Introduction to Jason Prall and the Interview Topic

Welcome to the Conquering Chronic Inflammation Summit. I'm your host, Dr. David Jockers. And today we are talking with Jason Prall. And we're talking all about how the microbiome Ross talks with the mitochondria in the cells of our body and how that impacts our energy, our sleep, our level of inflammation, our immune response.

If you guys don't know Jason Prall, he is a health educator, practitioner, author and filmmaker. In 2018, his independent research and experience as a practitioner led him to create "The Human Longevity Project", a 9-part film series that uncovers the true nature of chronic disease in our modern world.

He's currently working on his next film series that explores ancient methods of healing mind, body and soul from indigenous cultures around the world.

And he's recently released his new book titled "Beyond Longevity: A Proven Plan for Healing Faster, Feeling Better, and Thriving at Any Age". Jason Prall is A Wealth of Knowledge.

Guys, you guys are going to really enjoy this interview. So without further ado, let's go into it. Well, Jason Prall always great to connect with you.

And I know we've had conversations in the past, in particular about your book Beyond Longevity, which I always recommend to people. It's, it's a phenomenal book.

Great book. If you're if you're wanting to understand really all the different connections in the body and how that relates to our health and aging process.

And I'm excited about this conversation, talking about the gut microbiome and its relationship and communication process with the mitochondria. You know, typically when we're learning biology and we're learning science and physiology, we learn about these things in isolation.

We learn about, you know, the microbiome and how important that is. We learn about the mitochondria, how they produce the energy within the cells. And we realize that both of them are important.

But again, we're always thinking about them in isolation.

Mitochondria, Aging, and Cellular Communication

And so I'm excited to talk about the communication process and how that relates to health and disease. And so let's just get started with, you know, kind of an overview of the mitochondria and the microbiome.

Yeah. You know, it's funny when I was really thinking heavily about aging, right, with my docu series, "The Human Longevity Project". And in my book, you know, it's it's really interesting when you start looking at research, you, you start listening to some of the experts in the field, and a lot of them will narrow it down to the mitochondria.

Right. They'll say the mitochondria is kind of the crux of the whole aging phenomena. And while I think to some degree that's true, it's still just remains this theory where there's sort of mitochondrial diseases of aging and, and this type of thing.

But, but the reality is, is that while mitochondria are absolutely critical, they're not the whole story. Right? So, for those unfamiliar with mitochondria, they're just little organelles inside the cell.

Right. And these organelles, there can be many. It can be 500. They can be a thousand, right? Some of the

organs, like the brain, the heart, the liver, the things that are metabolically active are going to have more mitochondria.

Right. And it's also interesting to note that the two organs that don't get cancer are the heart and the brain, like the neurons of the brain. So it's really and those are really highly, mitochondrial dense organs.

Right. So there's actually a connection between mitochondria and cancer, which is really interesting. But the mitochondria are absolutely essential to the to the functioning of a cell. Right.

So mitochondria they're the interesting part about them is that they have their own genome. And this to me becomes the real interesting factor. Right.

So we have of course our human DNA. Right. And it's the double helix. Well mitochondria have a circular DNA. Right. So and we get this DNA from our mothers.

Right. So the health of our mother specifically. Right. All of us get our, you know, our mitochondria from our mother's the health of our, our mother's mitochondria actually is pretty critical to our health, throughout life.

Right. So the female lineage that turns out is very, very important for this key aspect of cellular function. And so of course, it's known for making energy.

Right? It's it was commonly called the energy powerhouse. Right. The powerhouse of the cell. But the reality is, is that it does so much more. Right. It's it's taking in.

Yes, it's taking in fuel sources, combining it with oxygen and making, energy and water primarily. But but it's doing a lot of other things, you know, it's, it's responsible for reactive oxygen species. Right.

Oxidative stress. Now, oxidative stress is also known to be kind of dangerous or harmful. And while that's true in large amounts or excess amounts or perhaps even just in general, it's this sort of like byproduct that can be inflammatory.

There's a there's a they serve a purpose to these reactive oxygen species that are a natural part of mitochondrial function, end up being communication molecules.

So the mitochondria are not only responsible for making energy, they're responsible for taking out the trash. They're responsible for making hormones.

They're responsible for, signaling danger to other mitochondria and other cells. So they become a beacon of communication when there's a threat such as, a virus or heavy metals or chemicals or what have you.

but they're also responsible for, taking out the trash. I don't know if I mentioned that. and, and and communicating with the, the DNA. Right. So the communication between the mitochondria and the DNA, human DNA is absolutely essential for the function of the cell.

Right. So we talk about how, you know, the DNA is in everything when it comes to you know, illness and chronic disease and aging and everything. The reality is, is that there's a communication between the two.

So, this, this simple communication, it turns out, becomes a very, very important aspect of how every cell in your body functions. Right? Every cell, except for red blood cells contain mitochondria.

So it's really, really important that we take care of. mitochondria. Absolutely essential. And again, going back to the cancer, discussion. Right. We found Uncle Gene's where we're looking at all these cancer genes.

But the truth is, is there's a mitochondrial sort of theory of cancer and that many cancers, if not, if not most or even perhaps close to all, are related to, mitochondria function if not centered around mitochondria function.

In fact, one of the, mitochondria researcher that I spoke with, he said that there's no disease that don't and that doesn't involve mitochondria. Right.

