Ferroptosis - Could This Be The Root Cause Of Your Symptoms? Transcript

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Introduction to Thyroid Health and Guest Bob Miller

Hi, I'm doctor Kelly Halderman. I'm a former medical physician and author of The Thyroid Debacle. I'm now devoting my life to education, research and biotech because I realize we need educated people to bring us cutting edge information, especially when we find ourselves with a diagnosis such as hypothyroidism.

When I was practicing allopathic medicine, I myself became very sick, bedridden with what would be diagnosed as Lyme and mold infections. Along my health journey, I was also diagnosed with Hashimoto's thyroiditis, a condition I was told that could only be managed with medication.

Well, I'm here to tell you that there is more than medication to help you, as you will learn through my powerful interviews with several functional medicine practitioners.

There are tools that will help empower you to take charge of your health. Join me today as I interview leading doctors, naturopathic specialists to uncover the most useful health insights for you.

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Hi everyone, this is doctor Kelly Halder and welcome back to Doctor Talks. We're continuing our comprehensive and amazing series on thyroid health. And today we have a really amazing guest, a friend that's been doing amazing things.

And the spaces that he's going to talk about, it's Bob Miller. He's a traditional naturopath. Welcome, Bob. It's a pleasure to be here. It's good to see you again. We, we go back many, many years.

Yes. We do. It's it's just a pleasure. And I know that you, work so hard and so fast and so quickly, you and your team that, you know, you. I kind of fell off the the educational, that education that you put out in the content and you've come so far.

And so today we're going to talk about a topic that, I'm really admittedly know nothing about. And that's exciting for me because a lot of the gas, most of the guests, we talk about things that I'm pretty well-versed in, but this, concept of fair opposites.

Am I saying that right? Fair. We're going to get into that and how it's relevant to chronic disease. And I know you see a lot of very sick people. But I do think, like, it's relevant in thyroid health.

I'm sure people like, I, when I had Lyme, I got Hashimoto's. And so really this topic is relevant for again, thyroid health. But start off, start us off by telling, the audience about yourself, about your practice and, how how you're, how you're managing to find all these new neat pathways and things like you do.

Absolutely. Well, I will make this, very short because people want to hear are subject, a traditional tantra path from Trinity School of natural Health.

Been doing this for about 25 years and maybe around 17 or 18 years ago.

Bob Milleru2019s Background in Genetics and Functional Medicine

Got very fascinated by genetics. And, it was love at first sight, as I often say, that, started looking at something as simple as homocysteine and then learning that there's genes related to that.

And, and, at the time, we had, 23 in me where you could, download their data. And we started out by making a simple little spreadsheet. Well, maybe it wasn't as simple, but we made a spreadsheet, and we used that to, to analyze the data.

And when you think of genetics, you often think of things like 23 me, where you learn your ancestry. Or do you think of seeing a professional geneticist that looks for your for your disease states?

What we're looking at is quite different. We're just looking at what we call function, how the body's functioning. And we'll get into that a little bit as we as we go along.

And then I started studying Lyme disease that I was very fortunate. I on two occasions won the the research award and I labs conference. We've been at, speaking around the world on the genetics as it relates to Lyme disease.

Then we started getting involved in, in mold toxicity or mycotoxins. And we're just about ready to launch a new study on that where we're going to look at the the IG and the IG markers in various mold, patients and then look at their genetics to see if there's any patterns.

So probably by, maybe mid to late summer, we'll have that, we'll have that study out. So then I started my own software that, we couldn't use a spreadsheet.

So I started the a, an online software program that measures genomics. And we'll look at that later. And now we have hundreds of doctors, using that, we have online certification courses.

But the bottom line is it's all about, contribution to humanity, making sure that in this toxic world we're living in, we have the ability to, to get rid of these things.

One of my favorite jokes when talking to people, as I say, I was born in 1954, and back then, Earth was a different planet. We didn't have all the all the environmental factors that we have today, and that is taking a terrible toll on people, which is going to relate to what we're going to speak about today.

And that is a fear of ptosis. Okay, great. And I will say that I have taken the training course. I've used Bob's software, I am a believer and I he personally changed my life and my health, knowing about my genes.

Really, Bob, I have a lot of gratitude toward you for your research. I am one of those people that have been touched personally by your work. So again, just very grateful for you to be here today and now to get into this topic.

So lead us in. I'll give you give you the floor. All right. Well, we're going to do a screen share here okay. And let's see this picture on the right screen.

You're seeing the screen okay. Yes I am. Okey dokey. So the topic is fair. Optus has said many people are saying what because it is a new form of non program cell death.

And of course you always want to mention this is education informational purposes. We're not giving any medical advice here telling people how to treat disease.

Here's a little graphic we had made some time ago. And you can see it's the two scuba divers underwater playing a 3D chess game. And that's why we say therapy ptosis, a 3D chess game played underwater, and the environmental and genetic factors that impact it.

Now, the main topic we're going to be talking about is iron. It's interesting, Kelly, that you brought up the HIV gene, because that is one of the key players in what's happening here.

