



## Episode 55:

### The Genetics of Fatigue With Rajka Milanovic Galbraith, MD and Evan H. Hirsch, MD

[00:00:00] **Evan H. Hirsch, MD** Hey there. Welcome back to the energy MD podcast, formally known as the fix your fatigue podcast, where we're on a mission to help a million people increase their energy naturally. And I'm super excited because I've got my counterpart fatigue to fabulous from another world from across the country. Dr. Rajka here today to chat with me, Dr. Rajka. Thanks so much for coming on.

[00:00:31] **Dr. Rajka Milanovic Galbraith, MD:** Thanks Evan. Thanks for having me on here. And like you, I am so passionate because now my energy is full and you know, probably like you, there was a time period where our energies weren't full and it's like, it's super simple, right, to correct. If you only know the strategies and what goes behind it. And if you catch it especially earlier on. Right. And, and certainly both of us has probably fixed people's fatigue. Even after decades of having it, but what a better way is to inform people. So thanks again for allowing both of us to, to spread our message.

[00:01:01] **Evan H. Hirsch, MD:** Yeah, absolutely. So let's jump into your bio so people can learn a little bit about you. So, so Dr. Rajka has been successfully leading families to optimal health for over two decades, as a board certified family medicine doctor. She is now exclusively a leading functional medicine consultant certified by the Institute for functional medicine. She is an international speaker, facilitator and mentor to practitioners and has trained dozens of practitioners. Dr. Rajka has patients who travel from around the world due to her renowned expertise in autoimmune disease, autism, nutrigenetics, which we're gonna be talking about today, methylation digestive disorders, cognitive decline, mold toxicities, and bioidentical hormone replacement therapy. Her track record of success speaks for itself. Having overcome two autoimmune diseases along with multiple symptoms, gives her firsthand knowledge and empathy for the challenges that faced her patients as a woman and an entrepreneur, she is passionate about empowering women leaders, celebrities, entrepreneurs, and CEOs to optimal health via a comprehensive functional medicine approach, which incorporates high performance coaching. Her ultimate goal is to have these women empower their families and their tribes to optimal health. She sees patients at the clinic she founded, simply health Institute outside of Chicago, Illinois. And today we're gonna be talking about the genetics of fatigue, which is super exciting.

[00:02:23] **Dr. Rajka Milanovic Galbraith, MD:** Ah, yes, our passion. That's my passion point. And, um, yeah, thanks for that introduction. So quite the mouthful, right? So I think all of us have varied things that we do with our, our careers. And I certainly got passionate about, uh, the genetics because when you go down that rabbit hole and you can't fix that next person, the next person you're looking for, what else can I learn? What else can I implement to get them better? So I'm sure you're the same.

[00:02:49] **Evan H. Hirsch, MD:** Absolutely. So, yeah. So let's start a little bit with that journey. Um, why don't you kind of tell us what brought you to this point in your career.

[00:02:57] **Dr. Rajka Milanovic Galbraith, MD:** Yeah. So when I first started out, it became very clear that there was a subs even re traditional medicine we're talking about that it felt always felt like something was missing. Something is missing here. And I treated, um, fatigue patient after a fatigue patient. And I'll never forget when I did the workup. That they teach you to do, uh, told the person their labs were normal and sent them out the door. And probably even, shock horror, suggested an antidepressant because that's what we're trained to do. And I am like deeply embarrassed and apologetic to anyone. I might have suggested this to back in the nineties and I heard. Um, a patient walked out and said that doctor just doesn't know what's wrong with me. But the way it was said was like, it was kind of my fault, but it was, it was my fault, cuz I didn't have the tools in my toolbox. So then I got a little savvy and I told people, Hey, your lives are likely gonna be normal. And you want to start thinking about depression? Ugh. I don't know if that's worse or not. But then at all, along the while, what never occurred to me was I was one of those stereotypical fatigue patients and it just kept getting. Worse and worse and worse and worse. And, and actually, I, I think I was in denial and I think we have a little bit of resilience in our youth, but when I look back, you know, I was that person falling asleep, left and right all the time. And I fell asleep in a rock concert. So I'm from Cleveland, which is the rock and roll hall of fame and

[00:04:16] **Evan H. Hirsch, MD:** Cleveland rocks.

