The Hidden Culprit of Aging: What You Didn't Know About Oxidative Stress Transcript

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Introduction and Guest Background

Welcome, everyone, to another episode of the Exponential Longevity Summit. I'm your host, Doctor Jeffrey Gladden. And as you know, we are here discussing how we're leveraging AI to outlive disease and to live Yong for a lifetime.

And today I'm joined by Doctor Jason Barker. Doctor Jason Barker is a natural past in his. Has, an esteemed career. I'm not going to read off all of his things.

We'll put them in the show notes for you. But he's been in private practice for 22 years, and he works, closely with, Vibrant Wellness, which is, a laboratory that we think very highly of.

He's a clinical lab educator. They do a lot of very cutting edge testing. I've been to their facility in California. It's state of the art stuff that they do, and we use them for a lot of the things that we test.

He's been associated with them for the last couple of years. So welcome to the show. Doctor Barker. Thank you for having me. I'm excited to chat today.

Yeah, absolutely. So I like to ask the question. We only have about 30 minutes here in this talk, but tell me a little bit about your journey. How did you how did you get to be a natural path?

What happened there? So many people had and you said, oh, I better do that. And that's great. So yeah, I grew up in a in an athletic family. I'm the fifth of five kids.

Parents were pretty health conscious, so I was tell the story. My brothers and I were, you know, this is, back last century when this happened, but, my brothers and I were always putting multivitamins and things like that into the blender and grinding them up and drinking them so we could be healthy. And, brothers, I me okay.

Thank goodness for for improved, food flavoring, etc. these days. But, so real health conscious family, athletic family. And then I went to undergrad and I was going to study sports medicine.

And again, that was last century when I was just kind of like, well, what is it? And I, kind of thought I could with that course, I could be a physical therapist or, you know, kind of work in corporate wellness.

And I was like, no, not really into that. And surprisingly, I, I went to the, career counseling office and they pull out the big old, big old book of careers, and I read about medicine and turn the page and read about chiropractic.

That's interesting. And then turn the other page. I had Natural Path Medicine, and this is back in like 1998. Naturopathy has been around for a long time, but I anyway, I read that and it was love at first sight.

And so being a health conscious person just being kind of wired that way and fell in love with natural path medicine and, I went and had to be a ski patrol, our first after I graduated from college, because I'm the, skier at heart, too.

And got into, yeah, became a natural path. And I've always been a athletic and endurance athlete. Yeah. So, so. That's that's, that's a great story. So just explain for the audience what a natural path is.

And you brought up chiropractic.

What Naturopathic Medicine Is

You know, we know about MDS and dogs and, and other folks in the field. But described a special niche, and also the expanded range that the natural path has.

Sure. Yep. So natural path doctors are trained as general practitioners. So we go to a four year postgraduate medical school. We learn, you know, the similar sciences that an MD or a dog does anatomy, biochemistry, physiology, pharmacology, all that stuff.

And then, but the emphasis is on really trying to treat and identify the cure of what's going on. So, you know, I always use the old, the old jokes, like, if you have five year old year, it's because you are suffering from an antibiotic deficiency, right.

Sometimes immune system. So I always say the the NDEs or the original functional medicine doctors not to step on toes, but that's kind of I think you're right.

I think you're actually right. I think naturopaths, you know, and people that do homeopathy, it was just kind of in that same vein. Right. Is really this idea of how do we actually understand the body and understand what the deficiency in the body is.

That's really related to the problem that somebody is experiencing. Right. Which is different from how we were trained in allopathic medicine. So there's a symptom. Here's something you can do for it. Right.

And that was the joy of it was, oh, there's a symptom. We can do something. Okay, great. But we never really understood what we were doing. And so, you know, it's a different approach anyway.

Go ahead. Yeah. So we just try to get to the root cause, we try to, you know, the belief is the body is innately healthy, right? And just like any other living organism, if you give it the right nutrients and take care of it, then ideally it will flourish.