But first we're going to state the obvious. We need iron, to it's a mineral that the body needs for growth and development. It helps maintain your healthy blood.

It's essential element for almost all living organisms. Your body uses to make hemoglobin. It's stored in the body is ferritin. And your body would need some iron to make some hormones so clearly needed.

It's not bad unless it goes off into something called fur up ptosis. And even interesting. As we get into that, we'll find that there are times that even this fear of ptosis can be beneficial.

But for most of our discussion today, we're going to be discussing how it can really create havoc for us. So here's a definition. And we say therapy, ptosis.

When iron goes bad, here's key words. It involves oxidative damage to the cell membranes leading to cell death. It's iron dependent and it's distinct from what we think of as apoptosis.

The normal death of the cells if plays an important role in the development of various inflammation related diseases. It's involved in the progression of inflammation, such as autism, which is surprising, which of course is going through the roof.

Acute kidney injury. Acute kidney injury. Rheumatoid arthritis, sepsis, sepsis and many of the neurodegenerative diseases. Now I'm going to draw here if I can let me get the drawing tool.

What Ferroptosis Is and Why Iron Matters

And you can see why. Now we're going to be calling the calling this the the 3D chess game. So there's an enzyme called nux nADPh oxidase. And as you know, Doctor Kelly, I've been talking about this for years.

And this is an enzyme that I like to say it's our friend unless it isn't. And what I mean by that is that when we're faced with a pathogen, one of the amazing immune system we have, it says, oh, there's somebody here that doesn't belong here.

Let me grab some oxygen and something called nADPh and make something called superoxide, which is a nasty free radical. Now, when we're faced with some kind of pathogen or virus or bacteria, we want this to happen.

If this didn't happen, we die of infection. So it's our friend. So I often say, though, unless it isn't, because there's now so many environmental factors.

And when we do our case study, we'll we'll show that there's so many factors that will upregulate the NOx enzyme. And it was many years ago. I'm sure you remember this, Doctor Kelly.

We talked about the Nadp steel, that nADPh, which is needed for so many factors, is used by this to make this superoxide. Then an enzyme called Soddy makes hydrogen peroxide.

And then iron comes along and makes what's called a hydroxyl radical. And how quickly you remember years ago when we were presenting, we talked about the Fenton reaction.

Nothing, nothing new here. So if you over absorb iron or you don't clear your hydrogen peroxide, Fenton reaction goes on. So we've been talking about that for years.

Here's the new part. When we don't handle our fats properly, our polyunsaturated fatty acids through another enzyme called a LOX that we'll talk about that can get upregulated.

It will show in the charts how they can get up regulated. We make a very toxic substance, phospholipid hydrogen peroxide. And this is where we do membrane damage.

And we create flare up ptosis. Now what makes this complex is that the body is amazing and has ways to calm this down. There's an enzyme called glutathione peroxidase number four.

The calms this down. CoQ10, which we all know about, combs it out. But it's got to be the right form of CoQ10 and something called tetrahedra. Brompton page for all of those on that down.

Now there's many environmental factors that'll stimulate, including things like mycotoxins, Lyme disease, Covid virus. You can have genetic factors where this is upregulated.

You can have genetic factors where you don't clear hydrogen peroxide. And as you mentioned, you can over absorb iron. You could have multiple genetic factors where you don't handle your fats properly.

You can have many genetic factors where you don't make enough good developer oxidase for. You can even have genetic factors on CoQ10 and genetic factors on page four.

So there's a heck of a lot that can go wrong here. Doctor Kelly, if any one of these is not doing its job properly, we are going to be experiencing fear up ptosis.

Would you agree? This is a fairly complex, fairly complex. But Bob, you have an amazing gift to really simplify it. I would say in terms of making it practical and relevant.

Well thank you. Now here's what can happen. And I think this is just the tip of the iceberg. This can be a factor. Went on to say this is the factor but a factor in Alzheimer's and Parkinson's, brain tumors, heart disease, heart failure, osteoporosis, pancreatic issues, kidney issues, kidney injury, gastrointestinal inflammatory bowel disease can affect the liver, chronic liver diseases, respiratory, lung cancer, and things like age related macular degeneration and glaucoma.

And I think this is relatively new. I mean, the scientists have only been studying this for a short period of time. That's why we haven't heard much about it.

But there's now evidence, even with stroke, that all of these can be created by flare up ptosis being a factor. Now, I just want to pull this slide up very quickly.

This is a slide we've been using for years, but it just shows how we can get extra hydrogen peroxide. Yes, that's the same thing that you put on a cut.

So when we create superoxide there's an enzyme called D that makes the hydrogen peroxide. Then we need catalase glutathione oxidase and three A toxin to turn it into water or water and oxygen.

If we don't here comes ion hydroxyl radicals. And we've been again, we've had this in the software talking about this for probably the last ten years, but now we're taking it to the next step that if we don't use the fats properly, we create this fear of ptosis.

