correlate with depression.

Again, indicating that there's a relationship between leaky nous of the gut and risk for depression and risk for Alzheimer's and risk for autism and risk for autoimmune conditions, risk for celiac list risk for type one diabetes, etcetera.

So it's really important to, to look at this because what is that saying to you right now as a clinician, it's saying something's wrong in the gut. And here I have a patient suffering from depression has been put on antidepressant for the past 20 years. Maybe there's a way here, we can finally approach the underlying problem and not just treat symptoms to be fair.

There's nothing wrong with treating symptoms. But I think most in the field would agree that the effectiveness of the antidepressant medications that are offered to patients with depression are not extreme to be kind.

Therefore, we really ought to be paying attention to what the heck's going on here. Why is this patient depressed? The evidence points to the fact that there's a strong relationship with depression to the process called inflammation or the mechanism.

And therefore, what is causing inflammation? Could inflammation be caused by something called gluten sensitivity? You bet can inflammation be caused by changes in the gut bacteria that's been made very clear.

Therefore, let's do something out of the box and let's work on reestablishing gut health perhaps as an in road to help this patient with his or her depression. Now that we recognize that it may well be related to inflammation. Let's work on a diet that takes out these highly processed foods that brings back in dietary fiber to nurture the gut bacteria that uses things like probiotics and probiotics. And even post biotics will hopefully define that later on to reestablish gut health and stop challenging, threatening the gut health with certain medications with chlorinated water.

With these ultra processed foods, with chronic stress, with lack of restorative sleep, with lack of exercise. These are all lifestyle choices that have a huge impact on restoring gut health that have been demonstrated to be effective in reducing inflammation and helping people with depression, – David.

How do you determine gut health? – Well, there are a lot of ways, I think one of the simplest tools that I use is actually a very sophisticated tool. It's called a tape measure. It's a very, very sophisticated tool.

When you take a tape measure and you put it around someone's waist, it is a surrogate marker as to how healthy is that person's gut, not in terms of the size of the gut, but rather what's going on inside the gut in terms of the health and functionality of the gut bacteria.

Now, beyond that other surrogate markers, that would lead you to believe that the gut bacteria are not where they need to be doing what they need to do would be things like fasting blood sugar, fasting insulin level. Looking at a continuous glucose, monitor markers of inflammation that are measurable in the gut like c reactive protein and more esoteric ones like tumor necrosis, alpha interleukin one beta L six, et cetera. These all tell you that there's increased inflammation in the body and therefore likely there are changes in the gut.

Now, these days, you can actually measure both the metabolites of the gut bacteria as well as the RNA signatures of these bacteria themselves and characterize the gut bacteria.

Do you need to do that? I don't think so. I think we can assume right off the bat, even without testing, who is at risk for having what we call dis bio sis or disturbances of the health and functionality of the gut bacteria and who therefore might benefit from interventions focused on restoring gut health that can then benefit the brain benefit how a person's metabolism works, their response to insulin, for example.

And that downstream has an effect on the brain as well. – Your focus and looking for the root causes rather than just treating the symptoms. And in my work, we can look at a whole array of physical symptoms and trace it back to what I refer to as autonomic dis regulation. And that if you help a person restore their ability to self regulate a lot of those symptoms go away.

So there's a similar kind of looking for the root, the root causes. You're recommending you're suggesting changes in diet that's very difficult for a lot of, a lot of people.

Diet, Mood, and Gut Health

And, and you're also suggest that the bad diet makes it even more difficult to make these decisions because of how it impacts the brain brain itself. What's your opinion about food addictions and how this fits into what we're talking about? And, and how do you address that with your clients, with your patient?

– Let me answer that question. In part two of this response, wanna answer, in part one, just by really indicating that there is a place for symptomatic medications in, in modern medicine that's important. There is a time and a place

for medication for head pain, headache, for using medication for anxiety and depression, etcetera. And again, I don't want to give the impression that those are off the table.

It's why we want to have an integrative approach, an integrated approach. And that is one that looks as opposed to alternative medicine, an alternative approach seems to really want to focus on an or more alternatives to standard of care. There's great value and standard of care.

