Empower Your Lifestyle To Manage Parkinson's Transcript

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Welcome and Introduction

Welcome to The Parkinson's Solutions Summit 2.0. I'm your host, Dr. Ken Sharlin and I have the great honor of welcoming the empowering neurologist, Dr. David Perlmutter to the Summit.

Thank you, Dr. Perlmutter. Dr. Sharlin, delighted to be with you today. Well, Dr. Perlmutter, let's kind of just dive right in. We have so many different things we can talk about. And, you're very well known in the area of functional medicine and neurology.

You're like, the David Letterman, Netflix series. This man needs no introduction. Probably, but I'm sure we'll get into some background things as we chat.

You know, why don't we start with I love the title of your podcast, and, you know, this is The Parkinson's Solution Summit. And I wonder if we can just talk about empowerment a little bit, because that is really at the heart of we're certainly one of the things that distinguishes functional medicine from conventional neurology.

that's true. And, you know, I think that people kind of resolve themselves to the notion that, well, I happened to get Parkinson's, bad luck of the draw or it's a genetic thing.

and, you know, I think the empowerment part is, as a matter of fact, we are the the arbiters of our brains destiny. We very much determine whether we're going to be at risk for a neurodegenerative condition, be it Parkinson's or Alzheimer's or otherwise.

based upon the choices that we make each and every day. we, you know, certainly seen over decades the relationship between various types of toxic exposure and risk for this disease that we we speak about today.

So the notion that it just happens along the way, I think is, interesting, but not reality. Yes. It's been with us an awful long time. I think the naging the Yellow Emperor discussed what sounds like Parkinson's back in, fourth century BC.

Certainly. James Parkinson's, and I think it was 18, 17, wrote his essay on the shaking palsy that, you know, eponymously bears his name. and so it's been around for a long time.

And certainly there are genetic factors.

Empowerment and Parkinson's Risk

We're quite well aware of those, but by and large, I think we're really getting to the point. And it's been very much reinforced, quite recently that there are issues to which over which we have control that very much determine on which side of the Parkinson's risk scale we will fall.

And, you know, one of the areas that has been fascinating for me over the past couple of decades, which is what I wrote Green Brain about, was the fact that metabolic issues, in the human body play out as brain problems.

And that includes Parkinson's. We've known for quite some time, for example, that diabetes seems to be associated with Parkinson's risk, and more recently, that diabetic, patients who are at risk for developing Parkinson's have about a 50% risk reduction if they're using one of these new weight loss drugs, these GLP-1 agonists.

Right. That just came. Out matic that using a drug that affects the body's metabolism and affects the brain's metabolism is associated with a preservation of brain function such that the hallmarks of of Parkinson's do not,

appear.

even more recently, as in a couple of days ago, a study appeared in New England Journal of Medicine. Yes, that demonstrated, that over a one year period of time, this was a double blinded trial.

Half the group, received a GLP one agonist, and ozempic like drug, if you will. The other half got daily injections of a placebo. and what they found was really absolutely remarkable that the individuals taking this weight loss drug or diabetes drug, if you will, I call it a metabolic, drug.

yes. Didn't really progress, as one might expect. When I say as one might expect, the placebo group did indeed get worse over that 12 month period of time to the extent that they were about three points lower in terms of their functionality in what's called the unified Parkinson Disease Rating Scale.

Whereas the group receiving this GLP one weight loss drug, if you will, diabetes drug, actually had no change at all. We've never ever seen that. So this is, I think, for the very first time, demonstrating a drug intervention which is a disease modulator, not a symptom changer, not giving a Parkinson's patient a drug to make up for their lack of levodopa, to help them with their rigidity and tremor.

This is the first time that the actual metabolism of the brain immune functionality of the brain was targeted. in this case with this drug. And I think what that does is first, it tells us that, wow, this is powerful.

this opens the door to, not only lifestyle modification, which you and I will talk about, but certainly even drug intervention as it relates to reestablishing healthy metabolite ism and how that plays out in the brain.