Now I'm going to show you just a couple of slides. And again, this is all relatively new things. So what's the conclusion. And by the way, if anybody just typed those words into to a search engine this study will come up.

We just take a couple of keywords here. Our study systematically elucidated the intricate correlation between ferric ptosis and autism spectrum disorder.

So this may be one of the things that's causing the rise in autism. Clearly not the only thing, but in some cases it's the up. It's a factor.

Oxidative Stress Pathways and Disease Links

And here they're talking about an autism group showed a significant increase in the percentage of cells undergoing cell death. The autism group also had lower levels of our pup ptosis, therefore suggesting the role of other cell death pathways.

So their bottom line is they believe that feral ptosis plays a role in autism disorder. Now, this is quite fascinating. This is a relatively recent study.

Is fair up ptosis a key component in the process leading to multi-organ damage in Covid 19? So the study says there's the possibility that SARS-CoV-2 may trigger feral ptosis in the cells of multiple organs, thus contributing to multi-organ damage.

Because, as we know some people and this was only published in October of 21. So the, as we know, you know, some people get Covid and they're like, well, that was no big deal.

And others are like, yeah, I didn't feel so good for a little while. Others are incredibly sick on ventilators and dying. So why that disparity? And there's clearly more than just fair up doses.

We don't want to make that claim. But I would supposition that in some of the people that are really struggling more so than others, they may have been set up genetically and environmentally that this process was already going on.

And then the proverbial bucket is full. Something else comes along, fills the bucket and turns it over the edge to make sense. Yeah, definitely. That makes sense.

And I think that is a quandary of why, you know, we have risk factors, obviously, as we went through the pandemic, we knew that being overweight and other chronic illnesses would contribute to morbidity, mortality.

But I've never heard of this. But it makes complete sense. And maybe those people who we are just confused. I was having dinner with a friend and, he was telling me about his friend who's perfectly healthy and is like early 40s and was in a coma for for several days and ended up having, you know, coming out, but is now on kidney dialysis.

And so this could be that missing link would be really interesting to run genetics. Yeah. That's not the answer for everybody but I think it's a clue.

Yeah. Factor. Now here's another study. We're not going to read the whole thing. The biological process is fair up ptosis involved in the pathology of Covid 19.

And their conclusion that flare up ptosis was involved in Covid 19 disease and the function of cor. And these are that's another gene may become a new research a new research aspect of this disease.

So clearly this could be why some people are are struggling now another subject that we could spend a whole hour on, oh, days on actually would be mast cell activation.

So this is now become a huge problem. You know, when you talk to doctors who've been practicing for for 20 years or more, you ask them how much mast cell activation did you see 20 years ago?

And it's like, maybe 1 or 2 a year. And now it's like, maybe it's 30 to 40% of the people who come in the door. So in case anybody doesn't know, mast cells are white blood cells.

And again, they're our friend. Unless they're not meaning that if they're overactive they can create all kinds of problems. So this is referring to, prostatitis.

But I think of it, I've seen other literature that shows that this fear of ptosis starts the process of making the mast cells be overactive, and the mast cells activate, keratosis, this cycle. Yes.

Osteoporosis, bone loss from excess iron accumulation is driven by that Nadp oxidase triggered, flare up ptosis in osteoblasts. And again, this was just a February of this year.

I mean this is brand new research. This is something that's just coming to the fore. And, for everyone in functional medicine, I think they need to start looking at this, up ptosis in its role in epilepsy.

So we won't read the whole thing, but there's, there's the abstract where they're talking about they believe this is playing a role in epilepsy, neurological diseases, internal cerebral hemorrhage, strokes, epilepsy, neurogenic diseases, traumatic brain injury and brain cancer may also be related.

Again, relatively new January of them of 21. Here's an article fair op ptosis in Covid 19 related injury. Peripheral nerve injury. So if anybody's watching this, if they want to read it, maybe they can pause or just put these words into a search engine and you can read the study.

We don't have time today to look at each of these. But interesting homocysteine. We know it's not, it's not good. And there's a book out there that, talks about how the higher the homocysteine, the sooner you die from all causes.

And again, Doctor Kelly, we were talking about homocysteine years ago as it relates to methylation. Interestingly, in addition to all the other stuff that it does, it it induces keratosis, by helping to break down glutathione peroxides for here's an article on lung diseases, inflammatory arthritis, a promising future for arthritis.

If we can get this under control, organ fibrosis. Therapeutics involved in and, intestinal epithelial cell death in ulcerative colitis. And again, inflammatory bowel disease is increasing dramatically among young people.

This used to be for the you know, the older crowd. And now teenagers and younger are getting inflammatory bowel disease. Now we're going to slow it down here just a little bit.

And I'm going to walk you through the map. So we created a map that shows the potential for flare up ptosis. And I do believe we're the first ones that have done this that have actually looked at all of the genes that are, that are involved.

So we're going to start up here and let me get my drawing tool, and we're going to start with an enzyme called TFA tumor necrosis factor alpha. And perhaps people have heard of that.

