Thyroid Dyads & Infections of Hashimoto's: A Deep Dive Transcript

(Transcripts are generated by AI and may contain errors)

Introduction and thyroid journey

Hi Welcome back. It's Dr. Jen and welcome back to the Heal Your Thyroid and Reversing Hashimoto's summit. Today we're going to talk to Dr. Sam Shay. he helps busy health conscious moms and members with their thyroid, their desire, body shape and energy so that they can live a vibrant, fulfilling life.

So today we're going to talk about the five thyroid diet and the four infections of Hashimoto's disease and how to know if your thyroid issue is downstream from something else.

So welcome, Dr. Shay. Could you tell us a little bit about yourself and your thyroid journey? Absolutely. And I'm really glad that you're doing this summer simply because the thyroid is such a massive, massive issue, both overt and silent.

And it's it's one of the organs that it's one of the things that I feel like people can talk about. And it's like, okay, my thyroid, like people actually understand that as opposed to like my adrenals or this or my gut is that.

Like when people talk about their gut, there's a little bit of embarrassment when they talk about your thyroid. It's one of those things that that individuals can actually discuss.

And that's that's the good news. The bad news is, is that the way that most people are being told about how to look at their thyroid is very narrow. And so my intention today is to really widen the field and share all here's the thyroid in the middle and all the connected parts that haven't really been discussed in detail so that you can learn exactly how your thyroid may actually be downstream of other things as opposed to a primary issue.

My my journey began actually. I do have a presentation I can share for people who are just listening that you can totally follow along. But for those that are visual learners like myself, I have a presentation here and this is so what I am is that I'm a I'm a chiropractor institute for Functional Medicine Certified Practitioner Kayla Institute for Functional Medicine Certified Practitioner.

I have a couple of e-books and also stand up comedian and I use stand up comedy to educate entertain column as entertainment. So a bonus, I'm hoping that this presentation will be thoroughly amusing as well.

So we talked about the people that desire to help and the reason why I got into thyroid was actually much later in life clinically when I was practicing first in New Zealand, I had a client of mine who was just displaying literally every symptom of of hypothyroidism and they came to my office and their endocrinologist only ran to H and I was just floored how rigid this number of tests was in the mind of the endocrine ologist and how much compared to the sufferer and of this person standing before me that this this, this this woman was basically gaslit by her endocrinologist.

Nope. UTSA just normal. You're fine. Go take an antidepressant. The TSA says they're normal. You don't have anything wrong with your thyroid. Go home.

And meanwhile, she had, like, eyebrows falling out, overweight, extreme fatigue, joint pain. You know, the inflamed lower body shape was completely different.

Cold hands, like all sensitivity to cold, all these different things that are typical in the signs of hypothyroidism and in in in frankly, in anger. I, i not at her, but at the end of technologist, I decided to really dove into thyroid because this, this woman was suffering.

And clearly TSA alone was not yet. And that's what launched me into the realm of functional medicine and functional testing. This is years ago. And since then, you know, and from there it was like thyroid.

And then like all the different markers for thyroid, the six major ones, not just TSA, which is important, but it's one of six major ones. Then it was figuring out all the connected dyads, the connected pairings of other organs to thyroid and just expands it, expands it and expand it out.

I got into functional medicine from my own personal health journey where I was raised by a stressed out, unhealthy and tired mom preneur. The reason why I help moms and entrepreneur Mom Preneur is primarily I help other people to, you know, males, fathers, etc., but primarily a focus on moms because my mom was extremely unhealthy by her own admission and because she wasn't taking care of herself, she made I get by her own admission some very bad decisions on my behalf, which led to a lot of problems for me physically and emotionally.

And I learned even to work, you know, fast forward, like my mom and I have a fantastic relationship right now.

Five thyroid dyads overview

We really do. So she came out to visit me a couple of months ago, but that was multidecade thing to try to heal and repair. And what would happen was that because she was not well, she wasn't able to parent the best way she could.

And I got the brunt of it. And so I developed crippling insomnia. I got issues to addictions when a video game and sugar, a chronic joint pain from the violence and the injuries, I thought back pain was normal until high school when I saw my first chiropractor, anxiety, depression and a lot of gaslighting and validation and terrible, terrible diet.

And I basically got into natural medicine to climb out of my own hole. I had to figure out how to heal myself and then turn that into a mission to help others.

But to help moms primarily. Not exclusively, but primarily because I don't I didn't want to live my life raising my tiny fist of resentment to the universe that the universe uniquely conspired to make me suffer growing up.

Instead, I wanted to pay it forward and help moms so that they can have a fulfilling and healthy life, so that they can make the best decisions on behalf of their children.

So it's to helps this version of me kind of existentially by helping the moms. So that's that's how I got into this. And that's why I really love working with thyroid because most of the most people with thyroid issues are women.

And I'll explain why in a minute. So that's my origin story, so to speak, and the thyroid itself. This just to jump right to it. Here are the five diets and the thyroid is radically influenced by five major organ systems.

There's others as well that that it can mentioned but use the five major ones so the thyroid will start first with the with estrogen. Why is it that most most people with thyroid issues are females?

It's because estrogen dominance can suppress the thyroid. And that's the connection as to why it's mostly women who suffer with hypothyroidism. And so part of what we need to do is to not just test thyroid but to also test sex hormones.

And looking at the entire cascade of estrogen is not just estradiol is actually seven major estrogens. And I'll show you exactly some of that. I'll go through some of the tests by name of what people can look for and ask for when they're wanting to work with a functional medicine practitioner.

So to estrogen dominance can suppress the thyroid. That's the first dyad. The second dyad is the gut, which we're going to go into a good amount of detail next. And there's major infections that when I say major, I'm talking about the most scientifically tract infections that create an immune response in the gut, sorry, in the blood.