And secondly, it it's a vote in favor of maintaining or regaining healthy metabolism via our lifestyle choices. Absolutely. So what you're saying is, in fact, we can view this as a risk factor, i.e.

metabolic disorder, which for folks who are watching and maybe not completely sure what that means, that does include things like insulin resistance, high blood pressure, larger abdominal girth where the hip to waist ratio is off, the dyslipidemia or hyperlipidemia of, the, the when we often talk about high cholesterol.

And by the way, and not to digress, people often talk with me about stat and drugs and that's really a whole other subject. And while I don't personally prescribe statin drugs, I remind them that that doesn't mean that we should dismiss the importance. and I hate to call it abnormal cholesterol, because you and I both know that cholesterol is is a normal, you know, molecule is a normal part of human biology, but it's the oxidative stress.

It's the the things that affect the cholesterol that play a role.

Metabolism, GLP-1 Drugs, and Brain Health

So when we're talking about whether or not a person might benefit from a statin drug, it's really that attempts to address this piece of the metabolic pie in other ways are not working for that person.

And we really have to maybe look at where the risks and the benefits are. But again, we're not here to promote those drugs. I don't personally prescribe them.

But just so folks know, that is part of the equation. Yeah. And again, so much is really focused in our general health now on metabolism. you know, and as we see the extension of the use of these GLP one agonists to the brain, to the heart, with dramatic reductions in major cardiac events, and this study now that just came out, relating it to, reduced progression in Parkinson's, I think, you know, there's a lot to be said in terms of understanding mechanistically what's going on with these drugs.

And I think it really gets to the heart of what causes a good brain to go bad. And we really recognize now that it's, you know, it centers on what we call immune cell function.

And and oddly enough, I think we're beginning to open up the purview of that immune function now. I mean, most of us, you say you talk about immunity, we're talking about, well, you know, how do you protect your body against getting infections?

I got Covid or I didn't get Covid or I was exposed to something. and my immune system luckily kicked in. But I think as it relates to the brain, the immune system is playing a far larger role.

in terms of nurturing brain cells, maintenance of health have brain cells responding to trauma. or on the other hand, in the downside of immune dysregulation in the brain would be the damage to neurons, the damage to synapses, the damage to specific cells that make particular neurochemistry, like dopamine in the in the substantia nigra.

this is mediated through the immune system. And I think is it an immune problem in the classical sense? It is not. Is it an immune problem based upon the fact that immune cells are being are involved?

You bet it is. But we're just beginning just beginning to get an understanding as to the role of one of the primary, cells in the brain related to immunity, called the microglial cell.

Now, this cell is incredibly responsive to metabolism, as it were. the microglia can be a wonderful friend. Nurturing brain cells, nurturing synapses, clearing beta amyloid, clearing alpha synuclein, clearing a phosphorylated tau, allowing neurons to grow, enhancing mitochondrial function, keeping free radicals at bay.

Or it can shift to become its evil twin, called the M1 phenotype. The same exact cell that was. The angel can become the assassin, and it can shift to a form that threatens the health of neurons, that allows beta amyloid to accumulate, that fosters alpha synuclein, that actually threatens synapses, threatens to digest and remove what we need the connection of one brain cell to another, the very same cell, its context, and the determinant of that context is metabolism, is its metabolic state.

Are the mitochondria within this microglial cell happy and functional? In which case all the things it needs to do, it will do, graciously and lovingly for us, or its metabolism threatening, that micro glial cells such that it transforms into the evil twin and then is threatening to the cells in the substantia nigra as it relates to Parkinson's disease.

And it turns out that this, I think, for the first time, can explain how the Lewy body, which is related to Parkinson's, can in fact do its damage because binding of Lewy bodies to specific receptors on these micro glial cells can transform them to become the evil twin, the non supportive, detrimental, destructive type of microglia cell with dramatic augmentation of the production of inflammatory chemicals within the brain.

For you and me, that's via active ation of NF kappa B but that said this is all set point driven, the set point being metabolic health. And that's why, when we're metabolically dysfunctional and are diabetic, for example, we have increased risk for this awful stuff happening in our brains.

Being type two diabetic might increase the risk of Alzheimer's as much as four fold, and as, you know, dramatically increases your risk for diabetes as well.

And it explains further then why these new GLP one agonist drugs seem to be effective. Now, I'm certainly not a proponent right now that everybody should jump out and get some of them.