And again I'm going to use the same phrase again. It's our friend. Unless it isn't. So when we are faced even with a cancer cell or other pathogens, TFA says, oh, something's wrong here.

I need to make inflammation and it will stimulate NF kappa B then it will stimulate the nux enzyme, and then that will stimulate something called interleukin six.

And that begins a cascade of inflammation. Now interestingly, mycotoxins virus, lipopolysaccharide, Clostridium, glyphosate and Lyme disease will all stimulate this.

However, we talked to earlier, there's a gene called HIV that's involved with the with the absorption of iron. There are genetic mutations that will cause this to be upregulated, very prominent in the English and the Irish and the Ashkenazi Jews.

Now, what's interesting is particularly among the, the Irish, many people might remember that the reason people came to America from Ireland was the potato famine.

Interestingly, the women who had the over absorption of iron during a famine were the only ones healthy enough to have babies. So consequently, by natural selection, people of English and Irish descent often have this gene.

Now there's a disease called hemochromatosis, where when you get the mutation from both parents, it's very serious and it can be life threatening. And people have to do phlebotomy on a regular basis to get rid of the iron.

However, even a single copy can be mild and it won't be fair. It won't be a hemochromatosis, but it will cause you to absorb more iron. And then I'm going to talk later.

There's a couple of other snips or gene snips, mutations that can cause disruption of the iron. So then we stimulate the NF kappa B, then we stimulate NOx.

Genetic Factors, NOX, and Antioxidant Defenses

And that's what we spoke about. Now interestingly, there's a whole bunch of other things that can go on here. Electromagnetic fields. You know, we all love our cell phones, doctor Kelly.

We have them with us every day. We're sending text messages. We're checking our email. We love them. But we may find over time that if we've got mutations in the CAC, anyone's genes or just too much exposure, look what it does.

It stimulates the NOx enzyme, then dopamine. We need dopamine, to feel good about ourselves. However, there's genetic mutations where you don't clear dopamine out of the body or turn it into norepinephrine.

Excess dopamine stimulates the NOx enzyme. Another process is when we get things like sulfites, which is in red wine and even some foods like garlic. There's an enzyme called Zoox that needs to turn it into sulfates.

So we do a process called salvation phase two salvation. And then there's actually enzymes that transport molybdenum, which is the cofactor for salt. If something goes wrong here Knox enzyme gets upregulated.

And then finally what a miracle the body is. We there's enzymes called him oxygen. He's that take what's called him that comes from glycine and something called seasonal CO2 from our Krebs cycle.

And we go through these eight steps here to make the heme. Then there's enzymes called heme oxygenate. And I don't have it on this chart, but it actually makes something called Billy verdin and bilirubin that interestingly calms this down.

I know a lot of people are saying bilirubin. Isn't that what goes high when people have liver problems or when a baby's born? Absolutely. But in small amounts.

It's right up there with glutathione. Now, for those of you who really want to dig into this, you know, I just did a 45 second, if you go on YouTube and search Carnahan for Doctor Jill Carnahan and heme HMI, we talked for about 90 minutes on this subject where we really dig into this in depth and talk about all the things that can happen in through here.

Now, there's also enzymes called keep one and nerve two and nerve two controls the turning on of all your antioxidant. But it also will impact something called G6, PD that makes that nADPh that we spoke about earlier.

And we need nADPh for this heme oxygenate enzyme. People of Southern Italian, Native American, African, South American oftentimes have mutations on G6, PD that they don't make enough of.

This and then they're in trouble. And there's an enzyme called PLA that places this electron on here. You can have a problem there as well. So you can see there's so many things locally that can go wrong here that do not allow you to to hold this back.

So then when you live in a moldy house or you get Lyme disease, or you get a virus or you get the too much glyphosate in you, this whole thing takes off.

And if anyone already has this upregulated, they're in a boatload of trouble. That makes sense. Absolutely. And I did some research about a year ago, on Knox.

Just, it was researching for a talk, and I just wanted to give a little brief information. And I found it very interesting that the pharmaceutical industry is extremely interested in creating drugs that shut off Knox.

I mean, exact right doesn't I mean, that doesn't surprise us, right, as practitioners whatsoever. But I'm sure you, you're going to tell us about some of the products, too, or let us, the listeners, know that there are things we can do about this, and Bob's going to go through a case study and show us that there's nutrients and like, you know, said,

like some of our own things that we produce in the body. So, yeah, absolutely.

We I've formulated, maybe about two years ago a product called, nADPh protect that actually has things in it that slow down the NOx enzyme. So interestingly, things like spirulina, SGC, lycopene from tomato, they all slow down the NOx enzyme.

And I'm going to be reformulating that in the in the near future. Okay. So then we get our superoxide. And interestingly this is a really important genetic mutation.

Include one because NQ oh one inhibits or breaks down superoxide. All right. Then the the journey continues. We make the hydrogen peroxide. As I showed you earlier we need catalase.

And we can have mutations on catalase. There's a whole new subject called three adoption that I am absolutely fascinated by. No one's talking about three adoption.