When it leaks, when these infections get into the bloodstream, the body creates an immune response. It'll send out these. Hum, I put this if the gut is permeable.

I mean, it's, it's like Swiss gut is basically a complicated filter from, from mouth to exit and it's supposed to filter out nutrients, fats, you know, water and other things.

The body needs to grow, heal, repair, to develop, OP, etc. And it's a complicated filter and you want all those positive things going through, but you don't want infections.

They're residues, they're inflammatory chemicals, fecal matter, undigested proteins, undigested anything to go through directly to the bloodstream because of any of those things get into the bloodstream.

That's bad because it can circulate everywhere and cause problems. So what happens is that if your gut is, quote, leaky or the technical term is intestinal intestinal permeability, then undigested of proteins or infections or their residues or parts of them can get through.

Now, if they get through, then these are alien bits of things are now in the bloodstream and the body sends shape seeking missiles, not heat seeking missiles, but shape seeking missiles that attack these foreign objects in the blood.

Now, that's fine. The problem is that the surface of some normal human tissues can look similar to those alien looking things in the blood. So it's like if you're walking, if you're in the middle of a turf war between the Bloods and the Crips and you're wearing a red shirt by accident and you walk into crypt territory, you're going to get shot because you're wearing red.

So it's the same thing in the body. So if the thyroid has a particular color shirt on it and if these any of these infections or also gluten leaks across the body will create these shape seeking missiles that will attack those infections and gluten, but also careen and attack different tissues of the thyroid.

So that's the connection between gut and sorry. There's other connections have gotten thyroid like you need to absorb all the nutrients that support thyroid and the main nutrients that the thyroid needs, including iron, which I'll show my screen again, the main nutrients that the thyroid needs is it's like iron.

It's vitamin A, it's vitamin D, it's things like tyrosine. Arginine also involves there's these other minerals, there's some B vitamins, etc., like this.

This really should say like iron and other nutrients. So if you have nutrient deficiencies, then your thyroid is going to be affected and it can't work as well.

Then we have the adrenal system and the adrenal system is about short term survival, whereas the thyroid is about long term healing, health growth, repair, and you've got these two organs that are in opposition to each other, but they're both necessary because the adrenal system is to keep you alive.

If there's an emergency and the thyroid is there to make you propagate into the rest of the species and spread your DNA and all the rest of it make you healthy and functional when you're not in emergency.

So the problem is, is that if we have too much adrenal activation, then the emergency system will suppress the long term healing of growth repair system known as the thyroid.

So why are the adrenals so important in this day and age? Because we have, according to my colleague, Dr. Roger Moore Bowen, who coined the term modern woman syndrome.

We have and you can just buy the term you know what that means, modern woman syndrome, where mom has to be, you know, raise all the kids, have a career, be a badass.

On all the PTA meetings, the pillar of the family, health care for the aging parents deal with all the emergency or it just is just constantly on all the time.

And you could obviously speak to this more than I can see, you know. And I just I just at my house go to crap, you know, I just like and then so this is a little hint for anyone out there that feels like that.

So like my house and the house chores, they just for so the kids help out a little bit. You know, I probably should get some help there, but this is what I learn.

I know this is a little off subject, but this might be a good hack for someone. Have people over because then my husband is like, yeah, let's clean the house and like the house gets really clean.

So we just have people over like that's my game plan for that.

Gut infections, leaky gut, and gluten

But, but seriously, you're so right. The modern, you know, mom, it's, it's just not what we were supposed to. We weren't supposed to be like this, you know, that kind of let's have it all.

So it is it is tough. And I have a lot of women and I'm sure you do, too, that that we see. And you have to really talk to them about that, about prioritizing themselves, especially when their body is screaming at you to to maybe give something up. So.

So and so my mother actually said the same thing, that the best way to clean, to keep the house clean is to have guests over every week. It's exactly what she said to me.

And she's right. Yes. Now, the other thing just just you'll love this, literally. Marie Kondo, the woman who wrote the book, The Life-Changing Magic of Tidying Up.

She has confessed that she's given up being tidy after having three kids. So, so funny. Dr.. So when I read that. Joy Yeah, I had two kids. I had two kids.

It sparks that first major. Joy The first thing I say, because someone told me to read that, they're like, Oh, I know. You're like overwhelmed. And I'm like, She doesn't have kids.

This book is not. No, I'm like, This book is bad because she doesn't have kids. And then she had that Netflix show. And then I just read that like last week and it you're right.

That sparked major joy in my life. Now she's like, I give up. I'm not sure. I'm not sure if it sparks so much joy in moms or rather it's sparks schadenfreude.

But either that coziness, you know, so modern woman. So what happens is and I'll spare people the, you know, the, the, the, the, the, the biochemistry.

But basically if the adrenals are overactive for a longer time, it will suppress thyroid production and two separate mechanisms, both, you know, from the pituitary to the thyroid level and from the thyroid to the mitochondria.

The level which is leads us into the last dyad, which is the least discussed dyad of all of them. And that is the connection of thyroid to mitochondria.

There's nobody talks about this, nobody. And here's, here's the catch, here's this here's the entire point. The the functional end of the thyroid is the mitochondria.

The business end of the thyroid is the mitochondria. The entire point of the thyroid is the mitochondria. They are the most intimately linked systems in the body as it relates to thyroid because the point is the mitochondria.

So here's the best analogy I could think of the thyroid. So you've got the thyroid. People here are like basal metabolic rate fires are basal metabolic rate, basal metabolic rate.

What is that says oh, it's the amount of calories you have, but what is that really? It's the amount of proteins, fats and carbs you burn in the mitochondria.

