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

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Introduction to Oxidative Stress

We're all under this attack, so to speak, from oxidation. Oxidation is essentially biological rusting. We don't have cars that rust anymore, but I think most of us get that concept.

So when our bodies are starting to rust or oxidize, that just 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.

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

Today I am joined by Dr Jason Barker. Dr, Jason, Barkers is a naturopath. He 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 lotta things that test.

Dr. Barkeru2019s Path to Naturopathic Medicine

Been associated with them the last couple of years. So welcome to the show, Dr. 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 get to be a naturopath?

What happened there? Somebody said, Oh, I better do that. So yeah, I grew up in an athletic family. I'm the fifth of five kids. Parents were pretty health conscious.

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

That's funny. Thank goodness for improved food flavoring, et cetera, these days. 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 it was just kind of like, well, what is it? Kind of thought I could, with that course, I can be a physical therapist or kind of work in corporate wellness.

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

Oh, that's interesting. Then turn the other page, it had naturopathic medicine. This is back in like 1990, dropping has been around for a long time. Anyway, read that and it was love at first sight.

So being a health conscious person, just being kind of wired that way and fell in love with naturopathic medicine. And I went and had to be a ski patroller first after I graduated from college because I'm a skier at heart too and got into, you know, became a natropath and always been a.

athletic and endurance athlete. So that's a great story. Just explain for the audience what a naturopath is. You brought up chiropractic. We know about MDs and DOs, and other folks in the field, but describe the special niche and also the expanded range that a natural path has.

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

But the emphasis is on really trying to treat and identify the cure of what's going on.

What Naturopathic Doctors Do

I always use the old jokes, like if you have five colds a year, it's not because you are suffering from an antibiotic deficiency, right? So immune system.

So I always say the NDs or the original functional medicine doctors, not to step on any toes, but that's kind of- I think you're right. I actually think naturopaths you know, and people that do homeopathy, it was just kind of in that same vein, right?

It's really this idea of how do we actually understand the body and understand what the deficiency in the is that's related to the problem that somebody's experiencing, which is different from how we were trained in allopathic medicine.

There's a symptom, here's something you can do for it. And that was the joy of it, was, oh, there's this symptom we can something. Okay, great. But we never really understood what we we're doing.

So, you, know it's different approach. Anyway, go ahead. Yeah, so we just try to get to the root cause. We try, 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 what NDs do.

So we try and use natural approaches to help a person achieve and maintain health. Yeah. Well, that's a great summary. I think, you know, as 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 a phenotypic expression of aging, right?

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

So anyway, with all of that, information is the big drivers. And the reason that information's actually a problem is It can cause tissue damage, but it also increases oxidative stress inside the cell.

Inflammation, Aging, and Oxidative Damage

It's that oxidated stress that really starts to break down the structure of the cells, whether it's a cell membrane, mitochondrial cell membranes, 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 oxidator stress.

Do you want to talk a bit more about that? Kind of how you got into that and how do you see it and what you do

about it. Yeah. So yeah, like you mentioned the last, I don't know, 20 years in our practices, you know 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, the free radical theory of aging was positive back in 1956. Again, this, isn' t new.

with what Vibrant's doing is now we can test the SNPs 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 know the story. You may have good genes and that's like your 110-year-old uncle who can you know, smoke and drink and he's fine. And then you get people who are healthy and because their genes aren't as robust, they may suffer from more illness.

But anyway, so it's really… You mentioned the word vibrant there. Just define vibrant for the audience. It's a laboratory, but just talk for a minute about Vibrant, just so the audience has a sense of context there.

And then also let's talk a moment about some of those genes, you know, superoxide dismutase and catalase, and glutathione peroxidase. Some of the other glutothione genes and things like that.

Just so that the audiences has the sense, the reality of what we're talking about here and how real this is. First off, what's Vibrant? Sure. So Vibrant Wellness is a 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 Madison.

Pretty much every functional medicine and conventional tests you might want to, anybody might wanna look at, but as far as with this, this new test, that's oxidative stress panel.

So as I mentioned, we're looking at the genes that dictate how these oxidatives or these antioxidant genes work in our body. 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 glutathione synthetase, glutothione S-transferase etcetera, etcetera how those work in the body.

Vibrant Wellness and Oxidative Stress Testing

So those genes are limiting How those enzymes work, a person is a whole lot more susceptible to those byproducts of oxidation. There are more acceptable to oxidative damage, which can come from diet, excessive exercise, toxins in the environment, UV light, et cetera, etc.

So we're all under this. attack, so to speak from oxidation. You know, it's not a new concept, but oxidation is essentially biological rusting. We have cars that rust anymore, But I think most of us get that concept.

So when our bodies are starting to rust or oxidize, that just 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 abort that and remedy that. So super interesting. With the tests, if I understand this correctly, you're testing genes related to the management of oxidative stress, quite honestly.

not necessarily the generation of oxidative stress because we know it's being generated in the mitochondria, but it

is the management of that oxidated stress.