So every disease involves mitochondria. And what happens is that the the mitochondrial genome starts to get weakened. Right? There's there's damage that occurs in the mitochondria level.

When we see damage the mitochondrial level and these the mitochondrial genes aren't working properly. The communication breaks down with the human genome when it's not detecting threats properly.

In other words, it's it's failing to communicate a threat or that threat signal is constantly on which inhibits the mitochondrial energy production. Right.

We see things like chronic fatigue. All these diseases start to progress. You know, something like, Hashimoto's thyroiditis. We think about it as a thyroid condition. Yes, true.

But what's it's really a mitochondrial aspect of the thyroid, of the thyroid itself. Right. So every disease that you can name the mitochondria is playing at least a minor role.

Oftentimes a central role. Yeah, absolutely. Mitochondria play such a critical role in everything. And what you're part of what you're describing. There is a cell danger response.

Yes. And kind of the healing cycle. Right. So in the beginning it's like the cell the mitochondria are trying to, contain. Right. Whatever the perhaps infectious organism or toxins that are building up.

And then from there they, you know, they that's pro oxidative. Right. So it increases oxidative stress. And it's actually an adaptive physiology. So I used to think and a lot of clinicians out there have been taught that mitochondrial damage is something that happens to the mitochondria.

Right. It's like it's like an apple. If you leave an apple out it it starts to oxidize and rust in a sense, right. Something happening to the apple. But really in our body it's actually an adaptive response.

It's that the mitochondria is taking part in in order to for long term survive. Like the goal is long term survival. But it gets stuck in this kind of pro oxidative.

It doesn't complete the full healing cycle and gets stuck in this pro oxidative hypo metabolic state where it's not able to produce enough energy and it's turning up oxidation, which turns up inflammation throughout the system.

And it doesn't complete that cycle. And I want to tell you why I think that is I don't know if this is if this is sort of accepted or proven at this point, but but from what I have seen, this this seems to make sense.

And it actually relates, somewhat to the poly vagal theory. If people are familiar with that, there's two sides of the vagus nerve. We have the, the stress side. Right.

that the sympathetic response. And then we have the parasympathetic. And we used to think that was it. But then we realize actually there's two aspects of, of that parasympathetic response.

One is rest and relaxation and digestion and all those things that we love. And the other side is actually a shutdown, a dorsal vagal shutdown. So the ventral vagal is that rest and digest.

The dorsal vagal is the shutdown. What turns out we see the exact same mechanics at the mitochondrial level. As you mentioned. It's really beautiful response of a stress response, which is so critical not only in killing the threat, and eliminating the threat, but also signaling other mitochondria.

Hey, we got a threat, guys. We got a threat. And so they start turning on information, too. And so, you know, with the body, we have to think about it has a limited, limited capacity to, to to do things right.

There's only so much, resource that it has. So when it, when it allocates resource more heavily into inflammation, that's beautiful. It's really important.

Just like the stress response if you're running from a bear.

Gut Microbiome Diversity and Metabolites

But that also means that you're not doing some of these other things at the mitochondrial level that you need to be doing, like taking out the trash, like producing certain hormones, like making energy. Right.

So so now we've got this elevated stress response. Now again, as you mentioned, we want that to turn off. But in chronic scenarios, things like mold exposure for example, or a viral infection that that remains on or parasites or heavy metals or any combination thereof, or perhaps even things like trauma, right.

Emotional trauma, particularly in childhood, these type of things can create this sort of stress response, the cellular level that that stays on necessarily until that threat is removed.

But the interesting thing is that from what I've seen, the human body so conditional that even when you remove the threat of the heavy metal of the parasite of the infection, whatever it might be, the the cellular communication still may be such that it perceives a threat.

In other words, those grooves have been laid so strongly that. And here's the key part until you provide a new stimulus, you notice, in other words, until you kind of jam the system, jar the system, and wake it up to to some degree, then it can start to activate those, those patterns that are that are more healthy.

Right. So this is what I see in the nervous system level, at the brain level. And from what I've seen in some research, this is kind of what happens in the cell.

Danger response as well is that there's something that kind of gets stuck in a way, but it's an adaptive, conditioned response. And so the way out of that, and so we need to provide some level of stimulus to wake that cell up again and remind it what healthy behavior looks like.

Right. And we'll and we'll get into some of that. Yeah. So important. Now let's talk about the gut microbiome and its important role in human health. And then that communication process between the microbiome and the mitochondria.

Yeah. So this is this is an area that of course is seeing a lot of interest in the last probably two decades, right. And maybe even more and in the West.

But, you know, this is an area that goes back thousands of years, you know, in the in the ancient cultures. Right? So from our data in Chinese medicine, and, and even some of the indigenous cultures around the world that don't have sort of names for their systems, they recognize that there's a whole universe inside the gut.

And I've heard people like it, medicine men from from, you know, Columbia tell me that there's a whole universe inside your gut. And this is what they learned in their traditions.

And I'm like, Holy smokes. Like they all knew this, right? They recognize that the reality. And so it's it's great that we're waking up to that. And from a Western scientific perspective, we're still it's still so nascent.

We don't really know what's going on at the gut. So I want to practice whatever I say after after this, that we still have so much to learn and we're uncovering new things every day.

And we're we're changing our stance on a lot of things. But when it comes to the gut, it is the first interface with the outside world other than, you know, the skin, eyes and and sense organs, right?

