



Episode 53:

The 5 Layers to Determine your Optimal Diet & Increase your Energy with Dr. Samuel Shay and Evan H. Hirsch, MD

[00:00:00] **Evan H. Hirsch, MD:** Hello and welcome to the FIX YOUR FATIGUE podcast. Whether you can't get out of bed in the morning, your energy crashes throughout the day, or you're a biohacker looking to optimize your energy, productivity and focus. This podcast is for you. I am Dr. Evan Hirsch. And I will be your host on your journey to resolving fatigue and optimizing your energy. And we'll be interviewing some of the top leaders in the world on fatigue resolution. Welcome.

Hey, everybody. 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. So they can be happier, have more fun and more success in every aspect of their lives. So today I'm really excited because we're gonna be talking about one of the 33 causes that we deal with, which is diet. Food nutrition with my friend, Dr. Sam Shay. And so let's learn about Sam. So Dr. Sam Shay helps busy health conscious entrepreneurs and mompreneurs attain and sustain health perform high performance so that they can create more freedom for themselves and others. He has dedicated his life to helping others through functional medicine and functional genetic. Dr. Shay walks, walked his own health journey from being chronically unwell from age six to 18, including severe fatigue, anxiety, digestive problems, chronic pain, severe insomnia, and poor nutrition. He dedicated his life to natural medicine to get himself and others. Well, which led him to functional medicine and functional testing. Dr. Shay is known as a lab nerd creating customized programs for his clients based on testing. Dr. Shay has recently authored a new e-book on genetics, where you can learn the different types of genetic based weight gain, how to Futureproof your brain food triggers, how to genetically determine your optimal carb tolerance, vitamin D absorption and immunity support. And one thing that's not in his bio is he's also a wonderful comedian. So check him out on YouTube. Dr. Sam, thanks so much for hanging out with me.

[00:02:13] **Dr. Sam Shay:** Yeah to be on brand the 33 causes of fatigue. Did I hear that correct?

[00:02:18] **Evan H. Hirsch, MD:** That's right.

[00:02:18] **Dr. Sam Shay:** Whoa was 34 to too many.

[00:02:22] **Evan H. Hirsch, MD:** it's true. I figured I'd stop at 33.

[00:02:24] **Dr. Sam Shay:** Like, it's a very auspicious number.

I was like, I don't know. It's sounds a little suspicious to me. Okay.

[00:02:31] **Evan H. Hirsch, MD:** wonderful. Well, thank you so much for joining me today.

[00:02:33] **Dr. Sam Shay:** Multiple of high. Sorry. It's not a multiple of hi. I mean, I expect to be 36 at least there, uh, Evan, you know, you can be out brand.

[00:02:40] **Evan H. Hirsch, MD:** I was thinking about, I just couldn't get those three more. I'm sure they'll come up at some point.

[00:02:44] **Dr. Sam Shay:** I'll help you out, you know?

[00:02:45] **Evan H. Hirsch, MD:** Thank you. Thank you.

[00:02:46] **Dr. Sam Shay:** One of the tribe will help you out. All right.

[00:02:48] **Evan H. Hirsch, MD:** Thank you. so we're gonna be talking about. Five layers to determine your optimal diet and increase your energy. And I'm super excited about that, because I have no clue what these five layers are. So let's, let's talk about, um, how to determine like one's diet, like in terms of like the benefits, like why is it important to, um, optimize your diet to figure out what you're supposed to eat?

[00:03:14] **Dr. Sam Shay:** Sure. So there's one, I come from a really long circuitous. Baffling and confusing disarray experience of trying to figure out one diet to the next, over the approximately 25 years of been in natural health. And I don't know if this is true for other people watching watch watching. Wow. I just combined watching and listening. That's that was unintentional. That's hilarious. Anyone who is watching or listening? Uh, this is a typical experience. I feel unwell. I've tried a bunch of things. Someone explained this diet to me, and there's a person or a book or a personality, or, or it was on a show or whatever the diet makes sense. I tried it. I felt a change. It wasn't sustainable, you know, for whatever reason. And now I'm paranoid about this particular group of foods. And then. Maybe it's not this diet, maybe it's this diet. And then they try and they just, they just keep going on from one diet to the next to the next, next, next, next. And, and what happens is that people get, uh, diet fatigue. There you go. 34. No, they get diet fatigue and. Actually the 35th car, the 35th fatigue then is if too many people are on, uh, they, they watch too many summits on natural health. They get summit fatigue.

[00:04:30] **Evan H. Hirsch, MD:** Definitely. Yes.

[00:04:32] **Dr. Sam Shay:** 35. We'll get to 30. We'll get there. We'll get there. Yeah. So, um, One of the things that people really get and benefit from knowing what their optimal diet is, is the end of confusion. And with the full understanding that that true diet true optimal diet is customized. And it also explains why certain diets work for certain people and not for others, because what happens is that people. Some people do excellent at certain diets and they write whole books and build up entire businesses around it and, and media empires and all sorts of other things. And they help a lot of people. And then there is a meaningful percentage, some smaller, some larger where those diets don't work for other people. And then it becomes this entire. Weird kind of medical gas lighting. Well, my diet works. You just need to do it harder. And this is happens in the paleo community. This happens in the keto community. This certainly happens in the vegan community where it's, it's almost like you're expelled from the, the tribe. If you dare even smell meat, you know, and we we've have a mutual colleagues who, uh, came out who were vegan for 10 years and then they stopped because it wasn't working for them for that duration. And they got lost one third of their list. You know, when they suddenly admitted to the sin of, of eating meat and diet is so wrapped up in seeing people's personal politics, their, their environment, their identity, their, their culture, their history, their family, their personal preferences, their health, their all sorts of things.