That is the basal metabolic rate. So when they're talking about thyroid, they're literally talking about how active the mitochondria are in terms of burning the three main macronutrients.

So here's the here's the way to understand the connection. The thyroid sends a four wheel, four door car called T4 in a drive through the blood stream, and then it gets in it, you know, pulls off into the cell and it opens one door, it's at the mitochondria and now it's at3 and the T three, that car now becomes like a transformer and it's like a ripple and it becomes an engineer to turn on the dials and flip the switches, to turn on the factory, the energy factory, the mitochondria.

That's the connection. T four is the car. T three is the robot engineer to dial up the mitochondria factory to make energy. And so if you have a low functioning thyroid, you will lose the capacity to generate electricity, generate energy in your body.

Hence, like the low, the slow, sluggish feelings of fatigue, the brain fog, etc.. Now, here's the other factor that is not also discussed. Your thyroid can be fine, but the factory can be broken so you can have normal range air quotes, thyroid, but still have all the clinical signs of hypothyroidism.

But the thyroid is not the issue. It's the factory that the thought that the thyroid is trying to act upon. So the mitochondria is the electricity factory now the electricity factory and you can see it in this picture here like it's a beautiful like this is one of the coolest things like pictures ever of like that's actually in your body.

It looks like this crazy cell, which actually it is it's actually an evolutionary adaptation where mitochondria is actually a separate like organism that decided to symbiotically join with us eukaryotes to like we give it nutrients, then it gives us energy and returns.

It's kind of cool. So the factory so let me let me explain the factory motif a bit because it's almost perfect. So you can have the engineers there like at3 flicking dials, flipping switches, turning dials, and it's not working quite well.

Here's how the thyroid can start. This is the mitochondria can break down. Number one, the mitochondria needs raw materials, oxygen and fuel to burn in the oxygen.

Now, the oxygen we covered in the iron and that's red blood cells. And you're breathing, you know, tidal volume of breathing and all the rest of it. So the has to be delivered.

That's that iron and red blood cells. Then you've got these three sources of energy. Okay, so that's it's amino acids from proteins, it's fatty acids from fats.

And it's glucose from carbohydrates. Now, each of these three fuel sources, fats, proteins, carbs, has a separate trucker's union. They have to be paid differently.

So the fat fatty acid truckers union is paid in carnitine glycine B2 Magnesium. The Amino Acid Truckers Union is paid in B vitamins mostly b6 The Carbohydrate Carb Truckers Union is paid in lipoic acid.

B Vitamins, Chromium, Coke, Q10, some other things. Okay. So if you don't have those nutrients to pay the truckers unions, they don't deliver. So your factory can be fine, but you're delivered.

But your truckers unions may be on strike. So that could be one way your mitochondria isn't working. Then you've got the matter of the factory itself.

So there's walls to a factory. These are single lipids, these are specialized fats to help build up the fatty acid. So to build up the walls and then you've got the machines in the mitochondria factory to burn oxygen and these fuel sources to convert them into energy.

Those machines are called vitamins. The machines require computer chips to run. We call those computer chips minerals. So this is how mineral deficiencies and vitamin deficiencies, conscript or factory or how heavy metals can gunk up and screw up the machines.

Imagine taking a Windows 96 computer chip and sticking it to an M1 MacBook Pro. Things are not going to go right then you've got sparks flying everywhere from burning.

In fact, 95% of your free radicals are generated from within the mitochondria from this constant burning. And that's why you need janitors quickly running around to put out the sparks so the factory doesn't light on fire.

And we call those janitors free radical scavengers like superoxide dismutase and, you know, one of Saudi one of our favorites. Then you've got to have security guards to protect the factory because it may turn into, like World War Two, Germany coming in and taking over factories from when they invaded Russia, just taking a brick by brick and taking over.

These are, you know, viruses can do that and things can take over your factory. So you need an immune system and the analogy goes on and on. So in order to so some people, their thyroid issues are not their thyroid issues, it's the mitochondria issues.

Sometimes the thyroid issues are not thyroid issues or adrenal issues. Sometimes their thyroid issues are not thyroid issues, it's estrogen dominance.

And people need to look and examine what their estrogen levels are. And are they in estrogen dominance and maybe nutritional deficiency, and it may be autoimmunity from a porous gut lining.

So those are the five, eight major diets. There's also like blood sugar imbalance. There's also like inflammation that all other things that contribute to all of this, because inflammation can screw up the gut, it can screw up adrenals, it can the mitochondria like inflammation kind of the surround sound on all of this.

So I just want to pause. Any thoughts, comments, feedback? Yeah, absolutely. And what you're saying is it's not just your age, it's not just your thyroid.

So I think when people get a diagnosis out there of it's your thyroid and we see that a lot in the commercial world and it's just how we were taught in medical school.

So they have to look at the big picture and a lot of the times people are relieved when they find out it's a thyroid problem. But what they don't know, and I'm sure we're going to get into is that you need to reverse things, especially if it's Hashimoto's.

You shouldn't just say, Well, okay, my endocrinologist said, wait until my thyroid, you know, is so damaged that I need to be on Levi Thyroxine for the rest of my life.

And what we have to understand, if one of these dyads is not working properly, it's not only going to affect your thyroid, it's going to start affecting other parts of your body.

And we see that a lot in women when they get one autoimmune disease, another one's to follow. So that's what I explain to my patients. It's like, look, you have this autoimmunity, you know, lab, we need to attack it.

We need to get to the root cause of it because if we don't fix the root cause, it's going to show up as another autoimmune disease. As we know, if you're if you're get one, you're going to get another.

So I think this kind of brings us to a to talk about functional lab tests and testing. Is that is this a good time to talk about this movie? And I'll start off with I'll start off with talking about the gut infections and how those relate.