And we need to because this takes care of inflammation inside the cell. And clear is hydrogen peroxide. Now clinical observation only I'm finding that there's two pathological evidence base snips on ND t two.

And the people who have both of these homozygous or the the ones that are in dire straits, stopped doctor hopping from one person to another can't seem to get any help because they can't take care of the inflammation inside the cell.

So this is a big one that we've got to spend some time on. So. So glutathione L is the master antioxidant. And there's a glutathione peroxidase one that uses glutathione.

And it will also clear the hydrogen peroxide. Homocysteine stimulates the hydrogen peroxide. Now we could do a a whole lecture just on glutathione. And, you know, in the holistic field is becoming quite popular to talk about the benefits of taking lithium.

So as we know, glutathione comes from cysteine glycine and glutamate. And it, these enzymes assemble it. Okay. And this is g h. Then as we know glutathione is a master and oxidant has a spare electron.

When it does its job, it becomes oxidized, meaning it lost it. We then need an enzyme called GSR to take this oxidized glutathione and recharge it. Well guess what?

We can have genetic mutations on GSR, though we don't do a good job replacing it or recycling it. So as glutathione becomes popular, there's a lot of glutathione products out there.

So someone thinks, well, I'm inflamed and equal to. And sometimes it works beautifully. Sometimes it backfires because if you don't recycle your good ethyl when you take glutathione, it seems like such an oxymoron.

But if you take the vial and you don't recycle it and you just get down to here, this actually creates inflammation. I mean, isn't that an oxymoron that under the wrong conditions, taking glutathione can make you more inflamed?

Yeah, that's really interesting. And, when I was in clinical practice, I would use the doctor's data to see the different levels of the, you know, reduced versus oxidized because it's so important because, again, like you said, it will it'll work against you.

And so with the, with the GSR. But that's in your software. All of these are in your software. Okay. And then okay. Great. Right then we need glutathione peroxidase for to calm down this, keratosis.

So here you can now get to the point where you're going to see where the flare up ptosis occurs. And that is where, it's. Where the hydroxyl radicals combines with your fats to make the flare up.

Ptosis. Now, remember, I said before is one of the cofactors, not one of the co-factors one of the factors that

reduces flare up ptosis. And we won't get into them all today.

But all these enzymes are responsible for making the H4. So if you got genetic issues that you don't make enough for, then you've got flare up to, this is going on.

You're not holding it back. Now. Additionally, there's nitric oxide inside the body. And that's what gas the dilates the blood vessels.

Case Study: Genetic and Biochemical Drivers of Inflammation

There's two nitric oxide enzymes. One is called Enos or notch two and one is called nost three. So nurse three is what makes the nitric oxide. The dilates the blood vessels.

Won a Nobel Prize in 1998. However, there's a nice two that makes a lot of nitric oxide to kill pathogens. This will probably be the fourth or fifth time I'm going to say this a good thing, unless it isn't.

So if this guy is upregulated or it's over stimulated by histamine, it runs too fast, runs out of Bf4, which is the cofactor, then hang onto your head.

Rather than making nitric oxide, it makes superoxide. So I'm sure there's a lot of people that have probably tried this. They see that arginine turns into nitric oxide.

So they think, hey, I'm going to take arginine to get more nitric oxide. And all they do is get cold sores and feel worse. Right? Because they've run out of before.

So we got to make sure before you start taking arginine that you've got the before and Nadp h so what we're finding is that many of the people that are struggling when their mast cells are activated, they're stimulating in us.

They have cold hands and feet. And then this anus suppresses their anus. And then this can lead to, to blood clots. And the iron outs can lead to what's called platelet activation.

And then when we get to mast cells and there's a genetic mutation called Kit that can cause that to be upregulated, we make histamine. There's all kinds of genetic mutations that we don't clear our histamine.

And therefore the histamine stimulates the in us. And then finally when this TNF a is upregulated by iron or some mica toxin, it stimulates an enzyme called poly to the pulls arachidonic acid out of the cell membrane.

I'm doing a lot of tests called the Omega Quant. We just prick your finger and it measures your your good fats in the arachidonic acid. I am stunned by how many people have arachidonic acid through the roof off the charts.

And that can happen because there's enzymes called fatty acid, the saturations that take your mega threes and turn them into useful things that knocks down inflammation.

So I'm sure there's probably somebody listening to this who says, you know, I learned all about the benefits of fish oils. I started taking them and I felt worse.

For most people. That's me. That's me. So you just explain to me what's going on. Yes, but we need to look at your fads. But also, I don't have it on this chart, but Nadp h is also the cofactor.

So if NOx is upregulated and it's stealing all that nADPh. Right. It's not. It doesn't have. Wow. That's cool. Then these are not even a benefit. And they're worse by taking fish oils.

And people are confused I hear all this good stuff about fish oils. Why do I feel worse? Well, if you're any deep H has gone or these fads enzymes are gone and many of the people we see are struggling, they might have what's called homozygous meaning for both mother and father on every one of the fad snips.