So when we eat foods, whatever we take in that is that is where everything is sort of interfacing. Right. And the gut you can think of is this kind of like hollow tube, right where there's a big donut, right.

And we're sticking something inside and then it has to assimilate. Right. But inside the gut, of course, is a huge ecosystem. And this is a living, breathing ecosystem of organisms.

Right. Some we think of as pathogens. Even when we run a a stool test you might see pathogens. Well yes and no. They're only pathogenic when they get out of balance with respect to other things.

And even then oftentimes we label something as pathogenic that may not actually be pathogenic. Like it's so nuanced that how this stuff works. But the the things that we're confident in, is that, that we want a lot of diversity, right?

A lot of diverse diversity of organisms. And this makes sense. The reason this makes sense is because that gives you adaptability to handle different environmental pressures and stressors.

Right. So different organisms that you interact with from your food, different food sources, etc.. But these organisms are also responsible for breaking down some of the food.

Right. So, you know, when we eat something like, blueberries, right. This is oxidative stress, actually. Right. The anthocyanins in the blueberries, these things are pro oxidation, right?

We think about them as antioxidants, but it's only the response from the body that we get from these oxidative things. Right. So all the plant foods that we can think of with all the colors and the beautiful stressors in them, things like curcumin from turmeric, these type of things, these are stressors.

These are plant protectors. So in in order for our body to deal with those, we have to metabolize them. Now you need those organisms to actually metabolize the substance.

And it's I think we take it for granted that we all just magically have all these organisms that can metabolize turmeric to the same degree. But but it appears that's not the case, right?

In fact, and there's a lot of studies out of Japan related to seaweed and and how, the Japanese have, have, taken up this organism and, and are able to actually digest seaweed better because they eat so much sushi.

So it is actually an organism that gets transferred from the fish and allows Japanese people to, to, metabolize the seaweed better than other cultures.

Right. So in other words, this is, again, it's a living, breathing thing that can happen over generations or even over weeks, constantly shifting and changing because of the environment that it's interacting with.

So we need certain organisms. So it's not only what you eat and what you digest, but it's what your microbiome is capable of digesting and metabolize.

Right. So having a healthy, robust, diverse microbiome, is very, very critical to be able to take advantage of the healthy choices that you're making when you're digesting food and choosing the right foods.

Right? So it's so, so critical. The microbiome is responsible for so much of what's going on. And the interesting thing, the reason I think it's so, worthwhile talking about the microbiome in the mitochondria connection.

It's because, again, when I was thinking about aging and trying to understand what are the critical factors of aging, what I came up with was that, you know, DNA, it's like the concept of DNA.

DNA itself is the it's the building blocks of life, right? We can all kind of accept that. Sure. Cell membranes are important and fashion is important in the interstitial space.

All important, no question. But none of it would be here without DNA. Right? So again, human DNA, mitochondrial DNA. And now we've got this microbiome with its own DNA.

And I'm just using the microbiome as a one organism. But it really it's billions and billions of organisms that all have DNA, their own DNA. So now we've got this ecosystem of DNA in the microbiome, in the gut as well as throughout our body.

We have the mitochondrial DNA and we have the human DNA, and they are all in communication. So to me, it is this, these three things that we need to take care of, that we need to optimize, if you will, for good communication, for good response, for good human genetic express.

And so when our human DNA starts to fall apart, well, that that impacts our mitochondria and impacts the microbiome when our microbiome starts to degrade and become unhealthy, well, that's going to negatively impact our mitochondria and our DNA.

And if we're negative impacting our mitochondria, that's impacting DNA. So it's all in this three way communication. So that's why I think it's really, really critical that we that we sort of paint this picture and this idea of why do I want healthy mitochondria.

They actually talk to your, your microbiome. If your mitochondria are saying we need food, we need food, we need food. And this sort of is impaired Metab metabolic response or even unhealthy response.

They will communicate. They will send out communication mechanisms in the gut that then communicate to the the microbes in the gut and to your various cells along the lining of the gut too.

So you can see that there's a very interesting communication that takes place. And we know this now, this is actually researched very, very well. And we're starting to see some of the meta, the metabolites, the things that when your your organisms in your gut, when they metabolize food and other matter, they will spit out metabolites.

And these metabolites are the communication molecules. They are energy resource for the body. So this is a really, really important thing. And and a lot of research is going into figuring out, you know, what are these sort of post biotics.

What are these metabolites doing and responsible for. And how can we take advantage of them. Right. You can imagine a pharmaceutical industry, even a supplement industry going, oh, we know the science now, and we have the tools.

We can do stuff. Let's go look and see what happens when we give the body, you know, x x substance, see what it produces and what what that's going to do downstream.

So that's where we're at with a lot of the science. And that's why this conversation is so interesting. Yeah, it's really, really fascinating. And I remember back when I first started my practice back in 2009, gut microbiome research was really just coming out.

Environmental Factors That Shape Health

We didn't know much about post biotics. And I remember, you know, I was I started doing some research on apple cider vinegar, and I started promoting it to different patients.

And I remember a guy telling me he's like, yeah, I started doing a tablespoon apple cider vinegar and water every day. And he's like, after a week, he's like my blood pressure.

Because he was on he was on a blood pressure medication. He's like my blood pressure was was normal. And I came off my blood pressure medication. It's been been great ever since.