That diet becomes this, this monolith, and to just get clarity based on data. Will one bring clarity to oneself and also allow one to have compassion understanding for how other diets are generally different for other people. That's one benefit. The other benefit can be just simple longevity that if you're eating incongruently, you are going to have a shorter life period full stop. The other thing is that it's going to stave off certain, um, it's really certain other health processes. So for example, if people are worried about dementia or neurodegeneration or things like that, and I know this, this focuses on fatigue, but. My wife, it's just in front of mine because my father has dementia at the moment. And he, uh, you know, things like dementia Alzheimer's is another word for it. It's called type three diabetes. Mm-hmm sounds diet related to me, you know, really does really, does they give that name and that's the Western community giving it that name? Definitely diet related. Then the other benefit is they save lots of money. People you can. I estimate people can save at least \$50,000 over the long term if they know their optimal diet. Uh, for example, the a, a R P identified the average cost of memory care in 2021 annual cost is \$83,220. I just, I just went to their website, looked at what the average was across the states and multiplied it by 12 monthly, you get \$83,000 a year there's your \$50,000 savings right there. If neurodegeneration is on your mind. Hopefully not in your mind. The. That's just neurodegeneration much less all the money you'd save on fad diets, bandaids supplements, uh, confusion, going to all sorts of different rabbit trails around diet. And when I say bandaids supplements, sometimes people feel like they get deficient, cuz they're on the wrong diet for them. They, they become deficient cuz they're on the wrong diet for them when they should be ideally switching to a better diet. Mm-hmm the other thing. The other reason which I think everyone can appreciate is it's gonna give back at least 50 minutes of low quality time per. And when I say that I'm being, I'm being technical, here's why according to distraction science or interruption science. Yes, that is a thing. Interruption science is a field, a single interruption from a high focused task takes on average 23 minutes and 15 seconds to return back to the same level of focus. Wow. So if. You are not eating a congruent diet and then you're foraging for food, whether it's foraging in your thoughts or you just happen to find yourself opening the fridge for the 37 time. You know, that is a distraction. So if I'm being generous and assume people forage for a minimum of twice a day and they take about a minute to, and a half to two minutes. Let's just call it two minutes. They do that twice a day. That's two minutes, plus at least 23 minutes to recalibrate that's 25 minutes each at least 50 minutes a day. There's the mathematics of distraction because you were not in your optimal diet. So the, the benefits are huge longer life. The prevention of diet based diseases. The. Saving of, of tons of money, uh, over the long term. And on a day to day basis, you get a higher quality of life where you're not stuck in this foraging loop.

[00:09:47] **Evan H. Hirsch, MD:** Brilliant. Those are, those are all amazing benefits. And so then, so we're all on the same page. How do you define diet?

[00:09:54] **Dr. Sam Shay:** I would there there's there's macro and micro. So diet can be viewed on the micro level. What's in front of your plate and then on a, on, on a slightly larger it's what's in your fridge and cupboard, and then in a macro it's like, what is the. Enduring relationship you have with the food that you consume, that forms a regular pattern month to month, year to year, that goes through some ebb and flows with the seasons of the year or the seasons of your life holidays, travel family, et cetera, but diet on the long arc is what are the familiar patterns that stream through your timeline of your life? Diets do change and shift, and I'll show you in the five layer model exactly how they can change and shift and pivot appropriately, given your circumstance. I mean, we're, I mean like genetics is one aspect that doesn't change, but there's other layers that do, and this is where you have the adaptability that people need. Around their diet. It's it's not, when I say everyone has a, everyone has an ideal diet. Everyone has a, everyone has an ideal diet diet includes what's the rock solid genetic foundations. And then all the fuzziness on top of it that you have to take into account for living in the world you live in.

[00:11:14] **Evan H. Hirsch, MD:** All right, let's do it. Let's jump into the fuzziness. What are those five layers?

[00:11:19] **Dr. Sam Shay:** So we fuzzy. I hope it's be warm and fuzzy when we jump in. um, do, uh, I have a visual I can share. Yeah. Okay. Let me give you permission. So sure. Okay, awesome. I get, I get permission. I do feel warm and fuzzy. See, we made it

[00:11:35] **Evan H. Hirsch, MD:** and we'll just explain it for those of you who are listening and not watching.

[00:11:39] **Dr. Sam Shay:** Yeah. Yeah. I'll we'll, I'll definitely make, make sure that, uh, I talk visually. So for the five layers of the follow, the it's a, it's say pyramid shape, the very bottom layer, the widest and biggest layer is the genetic layer that is. That's the layer that is the foundation for your optimal performance and optimal health. Your diet, your genetics. We'll tell you multiple things. For example, what is your, are what's your carb tolerance? Are you genetically best suited for keto Mediterranean paleo or high carb? Sorry, keto Mediterranean, paleo or high carb. And that's in the increasing order of carb consumption and there's shades of gray. There's actually lower carb, Mediterranean and higher carb Mediterranean lower carb Mediterranean is, is higher carbs than high carb paleo. And then there's low carb, paleo, and then there's keto. So there's a wide spectrum of one's carb tolerance. And, uh, when people, if, if people understand that that has a massive effect on all your meals going out for, for the rest of your life. Additionally, genetics will tell you. Uh, what your inbuilt food triggers are. So for example, uh, what's your genetic relationship to gluten and say, celiac, if some people have a genetic risk of celiac, then gluten is off the table, period, full stop. If you know, you're like where we come from and we got lactose issues, you know, it's very common, you know, I don't know. I don't know what, pardon me. I don't know. uh, culinary Jewish masochist decided to tell us to eat bagels and cream cheese for years. But to me, like, to me, it's like the indigestion is coming from inside the house. like, we we've like we've got the, the, the indigestion that comes from genetic vulnerability to gluten and dairy. That those are two examples. Other examples are your genetic relationship to alcohol. Some people are fast. Metabolizers some people very slow metabolizers of alcohol. Some people are genetically reactive to salt, and that's not just about blood pressure that actually can reveal if people have trouble losing the surface layer of weight. And it's like this puffy watery weight that washes out their muscles, no matter how much they exercise and they're not able to get rid of it. They may actually have a genetic vulnerability to salt, which increases water retention. And so the weight that's on the top of their body, isn't calories. It's actually water. The other genetic vulnerability. This is the really interesting one that I discovered when I did the, the genetics here is caffeine induced, anxiety and depression, caffeine induced, anxiety, and depression. I was told that coffee was good for me, especially if I drowned it in modified coconut oil and lots of, you know, and other things. And I thought, oh, this I'm I'm healthy. And I would have like the most. You know, bullet proofy coffee ever. And I would still be, and, and it just, it felt off. And I, and I was confusing anxiety for energy, and I think there's a lot of people out there that have this issue where they, they have certain genetic SNPs that make caffeine, uh, actually counterproductive, but they can think that they are having energy, but really what they're having is anxiety. And once I got my genetics back, I cut caffeine and I switched to. Non caffeine. Adaptogenic alternatives. And that has made a massive difference in my mood. Now, some for a lot of people, coffee is fine. They metabolize it and they don't have that risk. But for a lot of people, they really need to sit down. I'll ask audience to reflect on, does caffeine give me anxiety or energy? Am I, am I, am I conflating the two? The other one is people's histamine intolerance. Now histamine is, uh, a, a complex subject, but to simplify it, a histamine is your. It's part of your really simplified it's part of an inflammatory response. So for example, if a bee stings your arm, the bee did not inject a half quart of liquid into your arm when it swells up, that's not what happens. It's it's the, it's a venom and the body's inflammatory responses. Oh, look something that's going to corrode tissues and will make us die. So what they, what the body does is it sends histamine to. Internally flood the area with water swell up to do what dilute venom so that it won't corrode your tissues, which makes total sense. Mm-hmm but we're dealing with this evolutionary balance. If I have, I want enough water to dilute the venom. But not too much that it chokes off arteries joints or, or nerves or causes damage from the sheer pressure of, and the distortion of the water.