[00:04:17] **Dr. Rajka Milanovic Galbraith, MD:** Yeah. Cleveland rocks. And, um, when they opened up that rock and roll hall of fame, they had an inaugural concert. My girlfriend took me, um, as her business guest, remember when everyone had big expense accounts and, um, so she took me and I fell asleep at that concert. And so that was, should have been the tip off, but it just kept going on and on and on. And one diagnosis led to another led to another led to another. And I really wish I would've known and, and thankfully at one point, and here's the other thing I wanna impart on your audience is that. I as a physician, I was afraid to see my doctor, cuz I thought they'd tell me I was depressed. And I had those labs that just kind of hovered and um, suboptimal thyroid, but not quite high, both thyroid and I sent a patient to an endocrinologist who was a little more savvy and um, switched on and he diagnosed her with Hashimoto's and so I said, I'm gonna see him. And by the time I saw him and he diagnosed me and he did an old fashioned test called the TRH stem test and my thyroid flunk, they no longer do it. And my antibodies were sky high. He says, you've had this for a decade. And here I am like 30 years old. And I'm like, I feel like I've had it for a decade. And it was really amazing how that energy went up. But sadly, I really wish. I wouldn't have stopped there. I wish I would've learned functional medicine and, you know, I just kept learning more and more and more. And ultimately that one diagnosis led to another and another and another. So infertility, you know, PMS, I had vision losing migraines, so I lost vision and speech with one migraine and it was super scary. Um, thankfully it was just migraines, but yeah, needless to say, and at one point they had thought, um, before I knew functional medicine, um, my liver enzymes were soaring and no one knew why. So they're entertaining autoimmune hepatitis. And now I know, and we'll talk a little bit about it when we get through the genetics and what impacted me. And, and I, I really should have known that, like some of the things I was doing that helped in the beginning probably would've continued to help. I just didn't know why they're helping. So mm-hmm, again, we'll get into the genetics. And right at that moment, it was very timely that I had accepted my first job in functional medicine.

I had been learning functional medicine from a mentor behind the scenes. He agreed to see me and guide me, and pretty much in six weeks I had, um, an Ana is the, um, looks at antibodies against your nucleus was one to 5,000. It was quite high. And my liver enzymes were at like two 50. So normal should be 40 or below.

I say normal really should be 15 to 20. So quite high, you know, 10 or 20 times, I mean, 10 times normal at least. And, um, I got a reversal of everything and never was given that diagnosis of autoimmune hepatitis. And when I started to tell the gastroenterologist. They even went on to do a liver biopsy. She said, I've started to talk about gluten and I could see her eyes glaze over. I'm like, Hmm, we'll save that conversation for another time. Um, and the statistic on autoimmune disease is autoimmune. Hepatitis is if you're not on steroids, at the time of diagnosis, that the risk of dying is 30 to 50% in three to five years. So it's terrible. So I never got the diagnosis. It's been, uh, now nine, no eight years and never been on steroids. So that's kind of, um, my journey with all of this.

[00:07:34] **Evan H. Hirsch, MD:** Nice. Well, we gotta go there. So then what was causing your autoimmune hepatitis?

[00:07:39] **Dr. Rajka Milanovic Galbraith, MD:** Well, okay. We gotta go there. So several things, um, I think I had a combination of things, so, um, I had remember I had the, I had infertility, I had endometriosis and I didn't know better. So, um, in between having kids, I was on birth control for a very, very long time. And when we were abroad, um, we didn't have, so we lived abroad during this time, right before I came back to the United States to meet with the doctors and take my first job. And I just happened to switch birth control pills. That was it. And it was all in how I metabolized estrogen, and it was all had to do with how I was not able to recycle glutathione. And, um, I, it should have been the tip off that I had an issue with glutathione. Ironically, what got me into functional medicine was seeing an article on glutathione that Mark Hyman wrote. And I said, huh, this describes like every fatigue patient I've ever seen. Like, could this be the answer, and that that was what really got me so intrigued by it. And the more I learned, the more it was life and career altering. And I was at my first, uh, functional medicine conference and the gentleman said, oh, are you excited to return abroad and see your kids? I said, I am, but I'm not looking forward to the four weeks of jet lag. He's like four weeks of jet lag. You're too young to have that. And so, you know, I didn't tolerate, the radiation, the wife, the radiation exposure, the benzene exposure, because I wasn't manuf. I wasn't recycling glutathione I wasn't producing it. I I'm actually completely lacking twofold genes. I have zero copies of two genes and he says, oh, here take this glutathione. Isn't that fortuitous like how karma like attracts. Like he was the rep for one of my favorite types of glutathione. And he said, here, take some samples, go to whole foods and get the melatonin. And so you can reset your circadian rhythm. So I did that and I returned abroad and my, uh, jet lag was gone in like four days instead of four weeks. So I should have stayed on it. And I didn't and really, I think it was the, that was the tip off. Um, I also. It had a, um, my gallbladder out, which I never would do now, but I didn't have an option. We were returning, we did a scent back in the us and returned abroad and I was having issues. Because I didn't know the natural approaches, all that kept ringing in my head. Cuz I had to issues when I was pregnant was the American surgeon abroad saying I wouldn't operate on you. Nonpregnant, let alone pregnant. And so thinking I'm returning back to a country where the only American surgeon's telling you, you wouldn't wanna operate in me, and now this surgeon is gone. So I thought I better have that attended to here. And unfortunately they injured my common bile duct. And so that had also closed off. So it was a combination of things, but it was really, the tip up was utilizing that different estrogen. Couldn't break it down. It was just a different formulation. Um, even the GI doctor, it was very interesting. She listened to the history closely. She's like, I've seen this with estrogen alone. So, but for whatever reason, that was enough of a trigger where I, my antibodies just went really high, the Ana went really high, but mm-hmm yeah. In a nutshell, that's, that's my long drawn out story, so

[00:10:31] **Evan H. Hirsch, MD:** that's great. Thank you so much for sharing it. So let's jump into your 3d protocol for fatigue. Tell us how do you approach fatigue?