And literally, like here, here's here's the here's the references. So remember those the shape seeking vessels and

just to show people like this is this is out there blastocyst is commonest this paper they're your senior and political you don't need people don't need to be on a first name basis with these infections.

That's our job. It's just for people to see that there's actual research out there. H pylori literally, this is just a screenshot today of putting into PubMed.

H pylori Hashimoto's one. There's actually 122 things that were listed at the bottom as of today. But I just picked the section. I was like, Well, there they are.

Then we've got Epstein-Barr and your favorite and mine gluten.

Functional thyroid and hormone testing

So if again, if you have a gut that's, that's not doing well and things are leaking through whether it's undigested proteins like gluten or infections, your body will create immune response and attack other tissues like the thyroid as collateral damage.

And that's also why there's a connection statistically between celiac and Hashimoto's. Because of this, because of gluten, the celiac is automatically creating a leaky gut.

And then you're eating the gluten, which is and creating the, the, the aggravating agent that's creating the immune response that then is tagging the thyroid as collateral damage.

So when we're talking. Patients are going to be like worried like I don't want to give up my gluten. Right. Okay. So first of all. This is. Science behind this.

We're not being mean. So this is 2023, not 2003. If I was to tell someone to go gluten free in 2003, it would be a sentence to cardboard punishment. Okay.

The gluten free industry has matured. We we. We're fine. Like we were fine. We can make it. You can do this. We can survive. Like like this is not 20.

You can still indulge. Yes. Yeah. And people are like the pizza. And I'm like, it's good to get cauliflower crust. I will say I'm one analogy that's helpful when I talk with about my patients with gluten is ZEITLIN So gluten insulin are connected.

So Zombieland is activated by gluten and you have your tight junctions. And so see a normal person without an autoimmune disease eats gluten. Well, they're going to have some activation of Zombieland and they're going to open up those tight junctions.

But then they go on their overnight fast and it heals. So say someone already has a leaky gut, they eat gluten, they go apart even more. They do their overnight fast.

They they get back but not not all the way. It doesn't repair all the way. So then you just have this perpetual worsening of the leaky gut. So sometimes when I explain that with my hands, I literally do this, but it's, it's helpful and then just give it up for 6 to 8 weeks.

You can always binge on a pizza after those six weeks. I prefer eight, but in nine you could see if you have any reaction. So I don't know about you, but I know that that's the hardest thing for patients is to take away the gluten sometimes.

So I actually I also use my hands and I explain I just do it in a 90 degree difference. And so I say, okay, so this is this is the gut lining. These are the cells that that take or that's the filters that take the nutrients and water, etc., and they filter it and then it goes into the bloodstream.

Down here, if you eat things like gluten, these are these these are tightly packed and there's little things like staples called tight junctions that vitamin D is critical for, to keep them all nice and tight together so they don't gap.

And then things don't go through the cells to be properly processed. They go through directly and leak directly into the bloodstream. So what we want us to do this to have our gut be a nice tight filter like that, not have split sideways.

And like this, tight junctions are no longer tight. They're split open. So we're we're usually we're just we're totally on the same page here, just 90 degrees different in terms of how we explain it.

And for for people that are like, oh my God, I don't want to give up my favorite thing ever. I'm like, So what's your long term plan here? Like why? Like your your you're you're target.

You asked me to help you find out what's wrong with you and what can be done. I guess what you got here somehow here's the somehow and if you if you want to have different results, you have to do different things.

And then I go into my story of all the things I've had to sacrifice in order for me to have a way, I'm way better. I'm so much healthier now in my forties than I ever was in my teens, in my twenties, ever.

And I miss cheese, I miss gluten, I miss plenty of things, but I'd rather be where I am right now. And again, it's 2023 now, 2003. We have options. There's options.

So it's and people people may it may take a minute. And but the thing that most people fear is, especially if they're a parent, is not their own gluten avoidance.

It's the retaliation on the part of their children or that they're going to be the weird ones at the party and all the rest of it. And the mirror response to that is, yes, that is difficult.

And there's so many people who are navigating this as well. I will help you. And there's plenty of other families who are also looking for more members of their you know, my mother call them the glue teens, you know, the the glue teens that the gluten sensitivities of, you know, that are in your community.

And we can all support each other and not make this some sort of weird thing. It's just a health reality, that's all. And I just I am totally there with you.

And I also I also feel that one of the most powerful things that we can do to help people convince to convince people to actually make the changes is to do testing, because it's not a theory that I'm talking to them.

Like, here's numbers, they don't lie and here's what we're going to do. So we're gonna talk about testing. And at the outset, I just want to acknowledge two things about testing.

It saves time and it saves money long term. There is an initial upfront investment in testing for sure, but the amount of money that people save long term is massive because they're actually doing protocols they actually need on products and dietary changes they actually need, as opposed to changing magic bullets and shiny new diet syndromes and shiny new supplements that they saw on a podcast or whatever.

It's, it's, it's, it's you're going based off your unique system, your unique data, your unique person. And that also saves you tons of time because you're not led astray by, same said, shiny object syndrome.

So that's testing now the first types of testing is broadly speaking, the functional world is hormone testing. So we talked about thyroid and here are the six major tests for thyroid.

There's there's more is like total T three, a total T four and is even anti TSA receptor antibodies and all that both. Here's the six major ones. TSA treated three 3 to 4 reverse t three antibodies to thyroid globin antibodies to thyroid oxidase.

And here's three major labs. Most labs in the functional medicine community have their own thyroid test with all or more, or maybe one or two fewer of these.

But they every single one has a thyroid test. So Genova has one zero has one access medical is one is just to name three companies that are out there.