So there's this genetic variation like it's. Better to have a higher histamine response, if you're likely to, if, if, if you're in a high venom situation, uh, but it's not so good if it causes damage to your, to your structure from choking off artery's nerves, et cetera. So some people have a higher histamine response now, unless you're, you know, you're on, um, an episode of jackass, you're not gonna be eating bees. So what, how is that related to diet? It's that there's there's food. Three types of histamine inducing foods. There's foods that have high histamine in them. There's foods that increase the release of histamine from like the mast cells inside the body. So you, it internally generates the histamine. From within, doesn't bring it from without necessary. And then the third type of foods are the foods that block the enzyme that breaks down and removes histamine. So there are foods that have three separate mechanisms, either, uh, three separate mechanisms to increase histamine in the body, which means that instead of a, it's like a beasting in your arm, when you eat any of these three types of foods. Your digestive system and through your whole body, it's like a slow moving global bee sting. So you get this kind of inflammatory swelling response where you have this global inflammatory reaction through your system. And that's another reason why people who can struggle to lose weight despite exercising and eating, like there's a lot of. Really high quality quote, healthy food that is healthy, but happens to be higher in histamine that some people are very reactive to histamine. They may not realize like that's actually what's causing this water weight and inflammation in their system, even though it's like good food. So. If you genetically identify, if you are histamine sensitive, then, then you can go through the hard yards of actually removing the histamine based foods. If you are genetically vulnerable to it and then reap the benefits they're in other things that come in with the learning, the genetics layer is, uh, understanding your relation to food allergens in general, there's about a dozen major genes that just collectively look at your response to food allergenicity. So for people who are. Have like larger swaths of these genes that have negative the jargons negative variants, but have like bad copies and air quotes of these genes, they would do very well in elimination, style, diet modified by all these other things we're gonna talk about. Then there's other things on the genetics, like understanding your behavior, relationships with foods, such as your relationship to bitter foods. Some people are super tasters for bitter, that means that they will on the one. Avoid coffee, alcohol and, uh, red wine, like beer, like beer and red wine, but they will also avoid cruciferous vegetables cuz they tend to be bitter. No, some people may avoid them from, you know, aviation themed food trauma here comes the plane, you know, the biggest Brussels sprout in the world when you're five years old. So you'll avoid. Those foods for that reason. My, but some people are genuinely averse to the taste of bitter and some people have no don't really taste bitter so they can have all the cruciferous vegetables all day. And if people are genetically averse to bitter, they will avoid, you know, a hundred, 200 pounds of crucifer, uh, vegetable matter a year, which adds up. Because they're just avoiding vegetables. And so the thing there is not to increase willpower. If you have a genetic vulnerability, it's that uh, knowing your genetic vulnerabilities, you change your environment, you Tru your environment, not your willpower. So how do you change your environment? Well, there's four separate ways that I dug around when the chef. Ecosystem cheffing ecosystem to figure out how could you hide the, the taste of bitter, just through simple cooking methods so that you can just change your culinary environment to take in foods you'd otherwise avoid. And then there's other genes, like, are you genetically vulnerable to. Being a, a super liker of sugar or you avoid sugar. And then the other thing is consumption of sugar. Some people genetically, like there's some people who are like, oh, I love sugar, but I just need one little thing of chocolate. And I'm good. I hate these people because some people genetic like me, they're like, I need like three bars. Like I just crave just one. Bar, maybe one dozen bars of chocolate, you know, and that can be a genetic thing. And again, it goes to willpower, not a versus environment. I lo like I do not keep things, certain things in the house I'm smarter. Uh, I, I, I am not, I'm smarter than bread. I'm not stronger than it. mm-hmm so I just won't have it in the house. Like I I'm smart, but I'm not that I it's just, I can. My gen, I'm not gonna fight my willpower. I'm just gonna change my environment. So the genetics layer is super important. I, I feel that, uh, it, once people learn this foundation, then everything else makes more sense. The second layer is the therapeutic layer.