My analogy is that you've got an engine, which is a mitochondrial making power, and it has exhaust which has oxidator free radicals in that process. Then you have catalytic converters.

which are basically built in to handle that, like superoxide dismutase, catalase glutathione, and all the different glutothione 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 that vitamin 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 are talking with these genetics, these enzyme can handle millions, millions and millions of free-radicals.

So when you basically have the capacity to understand what's my genetic capability for handling oxidative stress, and then you know what techniques and things you can do to actually up-regulate genetic expression to be able to handle oxidated stress.

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

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

How you do that? Yeah, so again, 32, we're looking at those 32 genes and then we are looking 16 products of oxidation damage. You know, damage from lipids or damaged lipid products, damaged DNA products damaged protein damaged nitrogen products and then advanced glycation in products.

So all those that exhaust it's coming off that engine. 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's thinking, it's running all night long, right? So you are constantly making energy, so you constantly processing food and burning oxygen, and so these are being made 24-7.

So being able to have an impact on that is a big deal. Does the test also or do you yourself also make recommendations based on things that can modulate either gene expression or help mitigate the accidental 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.

I could be curious to hear about that. Yep. So there, there is a brief set of recommendations at the end of the test report. If a person runs this, first we're telling you about the genes and those by-products, then we'll give.

A summary of some supplements that a person could take that are geared towards those particular markers of oxidative damage that we picked up. So it's fairly, it a pretty general overview, but it 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 come above and beyond that, as well. Right. So yeah, that's interesting.

We look at a number of those genes currently, and then a numbers of byproducts of oxidative source currently. But what I'm impressed with is it sounds like you've been able to push into a broader spectrum than what we've really had available before.

So we'll be excited to incorporate that into what do. As you know, at GLAD Longevity, we're never married to the answers, only the questions, right? So how do we do it better is one of the those.

so we will 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 heard about hydrogen, some of the data out of Japan in terms of its ability to modulate oxidative stress.

Using Test Results to Guide Treatment

And so we've become big fans. Not because hydrogen itself goes in and actually neutralizes free radicals, although it can neutralize hydroxyl radical.

But what's interesting about Hydrogen is its abilities to up-regulate those genes that actually deal with it, right? And there are other things too, like glycogen can increase superoxide dismutase, and certain things can help produce glutathione and increase glutothione levels, you know, acetyl cysteine, glycein, things like this, so there were 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 greater 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 progress tool, right? So how are we doing? Is that right. Yeah, absolutely.

I mean, those things you mentioned are super cutting edge, but yeah, you can run this test, get that baseline. You don't need to run the entire test the second time around, right?

Because the genetic portions never change. The genes aren't going to change, Right. But you could look, retest those oxidative damage markers. And so my kind of rule for retesting is about, is no sooner than three months.

Now you do the test. 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 task.

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. Yeah, that's almost, almost useless, quite honestly.

Yeah. You got to, you know, we all need to stay engaged. And so anyway, You can retest those damage markers in three months and then you can assess like, how's our plan working?

What's going on? And what have you been doing, Mr. Patient? Have you changed your diet? If you started exercising, et cetera, etc. So that's kind of how I would look at retesting for this.

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

The way we think about it is you've got symptom-driven medicine, which is how I was trained. You've 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 it's occurring in a river that 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 work with Vibrant, are you developing other tests to look at things like that or is some of that in the works or where are guys with that?

Retesting and Tracking Progress

They are looking at more comprehensive cardiovascular testing. More genes that affect a person's propensity to develop cardiovascular disease. Of course, I wouldn't call these are more advanced markers of inflammation that

effect the cardiovascular system.

We're delving into more hormone testing too. Speaking of longevity, I think, you know, hormones are obviously a big deal. 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 assess that and helps the person.

This is a massive issue. There are a lot of people on hormone replacement. I just got off the phone with a gentleman who is joining us as a client and you know, he had pellets put in testosterone pellet for low T and he was talking about how agitated he and how getting angry.

and that he had tried injectable testosterone previously with sort of similar results. And 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 shaking your head, if you're not looking at how somebody's metabolizing those hormones, you don't really know what kind of risk you are exposing them to.

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

There really is a disconnect between what the genes say, how are they 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 also actually measure those metabolites. And if you get that right and you, can adjust how they're metabolizing, adjust the doses, as you could get people dialed into a safe spot with hormones.

Other Longevity Tests in Development

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, need to brain function.

you Need all of that, right. The cardiovascular capacity, but if, get it wrong. You're actually shortening your life, you're increasing your risk of cancer, your 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, on the one hand, Hormone replacement is now nearly mainstream.

You know, 20 years ago, it was like, don't ever give a man testosterone. And you'll give him prostate cancer and kill him. Yeah. But that's not necessarily true.

So we're, we were getting there, but as you mentioned, you just can't throw somebody on hormones in life. and there you go. Right. It's like. What are your genes doing?

How are you metabolizing it? You, I had so many guys come into my practice 30 something, 38, 40, like my testosterone is low. I need testosterone it's, no, You need to work out.