And, start using it in hopes of preventing and or curing their neurodegenerative condition. I don't think we're there yet. We may be there. But it's an interesting observation.

It is more of a sort of allopathic rather than functional medicine approach. But when we talk about integrative neurology, that may well come into our toolbox.

It's reminiscent. Yes. it's kind of reminiscent in a way, although mechanism is different. in regards to the interest in metformin and its impact on aging.

And again, the mechanism is slightly different. But of course metformin has a has a long history of being used in diabetes and insulin resistance. So one wonders are we seeing some of the same things, you know. Yes.

as a matter of fact, we are seeing in many ways exactly the same things in that, you know, one of the things that metformin is really, being looked at closely now as, relates to its ability to enhance mitochondrial, biogenesis, the growth of better, newer functional mitochondria, i.e., improving the energetics of, in this case, the the idea would be the micro glial cells, the immune cells in the brain that are so important.

that's why it is being looked at, has been looked at in terms of, treatment of Long-Covid, who knew a diabetes drug and also in terms of, in treating, Alzheimer's and other neurodegenerative conditions.

So it's really very similar to, focusing down on the regulation of neuroinflammation via control pooling. How, what is the phenotype of these micro glial cells?

It's all about these micro glial cells. And I think what we're going to see moving forward are more directed therapeutics that will cross the blood brain barrier and be, better tolerated, than the drug, for example, that was used in the the trial that we just talked about from two days ago in the New England Journal.

that was poorly tolerated. I think more than 40% of individuals on the actual drug, had nausea, maybe 15, 20% had vomiting. So it was not tolerated. I think it became very clear who was on the placebo versus the drug.

But I think as time moves on, we are seeing the development of better GLP one agonists that are better, much better tolerated. And again, like you, I wouldn't take it off the table in terms of if it proves to be something effective that we can do to target the fire, not just the smoke.

In other words, get to the underlying issue that's causing the neurodegeneration. That's then, in the case of Parkinson's, causing the motor manifestations.

Yes, we need to treat the manifestations, the tremor, the rigidity, etc.

Microglia, Neuroinflammation, and Disease Mechanisms

. Absolutely. And and certainly how wonderful it is that we have an armamentarium that allows people to become more functional as relates to treating symptoms.

But we've got to treat the underlying problem as well, not just but target. The the problem itself. Now, Doctor Perlmutter, one of the things I tell my Parkinson's patients is, look, we know that statistically, by the time you're diagnosed with Parkinson's, it said you've lost 50 to 80% of your dopaminergic neurons.

Now, as you folks come in. And every patient with Parkinson's is different. Some people are relatively minimally affected. They've noticed some differences in their fine motor control, their arm swing, maybe some rigidity, but they're not too bad.

Other folks are much more affected. However, what I'm getting at is the folks that come to see me that know that I'm also not just a neurologist, but a functional medicine doctor.

They sort of want the the all of the things that functional medicine brings to the table that we're going to fix all of this. And I and I said, well, we may not fix all of this, but by the way, given your limitations of movement, I strongly recommend that we initiate some lever dopa therapy because in order for you to do the things that you need to do to make yourself better, you have to be able to move.

No question about it. And again, I'm all in for symptomatic treatment of Parkinson's, whether it's deep brain stimulation, or pharmacotherapy, whatever it may be.

Yeah, it's for exactly that reason. But that's not to the exclusion of wanting to target the underlying problem. And,

you know, that's I think where we're now, what we've been doing, I guess, for 25 years, but now we're seeing mainstream looking at targeting the actual, fire, if you will.

Yeah. So, so we began our glutathione trials, you know what, 18 years ago now, just based on wanting to target mitochondrial function, we know that, there is an issue with electron transport that's been demonstrated, in Parkinson's patients.

And we felt we could target that with glutathione. And lo and behold, we did. And it was successful. but now we see mainstream coming along and really opening up their eyes to the first real major leap in terms of understanding this metabolic connection to Parkinson's.

Know, I actually, I think in the, pipeline as well. In the R&D pipeline, there is a drug that's targeting mitochondria specifically as disease modifying therapy for Parkinson's.