And one of the purposes of this talk is to familiarize listeners and viewers with some of the names of the companies and some of the names of the actual tests.

So they're not, like, overwhelmed and afraid of like, oh, my God, this weird sounding test that my normal medical doctor thinks is weird and odd sounding.

And so do I. And I'm afraid I know what to do. But now you're getting some exposure to what these things are. Then we have the adrenals testing and there's adrenal testing has upgraded relatively recently to include the cortisol awakening response.

I highly recommend people get that version because it ensures the initial what it ensures the initial what? The original force. What was the morning test.

That one's the first spot test is more accurate, but it captures your adaptability. To stress, this is not an adrenal talk, so we don't have time to go into the details.

But I highly recommend people get an adrenal test with the car or the cortisol awakening response Genova Precision Analytical Doctors Data. Most companies have an adrenal test just like they have a thyroid test.

Then there's the sex hormones. Now the most popular one, by my understanding of the functional medicine universe, is the Dutch test. There's some other ones like Genova has a competitor and I think I think it's doctor's data may have one.

I can't remember there's a competitor that but basically it's to broadly check the seven major estrogens, testosterone and its metabolites, DHEA and its metabolites, progesterone metabolites and melatonin.

So you're wanting to track the whole hormone cascade. And why? Because estrogen can suppress thyroid, just like adrenals can suppress thyroid. So this is hormone testing.

Now, I'm going to show some examples of what the different hormone for thyroid look like. So Genova has these three and this is a look at this is what the readout can look like access medicals of same sex markers.

They just read out with numbers. They don't have graphs zero has its own thyroid test where they check for they don't have anti thyroid peroxidase anti thyroid globulin antibodies.

At this point I did email zero directly and pointed out that I exactly had a case study that had elevated anti thyroid globulin but normal anti thyroid for oxidase and had all the symptoms of Hashimoto's and then to their credit they emailed me back saying that, you know what, you're right, we're actually looking at the research does show now that seven I think it was like 17% of all Hashimoto's cases is elevated antiviral globulin antibodies only so that I respect zero T labs tremendously for their chief medical officer coming back to me when I pointed out you guys are missing a marker, here's my case study from literally this month and they came back.

And so now I think it's a matter of seeing how they can incorporate it. So big respect is the R for their integrity on that they also check for the the the elements in heavy minerals heavy metals so that that is one advantage of CRT.

And then we've got neutral path in Australia New Zealand, they check for all the things plus anti TSA receptors. Only one time in my entire career ever, ever have I had elevated TSA receptors elevated and none of the other two.

So I can see why almost everyone just does these too and not bother with an etc. subject. So it's only happened once that I've seen it. So then I also just for reassurance, I want to show people like, look, this is totally possible to see that people can this is a pre and post showing.

This is in theory, this is impossible in the Western medical world to have anti thyroid, anti globule, anti anti thyroid globin antibodies go from nearly four x the upper limit down to about one fourth.

The upper limit in a span of less than a year. And this is technically supposed to be impossible. This is literally just a case study from 2017. As I stated.

So I just that is showing this is proof positive before and afters. It's there. You can reduce the antibodies. So yeah, you can, you can heal your thyroid, but but they don't want to hear that.

But, but I think to be fair, some, some conventional doctors are waking up. I've lectured primary care doctors and showed them case studies where you can turn this around, you know.

So I think that's anyone listening out there. And you see Doctor Shea's case study, it can be done with addressing the dyads, like he said. So another thing I would like to just let people know you can get regular blood work cover and it's usually covered by insurance.

So if you don't have the means to afford functional testing, you can bring on a list and you can use basically those list for reference.

Mitochondria, toxins, and genetics

You know, you want to ask for the TSA, the free T for free t three, reverse t three both thyroid antibodies. And you want to be really specific when you ask for labs, when you go into your doctor, hand them a list. Okay.

Because I've had people tell me they ask for a complete thyroid study. They're at their primary cares, they've asked for a complete set. And what do they do to fix it?

And if you beg and scream or on the floor in a fetal position to bang your head a few times and the doctor happens to be taking pity on you because it's a Tuesday, they may give you free t three and free t for like it's it's. So.

Yeah and the list and include on their parents and iron vitamin D vitamin A zinc selenium tyrosine arginine like like list of fasting blood sugar fasting glucose fasting insulin hemoglobin A-1 C like there's like get a B12 folate get get these lists of things that are related to the thyroid and not just the six major markers for thyroid.

If you're going to go in with insurance to use those blood tests and and the next tests are going to show are typically not covered by insurance. And these are the the functional tests that are like the that are not not common in the normal world, but are definitely very common in the functional.

And this is the gut testing. So this is checking like remember we talked about leaky gut or intestinal permeable permeable gut. There's four major lab, four major legit gut tests in the functional medicine world.

The GI map, which is the primary one I used the GI effects, the GI 360 and the CDC and those are the four main ones to look look for. And they check for hidden infections like the infections that we mentioned, H.

Pylori and the other and blastocysts and all the rest of it. The check for digestion markers like pancreas and gallbladder, fat digestion. They check for formation in the gut, the immune system of the gut and antibodies to gluten and within in the gut, some of them.

Then you've got other gut testing like SIBO and then food sensitivities as well. Now I'm just going to say something that can be interpreted as controversial about the food sensitivities, and I'm okay with that.

So I recommend people invest their money not in the food sensitivities first necessarily. And here's why. I mean, based instead on the gut health ones, here's why.

If this is my gut, this is my arm, and I took my arm with my finger, whatever. But if I have an open wound on my arm and I poke it with my finger, this open wound, do I have a finger allergy?

No. I have an irritated spot that I'm poking and I'm having pain or response as a result. So if this is my gut lining and a piece of broccoli comes by and it's it's a healthy gut and just kind of bounces off of it and then whatever.