I'm not direct gating it, that's for sure. But I don't think it's fair for that to be the exclusive purview of the health care practitioner. Having said that, you know, getting back to other parts of, of the question, I would say that we need to recognize that addictions to do. Foods, for example, really are an indication of making poor decisions and succumbing to desire.

I wanted, I'm gonna eat it now. Dammit. And that's it. I want that food and let's take a step back and recognize that some of the foods, many of the foods that people seem addicted to our foods that are sweet and have a lot of sugar and you can't stop eating whatever the cookies are.

And the reason that happened or one consideration is that sweet hacks into a programming deep within our brains for survival. And that is the desire for sweet. Our brains are hardwired.

They came preloaded with the sense that sweet is survival. Why? So because in our hunter gatherer days, we would eat sweet because sweet triggers mechanisms in our bodies to increase our hunger to increase our production, storage of fat as a survival mechanism.

And to make us a little bit more insulin resistance such that our blood sugars will go up and power our brains. So there isn't a person walking the walking our earth right now.

Who doesn't have a sweet tooth? It's, you know, I often ask when I lecture to large groups say I want you to raise your hand if you don't have a sweet tooth and pretty much nobody would ever raise your hand because we're all hard wired to like sweet, sweet taps into the Amygdala and says, eat this and eat it now.

So when we can't resist, it's because our Amygdala is screaming. I want it. I want it now and I'm going to stamp my feet until I get it. It's a child in the room making that decision.

What we're desperate for as it relates to our food choices and even as it relates to food addiction is to bring the adult in the room and make it okay, make it okay to make a better decision. So I think what you're getting at is the notion that when we're in a bad place as it relates to inflammation were pretty well locked in to that Amygdala. And we're going to continue to make poor food choices. How do we overcome that?

Well, what I will tell people is that first visit, we're not going to change your diet at all. You know, darn well, that sitting down with a box of Oreos isn't in your health interest. It's not the decision that, that you should make and probably, you know, darn well, that's true, but you can't help yourself. I get it that that gets to the heart of making poor choices and being virtually addicted to eating sweets.

What I tell them however is we're going to try to re establish this connection between the child in the room and the adult in the room and bring the adult back into the house to help with decision making. I'm not gonna worry about the food choices you make for this week or the next two weeks. But here's what I want you to do.

I want you to get up once or twice a day and walk to the mailbox. Now, this would be a person who's basically sat on the couch and done nothing and says I can't exercise. I have no endurance.

I'm not saying, you know, I want you to go ahead and jog for three miles a day until I see you next. I know. Darn well, that's not going to happen. Probably they couldn't do it, nor would they do it. But there's got to be something that can be done to increase exercise. That's the first step.

Oh, and by the way, as long as we're doing a couple of things before I see you again in a couple of weeks, I'd like

you to not have any screen time after dinner.

Now, I know that sounds draconian. But if you want to read a book or something, I just don't want you on a screen. I don't want you exposed to blue light.

That way, there's a chance that we might establish better sleep and therefore have a powerful leg up as it relates to reducing inflammation and significantly improving that connection between the adult and the child in the room.

Then get to your question. We layer on those dietary recommendations slowly and lovingly and carefully knowing that that person likely after a couple of weeks is much better equipped to begin to implement. So, you made a very, very good point and that is, you know, people are not going to make these changes, they're not equipped to make those changes that Amygdala is screaming And the exercise helps. But, 11 more point I want to make and that is, there's probably nothing worse, that would activate that amygdala than not getting a good night's sleep in terms of quality and quantity of sleep research has demonstrated amygdala maybe as much as 60% increase in its activity just from one night of non restorative sleep.

– It certainly validates the importance of of a good night's sleep. One of the things I do with, with people when they talk about how they are so reactive and then they don't have control and I encourage them to take a time out, ground themselves, breathe so that they can reconnect with the prefrontal cortex.

So different ways of helping them do what they're typically not typically doing. – And I bet everybody can relate uh yours truly as well. I remember when we'd be up all night in the emergency room or in the operating room, whatever it may be.

And you know, come six or six o'clock in the morning, we're getting ready for rounds and uh where we wouldn't go to the cafeteria, we would go to the pediatrics floor and take all of the baby food out out of the refrigerator, especially I think was banana one of the flavors. It was pure sugar.