Now what do I mean by therapeutic layer? This is, is your current system in a state of imbalance. That needs a temporary dietary or other therapeutic interventions in order to get to your genetics. I call this your genetics are wrapped in metabolic barbed wire of two examples on either extreme one. Someone is genetically keto, meaning they have high. They do really well on high fat, however, they're they have a ongo, they have a current real problem with their gallbladder and or pancreas. And or gut and or carnitine shuttle and, or mitochondria where they can't digest, absorb shuttle or use fats properly that then if they eat high fat, they're gonna feel way off cuz they can't use it even though they're genetically predisposed to using it. And if they go low fat in order to bypass how awful they feel when they, because their gallbladder, you know, gallbladder or pancreas, the carnitine shuttle, they're not working. They're gonna feel better on that, but they're not gonna feel good cuz now it's going against their genetic predispositions. Similarly, someone's genetically high carb. If they have a candida infection or any other type of infection that feeds off of carbs. If they eat high carb for their genetics, it's gonna cause the infection to. CIBA, whatever it may be. So now we have the metabolic barbed wire of an infection that's wrapping the high carb genetics. So then the thing to do is we have to go through the therapeutic layer and defang that barbed wire to then end up on the other side with, with their genetic foundations. Does that make sense?

[00:23:40] **Evan H. Hirsch, MD:** It does.

[00:23:41] **Dr. Sam Shay:** Yeah, this and this is, this is one of the most profound findings, uh, for people. Who've been struggling for years to figure out their diet, because this is, this is the exact archetype, uh, client. I've tried every diet and every diet makes me feel awful. I don't understand. It's not fair. Some, I know people who do keto, they feel great new people who do Mediterranean. They do great people do high cottage. People do FOD maps, this and low L and that, and they can just run through whatever was thirty hundred books on diet are published a year. I don't know. So it's and, and they get so frustrated because there is no diet that works. And my discovery is that it doesn't work because there's, you're always in competition. There's some conflicting nature. Mm-hmm, always at, at play. That's why it's not working. And what we have to do for in that case is run both the genetics. And also the functional testing cuz the functional testing is in the therapeutic layer check gut testing obviously, uh, would be one of them, uh, looking at mitochondria like the ion panel or Omex or whatever, looking at hormone systems like adrenals of a huge impact on the immunity of the gut. We can nerd out on secretary IG antibodies later, if there's time at the end, you know, the, uh, this, the functional testing all is in the therapeutic layer, which is different from genetics testing. I separate them out. Genetics testing is a separate phenomenon. From functional testing, they answer different questions. Both are critical. Particularly if someone is struggling with their diet, they don't, and they just feel trapped. They have both things are going on, they're in conflict. Then the third layer is preference. So preference is you can identify the, the, you know, we can go through the genetics layer and all the therapeutics and all the rest of it. But people have their personal preferences. Some people like certain foods and they don't. So they, this has to do. The culture they were raised in their household. Uh, the, there is a genetic component of preference, like taste, bud, you know, taste bud sensitivities, like we mentioned earlier. People have to account for what is it I actually like to eat and it may be a texture thing. It may be a flavor thing. It may be whatever it might be. And that has to be honored and taken to account because I can give someone the perfect diet, but it's nothing that they want to eat. You know, that's impractical. So there, there has to be some allowance for, for flexibility. Um, by the way, by drawing back to the therapeutic, the therapeutic thing changes over time and over one's life based on your, your medical. Like, for example, if some, if, if, if, if there's a pregnancy like diet changes, you know, if someone, uh, had a bad accident and they need to have a specific diet, that's radically extra anti-inflammatory versus, you know, Just a normal everyday fair. So the therapeutic layer adapts based on someone's current health status or just their, or what they're going through in their life. The, so with genetics, the first layer therapeutic, the second layer preference, the third layer, the fourth layer is access. This is one that's not talked about and that's unfortunate access is okay.

Do I live. Within a 15 minute drive of a farmer's market that has all organic foods and they know the names of the chickens and the cows and everything else. And, and, and all that. Uh, or are you in this food desert? Do you have the time, the money, the logistics to source acquire prep, eat clean store. Fresh perfect food, every single meal for the rest of your life. What if you travel? What if you go out, you know, what, if you go out to eat for a business or social event, like that changes your access, like it's, um, mm-hmm, , uh, uh, access is, is a, is something also that changes over time, based on your location, based on your circumstances, based on your resources. And, uh, I can't give someone who lives in a food desert, you know, Just here's here's the out of the box diet plan with all the checklists good luck that doesn't take into account there on the ground reality, right? Then the last layer is earth. And this is how your diet through your best understanding of your diet, I should say, affects the environ, your lo your environment, your politics, and the economy. Now, when I say your understanding of it, Everyone has different opinions about politics environment and the economy. And I'm not gonna go into details of that. I don't need to, certainly don't want to, and, but people can respect that reality. And some, you, you see this, you see this mostly in, in the, you know, in the meat debate, it's, you know, like what is, how, how is eating meat affect earth now for ex I have looked at numbers. It's about two, uh, uh, factory farms, you know, according to one website, it's about 2000 gallons of water for every one pound of beef. That's that's one estimation. Okay. And then that, there's the claim that it's only 300 gallons of water per one pound of like rice, corn, and, uh, wheat, uh, for any of those. And then. Then looked at the pasture fed and finished farmers who rebutted this claim and they showed their numbers. Like actually we, it's only 150 gallons of water for a complete pasture fed and finished beef. So fully half the usage of water compared to rice, corn, and, um, wheat water now, uh, Then you come down to it's an access issue. Do you have access to pasture fed and finished beef? And for the other thing, we talk about agriculture, like almonds take about 2000 gallons of water for per pound. That's one reason, like I actually try to minimize. My almond consumption when I learned about that, because that that's a lot of water for one pound of almonds. Now I happen to be in an area that I have plenty of access to pasture fed and finished beef. I buy a quarter cow, you know, I happen to be extremely low carb. Um, in fact, I was eating, um, because that matches my. My genetics, I was eating the most perfect port Landia diet ever. I knew the names of my farmers, their chickens, the quinoa was grown on a full moon and picked by lefthanded monks and all that. and I was still having digestive problems and energy swings and you know, gas that was bad enough that could kill flies, melt, paint, and empty yoga. And, uh, side Ben additional benefit of, uh, you know, you've sure you've been in that yoga class, right? so, so side benefit of finding your optimal diet, you have more yoga friends so when, when I switched my diet and when I did ran my genetics on my, uh, carb tolerance, I had the second lowest carb tolerance possible, similar to that as somewhat like an Inuit and. Within one week of changing my diet to my genetic foundations, my gas and digestive problems of over 20 years went away one week. And the reason why it was longer than a week, cuz I held out on the paleo bread air quotes, the paleo bread, you know, the bread that's supposed to be, you know, paleo. Well, when you read the fine print and in, and you look very, very carefully, there's a lot of what. Arrow root powder. I think it was arrow root powder, which is technically a root, super high carbs. Okay. But technically paleo, cuz it's a root, you know, Uh, I was kidding myself. I literally was looking at the thing of paleo bread in full denial because it says paleo, that means I can have it. I , it says it on the label. Uh, no, uh, that's another reason I keep bread outta the bread outta the house. So those are the, those are the five layers and some people would say that earth is the most important layer. And I say, absolutely not. I say the first thing to do is figure out your genetics layer and then adapt your wider concerns, to that. Figure out what works best for you, healthwise. And then there's a lot of flexibility in how you engage with the environment, the economy and politics. That's harmonic with your, uh, with your belief systems. This is the five layers, just a quick summary, genetics, therapeutic preference, access earth. That's that's the five layer.