[00:10:40] **Dr. Rajka Milanovic Galbraith, MD:** Yeah. So the 3d protocol, uh, I named the clinic simply health Institute, cuz health needs to be simple. And I found that there was this exact right order that I would treat people. I would do it again and again and again, and have success after success, after success. That is if someone did any, even a little bit of what I said and the first D is, um diet, And I couple with that nutrients. So, um, if you optimize the diet, you know, as you know, in the studies, you can alter your microbiome in a week. So just getting people to eat right. And eating the right diet can help you detoxify, and so I've even created, um, a whole method around the abundant diet. So I call it the abundant diet and have a, a, a task method. And that's tracking, adding, subtract subtracting and keeping. And most often people need to stick at the T a, a track and add before I have 'em eliminate anything, because a lot of people are so deficient in, in a variety of areas and with nutrients I actually measure. So if they're willing to go the extra mile, I'll get a very specific, uh, nutrient panel that looks at the vitamins and minerals in the white blood cells. So it's a three month average. Um, if someone says, Hey, you know, I wanna spare the expense, then I'm looking at it just in the serum. So, um, red blood cell, or so just via regular blood work. And then we really target and we optimize those two at that first and second visit. And then I'm introducing the concept of the second D would be digestion. So we're talking about the microbiome and, you know, chewing our food and eating mindfully and supplying all the things that we need to supply. Um, um, to have, um, you to breakdown our food. So whether it's digestive enzymes or hydrochloric acid or bile salts, et cetera. And so, um, if given the choice I do like to, to test, so I'll test either with a stool test. Uh, I love if I can do a stool test coupled with an organic acid test to give me that really robust pattern, but I tell people there's always two ways. So when we're talking about diet, you could do food sensitivity testing or not. And you could do the elimination diet, which is the S and the K and my task methods subtract, and then keep, um, and so we go about it each way. So if they're not able to test or, you know, can't afford it, or for some reason, I've had people get really. Uh, just weird about, Hey, they don't wanna collect their stool and I've encouraged them too, but say for some reason they can't, um, then I'll talk to 'em about empirically treating and supplying, uh, supporting them within the digestive system based on symptoms alone. So you're not gonna get a hundred percent of what's going on, but you'll get the majority of it. And again, I tell them if you don't get better, we certainly have to test. And then that segues into detox. And I'll tell you the caveat when I flip those two DS in the moment, but, um, so you have to align the eating and how you're digesting to be able to properly detox. Right. But I found that with my, so we, I, I test now, so we look at various toxins, so environmental. It could be mold toxins, even the heavy metals. But I found that if someone's got mold, you've gotta do I flip the two DS. We do a little gentle detox. I do a lot of priming. So priming the mind comes first and that's a whole nother topic about how, if someone has limbic system dysfunction, they're not gonna respond. So we make sure the mind is really primed and the mind body, um, thing is going in that the body is primed that they're sleeping, right? They're hydrating, they're pooping and they're peeing and all that. And, um, we do bind first. We do the detox and then the, the microbiome. So if you treat the gut, sometimes they're made to feel worse. So we, I flip the two just in that instance and it seems to work a little bit better and there is another step and that would be typically the first three steps, balances, hormones. If not, then we have less of a need to balance and we jump in and balance hormones. And I, and the caveat there, as you know, is if someone comes in and it's a woman in per menopause, and they're saying, I am so out of balance, I'm gonna lose my job or my relationship, why don't wait till the fourth step to balance them. We talk about it right away. And I jump in and, you know, we may offer hormonal support right from that first visit. But we talk about all the ways to support it naturally too, all along the way. And so that's it for four step, but what I have left out as you know, is the whole lifestyle stuff. So we, we do that all on the back end and that would be things like sleep and stress and movement,

uh, purpose and, and, um, Uh, not being solitary and, you know, having a, a great circle of friends and, uh, a community.

And so we're doing that all along the way. And what I'll do is, you know, I have these eight parameters lined up and I'll circle. These are your biggest areas. We need to focus on these, which are these, do you think you could easily do so we haven't picked the low hanging fruit, um, of the areas that I think they're really out of balance. So how about you? Does this sound something similar to what you're doing? I'm, I'm sure in your practice.