That seems to be a common theme in people that are struggling. We need to hold back the plea to and then if we don't, we get the arachidonic acid that combines with the hydroxyl radical to make your hair up.

Ptosis. And then finally, Doctor Kelly, everybody knows about the benefits of co Q10. You know, it helps provide energy inside the cell. You. No, no, no news there.

But most CoQ10 you'll purchase if you look very closely. It says ubiquity. Now. And there's another version of CoQ10 called ubik or no, not very common.

And the reason they sell ubik quinone is because they'll say, well, your body will turn it into the form that it needs sometimes. So if you got mutations on NQ oh one or mutations in all of these guys right here, or you're not getting nADPh delivered because you're not making it or stealing it, we don't get that precious form of ubiquitous.

And guess what? Yubico does? It calms down for, ptosis. Just just to stay right here for a second, Bob, I see I see the problems because of what you've taught me about the the before.

Like this is this is very hard to just magically, like, have enough beads for. There's a lot that goes into it. You're you're uncoupled. You have a lot of, you know, the histamine, the mast cells.

There's a lot of work there. I also see the, the Bluetooth tion of, of just not taking it willy nilly, not taking because it can backfire if you don't have enough nADPh, you're not going to recycle it.

So I, I feel like our most hopeful way to see with if everyone's looking at the, the the graphic here of kind of calming that plant or age is, is maybe to really get your genetics test done and Bob's going to go through that.

It's the gold standard. And to make sure you're taking that right. Coke you coke you tend to make that B. I mean are you a fan than of Coke Q10 oh absolutely. Yes.

The the right CoQ10 ubiquitously. And then another interesting source of the H4 is just royal jelly. Okay. That is what you know. That's what they give the the the the bees.

The worker bee gets the regular honey. The royal the the queen bee gets the royal jelly. It's a naturally occurring source of B h4 product H4 is complex.

And we're we're tweaking the formula to see if we can boost this. Okay. But if you can, you know, stop this process, slow this down. If you can, make sure the iron's under control, you've got enough glutathione, you got enough CoQ10 enough before and you don't have not uncoupling.

And there are nutrients. We actually formulated product called Zeno's. The sole purpose is to slow down the Enos enzyme. So interesting. Some people, they've got gain of function on Enos like a function on Enos.

They get cold hands and feet, they take L-arginine, they feel worse. Now, interestingly, if somebody finds this whole subject very fascinating, again, go to YouTube Carnahan's.

The RNA and Enos Enos and I discovered we spent I think about an hour and 40 minutes with Doctor Jill, believe it or not, just talking about this. And, and you can have what's called gain of function on the Enos where the Enos is trigger happy.

So if that Enos is trigger happy, anything that comes along, they would normally stimulate it to be helpful. It's overactive. That's why we often say that everything you really need to learn, you learned with Goldilocks, the three Bears.

Not too much, not too little, not too hot, not too cold. So without Enos, we probably die of infection. But when I nose is upregulated, it depletes our.

Before it stops, it slows down. Our circulation sets us up for blood clots, steals the buffer that we need to calm down the therapy. Ptosis and before is also needed to make serotonin and dopamine.

Now, Doctor Kelly, how rampant is depression in the country right now? Oh my goodness. It's very sad. Very sad. It is very sad. So one of my four famous words for people who are depressed is it's not your fault if you don't have enough.

Page four. It's like having a brand spanking new car without any gas. So if your beach four is depleted, you're not going to make serotonin. Now, everything I've told you up to this point is based upon, you know, peer reviewed literature.

I'm just going to go off the trail a little bit and give about Miller Opinion. So this in three bucks will get you a cup of coffee. But I think the body's pretty intelligent and it will prioritize the use of for.

So I have a sneaking suspicion is just hypothesis that if the body's inflamed with this therapy ptosis, it'll say, sorry, I got to keep you from burning up.

If you're not happy, too bad. But we got to take care of this first. So, And I've run that by a couple of physicians, and they all say that makes sense.

That the body would prioritize what needed to be done, particularly when, when that flare up. Ptosis can be so complex. So I know we just, you know, did a two day lecture and 25.

Excellent. Well done, well done. Now, just so people understand now, this would be particularly for practitioners, if you're a practitioner listening to this and you're intrigued, you know, we're not I'm not going to go through each of these, but each of these little green boxes is supplements that we made that can actually support that function.

So like we said, Nap protect to hold this down, cytochrome six to calm this down h marks assist to help here. Krebs heme assist to support here. So we actually made products like that.

Sign us to calm this down. Now obviously you don't take all of these, but you use genetics to see where the problem is. And then you put these in, in, in targeted form.

So each of these is a separate supplement. Like for example, you got Marcel, there's a mic stabilizer. There's two side products. There's glue without conjugation.

That's not good advice on that supports glue though. There's, ways to protect for me. MF calm down. Dopamine support salvation. And you know, doctors have to learn where you need to jump in.

So this is not a bob. What do you do for fear? Ptosis. It's like, I don't know, it's individualized. So you could see 30 people, right. And different solutions.