So it's it's very exciting. Yeah. I suspect that, rapamycin is going to find certainly exploration. But I think applicability as it comes to treating Parkinson's, rapamycin is a prototypical, autophagy upregulate.

Hence my top reading. Our brain, our bodies and brains have defective mitochondria and allowing new mitochondria to come along and, take their place and help with function.

One are the rapid right, mice in as well as potent in terms of acting to reduce inflammation. in a we kind of, shied away from it over the years because you and I grew up during the time of rapamycin meant immunosuppression for people receiving organ transplantation.

So, you know, I think nowadays we're seeing, rapamycin looked at through a different lens and I think along the lines of rapid mycin or everolimus alignments, you know, the idea of a wrap, a log or something that acts to inhibit m tau, to allow mitochondria to do good things?

I think they'll there'll be some real application of that science. So another way of, of looking at the things that you're saying, you talked about the M2 versus M1 phenotype in the mitraclip.

and so there's microglia activated and they go into their attack mode, if you will, which they were supposed to do. They're wired for that. But what I think you're really saying, and just in another way is we're talking about chronic inflammation.

We're talking about inflammatory drivers and other factors that play a role in why we get sick that are normal processes of the cell, but they get turned on and they don't get turned off because there are a variety of inputs, metabolic disease being a major one that we've spent the last, you know, 15, 20 minutes on what in your experience and knowledge are some of the other major factors that are contributing to this chronic inflammatory process?

Well, there are lots of lots of issues that we should be concerned about. I think one of them that really is taking a spotlight right now, is air pollution and specifically our exposure to what are called PM 2.5, i.e.

these 2.5 micron particles that really have a tendency to be absorbed throughout the body, including into the brain, that are profoundly pro-inflammatory.

The problem is, once you start inflammation, it's a feedforward cycle that when microglia are exposed to inflammatory cytokines like interleukin one, beta and tumor necrosis factor alpha, it tends to increase, the activation of pathways within them, mediated by what's called NF kappa B, that then further increases the production of inflammatory chemicals such that you have what's called a feedforward cycle.

So really, any way that you get on the merry go round, you're on that merry go round. You can get on any at any stop. You're still going to end up, on the merry go round.

Maybe I should say it doesn't matter where you get on the subway. It's all it's going to end up in Brooklyn, no matter what. You do know, having said that, you know, these PM 2.5 are an issue.

Various, other environmental toxins, chemical toxins are certainly things that have been talked about for an awful long time, man to man, because that rotenone, amped up a classic story from 1983.

a designer drug, if you will, that specifically led to inflammation in the part of the brain where Parkinson's happens, the cells, those pigmented cells in the substantia nigra, were damaged by a specific chemical, Demerol, pyridine, type of drug that was that was made illicitly and somehow it had an affinity for those cells.

And interestingly, about 20 years later, you know, about ten years later, you know, 18, 19. Yeah. Would have been about 15 years later, I guess, a study appeared in the Journal neurology, what used to be the green journal neurology and it was a two of the patients who had taken that MPP and immediately got Parkinson's had passed away.

They looked at their substantia nigra and lo and behold, they saw activated microglia still in their inflammatory state, even though the exposure was, what, 15, 20 years before.

Once they were lit up, they were lit up. Muhammad Ali quit boxing, right? But his Parkinson's disease got worse with time. Still, evidence of what we call this feedforward cycle.

So, you know, once these microglia get programed and they're pro-inflammatory, as you indicated, M1 phenotype, it's very challenging to bring that back into balance.

But I'm thinking that perhaps this new approach with these drugs might be, might be something, you know, that that can help us. And, you know, I hope it doesn't come off that I'm really supportive here of these drugs. I am.

And but I'm not hawking them. I mean, I'm saying that. Yeah, this was a big deal for you and me. yeah. In the past. This is really a game changer. And again, I'm not saying it necessarily means we need to put people on these drugs.

We know, for example, that the the sugar called Ali aloes, is also a potent actor in, in the GLP one realm. It stimulates a lot of release of GLP one from the L cells in the small intestine.

So, such that, you know, we do see things like chain reduction of appetite, weight loss, etc. in people who are using allulose sugar. Might that be a way of actually also treating Parkinson's or other neurodegenerative?