But if it's if it's leaky, if it's irritated, it's got infection there. If it's if it's raw, if it if it's wounded or whatever it might be, and broccoli comes by and and presses on it, it's going to get irritated and create an immune response.

And you're going to have this this response is going to be measured as a reaction to broccoli, when in reality, you need to heal, seal through the gut first.

Now, are there real hard wired food sensitivities for sure, absolutely. But I'd say the first step is to deal with the gut. First, he'll seal and sue that.

Then you can. Then you can look at the food intolerances and allergies and sensitivities afterwards. Some people would disagree with that. I'm I'm okay with that.

But I just wanted to put. That right now. I am so glad you said that. I was like, oh, food sensitivities. I'm so glad you said that because that is exactly how I feel.

And a lot of times people come to you and they've spent money already on the huge amount, you know. Yes. On those food sensitivity tests that, you know, an influencer is pushing or you see the ads and I'm like, oh, I wish you would have saved that money, because they also come up with like ten allergies or 20.

And I'm like, No, you just have a leaky gut. You know, you don't have sensitivity to all those things. And what's what you can do, which is cheap, is you can take out one thing at a time.

So start with gluten and dairy. They're the most popular. Then you could do take out like soy or, you know, take out some nuts, take out grains. So I think when we look at the food sensitivity tests, someone's making a lot of money off those.

And it's not always doing the patient good. Like you said, you have to remove the bad first. If you remove 100 things from your diet, that's not good either.

Similar to the AP diet. Good short term kill the gut, but then you need to build resilience in the gut. So I totally agree with you. So we're on the same side of that battle, so that's good.

So the next set of tests will be the mitochondria tests, which also function as brain and liver testing. So Genova had the has the ion panel, there's other competitors out there like omics from diagnostics, they're building out.

It's not as complete as the ion panel. They're building it and building it out. But in general, like the mitochondria is like the major test. It's it's like the might, it's some micronutrient test.

It's checking amino acids, fatty acids, heavy metals and mineral, you know, minerals, fat soluble vitamins, the help of the mitochondria, vitamin B vitamins, all sorts of stuff.

You know, it's it's like there's a blood component in the urine component. The blood component was the fuel in the tank, the urine components, the emissions test.

So the urine component tells you what's been used like an emissions test in a car. Whereas what's in the blood like amino acids, fatty acid, it tells you what's available to be used.

So this was the mitochondrial testing is extremely complex, not a lot of clinicians are very comfortable or competent at really interpreting this thing.

I spent four years studying with Dr. KALISH how to do the mitochondria. Yeah. Tests like this is you can win a scrabble tournament if you're on a first name basis with the metabolites on this test.

Okay. Like this is this is no joke. It's the difference between studying like adrenal tests and mitochondrial tests, the difference between studying general anatomy and neuroanatomy, both of which I taught.

So it's a huge leap to get some mitochondria testing. So and it's also like the other half of the thyroid think this is really important to get this one right is the mitochondrial test.

Then lastly, there's like the really bad stuff that you don't want that that can just screw up everything. This is mold metals in line and and these are the functional tests that can absolutely your thyroid in one way or another usually by either by screwing up some of the other systems. So these are these are things you don't want to have in your system.

But the tests available by various companies to help you with with all of the finding, what all these things are, are, then there's also genetics testing, which when we talk about genetics, I'm going to put it in the context of where it always should be, which is lifestyle, because lifestyle and environment is what activate your genes.

So there's your genetics and there's epigenetics. And genetics is your potential. Epigenetics is what central gets turned on. So when you're when anyone is ever working with a natural health practitioner or functional practitioner, whoever, they have to have a framework by which to analyze your lifestyle so that they can tell you what lifestyle changes you can make that are the root of the major issues almost always anyway.

And also to determine what functional labs you need. Now, I have a framework. It's called the ten pillars of Health. This is the one I put together. I love it.

It's super efficient and it's very effective. And but the point is, find someone who has a framework, whether it's ten pillars of health or the Triangle Health or the inverting inverted rhombus of wellness, whatever, doesn't matter. That has to have a framework.

So the framework is brain and form. My ten pillars is brain and hormones. So it's looking at brain balance and entire hormone cascade, thyroid, adrenals, melatonin, sex hormones, etc.

Then the second pillar is bowel and digestion. How well you chew, how well you absorb, how well you poop. And you look at gut testing in here, which you mentioned before, and looking at your your your eating habits, not your diet, that's a separate pillar, but it's the eating habits and the evacuation habits is are the exits clear or not?

I got into this game when I was 16 reading Doctor Jensen's Guide to Better Bowel Care. Because I had constipation so bad I couldn't go, except once every 3 to 5 days, to which my pediatrician and both my parents, who are both medical doctors, thought was normal.

So I got into this because of my bowel problems, even though I had plenty of other problems going on as well. It was the entry point into natural medicine.

So the third pillar, the physical body, all the injuries, poor posture, head injuries, bad dental work will ruin anyone's life. Genetics. Genetics fits in the body because literally twins have the same body because they have the same genetics.

Burst is a code for burst exercise. I started everything with a B because I think I'm clever versus the only word I could find for movement that began with the B birth training, speed training, high intensity interval training.

It's about exercise and movement. Intensity, intensity, consistency, variety. And the one that most people miss is

recovery. Bio toxins is pillar number five.

This is inflammation. And anything that weakens you, whether it's petrochemicals, preservatives, things like alcohol, pesticides, insecticides, off gassing, you name it, heavy metals, bio nutrients is the diet.

It's all everything that you need in order to survive. This is the most controversial pillar because everyone's got an opinion, but very few people do actual genetics testing to see what people individually need.