And of course, that's a very simplistic overview of health and disease. But that's but NDEs do. And so we try to use natural approaches, to help a person achieve and maintain health.

Yeah. Well that's a great summary I think, you know, so we look at longevity itself and kind of one of the things that it takes to stay healthy, we know that, inflammation is a big driver of the phenotypic expression of aging.

Right. And we know that the immune system is weakened. We know that senescent cells show up and become secretory. There are other drivers of inflammation from cell to cell communication switches, things like that.

So anyway, with all of that, we know that inflammation is a big driver. And the reason that inflammation is actually a problem, is it can cause tissue damage, but it also increases oxidative stress inside the cell.

And it's that oxidative stress that really starts to break down, the, the structure of the cell, whether it's a cell membrane, whether it's mitochondrial cell membranes, whether it's oxidizing DNA and shortening telomeres, this oxidative stress is a big driver of what's going on.

So in in looking over some of the things that you're, most interested in, it appears that you've been focusing on a little bit on oxidative stress. Do you want to talk a little bit more about that kind of how you got into that and how you see it and what you do about it?

Yeah, yeah. So, yeah, like you mentioned the last, I don't know, 20 years. And our practices, you know, it's, we've come to understand and realize that inflammation is at the core root of all these chronic diseases that so many people in the Western world are suffering from. But, this isn't necessarily new, but it's like, okay, well, now we can really look at how oxidation is also contributing to this damage.

And I always, you know, the, the free radical theory of aging was posited back in 1956.

Oxidative Stress and Aging

So this again, this isn't new, but with what vibrance doing is now we can test the snips or the genes that might predispose somebody to having more oxidation or be more susceptible to oxidation.

And then we're looking at those byproducts of that oxidation. So it's really this new test that I'm super excited about. It's just fascinating because you know.

Right. You can you know, the story. You may have good genes and that's like your, your 110 year uncle who can, you know, smoke and drink and he's fine.

And then you get people who, who are healthy. And because their genes aren't as, as robust, they may they may suffer from more illness. But anyway, the so it's it's really.

You mentioned the word vibrant there. And just define vibrant for the audience. It's a laboratory but just talk for a minute about a vibrant, just so you are in some sense a contest to get a sense of context there.

And then also, let's talk a minute about some of those genes. You know, superoxide dismutase and catalase includes iron oxidase and some of the other glucose, iron channels and things like that.

Just so the audience has a sense of the reality of what we're talking about here, and how real this is. So the first off, what's vibrant? Sure. So vibrant wellness is, cutting edge functional medicine laboratory based out in San Jose.

And so, kind of a, newer kid on the block, so to speak, been around for, like, the last eight years or so. But we are really into looking at, and taking deep dives into all these different areas of functional medicine.

So we've got a huge array of pretty much every functional medicine and conventional past. You might want to, anybody might want to look at. But as far as, with this, this new test, this oxidative stress panel.

So as I mentioned, we're looking at the genes that dictate how these oxidative or these, antioxidant genes work in our body. So, you know, a person may have a healthy gene or they may have an aberrant gene, a gene that doesn't function all the way.

And so that will affect how these antioxidant enzymes like luminous iron synthetase, glutathione S transferase, etc., etc., how those work in the body.

So those genes are limiting how those enzymes work. A person is a whole lot more susceptible to those byproducts of oxidation. They're more susceptible to oxidative damage, which can come from diet, excessive exercise, toxins in the environment, UV light, etc., etc., etc..

So we're all under this attack, so to speak, from oxidation or you know, it's not a new concept, but oxidation is essentially biological rusting. So we have cars that rust anymore.

But I think most of us get that concept. So when our bodies are starting to rust or oxidized, that just it creates damage on multiple levels. And so this test can look at how much damage does this person actually have going on in their body.

And then we can take steps to support that and remedy that. So super interesting to look at. The tests, if I understand this correctly. You're testing genes related to the management of oxidative stress.

Quite honestly, not necessarily a generational oxidative stress because we know it's being generated. But but the in the mitochondria but it's the management of that oxidative stress.