I don't know, might there be more selective ways of targeting the microglia such that they revert back to their supportive M2 phenotype? That's the hope.

That's what I'm deeply involved in exploring right now. Now let me get to another area, because that segues into your question. And that is, you know, how are all these things leading to Parkinson's, the PM 2.5 particles, the chemicals, trichloroethylene, the paraquat man, glyphosate.

How are all these viral infection, for example, the, encephalitis lethargic. how do all of these things tend to, have commonality? And I think that we see that certain receptors on these microglia cells are responsive to a variety of inputs, like viral inputs, like inflammatory inputs, like, importantly, proteins that have been modified by glucose, called AGS, advanced glycosylated in products, beta amyloid binds in the, Alzheimer's patients and everybody, to a specific receptor on the micro glucose level called the Rage receptor.

That's not called the Rage receptor.

Environmental Toxins and Parkinson's Triggers

Causes the microglia, then gets angry. It's called the Rage receptor because it stands for receptor for advance,

glycosylated and product. That means this is a receptor that is stimulated by a protein bound to higher levels of sugar.

Now, for your viewers, let me give you an example. We've all heard of the a1 c. The a1 C is a protein hemoglobin that's bound to sugar and it becomes glycosylated.

That's what it stands for advanced glycosylated products or hemoglobin A1, C. So people have heard about that. It's a marker of average blood sugar over, you know, many weeks period of time.

Similarly, any protein can become glycosylated and probably will. And when they do, they bind to this receptor in on the microglia. That then changes it to be the angry microglial cell.

This then helps us understand why it is that Alzheimer's patients and Parkinson's patients have, who are, are becoming diabetic, increases risk for Alzheimer's and Parkinson's.

It it helps us understand the relationship between metabolic mayhem, if you will, having high blood sugar, insulin resistance and the development of these challenging neurodegenerative conditions.

And it also paves the way for understanding how we can untangle this and maybe see our way out of these issues. I mean, what was demonstrated by controlling blood sugar and stimulating the GLP one receptor on the micro glial cell.

In this new study. Man, oh man, that's a game changer. Just wait till the Alzheimer's studies come out on these GLP one receptor agonist. It's Katie bar the door. I suspect you know.

And there was one already published in 2016 for that matter that showed improved cognitive function over, I think it was 18 months, period of time with better Co two, a brain, utilization of oxygen, if you will.

So this is an exciting time. Yeah. Going back to your book, Grain Brain, I remember you have a graph that shows this. It's a very linear kind of, you know, rise and the risk of developing Alzheimer's as blood sugars go up is.

Exactly that plotted. It was a study from the New England Journal of Medicine that plotted risk of Alzheimer's versus hemoglobin A1C actually it is risk of brain shrinkage.

The the study that we also studied looked at fasting blood sugar in 1200 individuals and followed them for I think 7.9 years and demonstrated that those individuals with higher levels of blood sugar at the time of the initial evaluation had a much higher risk of developing dementia, and higher blood sugar was anything over 105.

And I would submit that a lot of people go to the doctor these days, have their blood sugar checked. And, you know, if you're one of five, 110, most of the time you get a pat on the back and told, well, do better next time.

Those blood sugars are worrisome as can be. You're in trouble already. 1 in 5 as an H1 in the agency studies. And then, you know, measuring those fasting insulin levels, how often the people come and see me.

I'm sure they've seen you in the past. And maybe they're presenting with something really classic like, neuropathy and say, well, are you a diabetic? No, I'm not diabetic.

And indeed, maybe their hemoglobin A1, C is, you know, 5.5, 5.6 not through the ceiling yet, but they're fasting. Insulin is 40 right. And I explained to folks that this you're already developing these advanced glycated end products.

You're already in driving your vehicle through a metabolic storm, if you will. And, we can understand why these diseases really start much earlier than conventional neurology and medicine.

Well, you. Meant you were right on target. You said that, you know, you have to have, about an 80% drop out of

those cells in the substantia nigra before you even know.

And if you're like me, I think you're seeing a lot of Parkinson's around. It's everywhere now. I mean, you know, we typically say that in America, we have about 60,000 new cases a year, that there are 10 million cases worldwide.