We're going to cover that in a minute. The by the way, the mitochondria test acts as your nutrient test primary the primary nutrient test to see what do you actually need from nutrients not what is what was explained on some you know radio at breakfast is a seventh it's breakfast and routines now I made this a separate pillar because 99% of all my chronically unwell clients had a terrible breakfast.

And the other people who were and they also had very bad routines. The sickest population group I've ever worked with were night shift nurses. The routines were just terrible and all these other pillars suffered.

But the uniquely terrible thing was no routine. And that's why I made routines. Rhythm City, Regularity, a separate pillar, and I put breakfast as the foundation of that.

I do not believe in skipping breakfast because for for intermittent fasting, I think that the people who are pushing intermittent fasting are all the same demographic.

They are 22, forties, financially solvent tech entrepreneur males. They are not moms. Right? It's so I think you have to test it. I think you have to test not just like you said.

I think wearing a continuous glucose monitor is extremely helpful to see if you really need breakfast or not. I also think it depends on your menstrual cycle, but I agree with that.

And when we look at testing, they don't include females much in in the intermittent fasting studies because we have hormones and we're crazy. No, we're not crazy. But I'm not.

Surprised that you up to that that's not testing of. Oh, sure but yeah I agree you need to have a routine and night shift are still here but not not as many shifts and I age oh my gosh and I work a night shift so I work 1 to 2 a month still I just age like you can see my body like but but I am so grateful for the people that risk their their health to work night shift in the health care field.

But it's a it's a it's a human carcinogen classified night shifts so. They. Get off the night shift. And what. We have you are out. What people who are on night shift is support their pillars.

But also, according to Dr. William C DEMENT, that's his actual name. He is one of the foremost researchers and sleep in the entire world. And he's like a 60 year career out of Stanford on sleep research.

If people are going to work night shift and that that's just part of their life, then stay on night shift the entire month or two and then switch. And so that you have it becomes a routine if that's even possible.

But that's that's a whole separate discussion. But we have to support our night shift people by supporting not having junk food and like IV drips of coffee everywhere.

Like can we support can we support with these other pillars? The eighth pillar is bothers and stressors. This can be everything from, you know, having to having kids and disorganization almost everywhere.

It could be financial stress, emotional stress. It could be watching too much news of any stripe. It can be marital stress. It can be the cultural stress.

It can be whatever it is, stress absolutely affects. Talk about the adrenals earlier than the ninth pillars, bugs, hidden

infections and mold. And this this is infections.

Whether it's from coming from the outside or things that are inside the gut, mold will ruin your life as well as gut infections, as we talked about earlier.

And then bedtime, the 10th pillar is sleep quality, duration, consistency, death. So these are the ten pillars. I pick ten because people can get their head around ten.

A captures the complexity without making it too complex. So this is how I analyze people. There's like 20 to 30 questions on my survey per pillar. So it's like a, it's a non joke survey to analyze it, but it's a very clear method and then to tie it all together.

This is the entire cycle of health right here. It's lifestyle, bad lifestyle choices or circumstances. Now, the body doesn't make a distinction between a personal choice or circumstance.

If I'm six years old and I'm being sent off to school with SpaghettiOs, which is what happened to me, is that a choice or a circumstance? It's a circumstance, but the body doesn't make a different distinction between what's a choice and a circumstance.

If I have poor lifestyle, choice or circumstance, then it's going to affect my genes and create an adaptive response. And I'm going to have one or more of the four major adaptive responses I'm going to add to the SpaghettiOs.

I'm going to have either inflammation, blood sugar dysregulation, tissue breakdown, or free radical damage, or some combination. If I have chronic adaptation, if this happens for a long time, then my genetics will determine which of those three major body systems gets damaged liver detox, gut absorption or brain and hormones.

Now, there's more than these three systems, but these are the three major ones. So if I have ongoing breakdown of these three systems, again, interpret it through my genetics.

I'm going to now feel symptoms like weight gain, fatigue, low mood, digestive cravings, insomnia, chronic pain, hot flushes. And if I have symptoms, I'm going to now cope with bad choices sugar, coffee, whatever.

Staying up late, watching, you know, the last of us or whatever it's and then it's going to create an adaptive response which will then create damage, which will then have breakdown into symptoms and then more coping and more of that too.

And going to spin round and round and round and round and round. So the way to look at functional testing in functional medicine is the following. We look at lifestyle to optimize that which is the foundation.

We then look at genetics and if we can input all the lifestyle and dietary nutritional needs here we blockade progression, we don't careen into inflammation, blood sugar, dysregulation, etc.

Ten pillars of health and closing remarks

And then we use functional testing to identify where are we in our adaptive response and which organ systems are breaking down. So if we have all three of those things functional testing, genetics and lifestyle, we can then create a customized plan to reverse the whole.

This is all this dysfunctional medicine in one slide. And it's a lot a lot is here, but literally this is it. This is the entire paradigm. And you can slot in all your lifestyle, all your genetics testing, all your functional testing, all your functional testing into this paradigm.

So I want to talk about genetics briefly. I want to talk about genetics briefly that one of the main things we look for in genetics is for inflammation, because inflammation is just it just is kind of the background radiation affecting all the organ systems.

And the point of inflammation is to actually help the body. And just like with anything, it can be helpful. It can be overly helpful and cause problems.

The point of inflammation is to rush nutrients and the immune system into an area that's damaged. So I get bit by a wolf. If I'm a hunter gatherer that I now have tissue damage and now I have pathogens over injected into my rendered flesh.

So inflammation goes in, sends red blood cells to repair the damage and white blood cells and to kill the infections. That's the point of inflammation.