He's like, that's all I did. And I started thinking, well, what nutrients are in apple cider vinegar? If you look at it, it's not really like nutrients that we especially back then that we, we would classify.

Like is there a lot of vitamin C in it. No. Is there a lot of vitamin A? Is there zinc? No. There's really no nutrients in it. It's really just post biotics and enzymes in there.

And the kind of acidic nature helps stimulate the parasympathetic nervous system, the vagus nerve. And so it's really it's impact on the nervous system and those post biotic metabolites that are influencing the communication process in the body, which reduce stress on his system.

And now his blood pressure is normal. And I'm sure you've heard stories like that as well. This is what's cool is that again, we don't even really know some of this stuff yet, right?

There's so much to learn when it comes to this, but I you know, it reminds me of, I'm a fan of IRA Vader, and I've studied the IRA to a, to a degree. I'm not an expert in it, but but I find that their fundamental lessons are things that we've now uncovered in the West.

And they've for again, for thousands of years, have talked about when the the post digestive effects of certain foods. So in other words some food like like a, like lime I think it's very acidic.

Right. So typically that would be heating. But you know, it, it's, it's viewed as cooling. Right. So these type of things and once it's digested right.

And you hear about it from this sort of alkaline and acid kind of vegetarian type crowd, right. Like don't need an acidic died in either in an alkaline diet.

And and you know lemons and limes are considered, alkaline. but really they're acidic. So it's pointing to this idea that I think we kind of got some of the theory wrong with some of this stuff.

It's not really about acid alkaline. It's not an alkaline diet. There's there's different effects, right. Like the, the all the, the, the probiotic type foods.

Right. The kingfishers and the sauerkraut and these type of things. Any fermented foods, if there's so much more going on there, I think, I mean, look, when you start looking at the biochemistry and the biophysics of a lot of this stuff, you realize, oh my gosh, it's so complex.

And we're we're oversimplifying a lot of this stuff. So, you know, when it comes to these foods, again, they're healthy for a lot of reasons that I don't think we quite fully understand, to be honest.

you know, like even rice, you know, I remember years ago when I first learned that that white rice was that you're after digesting white rice, you produce butyrate.

And I thought, wow, this is range. And you take a basically a, a very starchy carbohydrate, right. That raises blood glucose, like through the roof. If you eat it plain in a lot of it.

But it's producing a fat that is, very important for your the health of your colon cells. Right. So this is where kind of when I, when I kind of woke up to that idea that a carbohydrate is, is then metabolized into a very important fat.

It made me realize that the old paradigm that I grew up with, you know, the carbs and the fats and the protein kind of thing, the bodybuilder kind of lessons really are just so oversimplified and that that if things are done correctly, in the right doses, in the right proportions, even things like white rice can be a very healthy addition if used in the right way.

If used incorrectly, it can be unbelievably unhealthy, right? So these things are a lot more complicated. But again, I think the big thing is do we have a healthy gut that can metabolize these things?

And when I run gut tests on people, I can see a lot of the strains, keystone strains that are missing or that are low ravin they're not missing, they're just very low.

And a lot of the sort of more pathogenic type strains, when they get out of balance are high. Right. So we start to see these things. So the question again remains how do we actually take advantage of this.

What is it. What is there to do about this. How do we get healthy gut and how do we get healthy mitochondria. When you when you get that right. Because as far as I know, we're not changing our genes, our human genes yet.

although I'm sure that's coming. Unfortunately. but once we get those two equations right now, that three way communication between all the genetic groups can, can work optimally.

Yeah. That's that's that's key. And so let's talk about some of the environmental stimuli that really impact that communication process between the DNA, the mitochondrial genetic which has its own DNA and the gut microbiome.

Yeah. And this is where it kind of gets interesting because it's literally everything. It's yeah. What do you what are you thinking about? What are your belief systems.

What is your unconscious mind kind of operating in. What's happening in the background with your nervous system at rest? You know, what kind of sleep are you getting? Right?

What what question? What are you eating? When are you eating? Perhaps, maybe more important. Because hardly, you know, people are starting to talk about it, but everybody wants to talk about what?

Diet when? When diet. Right. Like when are you eating and how much? This is an interesting one that I think a conversation that is sort of not had as much anymore.

I don't know if it's because, because people are tired of the kind of calories in versus calories out kind of argument, and they think that that's a totally invalid way to think about food.

But from my experience, it's still a decent way to think about food. and only as a proxy. We don't need to get super scientific of how much calories and these calories turn into this.

That's really not important. But whenever I'm working with people and even in my own life, I recognize that when I'm eating too much food, it has a negative effect, right?

Even if I'm eating it, the right times of day, etc.. So there's a it's a really important conversation to have to remember that you can use kind of calories as a, as a, as a, as a proxy to the, the amount of food that you're eating.

And of course, it's not just the calories, right. It's not just the amount, but it that is important too. I think we just kind of cross that away. We've all we've all eaten too much before.

Like what happens on Thanksgiving. It's like we eat a huge meal. It's not the turkey that's making us tired. It's the fact that we ate so much, so many calories, and we want to take a nap.

Right? Well, and I see, I see even now, you know, the, the typically it's more of the, the, carnivore type crowd or the paleo type crowd or, or ketogenic crowd where it's like, you can just eat whatever you want because it's healthy fat and and it's like, no, it's not really true.