[00:15:31] **Evan H. Hirsch, MD:** It's a little bit different. So I actually start with the hormones.

[00:15:35] **Dr. Rajka Milanovic Galbraith, MD:** Wow. Okay. And remember I said, I don't neglect that because if they're really hurting, you're not gonna wait, not even a month or two, you're gonna do it right away. So good, good for you.

[00:15:45] **Evan H. Hirsch, MD:** Exactly. Yeah. But yeah, lots of similarities for sure. And what's interesting is you also kind of, you know, lifestyle super important, but also a little bit of a footnote. And I think that you're probably in the same vein where people have to feel better first before you can start working on the lifestyle. Cause oftentimes they're gonna be so overwhelmed. They're like, I can't do any of that.

[00:16:03] **Dr. Rajka Milanovic Galbraith, MD:** Now you hit the nail in the head, not only for your listeners who are, um, kind of at the layperson level or the general public, but for our practitioners. So when I mentor practitioners and a, a favorite PR uh, mentor of mine taught me, hit their pain points. Because if you don't, you'll never have, you'll never have the buy-in cuz they don't feel well enough. And then they also don't have the trust that you know what you're doing to afford the change and they don't understand well, if now for six weeks I've done XYZ and I don't feel any better. Why would I wanna do more stuff then it's such an effort. Right. Everyone's busy these days, so.

[00:16:35] **Evan H. Hirsch, MD:** Right. So yeah. So then, so let's talk a little bit about diet. So what do you feel like is like the ideal diet for somebody who's tired?

[00:16:44] **Dr. Rajka Milanovic Galbraith, MD:** Who's who's tired, probably more towards not to totally keto, but, um, where we're, you know, I CA talk, call about, I call it the balance plate. And so the balance plate is where half the plate is veggies. A quarter is protein, and I'll actually calculate that out. You know, one approximately a gram per. Um, per kilogram per day and divide it out and more, more if they're losing muscle mass and then the quarter of the plate, it depends on where they are. Um, metabolically. So it either is more veggies, maybe a low sugar fruit. So definitely lower carbs without being too crazy, low carbs, cuz that can induce more fatigue if they're just not getting their needs met energetically and definitely is serving a fat. So I'm trending towards that. Keto paleo, but, um, yeah, that's, that's my favorite. And then just in general, and like I said, that quarter plate really depends on where they are in metabolically. And one of the other things I do within weight loss is, um, I look at the genetics of metabolism, so I know where they are and, you know, I suspect it. It's pretty easy to figure out whether you can break down carbs. I mean, If you eat a lot, you gain weight. And if you lower them, you lose weight or you tend to need to be lower. And that's your probably your first tip up, but it's a little harder with the fats. So we, we play with that when I, I run my weight loss programs and, um, even the resting metabolic rate. And, and then it's telling to say, Hey, you're the kind of person you can't just sit around and anyone 40. I mean, everyone should be moving, but especially when we hit 40, right. You really need to be moving. Really need to be adding the strength training and anyone who's so fatigued. We're gonna give 'em grace until they're feeling better. So you don't want them to push through.

[00:18:21] **Evan H. Hirsch, MD:** Yeah. I call that the Goldilocks dose of exercise or movement. Right. If you do too much, you feel worse, you know, but you kind of wanna get up to that level.

[00:18:31] **Dr. Rajka Milanovic Galbraith, MD:** I love that analogy. That's great, I'll have to use that.

[00:18:35] **Evan H. Hirsch, MD:** So, um, what do you do if the initial labs aren't telling you what you want to hear, or if somebody's not having the success that you're looking for.

[00:18:45] **Dr. Rajka Milanovic Galbraith, MD:** Yeah. So I look at a few things and it, and just having, um, dealing with a lot of chronically ill and those who have, um, chronic inflammatory response. So predominantly mold and Lyme. I really look at. Um, ensuring that there is some sort of limbic system support. So as you know, there's a couple different programs out there that are very beneficial and, and some of them hopefully will talk at another episode on long haul are showing some benefit for long haul where the body just gets stuck at assuming everything is a threat. So the only response it has to, anything you introduce is, to react negatively or not react at all. And so that's that tip off where if I'm doing the usual measures and I don't see at least a 50% improvement between visit one or two, or we've gotten through four visits and they're really just struggling, then I'm saying, Hey, there's something else going on. So we're gonna dive in and look for the mold and the lyme and the metals, but I'm gonna support them and say, Hey, we need to do some limbic system retraining. This is nothing I can do. And I offer them the two, more popular programs out there. We talk about pros and cons of, um, some people like one over the other. It's more of a personal preference don't you think?

[00:19:49] **Evan H. Hirsch, MD:** Yeah.