[00:32:44] **Evan H. Hirsch, MD:** Yeah, I love it. Cuz you're, you're not only just taking into account the individual, but you're also then taking into account their particular situation at the time, their culture, uh, in terms of like preferences, you know, like what you grew up with and then these other social political issues on access and earth. So it's very. Um, multifaceted, very layered as maybe you would call it maybe a five layered, um, approach.

[00:33:13] **Dr. Sam Shay:** Well, actually does say it right there.

[00:33:15] **Evan H. Hirsch, MD:** Oh my gosh. How about that? Yeah. I love it. It's great. No,

[00:33:17] **Dr. Sam Shay:** and right, right there in black and white writing there

[00:33:19] **Evan H. Hirsch, MD:** yes, it does. Yeah. That was my attempt to actually

[00:33:23] **Dr. Sam Shay:** great, great job there, Dr. Media

[00:33:24] **Evan H. Hirsch, MD:** here, but you know, but yeah. So let's talk a little bit about the,

[00:33:28] **Dr. Sam Shay:** you write a book didn't you? I can't remember very much. . Like where, like no words.

[00:33:33] **Evan H. Hirsch, MD:** Exactly. So let's talk about genetics. You know, most of the time when we talk about health issues, we say they're, you know, 20% genetic and 80% environmental, but in this case, genetics is kind of like the biggest part of this pyramid. Can you talk a little bit about maybe that push and pull between environment and genetics?

[00:33:55] **Dr. Sam Shay:** Yeah. So if, uh, I mean, we can just go back to my. You know, yoga analogy there, yoga room analogy. If I am eating Inc congruently from my genetics, there's going to be consequences of which other people suffer most of in this particular case in CLO, in a small room with no ventilation. So the, what, what happens with genetics is, uh, Uh, people have this, this playing field, it's their genetic playing field. And some people have a bigger genetic playing field than others, or it's a different, it's a different shape or there's certain parts of it that are more in bounds and some more that are out of bounds. And if you know your genetics, then you know what, where your playing field is and, and where you can play within. Uh, another analogy is, um, There was a, when I was in college, there was a professor there that was a classically trained, uh, Indian flutist. And so he, that, I mean, the, I mean, he played, I couldn't believe what I was seeing when I saw him play the flute. It was unbelievable. And he, in that tradition, they have something called raagas and, and raagas are, I'm gonna be super clumsy in my definition sphere, but it's basically like, Uh, it's not a melody. It's it's, it's like, there's a specific pattern. There you go. It's the pattern of how you play. And he says, there's, he said there's thousands of raagas, but one can only master maybe a dozen or so in one's lifetime, ma like truly master them. He said a ragga is a cage and you must learn how to fly within the cage. That's what genetics is. You must learn how to fly within your cage. Hmm. So when you learn your genetics, then the rest is how to fly. And if you don't. And if you are operating outside your genetic boundaries, then your wings get clipped and you fall to the floor and there's poop there. And the net, we can go as far into the analog as we want. Uh so, uh, I had a bird and I'm thinking of the bird cage now. So I gotta get that image on my head. Anyway, my, uh, Uh, environment, environment, everything you do is interpreted through your genetics, what you eat, how you think, how you move is interpreted through your genetics and what you express. I, if you have people with the exact same lifestyle, identical lifestyle, they're going down the same highway, but genes, you know, what diseases or, or issues manifest there's different exits. So some people, they careen into this exit, other, but they don't careen into the other exit. That's the other person does, so they can have the exact same lifestyle.

But what entries and exits are different based on your genetics? I, I think that, I think we're swimming in enough metaphors here. So to add in another metaphor of swimming all the way onto birds and driving and playing fields. So

[00:36:56] **Evan H. Hirsch, MD:** well done well done. I'm not sure you could get another one in there.

[00:37:00] **Dr. Sam Shay:** We try, I can always aspire.

[00:37:02] **Evan H. Hirsch, MD:** So then, you know, people are probably familiar with the adage that, you know, genetics loads, the gun and the environment pulls the trigger

[00:37:08] **Dr. Sam Shay:** trigger.

[00:37:09] **Evan H. Hirsch, MD:** Whether that environment is, uh, food.

[00:37:12] **Dr. Sam Shay:** That is it. Wait, that is another metaphor. Wait a minute.