You know, you can't eat a half a stick of butter in your coffee in the morning and think, that's a wise decision and it's not going to impact your overall kind of function.

So so it's still an important aspect, right? How much you're eating when you're eating. And of course, what you're

eating. but then of course exercise. Right.

Exercise is absolutely critical. And and again, I think people don't want to hear it as much like they're kind of like it's in other words, it's been drilled into us so much like the importance of exercise, what, what's.

And it's always been an important aspect of my life. But what was really fascinating was when I was in kind of functional neurology classes with some pretty, unbelievable minds in the functional space.

And, and it's like the neurophysiology of high intensity exercise. Right? So it's like, how does high intensity exercise impacts your, your neurological system, your brain and nervous system, how it impacts your immune system, how it impacts your gut function.

And it's like, oh my God.

Foundations for Chronic Illness Recovery

Like, I didn't quite realize to the extent of why it's so important to get like a vigorous exercise in and by walking and very simple exercise that is, that is done on the regular is so important.

So these are the kind of, the big factors. And of course we can look at environmental load, right. Things like toxins, chemicals, metals, you know, any pathogens.

These are of course important too. So, it's all playing a role. You know, there's there's only so much we can do about that. That pathogenic load and the and the, the toxic load.

And I don't want to be sort of defeatist about this. I think you do what you can, you know? but if you if you if you go too deep down that rabbit hole, you're going to drive yourself crazy trying to get rid of all the the chemicals and metals and things because they're just they're just everywhere.

You know, I think I think it's important that you do what you can in your immediate environment as often as you can. And you just, you just you have awareness around some of this stuff.

and the other part of that is, is that if you, your system's working properly, then your body can actually handle some of this stuff, like we actually have detoxification systems.

If you're getting in a sauna regularly and you're sweating, right. If you're doing exercise, a lot of it can be breathed out, you know? so a lot of this stuff has we have excretory pathways for a reason and we can get we can get rid of this stuff.

But it does take some mindfulness. Right? So if we are keeping our system on track, then we can handle sort of this, this burden that we're, we're, you know, faced with.

But you know, again, I want to stress that it's literally everything that impacts the microbiome in the mitochondria. How you think, and what you believe is it goes all the way down to how your mitochondria function and how your gut functions. Right?

So, it's a really, really critical thing to, to remember that it's not just these sort of physical parameters that we, that we operate in. It's our internal environment being our mind as well.

Yeah. It's so important to remember it's and it's really everything what we're thinking, what we're doing each and every day is going to impact that communication process.

And when it comes to prescription and like you were saying, it really has to be personalized because somebody's stress threshold for, let's say, exercise in exercise is stressor on the body.

Stress threshold when it comes to, you know, different food, food compounds that they're putting in their body on their stress threshold for how much sun they can.

you know, adequately handle. That's therapeutic. And healing for them can be different. Right. And so let's talk about that. Let's talk about some things that in a sense are more universal or like let's say, you know, because you have somebody like for example, like myself, very healthy, athletic, I can handle a higher amount of stressors.

Right. And that actually makes it's a warm stress that actually makes my body stronger, healthier, more resilient. And then you have somebody that's battling complex chronic illness.

They've got chronic fatigue. And you know, if they were to try to to keep up with me, even for, you know, an hour, they would be absolutely passed out, you know, on, on their sofa.

Right. And it would actually over overwhelm their system and they would get more inflamed and worse. And so let's talk about where people can start that are dealing with complex chronic illness.

Yeah. And by the way, I want to state that the reason I'm sort of highlighting that it can be everything is, is not to overwhelm people until you got it. You getting everything right.

But it's more it's it's more to point out that, hopefully that somebody can find a gap in their health regimen. Right. For me, I know for a long time I had these gaps in awareness.

Like I didn't realize that my belief system was impacting my gut function, for example. Right. So I just want to point to them so that people can, can, can look and reflect at their own situation and find these gaps, maybe where where their health regiment isn't on point because they may be eating the right things and, and taking the supplements and doing so much right.

But if you've got unresolved trauma, a really, you know, kind of sticky childhood, that could be the thing that's keeping you locked down into this fight or flight at the nervous system level, at the mitochondrial level, and even at the gut level. Right.

So again, that's really why I'm pointing that out. But but I love your point. Like there are universal aspects to health. Right? So there's individuated aspects which is kind of what what diet to eat.

Right. Like it's kind of it's very individualistic. You're not going to feed the same thing to a four year old as you will, an 18 year old as you will.

And 94 year old. And depending on what conditions they have and all kinds of things. Right. Like it's a very, very different scenario. So, everything is contextual and, and there are universal sort of basic truths that, that we must adhere to.

And I think the biggest one when it comes to chronic illness is sleep. So this is one of the most important things, I think, that one can dial in as best as they can.

How do you get your sleep on track? Right. So the first thing you do is you get up in the morning when as soon as the sun has risen and you're up, go outside and go for a walk.

Ten 15 minutes. This may seem very inconsequential. I've had people do only this and turn around some amazing conditions that they didn't even think was possible.

So just getting up and getting that light in your eyes, setting your circadian rhythm so your body understands it's morning, turn on all these functions and turn off all these functions.

Doing that regularly, especially that usually takes 2 or 3 weeks if somebody's circadian rhythms out of whack to get that on track. But that morning light is so critical, at least 15 to 20 minutes and as much daylight as you can, that's

like hitting your eyes, for example.