[00:19:50] **Dr. Rajka Milanovic Galbraith, MD:** Um, and so we're doing more of the specialty testing, supporting the limbic system and then all my chronically ill patients. So, um, I'm doing genetics on, so we get, I get a full panel, 19,000 genes. I tell them we can't possibly review those in this lifetime. Not all of them are significant, but it's the panel that I really like to use. So I have two panels I use. So I've one that for my high performers, which are, is plenty of information that lets me kind of be proactive and look at mitigating any future risk. And then I've got the, um, bigger panel that we do little bits of at a time. And, what I'll tell the listeners just about genetics in general is obviously currently the study support that our diet in lifestyle, which is our epigenetics, should be able to override any mutated gene. And I'd say certainly they should. My worry. And my theory is if someone's chronically ill and you have to assume that probably those mutations are expressing and my worry is going forward, our world just seems you like you just try to enjoy life and not think about all the toxins we're. Exposed, but my worry is that it's just getting more and more toxic, and are we gonna reach a point where we can't have the diet lifestyle or the epigenetics turn off those mutated genes, right.

[00:21:05] **Evan H. Hirsch, MD:** Yeah. And I, I really arm wrestle with myself around genetics because of that very question, you know, like I did genetics for a number of years. I know that, and that was, this was like 10 years ago. And I found that it was all about the, uh, the environment and the epigenetics, but, you know, I know that things have changed in the last 10 years. But it sounds like you find it to be helpful where it's giving you new data that is going to change what you're going to do. It's not like you're just gonna get rid of mold, lyme and detox anyway. So can you tell us a little bit about that?

[00:21:34] **Dr. Rajka Milanovic Galbraith, MD:** Yeah. So I will look at, you know, glutathiones a favorite gene. So I look at, um, I actually look at something. The biggest thing is, what I'll do is I tell them this is the protocol when we're detoxing you from a known toxin, and this is the protocol we're gonna use. And so we back down. In the maintenance phase. And so never just treat the genetics. We say, do the symptoms and lab, and genetic does do the symptoms and labs support the mutated gene. And if it does, and oftentimes it does. And, um, what I was able to, to determine was I was able to reverse engineer a woman's genetics. She came to me for, um, recurrent miscarriages and of course, MTHFR all the buzz and that's the one people focus on, but that's more than that. And you know that, and I know that. And between waiting from booking her appointment to seeing me, she gets diagnosed with acute rheumatoid arthritis. I mean how, like timely, thankfully she had in her back pocket, a nutritionist who put her on an a I P diet.

She saw me, we optimized everything. I took her through that 3d approach. And I even added some things that I was just learning about. Like I put her on superoxide dismutase and I had no idea. like, I, I knew it worked when there was joint pain from RA, but I didn't really understand all the biochemical pathways. I was just learning them then. And, um, heard that from the good Dr. Lynch, you know, Ben Lynch, everyone knows them, but his wife has RA and he had mentioned that. And every layer we did with this woman eliminated the pain by this much, by this much by this much. And I'd given her the last two steps to follow. Um, we got her stool test, um, and then sent her away cuz she lived abroad. So she was only home in the summers. I didn't hear from her for 18 months. And when she was back on my schedule, I said, oh darn, I probably didn't make her better. And that's, that was the furthest from the truth where she said, oh my God, I feel like I never had rheumatoid arthritis. I did exactly what she said. And so all gone. So then we reversed engineered it. And in fact, one of the major. Uh, genetic mutation, she had was superoxide dismutase, which is sod. So what the audience needs to know is like we form free radicals in our body at all times, and superoxide is one of the two big free radicals. And there a small amount is good, cuz it helps us fight off all the bugs that we encounter and it's produced. Anyway, every time we make energy it's produced, but when that gets outta balance and so anything causing inflammation, so it could be high toxic exposure, lack of sleep, too much stress, deficient nutrients, that creeps up. And if you have a mutation, it needs to be cleared through that S O D gene. So the S O D gene will neutralize that to another chemical called hydrogen peroxide. And so if someone's experiencing any dis any evidence of destructive issues, you have to think about that, like osteoarthritis, and you can even clock that. So I have a woman, who has osteoarthritis and she had a flare and we were looking at one of the labs I look at is, uh, damage to our bad cholesterol, oxidized, LDL. And we noticed that it crept up and was high and it correlated with her symptoms going up. So I talked to her, I said, you probably have a mutation. Let's do a trial. Of course, I look at the age triggers for inflammation. Let's lower these triggers, make sure they're all in alignment and let's support that and see if we can't neutralize that for a short period of time and see how you do. And then of course the important thing is to find it. And so after you neutralize the free radical, um, do you any questions so far. That's so good. Okay. We form hydrogen peroxide and, and hydrogen peroxide needs to be cleared by none other than glutathione or something called catalase. And, uh, one pathway will take it down to, um, so the catalase takes it to water and oxygen and then the glutathione just takes it to water. And so neutralizes it and guess what? This is where I got hung up. So if you have too much hydrogen peroxide in the body, I'd love for your listeners to think, what do you think too much hydrogen peroxide would cause you probably know, right? Think about in women. So hydrogen peroxide we use as women to bleach our hair. So it can cause premature graying. And guess what I had in my 30. Twenties, premature gray. And I also had semblance of reflux. So when people tell me to add betaine, I'm like, oh no, absolutely not. You know, because I know I already produced a lot. You know, I have a lot of this hydrogen peroxide and, um, I can guess my mom's mutations too. And so I had a mutation not only in breaking down the free, radical, but then in clearing that hydrogen peroxide. And so again, so if you get stuck and you you're not clearing it, you're gonna get a backup, cuz there's just nowhere for. You're just gonna get a back up with a free radical, so it could be any step in that whole pathway. Do you have enough super oxide, disc news days, and that's so easy to replace, but you always wanna be looking at lowering oxidative stress. In a way I explain to my patients is it's where it's you cut the apple open. And if it, when it turns brown, that's the breakdown of the apple as it it's exposed to oxygen. So it's the same thing. You don't want your tissue to break down. So. And fatigue. Fatigue is as you know, mitochondrial dysfunction. So it's one of the things. So, yeah. And so these are all things that I'll support and I can pretty much guess based on lab work symptoms, and then the genetics are just kind of the bread and butter. So if I don't have them, I don't necessarily need