That's why it is a little bit, complex. Now we're gonna do a quick case study. Very sad case. 24 year old female chronic inflammatory demyelinating poly neuropathy, rheumatoid arthritis, Lyme mast cells Ehlers-Danlos hearts and Crohn's.

Oh my goodness. So what I'm going to do is, actually now bring in my, my software. Now this is the functional genomic analysis software. And, you know, Doctor Killer.

In the past we just had reports. We now have interactive maps. Okay. So you can actually map this thing out and then you can see what's going on. So for example, this young lady, Oh, you know what?

Let me just do one other thing first. I'm getting ahead of myself here. This is her, a major quant. The omega threes should be 8 to 12%. She's coming in at 4.18 B, make a 6 to 3 ratio.

That should be 3 to 5 was 8.5. But hold on to your hat. Arachidonic acid. That should be 2.5 to 11. The chart only goes up to 32. She was 42.9. Oh my goodness.

Yeah. Wow. And then glyphosate which is roundup should be around 0.4. Somewhere around there. Again off the chart at 3.6. That's sad. Yeah, it's very sad.

Now let's look at why this may have happened. Firstly, the upon one is the enzyme that clears glyphosate and this one is a pathological downregulation.

So she's got a mutation there. Then this whole pathway here. So you see a cool filling on software. When I click on a link it actually brings up over on the right the genetic mutations.

And these are now all the pathological evidence based ones. Oh no. Yeah. We have someone with their masters in in genetics who's helping with the research.

So we're not just listing all the snips we're looking the ones that are pathological. So you can see here that she's going to have a hard time. And then look what happens when we get to the heme oxygenate.

Homozygous. Both parents gave a mutation mutation on all of them. So not holding back the information. Then the the Il6 is likely upregulated. Oh by the way there's another up doctor Jill video on Il6.

If somebody wants to watch that or to hand il6. So then she's stimulating the NOx. And remember we talked earlier about sulfites not turning into sulfate.

Look at this. Both parents giving mutation on the sulfite to something likely sensitive to EMF, not turning dopamine into, inactive metabolites. All of that stimulating NOx.

Now, we didn't talk about this are tunes yet, but the sirtuins are interesting enzymes, and they are being studied intently for their impact on the body's health.

One in particular, called Sirt1, hold back NF kappa B NOx supports Sod two and also supports Enos is that the resveratrol linked okay. Yep, yep. And in intermittent fasting and bless her heart, both parents gave her a mutation.

Oh wow. And if you look at this this pie chart here, only 1.5% of the people in the software have it. Wow. And if we do a a a bell curve, you can see that 76% of the people out of 52,000 don't have any mutations at all.

She's down here with the 1.7% of the population in the software, which is really sick people. So bless her heart Sirt one's not doing its job. Then she's going to make hydrogen peroxide catalase double mutation that she doesn't clear.

The have enough catalase to clear glutathione peroxidase one. You can see a mutation over here Bob. Did she have any early graying of her hair. Did you notice.

No. What what interesting.

Functional Genomic Software and Personalized Support

And again, this is just a excellent question. This is just a Bob Miller clinical observation. When people have hydrogen peroxide high and they don't have this going on, they really prematurely appears as, oh, when this hydrogen peroxide very quickly combines with iron, they don't.

Great. But again, that's just a clinical observation from somebody who just looks at these all do the three a and you can see here that these are the evidence based pathological her throat actions not working.

So she's overproducing this not clearing through thyroid action not clearing through catalase not clearing through

gluten peroxidase one. Then look at the iron.

This is a evidence based transfer factor that only happens in 0.5% of the population. Ferritin light chain, transferrin factor. I'm sorry there's no evidence base there.

But a couple others that are research. So more than likely she's got hydroxyl radicals going on. And we already saw that the arachidonic acid is through the freaking roof.

Okay. And when we look at her fat enzymes, you can see not too bad on the fat enzymes, but you see, some people in have mutations on all of those. But I believe what's happening is the environmental factors are stimulating the arachidonic acid to come out of the body.

Then when we look at H for you can see that this MG for eight 1298 and Nd4 can impede the body's ability to make BH4 then on the histone on the last two side.

Double mutation on the gain of function on us to move. So this is going to be running quickly, depleting your buffer that you're not making enough fat.

She's very depressed obviously. Yeah. Yeah. So then that before is not being made adequately being chewed up by NAS to these two are probably competing and not able to cut back that throat.

Ptosis. Then clearly when you're exposed to all these things, you're making a lot of histamine. And these are the genes related to clearing histamine.

This is a pathological one. Histamine methyltransferase clears histamine, Sirt one controls the MPO and MLB. The controls histamine, so the ability to clear histamine is compromised.

Then she's got that come right. Didn't she have comp where she wasn't clearing her? Her time was right. And estrogen. Yeah. So that's yeah. Yeah. And then the the Sirt1 as we said controls in RS3.

So clearly cold hands and feet and poor circulation which has its own set of challenges. So then up to bad on the CoQ10 but a little weakness on nerve to the controls NQ oh one so likely not too much of a problem here for some folks.