So you don't want to be locked in a in a work cave all day, you know, morning to night and not really get any sun exposure. Your body's going to lose track of what time of day it is.

This is a reality. I worked in Seattle and I remember during the winters I'd go. I go to work in the dark. I come home in the dark. And I worked at Boeing for a little while.

And this is big again, it's big box. So I was literally not exposed to any sunlight. Now we have course have lights inside, but it's not the same thing at all.

Standing close. So that's one one thing that's really important right. And of course going to bed on time. And that means generally 930, 10:00 is kind of the sweet spot.

And this is this varies depending on a lot of things. But that's that's a good sweet spot for most people. Another important aspect of that is not eating food about 2 to 3 hours before that.

So your last meal, ideally your last food of any kind. 7 p.m. right. And if you because that function that your body is serving that that resource that your body's dedicating to digesting food is directly in opposition to the things that need to happen at 10 p.m.

and beyond, which is your body's cleaning up. Your body's getting ready for the next day. It's turning on all these different functions, and then you give it this massive job to do.

it's just not going to do those things for you. It's not good. Do either of them? Well, it's not going to do the clean up and it's not going to do the digesting very well.

So now you're going to get more digestion which means more metabolic waste. It enters your system and your system's not even cleaning it up as well. Right. And and it impacts various hormones.

that I won't get into because quite complex and it just I guess to say that the metabolic function, the fat burning capacity, the ability to use food for fuel, the ability to get good sleep is drastically impacted when you eat B after 7 p.m..

So it's a really, really critical aspect. So I say get your sleep diet. But there's other aspects to sleep, right? Somebody may have a lot of sleep apnea.

They may be snoring. They may not be, getting quality sleep at night because they're eating at night. Exactly. Because their jaw is is isn't developed enough.

And this is very common in the West, right, due to poor breastfeeding practices, due to, the poor nutrition, and some other factors, the jaw doesn't quite develop fully.

And what happens is, is our teeth don't have room. Our tongue doesn't have room in this in this cage. And therefore it blocks the throat. Right. So this is very common.

And you can do these sort of airway analysis and can see that the that the tongue coming up through it, there's hardly any gap. There's hardly any gap in the nasal passage back here.

So we get these apnea so we can do correctives on the, the the sort of jaw side to get better sleep. So you can see this goes quite deep. so, but nevertheless investigate your sleep and figure out what's going on there.

If you're not sleeping well and do whatever you can to get good sleep. Sleep is the foundation for everything else, right? So we're swimming upstream, and if we're not sleeping well, so sleep is critical.

I say the other critical piece is exercise movement. We cannot be healthy if we're not moving. And so this doesn't mean that you need to go do CrossFit every single day.

But this does mean is that you're getting up and moving around. If you're in an office space. I find myself sitting more than ideally, I would want to oftentimes.

So I just have to manufacture movement in. This can look like a few jumping jacks. This can look like a little bit of yoga. This can look like push ups.

This can look like anything. This is going for a walk. But get the body moving right regularly every 15 20 minutes. Do something. Stand up, sit down, do something every so often, every hour.

If you can, go out and do a little bit more movement and of course, vigorous exercise every now and again. And this is of course different for everybody.

Right. 75 year old that same and vigorous exercise is going to look different than a 25 year old. But whatever. It's going to stress your system. That's the critical piece. Stress your system.

basically as hard as you can for a few minutes. Doesn't have to be half an hour. It can be as little as five minutes in total. Have you stressing your system really, really hard?

or a moderate amount of stress for for a little bit longer. That's more common. You know, 30 minutes, 40 minutes hour, something like that. So the key is constant low grade movement that you can actually kind of do with just nose breathing.

That'll keep your system relaxed and stress free, while also benefiting from all the movement aspects, and then do something very difficult and strenuous for the system.

This will work wonders. You know that that strenuous exercise in particular is going to make the mitochondria get better at what they do. They there's a there's a high energy demand, you know, in the musculoskeletal system, in the heart, in the brain, in the liver, everywhere, really, every metabolic organ is going to need to, work harder when you exercise in a challenging way.

So therefore it's basically the body says we have a stimuli that we can't hardly handle. We need more soldiers. So the mitochondria is going to divide. Right.

And we call this mitochondrial biogenesis right. The ability for our cells to make new mitochondria. And these new mitochondria are healthy. Ideally they're relatively healthy.

they're going to be healthier than the old tired down, worn out mitochondria. And that's what happens. You can think of like old shoes versus new shoes.

Right? An old shoe still kind of work. But you know, eventually they're going to get a hole in and they're not going to work. And they're going to your feet are going to get wet. Right. So, there's a process to get rid of those.

Stress Resilience, Cold Exposure, and Recovery

But this, this aspect of, of building new mitochondria to handle this workload stress is very, very critical for the cell itself. Right. You can imagine a cell with 30 mitochondria if it can turn 30 into 40.

Now you've got new brand new healthy mitochondria to make energy to communicate. So now that cell doesn't need to die because it's got new mitochondria that are healthy.

Instead, if you never give it the body, this stressor and those those old mitochondria just kind of eventually wear out. And the cell may say, we don't got enough resource here.

We're going to have to, you know, die. And it has, you know, mechanisms and other cells. Right. Immune cells can actually recognize these these tissues and say, this isn't working out.