I my analogy is that you've got an engine which is the mitochondria making power which is ATP, and it has exhaust which is oxidative free radicals in that process.

And then you've got catalytic converters which are basically built in to handle that, like superoxide dismutase, catalase, glucose ion and all the different glucose ion permutations of that.

And then you've got substances like vitamin C and vitamin E and things that are actually antioxidants in and of themselves. But the thing about that is a vitamin C can can basically neutralize one free radical, right?

One vitamin C, one free radical. The thing about these enzymes that we're talking about, which are what we're talking about with these genetics, these enzymes can handle millions, millions and millions of free radicals.

So when you basically have the capacity of your understand, what's my genetic capability for handling oxidative stress? And then you know, what techniques and things you can do to actually upregulate genetic expression, to be able to handle oxidative stress.

Now you're basically enabling yourself to not only, you know, exercise better with less damage, but also, you know, to deal with some of the, oxidative stress of aging, some of these other things.

So yeah, it's super exciting. So you're measuring the genes, but then you're also measuring levels of oxidative damage in the cell. Do you want to talk about that for a second.

How you doing. The. Yeah. So so again 32 we're looking at those 32 genes. And then we're looking at 16 products of oxidative damage. So we're looking at you know damage from lipids or damaged lipid products, damaged DNA products, damaged protein damaged nitrogen products.

And then advanced glycation end product.

Vibrant Wellness and Oxidative Stress Testing

So nice. All those that exhaust it's coming off that engine. So different categories that are right. Yeah. No. That's really, really interesting. And of course the engine is always running.

It's not just running when you're exercising, when your brain is thinking or that you're it's running all night long. Right? So your you're you're constantly making energy.

So you're constantly processing food and burning oxygen. And so these are being made 24 over seven. So being able to have an impact on that is a big deal.

So does the test also or do you yourself also make recommendations, based on things that can modulate either gene expression or help mitigate, the oxidative stress or actually, you know, help to the body to re synthesize the proteins or re lengthen the telomeres or undo the DNA damage or lipid damage.

Yeah. I can be curious to hear about that. Yeah. So there there is a brief set of recommendations at the end of the test report. If a person runs this fast, we're telling you about the genes and those byproducts.

Then we'll give, a summary of some supplements that a person can take that are geared towards those particular, markers of oxidative damage that we picked up.

So it's fairly it's a pretty general overview, but it's enough to get somebody started on that. And so personally, you know, I'll use that as kind of a background of like, okay, this is how we want to this person.

Above and beyond that as well. Right, right. So yeah, that's interesting. We we look at a number of those genes currently and then a number of those byproducts of oxidative stress currently.

But what I'm impressed with is it sounds like you've been able to push it into a broader spectrum. Now what we've really had available before. So we'll be excited to incorporate that into what we do.

As you know, I love longevity. We're never married to the answers, only the questions. Right. So how do we how do we do it better is one of those. So we'll probably start doing that test immediately here.

And maybe by the time this airs will already be doing it. But it's, it is interesting. We, you know, we became fans of molecular hydrogen back in 2015 when I first met Tyler Lebaron. And, you know, heard about hydrogen and some of the data out of Japan in terms of its ability to modulate oxidative stress.

And so we've become big fans of hydrogen now because hydrogen itself goes in and actually neutralizes, free radicals, although it can neutralize hydroxyl radicals.

But what's interesting about hydrogen is its ability to upregulate those genes that actually, deal with it. Right. And there are other things, too, like losartan can increase superoxide dismutase, and certain things can help produce glutathione, and increase glutathione levels, you know, and acetylcysteine glycine, things like this.

Right. So there are things out there to help modulate the system in the right direction. What's been lacking for us is the ability to see with great detail.

We've had some detail, but with great detail, actually, the progress that we're making. And so it sounds like this test can be used not only as a diagnostic tool, but then as a, progress tool.

Right. So how are we doing? So. Right. Yeah, absolutely. I mean, the, the those things you mentioned are super cutting edge. But yeah, you can, you can run this task at that baseline.