them.

[00:26:46] **Evan H. Hirsch, MD:** Gotcha. Yeah, I was gonna say, it sounds like you can tell based off of the symptoms and whatnot, what it's gonna be anyway and what, you know, what sort of deficiencies need to be replaced to help, uh, go through that pathway. That's not being expressed appropriately. Yeah.

[00:26:59] **Dr. Rajka Milanovic Galbraith, MD:** Yeah.

[00:27:00] **Evan H. Hirsch, MD:** So let's go into genetics and let's talk, I mean, set the stage initially for people who maybe don't entirely understand about genetics, what is it? And then how does it relate to fatigue?

[00:27:13] **Dr. Rajka Milanovic Galbraith, MD:** Yeah. And so, um, when we talk about genetics, I'm talking about the genetics that govern various chemical reactions in the body. So, and we're looking at predominantly, uh, the genes are named after the enzymes that carry out that, that, um, chemical pathways. So turning say, uh, five HTP to serotonin or tyrosine to dopamine. So dopamine is our motivation molecule makes us very motivated. So there's all enzymes need to, um, have that happen. And they're all fueled by vitamins and minerals. So we call those co-factors and um, we always say treat the epigenetics diet lifestyle, if, and you typically get one copy from mom or dad. There are some variants, like in glutathione, you can have zero copies, so I have two genes where I have zero copies, so that's not a good state. And my third gene that recycles glutathione, I have a mutation. So it's something I'm very careful about is making sure that I live a healthy life. And I support that very gently. Most days, not every day, not aggressively either. So it can backfire on you. And if you have one mutation from a parent, one mutated gene, potentially that enzyme could work 20 to 30% less. Well, if you have two copies, potentially that enzyme could work 60 to 70% less. Well, so the way you support the gene is, um, obviously you minimize the lifestyle. Number one. So we can maybe turn the defective gene on two is you wanna make sure that all the vitamins and minerals needed to make that conversion happen are not deficient. So if you have a deficiency in one of those cofactors, it can act like the genes mutated. And then the last thing would be to actually give the actual enzymes. The superoxide DYS mutase is an enzyme and the gene is named after it SOD. So, um, so you can give the enzyme where you can give the end product. And so one end product is methylfolate or activated folate. And I, I say that very cautiously, cuz you never wanna throw methylfolate at anyone, cuz it can backfire and particularly people who are chronically ill and I'm sure you found that, that some people don't tolerate very much at all. And I have a sweet spot where there's a range of where most people will tolerate, in my field, 500 micrograms or less. I have other colleagues who treat really sick people and they say 250 or less. So that varies, and so the old adage is you have to know where someone falls in the spectrum, what their genetics are, and be very careful when you're giving it, because you give too much methylfolate. You can make someone ragey or suicidal and you don't wanna do that, right? So I caution the viewers. Don't do. I mean, everything we're talking about today is to seed your mind to the possibility. So then you can take it to a practitioner and then, explore the best options for you.

[00:29:54] **Evan H. Hirsch, MD:** And then what about methyl B12? That's something that I see the same thing with. How about you?