We're going to have to recycle you. and so you get too much of that. Like some of that is very good. You get too much of it too often. Now you're starting to see organs and tissues that are dis functioning.

Right. And this is this is naturally going to happen. This is actually kind of part of the process of aging. You could say this is a natural, degradation of the body, which is going to happen, but we can do things to sort of mitigate that.

We can do things to halt that, and we can regenerate these tissues. Right. You see, this in the liver is a great example. And the gut lining, very, very good examples of tissues that can get damaged quite frequently but then rebuild very, very effectively.

Right. And, and essentially bring new, new cellular tissue, to these organs. And that increases function. Right. So, it's a really, really critical aspect of staying healthy.

And then the other one I would say is related to food. And this is again, I kind of mentioned meal timing. it's an it's sort of related to fasting and caloric restriction.

And, and for me there's lots of different strategies that we can use. There's different types of fasting. Right. There's kind of a 24 hour fast. There's even 72 hour fasting beyond.

But for the purposes of kind of mitochondria and gut function, these shorter fasts, it can be very regenerative in this process. So whether it's a 24 hour fast or a 48 hour fast, or even an 18 hour fast or a 12 hour faster, as long as it's a regular thing that you're doing.

So, you know, 24 hour fast every week, great strategy, an 18 hour fast every day, great strategy, you know, 16 hour fast every day, great strategy, three three day fast or longer every once in a while, every quarter, for example.

Nice strategy. And what happens is when we when we don't give our body this food source, that the gut doesn't have as much to do, right, doesn't have to do a ton of work.

So now it can get to work on cleaning up the space right? So now these these organisms, let's say you have an abundance of, of kind of, yeast and fungal, load.

Well, they're not going to get the resource that they need, which is generally glucose and carbohydrates and starch. So now there's going to be a competition.

And so these things that are going to get stressed because they don't have resource, they're going to kind of die out. Everything's going to come back into harmony.

And what we see in this, in this ecosystem is that we we see a proliferation of various species and so we see the the diversity go up in this instance, a fantastic we see, better metabolic function at a, at the microbiome level.

We see kind of this, just just healthy behavior really. And then the other side is that we see this happening at the mitochondria level. Right. So the mitochondria aren't getting this, this constant glucose source or fat source.

And so they have to figure out what to do. And and this is the process like the early process of starvation, you could say at the cellular level, when that sort of glycogen, gets depleted to a large degree around the body, the cell is going to turn to burning fat for fuel, and they have to go around and clean up all the sort of lame mitochondria that are, that are in the body.

So you get this recycling, right, this autophagy. And this is a really, really important again, getting getting rid of the defunct mitochondria. That's that's communicating poorly, creating new cytokines through mitochondrial biogenesis

and exercise.

Right. And giving the body tons of rest and allowing it to sort of relax and do all the garbage taking out and everything that it needs to do to produce resource for the body.

Right? When we rest, we are producing resource. We are allowing the body to gather resource. It's so critical. It's why you can't go for long without sleep, right?

It just doesn't work. So if you do those three things, clean up the old stuff right? You make new ones and then you give your body resource and rest. It's kind of a trifecta.

So I think those three to me are absolutely essential for everyone. And of course, there's probably 20 other things I could mention that that would be helpful.

But if if you kind of center your focus. I've seen athletes that eat the worst diet. I mean, and look, I don't advocate for that. And eventually it does catch up to them.

It's certainly not a recipe for success, but they can overcome a pretty crappy diet because they're exercising well. They're focusing on their sleep. Right.

And and generally they're, they're eating, appropriately. Right. They're fasting and they're intermittent fasting in a way that that keeps them healthy.

So it can overcome so much. And then when you throw on all these other, you know, beneficial things that we could do from a sort of functional medicine standpoint, chiropractic standpoint, we start to see a ton of benefit.

Yeah, it's a really great overview. And that's super important to understand. We want to make these cells more metabolically flexible where they're good at burning sugar, good at burning fat, ketones as an energy source.

And ultimately it's kind of basically taking converting lazy mitochondria into very stress resilient mitochondria. We save the quality of our life is going to come down to the amount of stress resilient mitochondria we have in the cells of our body.

And that's really what you're talking about here, is creating more stress resilient mitochondria where where they can handle certain amount of stressors, whether it's coming from exercise, whether it's coming from mental emotional stressors, whether it's coming from not having food for a period of time, which is a stressor on the body, or even having too much food at a certain period of time.

All those things are stressors. We want great adaptability. And so stress resilience is really how adaptable are we? Absolutely. And we want both. Right.

Like we want the barbell approach. We want tons of good stress, wants tons. There's appropriate appropriate amount of stress. Right? Right. But but it needs to be enough.

Like it needs to actually push you. Right. Same thing with sun exposure. You know, I see, Brian Johnson, he's the one that's, you know, spending millions of dollars, trying to live forever.

And, you know, he's completely avoiding sun. And I think, wow, what an interesting approach. I understand that. Yeah, it's, you know, it keeps your skin healthy, but there's so much you're missing by not getting exposure to the sun. Right?

So exposure to the sun in appropriate amounts based off of your tolerance for the sun. Exercise as hard as you can without causing injury. And and foods you want these stressor foods, right?

This is where the colorful plants and vegetables are so beneficial in the proper amount. But for some people that

are that are that are, that are compromised at the gut level, this is when you see things stressing the gut out.