I mean, that's what's in baby food and we just eat, suck those things down for that sugar. Bad, bad idea, bad choices.

Food Addiction, Evolution, and Lifestyle Change

I knew it very well, but you know, you can't control yourself when you're up all night like that. – You mentioned something about an evolutionary mismatch.

Can you describe what you're referring to there? – Yes. And you know, as we look at our DNA our gift from all who have come before us, the refinement of our DNA generation and generation has allowed our survival has allowed us to be healthy, disease resistant and reproduce.

That's what DNA does in every species on the planet. And that survival depends on a given set of circumstances and truly the circumstances under which we live are unlike any that humans have been confronted by in our history on this planet in the last few seconds of our time on this planet. Suddenly we are confronted by an environment which influences our gene expression.

That is nothing like we've been exposed to ever in our evolutionary past, the amount of stress, the lack of sleep lights on at night and certainly the types of foods that we are consuming. These are all envy environmental cues for our D NA to express the genes that are coding for our survival or to express genes that are maladaptive that are going to lead us down the pathway of illness and compromise our longevity. So it's a mismatch.

You know what's behind the underpinning of the so called paleo movement that we should eat. At least more as did our paleolithic ancestors, meaning eating foods that are certainly less processed, less refined foods that are fermented.

For example, our ancestors wouldn't reject fruits on the ground that we're already starting to rot. When a fruit is on

the ground rotting, it's fermenting. The sugars are being, being fermented by the various bacteria. We would eat that and probably have no problem with it. It sounds distasteful today, but we still eat fermented foods. Today. We know that sauerkraut for examples of fermented foods, kimchi A fermented food, lots of foods that are fermented are actually good for us. Help restore.

Even are the bugs that live within our gut. The germs, if you will, there are germs, there are germs in one sense of the word, but they're there to help us in exchange for us, feeding them and giving them a place to live.

So that's the mismatch between nature and nurture between genes and environment if you will, that I think is front and center in terms of the maladies of health that characterize the day that we live in.

– And would you suggest we attempt to mimic diets that predate agricultural developments? – Yes, absolutely. I think that when, when you look historically at what's happened to human health as measured by our dentition as measured by our bone density.

And even what we're able to glean from, you know, looking at fossil records. But also by looking at those populations, hunter gatherer populations that are around today, that you know, we see significant changes that are introduced when our modern lifestyle is adopted, primarily our our diets.

So yes, I think getting back to, you know, certainly eating the types of fruits and vegetables that one might encounter, which means not processed. We mentioned earlier, you know, eating an apple is a great thing.

An apple contains fiber. It contains vitamin C contains actually a small amount of fructose and sugar. In comparison to a 12 ounce glass of apple juice that contains 36 g of sugar and almost no fiber and yet is promoted as being a health food. I was in the hospital last week visiting and saw what this individual is being served hospital food with the, you know, the apple juice and the refined carbs on the plate.

And you know, this is a time when we need good foods the most. So to answer the question, yes, the foods of our hunter gatherer forebears who primarily gathered, they did some hunting, but they primarily gathered I think is, you know, clearly going back to the work of Dr. Lauren Cord Ain really were foods that tended to be good for us primarily because of their macro nutrients, but also the micro nutrients and how they would help nurture the gut bacteria.

– Well, it certainly would be great if hospitals modeled good eating behaviors. – Well, yeah, that's true. That we, you may see that changing in the future. We're actually involved in a project that may, show the world how individuals can be hospitalized and also at the same time, eat good food. Who knew that that was important, you know, when you go to veterinary school, you get a year of nutritional uh study and included in your degree. When you go to medical school, that doesn't happen. I had, I went to, we went to, you know, I went, as you mentioned, Miami and we did not receive one hour of nutrition instruction in four years of medical school because nutrition doesn't seem to matter to humans health. It matters to your dog, but it doesn't matter to you. And I, you and me. – This has been a great conversation. I really appreciate all of the wealth of wisdom that you're, you're sharing with our audience. Have a couple of last questions.

Seed oil is related to inflammation. What's your position on having seed oil in your diet or not? – It's a very good question and we're hearing quite a bit of chatter these days that seem, seems to relate, you know, the introduction of seed oils into human, into the human diet.