This is the main issue. Personally I'm a train wreck in here. That's why I take 400mg of of bacon all every day. So her weakness though is that she's creating all this.

The big four is not being made being used by us. So she's likely just having all this inflammation inside the body that she can't she can't function. So that's how you can determine what's happening and then make a custom made.

Oh, finally, the enzyme is what assembles the ingredients to make it. I am struggling and then also struggling recycling all the time. You. So this is unprecedented that we're able to, to take a peek at, at these kind of things.

So, just a quick commercial. We're not going to, you know, be big on this, but if you're a a, a practitioner, somebody if this is not for the public. So practitioners only, this is the software we use, functional genomic analysis.

We've been at it for oh over 12 years. And I think we're up to around 3.5 million of investments into the software. The Nutrition Research Institute is who does the research?

The software is our cloud based software that organizes, interprets the snips. This is just the genetic test. Your functional genomics. We have our own genetic test.

And then the supplements we use are functional genomic nutrition. And interestingly we're not going to get into that today. But we even have the ability to custom make something that is individualized for the person.

Again, if you're a practitioner, we have online training, an online certification course. First couple of modules are free to see if it's for you. It's not for the faint of heart.

It's for those who are serious. There's the, the DNA test. And then, just another plug here for the software. If you're a practitioner, you can do a 30 day free trial.

And, so if you take the, the course and, get the free trial, you can learn how to use it. Now, one of the comments we often hear is, this is incredible, but, but it's a little complex.

We are working on what are called executive reports, and I'm hoping they'll be ready by maybe, early mid-summer, where there will be logic in there. That'll actually logic I put in there that just brings attention to what things they should look at.

So for the person who's overwhelmed. So stay tuned for that. So we've got reports for the patient and health professionals. The pyramid pie charts bell curves that you saw, pathway maps, dynamic messages that the jump in based upon that that individual guidance on supplements.

You can private label them if you want custom make you know for some people they'll they'll look at a supplement that's excellent and they'll say, oh, I can't take fill in the blank. Right.

So, so then you can make a custom that's actually manufactured for them. That takes those things out or combines things together. There's just a couple of things.

There's the recycling of the glue, the found barracks and I nitrite, superoxide dismutase. But we have a quite a quite a list of supplements. And if anyone is watching this, who's not a practitioner and says, I'd like to take a look at that, you can, give us a call.

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Closing Remarks and Doctor Talks Outro

com is the, the website (717) 733-2003. The generic test measures 250,000 snips. Totally confidential. You don't have to worry that, it's going to go anywhere.

And also, we're not genetic cysts. We're just looking at function. So as I like to tell everybody, we're not going to drop any bombs on you. We're not going to tell you that looks like you're getting a serious disease.

We're just looking at how you might be making too many free radicals not enough. And oxidants detox pathways. So I like to tell everybody we have no bad news.

The only bad news we could ever give you would be like, I'm sorry, I don't see anything to help you with, but, everything we find we can compensate for.

Right? And knowledge is power and specific knowledge about your genetics. Your biochemistry can give you the tools. You. You know, we see so many people who have been from doctor, doctor, doctor because they're applying protocols to that person, not principles.

And this the way that Bob goes about this and really getting to the bottom in that personalized way and then digging in that way. I mean, you could see from that case study we talk about in the book The Thyroid Debacle, Doctor Eric and I about cellular hypothyroidism and how the root cause there's not just one.

Usually it's it's a lot of different things that are happening to cause the cellular stress. We just had that case report looking at all those those factors that were playing into this particular woman's, you know, cellular stress, inflammation, those pathways.

And I mean, that's that's very powerful. And I'm sure, you know, your your software keeps advancing. And I will say that it it's not as steep of a learning curve if you're a practitioner as you'd think, but makes it very simple and clickable and, you know, suggest that, okay, if this is off and you might want to go see with blood labs.

So there's a lot of, nuances that, that are brought in to really help you. So, Bob, I felt that it just keeps getting easier and easier to, to use your software and and to to help people.

So, I think that's it. I think that you did a phenomenal job of, of a new, brand new topic that is obviously from the playing role based on not your opinion, but the studies that you showed us and how it's involved autism, rheumatoid arthritis and cancer.

It's that graphic really blew my mind. And so, just very grateful for your time, for your expertise. I'm so glad that you, tell everyone where where they can find you if you want to have, Bob, look over your genetics and help you out with that, with the structure function.

I know that you helped me many years ago when we were at Islands. And that award, you sent me down with my genetic report and told me to do this, this and that.

And it really, really helped my health. So, again, so thank you so much for your time today. I really appreciate it. It was a lot of fun. Thank you for the opportunity. You're welcome. Take care.

Thank you for joining me. Doctor Kelly Halderman on the Thyroid series for the Doctor Talks podcast. I hope you found this episode informative and engaging.

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Thanks again for tuning in. We look forward to bringing you more valuable insights in our next episode. We'll see you next time on the Doctor Talks podcast.