You don't need to run the entire test the second time around. Right. Because the, the genetic version. The genes aren't going to change. Right. But you can look, you can retest those oxidative, damage markers.

And so my, kind of, my kind of rule for retesting is about is no sooner than three months. You know, you do the test to get the patient back in. Okay, here's what we saw.

Here's your plan. Three months is more than enough time to see changes on this particular test. And I like it also, just because it's not like, hey, patient, you know, here's your test.

Do this. I'll see you in a year. Right? That's a really you know, it's a really I mean. Almost that's almost useless, quite honestly. Yeah. You gotta, you know, we all need to stay engaged.

And so anyway, you can retest those damaged markers in three months, and then you can assess, like, how is our plan working, what's going on? What have you been doing, Mr.

patient, have you right, you know, change your diet, have you started exercising, etc., etc.. So that's that's kind of how I would look at retesting for this.

Yeah, exactly. Cool. Well that's cool. So beyond this the tests for oxidative stress, are there other, tests that you are finding are particularly helpful in the longevity space?

You know, the way we think about it is you've got symptom driven medicine, right? Which is, wow, I was trained. You got, root cause medicine, which was kind of how you were trained.

But then below that is actually longevity medicine, which is really the river. Really? That's the current in the river that's taking us downstream, upon which all these other problems are sitting.

And so you're going after really the hallmarks of aging at that point in time. So in your, in your work, with vibrant are you, are you developing other tests to look at things like that, or is some of that in the works, or where are you guys with that?

They are looking at more comprehensive cardiovascular testing. So looking at more genes that affect person's,

propensity to develop cardiovascular disease, okay.

Of course. You know, I wouldn't call the these are more advanced, markers of inflammation that affect the cardiovascular system. We're delving into more hormone testing, too.

Speaking of longevity, I think you know, hormones are obviously a big deal.

Retesting and Tracking Progress

So it's been around a long time that we can look at, like, more detail again, on which hormones out of balance and how can we how can we assess that and help a person.

So is this a massive issue there? A lot of people on hormone replacement. I just got off the phone with a gentleman who, was joining us, as a client and, you know, he had pellets put in, testosterone pellets for low teeth.

And he was talking about how agitated he was and how he was getting angry and that he had tried, injectable testosterone previously with sort of similar results.

And there there's really a lot, I think that's not covered adequately with hormone replacement therapy. We kind of see it all the time. People look at blood levels and think, okay, we've got it under control.

And from my perspective, and it sounds like I see you're shaking your head. If you're not looking at how somebody is metabolizing those hormones, you don't really know what kind of risk your exposing them to.

And I think as a longevity physician, our first job is really to keep people safe. And so understanding their genetics or you're not giving the wrong thing, understanding how they metabolize their, their hormones.

And there really is a disconnect between what the genes say, they're how they're going to metabolize it and what we actually measure. So you really you can't just look at the genes and say, oh, I've got it figured out.

You got to also look at, you got to also actually measure those metabolites. And if you get that right, and you can adjust how they're metabolizing, adjust the doses, you can get people dialed in to a safe spot with hormones.

And I think you can't really get there in terms of longevity without hormones, because you need the muscle mass, you need the bone density, you need the brain function.

You need all of that. Right? The cardiovascular capacity. But if you get it wrong, you're actually shortening your life. You're increasing your risk of cancer.

You're driving things that you don't want to have. So I'm just curious to get your take on some of that. Yeah. I agree with you, obviously.

Hormones, Longevity, and Safe Optimization

I mean, it's, you know, 20, on the one hand, I'm thankful that hormone replacement is now nearly mainstream. You know, 20 years ago, it was like, don't ever give a man testosterone.

You'll give him prostate cancer and kill him. Yeah, but that's not necessarily true. So we're we're getting there. But as you mentioned, you just can't throw somebody on hormones, and and there you go.

Right. It's like, what are your genes doing? How are you metabolizing it? You know, I had so many, young guys come into my practice, 30 something, you know, 38, 40, like, oh, my testosterone is low, I need testosterone.