Beginning in the late 1800s and then much more aggressively in the early 1900s, relating that to changes in our metabolic health. I'm aware of that. You know, there's the discussion that seed oils are high in omega, obviously omega sixes linoleic acid, etc, and therefore pose a threat by virtue of increasing the very process that we spoke about.

There is discussion that somehow consumption of seed oil is threatening to the composition of cardio lipin, an important uh protein as it relates to mitochondrial function.

But when you unpack the actual relationship of seed oil mechanistic lee to things like cardiovascular disease, I think there is some suggestion that it relates, but it's not to my satisfaction. Really. You know, nailed shut.

Seed Oils and the Drop Acid Book

I think that, you know, a lot of discussion looks at the omega six to omega three ratio indicating that, you know, our ratio had been traditionally something like 2 to 1, although in modern times as high as 20 to 1. And therefore, that's our undoing as it relates to the role of these dietary fats in cell membranes in especially in immuno regulation. I would say that by and large, it makes sense to reduce our consumption of processed seed oils for sure.

But I'm not you know, I'm not in favor of including things like olive oil, for example, or avocado oil in that discussion. So I think, you know, this is still a level, an area of science that is being unpacked and we're gonna watch it quite closely. I would say that, you know, we humans have eaten saturated fat for an awful long time.

I am pretty well convinced by looking at the data that there's very minimal evidence to suggest that consumption of dietary fat is necessarily a health risk for cardiovascular disease in conscious to what we've been led to believe over many, many years. So I think we have to keep watching this.

You know, I am very much in favor of Good Omega three supplementation as an offset. And but again, we're gonna watch as this story evolves over time. – Right. And then the last question, I want to make sure we give you the opportunity to say a little bit about your latest book, Drop Acid About Uric Acid. If you can just say if you – We'll Drop Acid is not a book telling everybody they should be taking LSD every day.

That's for sure. It was a cute title I thought. And everybody who asked me about that title, it's always with a wink and a nod. But, but having said that the acid we're referring to is something called Uric Acid.

And Uric Acid is something traditionally that we learned about in the context of kidney stones and gout. But it turns out that uric acid is a very powerful mechanistic chemical as it relates to metabolic health. Such that higher levels of uric acid, increased blood sugar, increase insulin resistance are associated increased body fat are actually a threat to mitochondrial function. So we want to keep our uric acid levels in check uric acid traditionally has been thought of as being the downstream product of the breakdown products of DNA and RNA and our food foods that are high in what are called puritans.

We now know that you know, the biggest in road to producing uric acid in the human diet is the sugar fructose. And it was a survival mechanism. It's through the consumption of fructose that our ancestors by making higher levels of uric acid were able to survive by making more body fat, by becoming more insulin resistant, by turning on glucose, neo genesis, making more blood sugar to power their brains to avoid starvation and predation. Nowadays, though we're turning on, you know, the production of body fat to get ready for the winter that really never comes.

So it's this relationship with elevated uric acid with metabolic mayhem if you will and the relationship of causing uric acid elevation from our consumption of fructose sugar that I really wanted to message in this book.

And then once I made those relationships, the second part of the book is dedicated to. Okay, I get it. Now, how do I fix the problem? – Beautiful, beautiful. Well, again, thank you so much and, and I really appreciate all the work you're doing to bring good evidenced based information to our population and, and contributing hopefully to reversing what's been a trend over the last many years.

So, thank you so much. How can I reach you if you have any offer you want to present to our audience that they can reach out to you? – Sure. Well, the best place to find me is drperlmutter.com. dr my last name Perlmutter dot com.

You know, we have, we do a lot of social media Instagram, I think lately has become really, really popular. We post on Instagram every day, their entrees on Instagram to my blog. And I think my Instagram is David Perlmutter.

I should know that, but I don't know, maybe it's David Perlmutter, MD, but I suspect people can find it. And my

podcast is called the Empowering Neurologist. And I've had the opportunity on that podcast to interview just incredible people who are dedicated to helping move that ball down the field. So that'd be a great place to, to learn more information. – Great. Thank you.

Thank you again and continue to do your great work. And I'm gonna go get that drop acid book now that I know what it's about. – There you go. Thank you for having me.