I am convinced the numbers are in reality much higher than that. And who would know? I mean, who would know that you're destined to have this disease or not?

As you say, you know, how do you know you're not at 60% cell drop out and you need just a little bit more when you start to manifest this disease. So, you know, I think that, there is a discussion of, of prevention as it relates to Parkinson's.

Don't expose ourselves to these, fungicides. This, man, Zeb, that, has been talked about in relation Parkinson's and now pancreatic cancer, I might add.

I went online yesterday, actually, to see if I could buy this brain toxin called Main Cause. EB, what is it? Well, it turns out it's a fungicide that you put on your vegetable garden to keep fungus from growing on your lettuce.

You can buy it online. and it's related to increased Parkinson's risk and pancreatic cancer risk. Glyphosate. But as I was thinking about this stuff today on my job, I was watching.

I was thinking about the relationship of glyphosate to pancreatic cancer and to Parkinson's. As I was watching a yard, workers spray it with no mask, no protection, in somebody's yard.

Right. Two houses away from me. I mean, what are we doing? You know, this trichloroethylene. At least the word finally got out about that. You know, a dry cleaning fluid.

But we've known about trichloroethylene since 1969.

Gut Health, Oral Microbiome, and Nitric Oxide

More recently, doctor Ray Dorsey has written a book about it and its relationship to Parkinson's and how pervasive it is in our environment. But this stuff is real, and it's out there.

And unfortunately, you know, big business doesn't want to to, you know, just, stand up and be counted in terms of being responsible for what's going on around us.

The numbers are, I think, a lot worse than we think about, than or than we are. Toll. You know, generally, you and I were told that typically Parkinson's would be about 10% of Alzheimer's.

So if you knew the Alzheimer's stats, you'd do the Parkinson's stat. I think it's much, much higher. Much higher probably. I've heard, the new residents, maybe as many as 90,000 new cases per year.

So it's at least I would say double what we were told for sure. So in your book, Brain Maker is spent a lot of time talking about the gut and the microbiome.

We're now even seeing a specific probiotic that's available to purchase that was studied in the context of Parkinson's. Clearly, there are known shifts in the microbiome for many of these diseases.

It's not unique to Parkinson's. Is it a chicken or an egg kind of question? You know, it's the environment influencing these microbes. I mean, people just take probiotics, but they don't address their environment.

Or maybe they go as far as finding a place and can't really do it in the United States. But fecal microbial transplant, a lot of interest in that might have a tempering effect.

But clearly something is happening to these microbes. It's not being addressed by simply taking a probiotic or taking a more aggressive route to immediately fix the microbiome.

Could you talk? That's right. And I think that the lion's share of the literature that relates pathology to changes in the microbiome, is in the area of metabolic health.

I mean, you know, this is where we began seeing these relationships. First on well, before the more specific studies looking at the microbiome in autism, Alzheimer's, Parkinson's, etc., it was in metabolic health.

We were clearly defined changes, in the microbiome that were associated with, for example, insulin resistance, risk of obesity. we were seeing changes brought on by administration of things like artificial sweeteners.

And so, I think that while there may be unique relationships between particular, microbes, and, and risk for Parkinson's, I think we're on, solid ground just looking at the relationship of the microbiome to the metabolic changes that precedes, risk for for Parkinson's in the first place.

And I think what's really exciting is newer research is actually looking at the oral microbiome and its relationship to neurodegenerative conditions. What I'm saying is the relationship of the bacteria in our mouths and how that relates to various neurodegenerative conditions.

So, that's going to be unpacked, I think, in the next few years. But we already know, mechanistically, that nitric oxide is a very important chemical in the human body that relates to brain metabolism.

Nitric oxide plays a fundamental role in allowing blood supply to the brain and organs, and also allowing insulin to do its job. We need lots of good nitric oxide to be healthy throughout our bodies, and certainly in the brain as well.

There's a direct correlation between lower levels of nitric oxide and, the degree of metabolism change or loss in the brain. And the Alzheimer's patient, which corresponds perfectly to the level of Alzheimer's, the severity of Alzheimer's, if you will.

So getting back to the oral microbiome, it's now become clear that about 50% of that chemical nitric oxide in our bodies is dependent upon a group of bacteria that live on the back, top of the tongue.