Eat better, lower stress, stress a big, big suppressor, right? Sleep better. Sleep, sleep better exercise and doing the right kinds of exercise. 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 you're, as your talking about is like, what is the proper preparation and how do we use that safely?

Because again, yes, we don't rest right now. Obviously you can live healthier and longer. That's right. And I will just say this to the audience, you know, testosterone and anger, I've had a lot of people ask me and a lots of wives ask,

me, if you put them on testosterone, is his personality going to change?

Is he going get really aggressive? And, and I always refer them 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 do not mess around. they have a very short fuse, the Bull shark. And in a whole shark family, they have the highest testosterone levels.

And the point is that a shark is a sharp, 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'd get cranky. You don't have the same kind of reserve.

You do not have this same equilibrium, the ability to handle stresses of life as they come to you. So you get cranky on one side and aggressive on the other side.

Hormone Optimization and Safety

And this is why it's so important to actually do this hormone replacement therapy properly and look at all the metabolites, look the levels and work with somebody that can actually help you adjust this.

Because without that, it is possible to do harm. Not having them is known harm, right? So it's a, it is a very important thing. Yeah. And it, oh, that's fine line, but it also, not that challenging to do this in a balanced walk.

You know, the pellets is like, here you go. Here's, a bunch of testosterone and I'll see you in few months. It's like no way. That's rough ride for somebody.

Yeah. Yeah, the thing about pellets for the audience to understand too is that hormones are released from the pellet as a function of cardiac output. So the more exercise you're doing, The more you are leeching the hormone out of the palette, right?

So if you, if, you know, they say it's good for 90 days. Well, You know, if you're a marathon runner and you are putting down 10 miles a day or 12 miles today, right as your routine, you going to burn through that in six to eight 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 go down a pellet route, or if your going down injections or creams or whatever, each of them has benefits and also associated risks.

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

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

By the way, guys make estrogen too, women make testosterone too. We need to look at that test in both sexes because it's equally important in all people.

Yeah, that's a great point. There's lot of tea 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, all men do. And you can block that conversion with that drug. You can slow it down with certain supplements as well.

But the point is that you want estrogen. If you're a man, you actually want estrogens, and particularly based on your genetics. So for example, if you are an APOE4 and APOC1 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 the one other thing that we need.

You know, understanding that women need testosterone, otherwise they lose their muscle mass, their bone density, uh, they're libido and men need estrogen because it actually calms them out, has a good cardiovascular effect and improves brain function.

You really got to balance this and people, people say, Oh, I'm a man. I don't want estrogen. Well, actually you do. And I am a woman. Um, afraid I m gonna get big.

Am I going to get, big? I didn't wanna get. No, you actually need some testosterone. to maintain, you know, kind of healthy levels of bone density and, and the skin, skin tone and muscle mass and everything else.

Yeah. All important points. And that just kind again, highlights the need for more in-depth testing for this. Exactly. 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, he'd really don't know what their doing and their body you were just like, Oh, here's your.

You're at your level. That's right. See you around. I find the same thing with thyroid. People measure thyroid, measure TSH, but we do rest of the metabolic rates on everybody because you really can't tell from the blood test, quite honestly, where somebody's at.

They can have clinical lipothyroidism and be in a normal range. It could be hyperthyroid and have normal thyroid levels. So it's really quite interesting, this ability to look deeper how important it is and to work with people that can do that.

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

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

it is fascinating, all the tools that we have at are our disposable now for really maximizing. Now we're learning more like oh, You know, these are how the hormones work.

This is how all 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 great impact on people's health.

Yeah. I agree completely. That'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, explain all the results. Then we've got a huge amount of resources too on the website, interpretive guides that are in like insect data the practitioners listening is yeah, certainly looking at these 30, 40, 50 page lab reports can be daunting, but like all new things, we can easily make sense of it for you.

Working with Vibrant Wellness

So, so don't be afraid to step into some deeper water, sort of speak. Uh, it's straightforward and understanding them and, and incorporating those into your practice.

But yeah. We're I'm here to help. Yeah, I think Viber 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 everyone 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 are listening to this, or if your not a practitioners and want to find a practice, 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 Vibrant's commitment to the quality of their testing.

As I said earlier, I took a tour of the facility and it's so impressive. I mean, it is so impressing and their commitment of that quality, thumbs up for Vibrant and 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, they told me to go back and do this job.

So, you know, if you read about that stuff in school, mass spec and liquid chromatography, love to sit there and learn it. But we're here, we are here to help.

Obviously two brains are usually better than one. That's the job is to helps everybody out. Well, Jason, I really appreciate you taking the time to chat with us today.

The audience benefited tremendously from that. So really, appreciate your time, the work that you do, and your commitment to it. Great to touch base. Yeah, thank you.

My pleasure. Good speaking with you Thank you for tuning in to Doctor Talks. We hope today's episode has enlightened and inspired you on your path to optimal health.

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