[00:29:59] **Dr. Rajka Milanovic Galbraith, MD:** Yeah. So methyl B12, it's, it's really interesting. So, um, typically my sensitive patients, they don't tolerate that at all. So the workaround is doing hydroxy and adenosyl right. And same with methyl B12. So I'm really cautious. And when I give to people have anxiety, underlying anxiety, uh, underlying hyperactivity from a within ADHD. Sometimes that'll be fueled, but those are the demographics. Um, I'm reaching for denosyl or hydroxyzine in those instances and with a methyl B12. If they're not sensitive, I do a trial and see, but yeah, I mean, so sometimes I have had people come in with levels in the bloodstream at the very low end of normal. And, you know, that'll give you tingling in your extremities and cuz you know, our B12 is what's needed to, to make mild in which coats our nerves. And so I've had people come in very, very symptomatic with that. So yeah, that, that's my take. So not everyone gets it most, you know, depending on the subset and you're looking at the clinical. Presentation. So if they're not particularly sensitive, don't have anxiety or panic likely can do a little bit like 500 micrograms, maybe slightly more. If they're really deficient, they may need more. But if there's any question, then you, you just reach over to the denosyl hydroxy and, um, anyone who's sensitive, I have formulations I use that are liquid.

So you can, you're talking, you can do like 10 micrograms or 20 or 50. So it's very, very minuscule amounts. And then what I call titrates have increased gradually.

[00:31:28] **Evan H. Hirsch, MD:** Nice. Yeah, I, I, I go the reverse. So I start off with hydroxy and adenosyl and stuff like that. And it's rare when I go to methyl B12, just because I've seen so many reactions over the years, you know, where I would say the people that we work with it's upwards of 60%, you know, who are reactive. So it might as well just start over there, but. Yeah. Yeah. Okay. So then in terms of the, uh, the functional genetics or the genetics for fatigue, you talked a little bit about SOD, a little bit about glutathione. What else is in there that makes people tired?

[00:31:59] **Dr. Rajka Milanovic Galbraith, MD:** Yeah. And so there's another, um, chemical. So, um, super oxide is the one free, radical that's cleared by S O D but believe it or not, there's something called the hydroxyl radical and how that, uh, forms is. Remember when I said that people who present with premature graying and have a buildup of hydrogen peroxide, if you don't neutralize that it hangs out. And if you have excess iron it'll combine with hydrogen peroxide and cause this hydroxyl radical, which is even more potent and more, uh, is, is like even worse on our system. So it's even, uh, I guess, a more significant, um, uh, free, radical in our body. So I'm always on the lookout, like is there excess iron and typically in women because women menstruate until they hit menopause, you're not gonna see that excess iron until a postmenopausal potentially. Looking at genes and genetics that can cause high iron, so hemochromatosis and believe it or not. I, I learned this as I was re-reviewing, um, a while back that it's one in 200, so it's not like something to sneeze at. It's it's pretty high. And so we're looking at that. Um, I don't know if there's a direct way you can't really measure. So you're looking at like, is there excess of, of iron in general and then. Symptomatology wise. So that would be the second pathways to, to really know, to really know that. Is there a mutation in so D is there a mutation in catalase and glutathione, which clear hydrogen peroxide is there an excess and iron? And so that's where you're looking at it kind of indirectly in supporting that. So you can provide. Um, SOD enzyme, you can provide catalase the enzyme, typically I use a product that has a combination of the two. You can give glutathione, um, some people question a against when I'm detoxing someone from mold, I do support it. I do provide it. Um, it's crucial for okra and aflatoxin. So, which I know is a little bit beyond the scope of this, this talk, but I will do it, um, twice daily. Again, it's not. Everyone that can tolerate it for some people it'll throw 'em under the bus. So if you start it, you gotta go slow. Um, and it's typically the real sensitive patients they already present. They they're reacting to everything. And so you're, you may not be able to do a ton if any. So I've had some people, we, we have to support it in different ways. So, you know, think cruciferous vegetables, if they tolerate. Uh, the dairy protein called whey then you get whey protein. You have them sleep right, eat right, don't drink in excess, et cetera. So you have 'em do the other things. So yeah, that would be the second area I'm looking is. Is that they call it the Fenton reaction. So when that hydrogen peroxide combines with iron to form that other free radical,

[00:34:36] **Evan H. Hirsch, MD:** yeah. So then how do you determine whether somebody has excess iron? What sort of labs are you looking for? Are you looking at symptoms?

[00:34:44] **Dr. Rajka Milanovic Galbraith, MD:** Uh, looking at. um, I'm so you can look at the, the genes for iron transport. And so looking to see if they have hemochromatosis, um, a full iron panel. So I used to just do ferritin. I've now expanded. I do iron saturation, total iron binding capacity. So you're looking at how many of those spots that can combine an iron are full. And so if they come in and their ferritin is high, so I, which is the iron stores in the liver. That it may be the, the tip off. And so then you, you know, probably the best treatment for that is have 'em to donate blood, but, um, um, get rid of that.