It's like, no, you need to work out. You need to eat lower stress. So that's a big, big suppressor, right? Sleep better, sleep better exercise. Doing the right kinds of exercise. Yeah.

Yeah. So there's, Yeah. Looking at, you know, like I said, I'm thankful that hormones are being appreciated these days. But then we need to go deeper as your as you're talking about, like, what is the right hormone preparation and how do we use that safely.

Because again yeah we don't risk. We're trying to obviously live healthier and longer. So that's. Right. And I will just say this to the audience, you know, being testosterone and anger, I've had a lot of people ask me and a lot of wives ask me, you know, if you put him on testosterone, is his personality going to change?

Is he going to get really aggressive? And I always refer them to the, to the bull shark. Right. The bull shark is the animal on the planet with the highest testosterone levels.

They are nasty beasts, you know, they they don't not mess around. They have they have a very short fuze. Right? The bull shark. In a whole shark family, they have the highest testosterone levels.

And the point is that a shark is a shark. But if you get enough testosterone into them, they're going to turn into being a nasty individual. However, if you get it right, they actually become better than they were, because when you're low on testosterone, you get cranky.

You don't have the same kind of reserve you don't have the same kind of equilibrium and the same deal, ability to handle stresses of life as they come to you.

You just don't have the capacity. So you get cranky, so you get cranky on one side and aggressive on the other side. And this is why it's so important to actually do this hormone replacement therapy therapy properly.

And look at all the metabolites, look at the levels and work with somebody that can actually help you adjust this. Because without that it's possible to do harm.

But not having them is is known harm. Right. So it's a it's a very important thing. Yeah. Yeah. It's a, you know, it's a fine line. But it's also it's not that it's not that challenging to.

That's right. You know, do this in a, in a balanced walk. You know in the pellets. It's like here you go. Here's a guy stops right. And I'll see you in a few months. It's like no way.

That's a rough ride for somebody. That's right. Yeah, yeah. The thing about pellets for the audience to understand, too, is the hormones are released from the pellets as a function of cardiac output.

So the more exercise you're doing, the more you're leeching the hormone out of the pellet. Right. So if you're, if you're a, you know, they say it's good for 90 days.

Well, if you're, you know, if you're a marathon runner and you're putting down ten miles a day or 12 miles a day, right? It's a routine. You're going to burn through that in 6 to 8 weeks, you see.

And so this one size fits all concept is is really not right. And it's one of the things that you need to understand if you're going down a pellet route or if you're going down injections or creams or whatever, each of them has, benefits and also associated risks.

And so you have to know what you're getting into so you can hit that sweet spot. Yeah. For sure. Absolutely. Yeah. Yeah. That's important. Like I said, we're using hormones now. Great.

But let's let's continue to fine tune it. And that's what some of these tests will be able to tell us. Like the urine hormone tests that we offer will really show you all the breakdown of estrogens, testosterone.

And by the way, you know, guys make estrogen. Two women make testosterone. Two we need to look at that test in both sexes because it's it's it's equally important in both people.

So yeah that's a great point. There's a lot of t clinics out there that are using, medication called anastrozole to block the conversion of testosterone to estrogen.

Everybody makes their estrogen from testosterone. All women do or men do. And you can block that conversion with that, with that drug and slow it down with certain, certain supplements as well.

But the point is that, you want estrogen. If you're a man, you actually want estrogen, and particularly based on your genetics. So for example, if you're an apple, we for an EPO, C1 and you've got a predisposition for Alzheimer's disease, you really need estrogen in your brain.

It's one of the things that keeps you, thinking more clearly. Right. There are many other things you need, but that's one of the things that you need.

And so, you know, understanding, that women need testosterone. Otherwise they lose their muscle mass, their bone density, their libido. And men need estrogen because it actually calms them out, has a good cardiovascular effect.

It improves brain function. You know, you really got a balance. And people people say, oh, I'm a man. I don't want to estrogen. Well, actually you do. And I'm a woman.