That's where they live. They convert that nitrate in our foods into nitrite, that we are then able to make nitric oxide out of. Now powerful risk factors, for example, for Alzheimer's, include high blood pressure and type two diabetes.

Type two diabetes may increase in individuals risk for Alzheimer's as much as four fold. I believe I said that earlier. Now, what is the relationship then between nitric oxide and diabetes and hypertension?

High blood pressure. And, if we can establish that relationship, then we might be able to make a relationship between nitric oxide and Alzheimer's. But that already exists.

But how do we relate that to the mouth bacteria? Well, two very interesting studies were performed, in, two years ago were published two years ago. The first looked at a group of several hundred individuals and followed them for three years.

And it asked one question, do you use mouthwash twice a day or more? And versus those who said the group was yes versus no? Those who said yes had about a 50% increased risk during the three years of developing type two diabetes, a risk factor for Alzheimer's and those who said no, and compared to those who said no.

Similarly, those who use mouthwash had about 100% increased risk of becoming hypertensive. Now, what is it telling you? Is telling you that mouthwash damages or can destroy the function of the Rossiya, Neisseria and actinium six bacteria that live on the top of the tongue?

That may help us make nitric oxide for our metabolism. I'm going to predict to you right now that very soon we will

see a study linking antibacterial mouthwashes to Alzheimer's risk based on this mechanism.

So what should we be doing first? Avoid antibacterial mouthwash is number one. Number two, eat a lot of nitrate rich foods like beets and colorful vegetables.

And number three, the other best way to increase nitric oxide in the body. Exercise. Who knew? Yes. These are wonderful tips. And, you know, we've talked about the ozempic type drugs and metformin.

And one might think, gosh, we're talking a lot about drugs, but, that invokes the phosphodiesterase inhibitors now. And, you know, a few years back there were some articles about, the drug Viagra, sildenafil having a potential role in the treatment of Alzheimer's seemed to fall off the map for a little while.

And very recently, there have been 1 or 2 studies published where it's right back on the map. Meantime, here at our research center, we're doing a clinical trial for Alzheimer's disease using a South Korean, compound.

That same mechanism, this one crosses the blood brain barrier. it's in phase three trial. Now, interestingly, if you compare what the phase two trial showed, in comparison to some of the anti amyloid antibodies, if you buy into the ATM data, which is a whole other, of course discussion.

But as you know, they may modestly slow the progression of Alzheimer's overall.

Sleep, Lifestyle, and Practical Prevention Tips

Whereas these drugs that increase nitric oxide ultimately improving blood flow and doing all the other things you're talking about, not only in not only, help to clear amyloid lower tau levels, but are the only studies I've ever seen where they actually improved cognitive function.

Now, are they going to work in Parkinson's? Remains to be seen. But I think what we're really getting at is what functional medicine is sort of bathed in for decades, which is addressing root causes of disease.

Right? Without question. That's right. So so we're telling people they need to exercise. We're telling people they need to adopt a diet that increases their nitric oxide levels while being anti-inflammatory in other ways.

we haven't really touched on mind body work and sleep, but can you in the last, handful of minutes of this interview, can you give our viewers some a few practical tips and addressing inflammation in Parkinson's?

Well, again, so much of our brain health, is, dependent upon metabolism and, good function, for example, of insulin. And I think that, one of the worst things a person can do to threaten insulin functionality is to not get enough restorative sleep.

Now, you know that that might sound a little bit like a disconnect, but that's, you know, clearly what the data demonstrates. If you want to become insulin resistant, don't sleep well and don't sleep enough.

So how would you know? I think there are plenty of wearable devices out there now that people can get and determine not just the length of their sleep, but what is the quality of their sleep, and then make changes to make that situation better.

you know, think about the time of day that you're exercising, how much caffeine you're consuming, at what hour of the day do you finally say, no more caffeine?

Lots of things. Does alcohol affect my REM sleep? Does it affect my deep sleep? a lot of things can factor into that. And, you know, the books are written about it, about, you know, Matthew Walker wrote a wonderful book about why we sleep, about what to do to improve sleep.