It's too much. It cannot handle a lot of these foods. And we call it intolerance. Right. now the other side of that is rest, right? And athletes get this really?

Well, they understand this, or at least the ones that are at a high level as it's if you're introducing new stressors into your life, then you need you need equal, rest and recuperation.

You need to be able to to to respond to that stress. Right. Oftentimes the old the old school way of approaching athletics was you just keep pushing and pushing and pushing and pushing and you're not giving your body enough rest and resource to recover.

Right? So we need to be able to recover. And it's a really, really critical aspect, especially in our modern day, which doesn't involve very much time with like hardly any stimulation.

Right. And, and a low grade sort of, environment. Right. We are constantly stressed, even at rest. Right. So to focus on stress is a stress reduction techniques.

And really the anti stimulation to reduce stimulation, turn off of the turn off the buzzes on your phone. Right. Try to clear out your calendar. Whatever you can do to simplify your life will take that load off of your nervous system when it's at rest, and now you can drop deeper into rest.

You can, you can recover, you can sleep better, etc. so those two things we need better rest and recovery and we need more stress. Too many of us are walking this middle line of like not stressing our systems, but constantly under this low grade stress.

And it's not a good stress, it's too constant. So we want stress and rest. If you're operating in note, you hardly ever want to be in this kind of middle ground area.

Like that's really the danger zone if you get locked in, right? So it's it's really understanding this. Too many people are in this, this danger zone.

And then they try to they stress themselves and they're not getting rest. That's a it's not going to work. Right. We need to focus on both rest and recovery as well as the stressors.

Yeah really well put. And this has been a great interview Jason. I mean, we could talk all day about this stuff, but it's so critical. And I really want our listeners, you know, this information is vital when it comes to getting healthy and well, understanding what Jason is talking about is really the place to start.

Just understanding that you know, enough stress and then really, really great rest that, I mean, that's that is the formula for being healthy and well and so and then.

Includes temperatures too. Right. Like we need. That's a great one where we can stress the system with some cold stress system with some hot like doing that.

Because we're right now in the West, we are just we're in ambient all the time, right? Right. None of our ancestors 500 years ago. We're in this ambient temperature all the time.

Right? So most of humanity, throughout history, has been subject to temperature extremes, unless you live on the equator. Right. So it's it's interesting and even then. Right.

So it's really interesting to note that at this sort of 68, 70°F that we're operating in is all year round is unheard of in human history. We need to stress our body.

So in the cold, take a cold shower, dunk your face in cold water for 15 20s like this is how you you wake up the

system. That thing that I mentioned earlier about about a jarring the mitochondria awake.

Well that's that's exercise. That's cold exposure. That's heat exposure. Right. Like that's what you need to do to wake up these mitochondria.

Closing Thoughts and Final Remarks

And oftentimes you even need to go further than that for some people who are severely in chronic fatigue. But we need to wake the system up. And the best way is to kind of get comfortable in the uncomfortable, like just just just bite down big grin and bear it, like, just get in that cold shower and God, this is going to suck.

I do this all the time. I have a cold, but I don't particularly like it. I mean, I like it, I'm addicted to it. Like there's a, there's a, there's a endorphins that are like my system just loves.

But there's an aspect that I got. I don't really want to do this, but it makes you feel so good. Right. So you kind of just like, forego the mental chatter and just go do the exercise, go do the cold punch, go sit in the sun, whatever it is for you to kind of challenge your system.

You just kind of accept the fact that it's going to be uncomfortable. That's okay. It's a heck of a lot better than being chronic disease states throughout your life.

I can guarantee that. Yeah. And even like with Cold Plunge, the therapeutic dose for most people is very short period of time. I most people notice it's a week, 11 minutes a week.

That's exactly. Right. So I mean and that's over several different bouts. Right. So it might be like 1 or 2 minutes, you know, when you get in there and you're getting a therapeutic dose, it's going to boost your dopamine, your endorphins, you know for hours afterwards it's better than, you know, a shot of espresso for your energy levels.

So no question, which is stealing energy from tomorrow to get through the day, right? Like a none of that actually gives you energy. It just stresses your system and prevents you from sleeping.

So it's it's exactly the opposite. I know it feels good. I enjoy it too. Turns on my brain. I like it right. Like but it's really not actually giving you anything.

It's just pushing your system into a stress mode. Right? So it's not that it's bad per se, especially for neurological function. Caffeine can be decent.

But but but I think, we hear that and we go, oh, okay, I'll have seven, you know, and it's just like, it's just not the recipe, you know? Yeah. Yeah, absolutely.

Well so good. Jason, I really enjoyed this conversation guys. Definitely check out his book again. “Beyond Longevity: A Proven Plan for Healing Faster, Feeling Better, and Thriving at Any Age”.

Really phenomenal book if you're looking to reduce inflammation and support healthy longevity. So Jason, thanks again. Any last words? Inspiration here for our audience?

No, I mean, I appreciate you having me on, always love the work that you're doing and the content that you put out. So, yeah, I just encourage everybody to go check out your site.

That's a it's a constant resource for me when there's a question I have and I, and I wonder if Dr. Jockers is, covered this. And usually when you cover it, it's like five pages of gold.

So, I just again, appreciate everything you guys are doing over there. Thanks so much, Jason. Appreciate you.