Now, genetically, some people are more pro-inflammatory like me compared to others. That is an advantage. As one hunter gatherer, if I'm in a hunting hunter gatherer environment, if I'm bitten and my hunting party members also bitten, but I have a stronger inflammatory response, I will more likely heal from the bite then my hunting party member.

The trade off is that I will die earlier in a longer life from inflammatory base diseases compared to the less inflammatory, prone hunting party member who will live longer.

Assuming it doesn't get bitten more often. So it's a tradeoff. Why is some people more pro-inflammatory than others? Genetically seems so unfair. It's not unfair.

It's just the nature does not give a damn about you as an individual. They only care about the lineage and like so it creates this, this giant dice roll of creating enough variability so people can survive and adapt to changing environment.

So that's why there's this variability in all these responses. And so now the reason I'm sharing that is because there's a lot of people, including me or I used to, to be very blamey in other othering of my body, that, that my body was, was, was damaged and weak and, and like a curse.

And when I actually studied evolutionary biology, I was like, oh, there's just a mismatch in the environment. My body is just ideally suited for a different environment.

It's not my body's fault. I was just born into a thing that, you know, environment that wasn't around, you know, until 150 years ago. So it decreased this level of ambient hostility.

I had an resentment towards my body and a lot of people who struggle with health problems carry this ambient level of hostility and convert resentment towards their own body.

And I just want to tell people that's real. The resentment and hostility is real. And you truly your body's trying to do its best to keep you alive and help you.

It it truly is. It's just there may be a mismatch in the environment. Some of it's thrust upon you. And a lot of it can be personal choices that you don't realize are hurting you. So we want information to be just enough, but not blazing to an inferno or stick around chronically from this burning coal, this this embers.

So the genetics testing can help you figure out exactly how you are being pro-inflammatory and what exact things that you can do. The other thing about genetics testing these days is you can now dial in your diet are you Kito Paleo Mediterranean or high carb and this is especially a genetic test that's looking at the duplicates of a specific gene, not the variation of it.

So it's looking at the number of canons that spit out the enzyme that breaks down carbohydrates. If you have very few of these canons, you're more suited towards a kito or paleo diet.

If you've got a moderate level, you're Mediterranean. And if you've got a bunch of them, you're actually high carb. I radically improved my diet when I realized that I was a kito slash straddling paleo genetics.

Now that was my genetics and I had the perfect Portlandia Mediterranean diet. I knew the names of my farmers and their chickens, and the grain was grown by left handed monks in the South Island of New Zealand, growing quinoa, blah blah, like all this other stuff.

And it was still my energy was going up and down. I was not feeling the terrible gas like it was. It was awful. And then I got my genetics done. I was like, Oh, I'm actually not a mediterranean person.

I'm a Quito Paleo person. Within one week, my digestive problems in 20 years went away. When we. Wow. And there are high carb people, it's the people who fight over.

No, it's paleo. No, it's ketones. Meditate. No, get tested. All of you just get tested and be done with it and stop bickering. The other thing that's important about genetics, it's relevance to the gut and thyroid is vitamin D absorption utilization.

A lot of people can't actually synthesize vitamin D, especially from the Sun, and so they need it from diet and supplements. And even if they do that, they may not be able to use it properly because their vitamin D receptors may be bunk.

And so they need to repair the docking sites to actually use vitamin D. And by the way, the main point of vitamin D is not bone. The main point is to control inflammation and your immune system.

Bone is a part of it, but it's not the only thing. So the genetics can be massively helpful. For me, my inflammation. I had joint pain like, an 80 year old man in my early thirties and I didn't understand why.

So I ran my genetics and I realized I was a hyper inflamed. I changed my diet and my my nutrients according to my genes. And the joint pain I had for years went away because I was dosing according to my genetics is actually the nutritional dosing that was neutral genomic dosing you some people need way higher doses of certain nutrients because their genetics requires it and that that's a whole longer discussion.

But I'm just kind of seeding it here. Genetics is a massive window that's separate from functional testing. Genetics is about where your optimal is and what your tendencies are and where your genetic fault lines lay.

But it is not the thumbprint of where you are now. Where you are now is all of these tests. This is what's what's going on in your system. Now, the genetics is is, again, ideal tendencies and fault lines, but they converge.

That's it's all helpful. It's all useful. But there are different windows into the health, into your health. Awesome. Great. Thank you so much for that talk.

That was amazing. Really connected a lot of dots. So our participants the best way to connect with you is to go to your website. Is that correct? Are you on social media? And yeah, the social media, I mean, people can go onto they put in Dr.

Sam Shay into Facebook. If they want to see some of my stand up comedy, they can go to YouTube. I also have like 100 other videos on on health, wellness, podcasts and summits, etc.

I'm on YouTube channel, but really the reason to go is to go to my stand up comedy. Actually, the whole point of this whole summit interview is just a ruse to get people to go watch my stand up comedy.

Thank you, John. That was the real point of the whole this this whole thing was to go see that. I really liked it. So I'm going to be that. That's probably going to be what I'm going to watch tonight.

Some of your standup comedy. I'm excited that. Part part. Of our show. Thank you so. Much. Yeah, you're welcome. Part of part standup comedy is I have Asperger's and I wish someone told me what that was 30 years ago.

So I'm actually using part of my comedy, aside from talking about natural health and all the hilarity there. And I actually talk about use comedy as a vehicle to explain Asperger's because I wish someone had taken 15 minutes to explain it to me.

So I'm not using comedy to make it palatable and social media to make it scalable to help other people, both the people who have Aspie relatives or friends and the people who have Asperger's themselves.

Well, that's great. Well, thank you so much for sharing your knowledge and laughter's medicine. So everyone check out your comedy, too. Thanks, John. Appreciate it.