I'm afraid I'm going to get boom. Am I going to get big? I don't want to get big. You know, you actually need some testosterone to, to maintain, you know, kind of healthy levels of bone density and, skin, skin tone and muscle mass and everything else.

Yeah, yeah, yeah, all important points. And that just kind of, again, highlights the need for more in-depth testing for this. Because actually doing hormones and just measuring serum blood levels, you're really not you know, you're just scratching the surface on on those levels and what they're doing in your body.

In fact, you really don't know what they're doing in their body. You're just like, oh, here's your here's your level. That's right. See around. That's right.

I find the same thing with thyroid, right. People measure thyroid measure TSH. But we do resting metabolic rates on everybody because you really can't tell from the blood tests quite honestly where somebody is at.

I mean they can be have clinical hypothyroidism and be in a normal range. They can be hypothyroid and have normal, thyroid levels. So it's really quite interesting, this ability to, to look deeper, how important it is and to work with people that can do that.

So yeah. Yeah, that's what I, had mentioned to somebody yesterday is like, this is this is such a great, you know. Excellent tools at our disposal now and so much, so much better testing, you know.

And I again, I've been in practice like 22 years, which isn't that, you know, it's a time but not that long. But stuff has changed immensely in those 20 years.

Yeah. It's fascinating every all the tools that we have at our disposal now for really maximizing, you know, now we're learning more like, oh, you know, these are how the hormones work.

This is how the antioxidants work. But now we can really pin this stuff down and dissect it and really make those fine tuning changes that are really going to have that greatest effect on people's health.

And yeah, I agree completely. It's a great time to practice never better. So you you're actually working with vibrant now on a consulting basis I think.

And you have the ability there are practitioners listening to this to actually consult with them and give them insights into some of these tests that we're talking about.

Is that is that correct? Yes. I'm a clinical lab educator at vibrant. So whenever a clinician runs one of our tests, you can come find myself or my six other colleagues and schedule a 30 minute appointment, and we can go through that test with you and explain everything, you know, explain all the results.

And then we've got a huge amount of resources, too, on the website, you know, interpretive guides that are like insect Day to the practitioners listening is.

Yeah, certainly looking at these 30, 40, 50 page lab reports can be daunting.

Clinical Lab Support and Closing Remarks

But, you know, like all new things, we can easily make sense of it for you. So. So don't be afraid to step into some deeper water, so to speak. It's more straightforward in understanding them and, incorporating those into your practice.

But, yeah, we're I'm here to help. So come find me a vibrant if you run some of these tests. Yeah, I think fiber does a great job of, giving clinicians, backup information, helping them understand the test, and then, of course, yourself and your colleagues, being available.

Not every lab does that, right. Not every lab has somebody you can actually call up and make an appointment with and actually walk through your questions.

So if you're a practitioner and you're listening to this or if you're or if you're, not a practitioner and you want to find a practitioner, you want somebody that's using labs like these where they can get information.

Because I will tell you that that oddball stuff pops up, a clinician will see things that they've literally never seen before, and they need help to kind of, you know, put it in perspective.

And so, I really appreciate, vibrance, commitment to the quality of their testing. As I said earlier, I took a tour of their facility, and it's it's so impressive.

I mean, it's so impressive, and their commitment to that quality. So, you know, thumbs up for vibrant and, Yeah. Good stuff. Yeah. Yeah, absolutely. I was on that on that tour in September as well. And, unfortunately, I asked if I could hang out for a month and just learn all those machines, but they told me to go back and do this job, so.

Okay. You know, you read about that stuff in school, mass spec and liquid chromatography. I'd love to sit there and learn it, but, Yeah, we're here. We're here to help.

And obviously, two brains are usually better than one. So that's our job is to help everybody out. Well, Jason, I really appreciate you taking the time to chat with us today.

I think the audience benefited. Tremendously from that. So really appreciate your time, the work that you do and your commitment to it. Great. Great to touch base. Yeah.

Thank you. My pleasure. Good speaking with you. Yeah.