But yeah, you're looking some, I'm doing a lot of lab testing. I'll say I'm not maybe because I'm not, I don't see it. Cuz the, I treat probably 70% women, 30% men. And so the women. Probably hit me up until menopause. And so I have a smaller demographic that are postmenopause, but they come too. Cuz I treat cognitive decline. So we're seeing some of that come through the office. Um, so I'm probably seeing a little bit less just because the men aren't presenting is, but I'm on the lookout for it. So then I tell people, Hey, we need to clock here every year. If, especially if they've got a hemochromatosis gene and it's not manifested yet or whatever.

[00:35:54] **Evan H. Hirsch, MD:** Yeah. And, I, it seems like the, uh, the T I B C is really the most sensitive marker since ferritin can be an acute inflammatory marker. Are you seeing that as well? Yeah,

[00:36:03] **Dr. Rajka Milanovic Galbraith, MD:** absolutely. Yeah. So I was gonna say, and I didn't finish. Is that yeah. ferritin, if it's high, you don't know, is it because they're inflamed from some source? Do they have a mild infection? Like, you know, I just actually even had a patient come in with, um, a, a acute infection or her, and she's been doing beautifully as far as the whole program and implementing, and she got her husband to see me and her mom to see me and. We reversed her husband's, um, reflux sadly at his gallbladder out in his twenties, which is terrible because it didn't help. And in fact made him worse. But, um, his was all food related really. And so it wasn't this hydrogen proximity and it was amazing. She helped him implement it and her. H S C R P went up, ferritin went up. I'm like, what's going on? And she says, oh, I had a really bad, like some sort of sinus infection. And so she's like, and your staff just sent me your protocol. And I followed and, and I'm so much better now, but we clock the labs then. So you're right. It can be inflammatory from infection or other sources. So,

[00:36:58] **Evan H. Hirsch, MD:** yeah. And I had the, um, uh, the unfortunate situation happen where we had somebody who was. Had hemochromatosis, at least she had one of the copies. And for, from, for most of the blood banks and people who are going to be able to take the blood out of somebody, they required two copies. Now, fortunately, we were able to get her in and we saw incredible. She had like this chronic angina chest pain that she couldn't get over. And we started doing the blood letting sort, you know, every month or every couple of weeks. And she did really well. But unfortunately, then they said, well, show us the labs again. And they saw it was just one copy and they stopped it and then her symptoms came back. Um, what do you like to see one copy, two copies. Do you care? What's been your, your, uh, situation.

[00:37:46] **Dr. Rajka Milanovic Galbraith, MD:** Yeah. So two copies you you're, you know, you're really heightened cuz they're likely gonna have a bigger problem with it. One copy. You're looking at labs. And like I said, I see so little of it come through. So I think I've had one or two patients that came through and, um, it was interesting. Like, you know, now I have a whole protocol program and I saw someone, we were just doing the deep dive into and I have no idea. You know, sometimes people, if you, if, if you don't tell them there's a process or whatever, he. Kind of fell off the wagon and we never saw him again. So he would've probably been the ideal person, kind of like your woman with angina that had enough going on, that he would've benefited and then he never resurfaced. And again, that was when I was experimenting with, how do you treat people in the right order? How do you package it? How do you give 'em the right support? Cuz you know, it's, it takes such a village, right? To raise a kid, it takes a tribe to. To get people. Well, and it's not just me as the physician, I've got the health coach, I've got a nutritionist. And so it's all of us together that are supporting people through the whole journey.

[00:38:45] **Evan H. Hirsch, MD:** For sure. And Dr. Rajka I've I've so enjoyed this. You've got a free gift for our audience, right?

[00:38:53] **Dr. Rajka Milanovic Galbraith, MD:** Yep. I have, um, a 10 a guide it's 10 days to infinite energy. So that's kind of my top secret um, tips. I know don't tell me anyone.

[00:39:05] **Evan H. Hirsch, MD:** go get that right now, everybody. So, yeah. So we'll drop that link below. And where can people find you learn more about you?

[00:39:14] **Dr. Rajka Milanovic Galbraith, MD:** Yeah, probably the best is so, uh, two places that I hang out most of, just for more information, my website, [dr Rajka.com](http://dr Rajka.com). So that's d r r a j k a .com and, um, I'm on Facebook as well. And that's probably where I'm, I'm living and I'm starting to do more of these fun reels. They're actually super fun and they're short. And, um, so you're gonna see a lot more of me there on Facebook and Instagram as well, so.

[00:39:37] **Evan H. Hirsch, MD:** Awesome. Well, thank you so much for joining me here today. I really appreciate you taking the.

[00:39:42] **Dr. Rajka Milanovic Galbraith, MD:** Oh, you're welcome, Evan. Thank you for having me. It's my pleasure.

[00:39:46] **Evan H. Hirsch MD:** I hope you learned something on today's podcast. If you did, please share it with your friends and family and leave us a five-star review on iTunes. It's really helpful for getting this information out to more people who desperately need it, sharing all the experts I know, and love. And the powerful tips I have is one of my absolute favorite things to do.

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