[00:37:14] **Evan H. Hirsch, MD:** It is another metaphor. Oops. Whether it's foods or whether it's heavy, metals, chemicals, molds, infections, allergies, negative emotional patterns. Like all that sort of stuff

[00:37:23] **Dr. Sam Shay:** got 33 things. Is this a thing you're doing you list?

[00:37:26] **Evan H. Hirsch, MD:** That's that's some of them that's some of them. Right.

[00:37:28] **Dr. Sam Shay:** Okay, just checking.

[00:37:29] **Evan H. Hirsch, MD:** But those are those things that pull the trigger. Right. Would you agree with genetics loading the gun environment, pulling the trigger or is that old thinking?

[00:37:37] **Dr. Sam Shay:** um, the thing that's missing is the feedback loop. That's the, the, the problem, the problem with that metaphor is that it's also a self-loading gun. In certain, in certain respects, like, like the metaphor is useful for a meaningful percentage of one's entire lived experience. But, but there's also a feedback loop that goes on as well, that your genetic part, so it was someone's if the environment is the environ, you're living your hyper reactive to histamine or whatever. and there's um, how would I. No, no, there's a, there's a better, there's a better analogy. So somewhat like I've overcome. Uh, I've overcome two addictions, sugar, and video games are quite public about it. I have lots of writings on it. I'm not gonna go into the details of that. I will use that as an example of someone can have a, someone can have a, a predisposition, genetically to get very looped into their dopamine react reactivities and start the, the, the molecule of more of, of craving, you know? Spinning and you get this environmental input and you have this genetic predisposition, which then drives to engage with more of the environmental input, which then further stimulates the genetic vulnerability. And it just creates this feedback loop. And that's what I'm talking about is that the, the, in some genetic cases, it's a self-loading gun and that's, that's where the metaphor needs, needs. Some more nuance.

[00:39:07] **Evan H. Hirsch, MD:** Okay. And it's self-loading or it's, it's self-loading in the sense that there's ways that we are triggering our own genetics,

[00:39:15] **Dr. Sam Shay:** the genetics then drives the environmental behavior, which then feeds the genetics to then drive the further environmental behavior. That's what I mean by self-loading.

[00:39:24] **Evan H. Hirsch, MD:** Okay. And in the. In the history or in the evolution of genetics and genetic testing. I'm really glad that you mentioned at one point that there were like 12 different genes that you're looking at that kind of, or, uh, understand that are able to talk about something. I can't remember what it was exactly, but

[00:39:42] **Dr. Sam Shay:** food allergens. The, the, the. About a dozen or so food allergenicity genes. Yeah.

[00:39:47] **Evan H. Hirsch, MD:** Okay. And so then in terms of genetics now, and their ability for like these lab tests to give us accurate answers, where are we at in that? I mean, do we know everything there is to know about genetics? And if there are multiple genes that, that are need to inform us about different things, do we know. All of those different genes that can inform us or is it enough? Yeah, I'm just curious where we're at.

[00:40:14] **Dr. Sam Shay:** Okay. So there's, there's a, there's, there's many layers to answer that question on, on, on one hand, knowledge is doubling roughly every two years in a given field. Maybe it's faster these days, so that's number one. Uh, so whatever we know now, uh, there'll be, it'll be whatever we know now is a lot less than what it's gonna be in the next two years. And that's one reason why we call. You know, at a practice is because we go based on the knowledge we have the best knowledge we have that we're exposed to today and where as long as we keep learning and keep growing, we keep layering all of our information. We just keep moving forward. Uh, and that's, that is what. That's one reason why, you know, you and I are on such podcasts, make such podcasts, listen to other podcasts, to, and, and also go to conferences and talk to colleagues and, and know interview other et cetera is because it, we need to stay ahead of the game to make sure that we are on know the most up to date material in the field of genetics. There's a couple things that are going. Uh, one, you have the attitude of, we need every gene and we're just we'll the AI will figure it out and we'll just. You know, spit out the 500 genes related to health, and here's your 500 health tips, really one, you know, health tip per gene, and it's not organized or prioritized. Here you go. Good luck. And that's most of the experience that people have when they go to, you know, go through genetic. Platforms like 23 and me or ancestry is they are served up this giant colorful report that basically functions as O serves to confuse overwhelm and ultimately scare and intimidate the people who engage with it because there's too many genes. It it's not prioritized. It's not organized. Everything seems equally important. And, and every gene has one or more specific thing to do. And we can, we can't spend the first 12 hours of our day preparing for the day because our genes are so we, it becomes alarmist mm-hmm and that's not helpful or practical, uh, a different approach. Is that, uh, uh, we don't chase individual genes, some individual genes, like, like super rare genetic disorders, et such. Those are important to really nail down the specific gene. Other genes are looked best as clusters. Like we can look at there's, there's hundreds of genes involved with inflammation, but what are the top 15 genes? Of inflammation that control the hundreds and hundreds underneath them. Let's look at those and then let's not look at individual ones within the 15. Let's look at the pattern of inflammation as such. So one of the panels that I do looks at the 15, most important inflammatory genes. Now for me, I have 13 out of those 15 have negative variants. So am I chasing after interleukin six or TNF alpha or. Inter loop in 10 dash one or, or what, or the CRP dash, whatever. No I'm looking, oh, there's a pattern here with a problem with inflammation as such, therefore I will not try to find 13. Individual lifestyle changes to deal with those 13 separate genes. Instead, I will find based on the peer reviews of research done on humans, not wombats or nematodes, what lifestyle change, diet, exercise, nutrients, et cetera, will beneficially shift the expression of all or most of those genes. So what is the fewest number of lifestyle intervention? That will beneficially shift the behavior of those 15. genes or the rogue ones in my case 13. So just to be clarify, when people say I'm gonna change my genes, no, you're not gonna change your genes unless you're dumb enough to inject CRISPR into your bicep. Just go ask that Russian dude on the internet. , that's a, that that's a thing. Um, uh, this bicep is like the size of this tour.