So I think it's, you know, it's certainly valuable to talk about exercise and certainly incredibly value to talk about,

diet. But beyond that, I think stress getting out of nature and sleep are very underrated.

and especially sleep. It's fundamentally how important it is during sleep that we activate this lymphatic system and help the brain rid itself of the various types of, garbage, if you will, that accumulate during the course of the day.

That garbage is brain threatening. That is the garbage that actually leads to inflammation, that leads to stimulation of these microglia to convert, to be the ugly twin, the, you know, and lead to even increased, inflammation after that.

So we really need our deep sleep. And every one of the viewers probably is wondering, gee, I sleep pretty well, but how much deep sleep am I getting? You know what?

Going by the latest version of Apple Watch, I think I wear what's called an Oura Ring. Oura. And in the morning I can pick up my iPhone and it beams information about how I did last night.

And I've learned all kinds of things about what makes a good night's sleep for me may not work for you, but it's personalized medicine. What I need to do.

I know darn well that my REM sleep will be compromised if I have a second glass of wine, so I don't do that anymore. I know that it's better for me to exercise earlier in the day.

I have a caffeine curfew of 2 p.m.. You know, that's a big deal. People need to understand that the half life of caffeine in your cup of coffee is six hours.

So if you have, you know, it's only 4:00 in the afternoon, I'm going to have a double espresso. Well, by 10 p.m., you still have a single espresso on board.

10:00 at night. You have half that double espresso worth of of caffeine at 10 p.m.. That doesn't make for a good night's sleep. So lots of things. Colder room, dark room. Quiet.

If your partner snores, go in another room. All kinds of things that people need to consider. But, I really want to leave your viewers with the idea that Parkinson's doesn't just happen, that it is brought on, by factors over which we have control, like the various toxins to which we are exposed, like inflammation that is brought on by metabolic dysfunction, by having higher levels of blood sugar and insulin resistance that we should all be from time to time checking in with a continuous glucose monitor to see not just what our fasting glucose was on any particular day, but what it's doing throughout the course of the day.

The week of the month, in the year, really very important that we rein in metabolism. Let me close by just one other interesting thing that happened this week actually, was last week, was an announcement of a BMJ study global study that found about a 79% increased risk of cancers in people under the age of 50 years, and most of these were colorectal cancer cancers, also cancers of the pancreas, breast cancer, mostly in women.

And again, we know there was discussion about the toxins, the environment, the microplastics. I get it all very important information, but recognize that cancer takes full advantage of a dysfunctional immune system.

The immune system depends on good metabolism. It's why again, we're talking about immuno metabolism. So if you want your immune system to be able to look out for cancer cells, and when it finds them to be able to get rid of them, you have to work on your metabolism again, the exact same things keeping your blood sugar where it needs to be.

Checking your fasting insulin now. So grateful that you called that out. This is the key. It's the reason, for example, that when our metabolism is gone awry, we have a dramatic increased risk of various chronic degenerative conditions like heart disease and Alzheimer's and Parkinson's and obesity and diabetes and various forms of cancer.

We've got to rein in our metabolism. So true. And for the folks who may be watching this who actually have Parkinson's already, we want them to understand that these same things it puts you at risk are still mediators.

And that by addressing these things, we may not cure Parkinson's disease immediately. With all of these things, but we sure are going to change that trajectory quite dramatically.

Yeah. I interviewed a doctor in New Zealand, Dr. Matthew Phillips, and he has done quite a bit of research in Parkinson's, interventional trials using what's called a ketogenic diet, and has had wonderful success in improving Parkinson's patients targeting their mitochondria, if you will, allowing those mitochondria to work.

And, you know, I think it's something to consider. So think about a ketogenic diet that'll certainly improve metabolism. Dr. Sarah Hallberg showed us that, that's for sure.

but there's lots more to do than simply treat symptoms with, dopamine or an analog for these. This has been a very empowering interview, for sure. I really appreciate it.

Dr. Perlmutter, thank you for taking your time today. Dr. Sharlin, and great to see you again. Absolutely, folks. Stay tuned for other wonderful interviews in The Parkinson's Solutions Summit.

We've got lots, lots for you, Dr. Perlmutter signing off. Have a wonderful rest of your day. Thanks. Good to see you.