That's really freaky anyway. Uh, so you're not, so in, in, in genetics we have the yellow, we have the so-called traffic light system, the green, yellow, red. So green is a quote, good gene. The yellow is a quote, bad gene. Red is a quote really bad gene. It's this is very clunky, but that's what the way it is. And if someone has a red and yellow gene, that's what I'm talking about. The 13 out 15 of those or of my inflammatory gene are red or yellow. My lifestyle beha, my lifestyle changes. They don't ever make the yellow and red dots green, they make them behave green. Like mm-hmm green-ish so that's what it's meant by epigenetics. Epigenetics is the green and yellow. Sorry. The red and yellow dots are gonna behave more like a green gene, as long as you stay consistent with the right, with the high enough. Consistently the genes, the rogue genes will behave better. Now there's a dosage issue as well that most people don't know about. You know, like fish oil for example, is incredible at shifting most of the pro of most of the pro-inflammatory genes to behave more, uh, to behave more like a green dot, but it's dose matters. So that there's a nutritional dose. I have my one gram fish oil. I had took one gram fish oil for years. Years and years, but there's another term called nutrigenomic dosing, not nutritional nutrigenomic, which means. The high, a higher dose actually changes the gene expression. Uh, I'll make us even, uh, simplify it. You throw, you throw gram a fish oil into the system. It's just throwing widgets into the existing machinery, which is fine. But if you give two grams, three grams, four grams for people that actually need it, you don't just throw widgets into the machinery. You change the machinery. That's the difference. It's there's a dosage issue that you can discover in genetics, someone, if you genetically need way higher amounts of specific nutrients, because your genes are so, um, so much compromise in the environment we have today. I, I, uh, so my approach to genetics is to it's an 80, 20 principle. We're the most important genetic genes to look at. Of those genes to look at. What is the pattern within those genes? Are you an inflammatory weight? Gainer? Are you a toxic hormonal weight gainer based on like liver detox genes and some other like CRP genes and liver, et cetera. Are you a calorie fat weight gainer, by the way, this is the least common. Most people's weight is from inflammatory water weight, just spoiler. Uh, when I've looked at all these, you know, all these gene tests, mom, my. I look at what's the pattern. And then I find the fewest number of lifestyle interventions that beneficially shift the behavior of the most number of the most important genes. That's how you do genetics. One other nuance. The carb tolerance test is not a variant analysis. It's a copy number analysis. It's the number of duplicates of the amylase producing. Not the variant. It's like the number of canons lining the Fort. So I I'm a two in this model. I have two copies of this. Gene means no two canons spitting out amylase to break down carbohydrates. Someone has eight that's, four times the capacity, cuz they're all firing at the same rate mm-hmm so that's how I can determine someone who's keto, paleo Mediterranean or high carb based on a scoring system. Because, and it's not a variant analysis. It's it's additive. It's, it's, it's the number. It's the number of duplicates and that's, that is a three dimensionality to genetics that almost no one knows about or understands. There's a certain genes. It's not the variant. That's important. It's the number of duplicates that's important because the actual variance within that gene is trivial. Like it does, like some variance is like, it does a, it gives you a hundred X output and then like the yellow gives you like 75 and the red gives you 30 other variance. It's like between 197 and like 93, like there's so little variation. It doesn't matter. That's why the duplicates are matter way more. And this is, this is that case. So, so the what's happening in genetics in terms of the, the, the field. Is that you have many different companies. What they're doing is people are as a technology to detect genes gets better and better what's happening is there's more and more clustering. Of genes together as certain packages and like profiles that's that we're leaning, we're leading away from single gene analysis. This one gene causes this. Now it's moving more towards clustering. And then there's other aspects of genetics that are coming out that require different machines and different infrastructure and different analysis to look at the three dimensionality of genetics, which is the number of duplicates. And there may be other things there may be. Other interactions we don't know in the future.

[00:49:44] **Evan H. Hirsch, MD:** So then for the lay person on that, so when you're saying variance, you're basically meaning a change. So if the gene is, is changed from its normal or ideal situation, or it's not red, it's not green, it's yellow

[00:49:59] **Dr. Sam Shay:** or red that the variant means is it a, is it's a yellow or a.

[00:50:03] **Evan H. Hirsch, MD:** Gotcha. Yeah. And then the duplicate. So you're saying that it doesn't matter if it's a yellow or a red in some situations, it's more about, like you said, these canons that are spitting out amylase in this particular case with it, which is a digestive enzyme that allows you to digest carbs. So if you don't have enough of those cans, then you're not digesting carbs as well. And so it has nothing to do or less to do with those actual changes that you're seeing in the gene.

[00:50:29] **Dr. Sam Shay:** It has less to do with the variation of the gene. It's more with the Nu the duplicates of the gene. Okay. Yeah, exactly.

[00:50:35] **Evan H. Hirsch, MD:** Thank you. Yeah. So then, Yeah, lots of really interesting, um, directions that I want to go, but I wanna be respectful of your time. A couple of other questions. So then ideally the best test would be, would it be a genetic test or an epigenetic test? I would, I would say that it's an epigenetic test because if you can actually look at an inflammatory marker and you can see that that's off, it doesn't matter what your genes say, but what's your opinion.

[00:51:07] **Dr. Sam Shay:** Okay. So the answer is, is, is both and neither. Uh, so my here's, so let's, let's use that inflammatory marker example. So some people, uh, need way more of a thing. To drop that inflammation marker based on their genetics. So you can have outta the box protocols to, you know, however much curcumin you wanna shove up someone's nose. You know, it's, some people may need both in nostrils. Like not just one it's it's some people genetically need way like that. Fish oil thing had described you. I need way higher levels of fish oil than the normal human. Because of the inflamm inflammatory issues I got going on.

[00:51:47] **Evan H. Hirsch, MD:** But if you have, if you have really good inflammatory testing, then you're gonna know because you're gonna take one gram and it's not gonna shift your inflammatory markers. And so you're just gonna keep increasing it until the inflammatory markers come down.

[00:52:00] **Dr. Sam Shay:** Yeah, but the thing is with that, it's a practical issue's like, how often am I gonna run those inflammatory protocols?

[00:52:05] **Evan H. Hirsch, MD:** True.

[00:52:06] **Dr. Sam Shay:** You know, I don't, I don't have the luxury of every month getting my inflammatory protocols checked. So, so if I, if I know if I know the genetics, then I, I can understand proper dosing, uh, for longer term protocols. The, the other thing is that. We're gonna pull it back to that metabolic Barb wire, wrapping around your genetics. It's a, it's an ordering if someone's dealing with a lot of stuff. And if I had to pick and choose between therapeutics and genetics, I mean, sorry, a function, epigenetic testing, which is functional testing. That's, you know, like that testing and mitochondria and all the rest of it, I would do the functional stuff first then to defang the metabolic barbed wire. Then I would follow up later with the genetics. So I know what their baseline is going forward so that they, it went so they know what to do for the rest of their life. After the therapeutic period window was closed or window, if the therapeutic issue is, is resolved. That's really, it's an ordering issue if someone's in therapeutic need.

[00:53:09] **Evan H. Hirsch, MD:** Yeah. That's, that's, that's really helpful. So then when you see somebody and they're ill, initially their, it sounds like their genetics for their diet is probably not gonna match with what they need to be consuming because of what you've spoken about. A bulk Barb wire. Yeah. Yeah. That's but once you get the genetics, you've got the genetics and then you can keep coming back to them and saying, okay, this is why this is happening. And then, so all you need to do is get your genetics once.

[00:53:36] **Dr. Sam Shay:** Yeah. You just know where you're going for, you know, where you're aiming. I mean, that, that's one of the other beauties of doing genetics. It's like, if, if someone does all of their genetics and they get it interpreted properly and they have the roadmap for life, and even if they implement all the genetic recommendations and things, aren't working and it's like, oh, guess what? There's a therapeutic layer. There's metabolic Barb wire to deal with first. Go deal with that. Then you come back to the genetics. It's not the test. Wasn't a waste because mm-hmm in fact it was, it was helpful to clarify, you know what? I got some other stuff I gotta layer through first, and then you just come back to it. You know where you're going? You may just have to take a detour or two that's. All right.

[00:54:14] **Evan H. Hirsch, MD:** Wonderful. Well, I could, I could talk to you seriously for another hour. Um, but,

[00:54:19] **Dr. Sam Shay:** but no more, God that'd be way too much. Even for me, I had to exhaust me

[00:54:25] **Evan H. Hirsch, MD:** but so where can people go to learn more about you? Oh, and actually, before we do that, you've got a free gift here. Why don't you stop sharing your screen so I can see a little bit better.

[00:54:33] **Dr. Sam Shay:** Oh, sorry.

[00:54:33] **Evan H. Hirsch, MD:** Yeah. No worries. Um, so you've got a free gift for folks. We're gonna put the link down below. Can you tell us a little bit about this, this free gift?

[00:54:40] **Dr. Sam Shay:** Sure. It's going into much more detail of those five layers. I mean, I've got several, I've got several free eBooks. Uh, this is an E guide on, on specifically the genetics of diet. I I've got a couple other things that expand more into other genetics, but for the purposes of this conversation, that the E guide on the, on the optimal diet is the most appropriate. For people to get access to, they can go to my website, drsamshay.com, D R S A M S H A Y .com. And it's all listed there. I'm also on YouTube. Uh, you can put Dr. Sam Shay into YouTube, there you'll find a whole bunch of my other interviews as well as my standup comedy, because I can't not but help, but, you know, share that the gift of humor. It's like, I think it's funny for whatever that's worth. So there you go.

[00:55:25] **Evan H. Hirsch, MD:** I thought it was funny.

[00:55:26] **Dr. Sam Shay:** At least someone's laughing.

[00:55:27] **Evan H. Hirsch, MD:** Yeah, excellent. And then the, you work with people one on one in groups, courses, what are you doing now?

[00:55:34] **Dr. Sam Shay:** So, uh, I have, I have some courses, uh, and, uh, mostly I work with people one on one. At this point, there will be a point where I'll have to transition to more groups, uh, a as, as things expand. But right now I do work with people individually and they can go to my website. And if, as of this recording, I'm still doing. Chats, you know, they can sign up for a 15 minute, you know, chat with me to see if what I have to offer matches what their needs are.

[00:56:05] **Evan H. Hirsch, MD:** Excellent. And you can see people all over the world. Right? Virtual. Yeah. Wonderful.

[00:56:13] **Dr. Sam Shay:** I was, I was virtual before I was fashionable.

[00:56:17] **Evan H. Hirsch, MD:** Excellent. Well, Dr. Sam, thanks so much for hanging out with me today. I really appreciate all your knowledge and all the value you provided.

[00:56:24] **Dr. Sam Shay:** Well, thank you. It was really great to chat with you. I had a lot of fun. I look forward to chatting again in the future.

[00:56:29] **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 fatigue people who desperately need it. Sharing all the experts I know and love and the powerful tips I have on fatigue is one of my absolute favorite things to do. If you'd like more information, please sign up for my newsletter, where I share all important facts and information about fatigue from the foods and supplements to the programs and products that I use personally and recommend to others so that they can live their best lives. Just go to [fix your fatigue.com](http://fixyourfatigue.com) forward slash newsletter to sign up and I will send you this great information. Thanks for being part of my community. Just a reminder, this podcast is for educational purposes only, and is not a substitute for professional care by a doctor or other qualified medical professional. It is provided with the understanding that it does not constitute medical or other professional advice or services. If you're looking for help with your fatigue, you can visit my website and work with us at [fix your fatigue.com](http://fixyourfatigue.com) And remember, it's important that you have someone in your corner who is a credentialed health care professional to help you make changes. This is very important and especially when it comes to your health. Thanks for listening, and have an amazing day.