Vitamin D Pathways and Supplementation

Let's get the vitamin D, the big vitamin on the block. So if someone has three vitamin-D pathway variants, can sunlight alone fix it? Not reliably. When we're looking at somebody with one or multiple vitamin d variants it's really broken down into several different steps.

For example, this panel that you and I have looked at, a precursor in skin is consumed faster when we have this DHCR7 gene. And we also have to look at how quickly that vitamin D is cleared.

So sun exposure really addresses only part of the first step. There are downstream inefficiencies. That means there's system leaks at some point. And so supplementation with vitamin and then monitoring those levels are really the more reliable approach.

Welcome to Beyond the Scale, where real health gets deeper than just the numbers. I'm Dr. Darren Dubiak. And I am Alexandra Dubyak, and we are not only partners in life, but also passionate partners and integrative care.

Blending faith, family, functional wellness, And a little life with our dogs. Because true healing happens beyond the scale. Hey, everyone. Welcome back to Beyond the Scale.

I have Dr. Piper Gibson back on the show. Dr Pipper, thank you. Yes, thanks for having me.

Introducing the AimPrint Genetic Testing Series

Again, I had Dr Gibson on and we had this more or less, but I guess we could say we have this idea of why don't we do a series on The AIM Print, right?

So guys, we're going to do four or five episodes specifically on genetic testing at Body By Aime called The Aim Print. Our first episode was, what is the imprint?

You know, how many genes we look at? How many snips we looked at, and what do those things mean? And the more you and I spoke, Piper, it was hey, you know we can really get into this even more.

And I want to because genetic tests are so big out there anymore. You now a lot of what I promote on social media or talk about social medias You know, there's a lot of celebrity-backed genetic tests.

I don't want to, you know put anyone's fire out. But what's the difference? And how valid are they? How much more in-depth can we get? You agree? I agree.

And I feel like when we're looking at genetic testing, everybody can actually be looking a different thing. So what you're look at for your patients and your clients is completely different than what I'm looking at.

We're looking different genes. Some of them may be similar, but we're look at them in different ways and for different patterns. So we really have to keep in mind that not all genetic testing is created equal.

And it's really kind of looks at like, what's your objective with your genetic tests and how are you going to use that? Yeah. And you know what? I liked how you preface that.

So, you guys, the AimPrint is a genetic test really, I think, attacking metabolic function. Would you agree, Piper? From weight to dietary habits, everything, right?

So that's my wheelhouse. That's what Body by Aim does. Yourself, tell people again what genetic tests you're

running with your clients, please. Right.

So I have a panel that it's called designer genes. And that panel, that I am using with my clients is where I'm focusing on children and families who are struggling with neurological issues like ADHD, anxiety, tick disorders, Tourette's, OCD, those kinds of things.

Some genes on your panel are similar to genes, on my panel. But we're looking at them for different clues. Okay, I love it, love. So one of the things that I said we should do is, you know what, why don't we go over, so I test 121 snips right on the AimPrint.

Why don' we, for today's episode, go the top 10 genes on Aimprint and why they matter? Agreed? Absolutely. So, my favorite gene, and I do call it the fat gene.

FTO and Appetite Regulation

I mean, come on. So it's the FTO gene right? It's The Obesity, The Appetite, the Carp Sensitivity Gene. What exactly is this Fto gene and why does it matter for weight loss?

Yeah, you know, FTO is one of the most studied obesity genes in existence, and it really influences appetite regulation, how full you feel after eating, How strongly you're drawn to high calorie foods.

And so the AA genotype, which is considered high risk, is associated with that increased hunger signaling, reduced AID, And a stronger preference for calorie-dense food.

So essentially that biological deck is stacked towards overeating. On your test, when we're looking at it, It's really valuable information because it really can change how you approach weight loss clinically.

Gotcha. So let me ask you a question. How does that AA gene actually show up in daily life? Cravings, hunger, what is it? Think of it as a persistent low hum of hunger that all day you're like, I definitely have that gene.

I have the gene, ask Allie. These patients, these types of people often eat a full meal and they feel satisfied for about 45 minutes and then they're like…

I'm still hungry. It's gonna get you up and you're gonna like go peek in the pantry or the refrigerator. Cravings tend toward carbohydrate dense foods and sweet foods, specifically when it's going to feed this feedback loop.

So this gene actually responds really well to a low carb, moderate fat diet. And you can tell us that on the imprint. I love it. I loved it, you know.

So does this result mean then that if someone is destined to be overweight, if they have this FTO gene, right? You know, so guys, when you have the imprint on and Dr.

Gibson knows this, it's almost like a stoplight, green means good, yellow is eh, and red is hey, this brings my attention. If I have Fto AA genome, does it mean I'm destined 100% to overweight?

No, absolutely not. And this is why I really love genetics because here we are, if you listen to that previous episode, we talk about using your genes as a blueprint and a roadmap.

So genetics doesn't load the gun. You hear this everywhere. Environment pulls the trigger. The standard dietary advice is just eat less. It's really going to be harder and less effective for this person because that strategy doesn' t match their biology.

So knowing the gene helps us to build the right environment, meal timing, macronutrient ratios, and strategic support instead of doing things that go against it like, just eat less.

Yeah. Right. And it's so funny because that is what they say, right? And then even with myself, by the way, Dr. Gibson knows this, so my STO chain was red and I do have that hunger and it, you know, I'm not overweight, but I will tell you this.

I have to be very conscious on what I eat. I do think about it. I definitely know how foods affect me. And when you said low carbohydrate diet, sign me up, right?

When I'm eating higher proteins, I feel fantastic. So it is not a death wish like we always say. It is a direction on knowing where we should be, fair enough?

Fair enough.

MTHFR, Methylation, and Detox Support

and I also think that really it helps you design that like one, when, you know this about yourself, just like you, said you can really tell yourself okay, like this low hum of hunger is yes, it's genetic.

But you can also then turn around and focus on those foods that are so much more beneficial to you than instead of running out and eating a bag of Cheetos because that's what's going to feed that immediate hunger that you have going on.

Yep. And you know, with Body by Aim, having the Aimprint Fund, and so many people know that at Body By Aim your meal plans, your program is followed by a board certified health coach, right?

So all of our patients are working with you. It's so neat, Piper, how we can take those people, their results, and really make their meal plan. Again, that's customization.

So let's get to the next gene. I call this the sexy gene because I have no idea how this gene became so famous, but it's the MTHFR gene, right? Methylation, detox hormones, all this stuff.

In plain English, what is methylation, please? And why does it even matter? Yeah. So there's so much info on the internet about MTHFR and you're right.

I call it the hot, sexy gene too. It is the gene everybody knows, but there are a lot of things that maybe are inaccurate on internet or just incomplete.

And so people will come to you and be like, I have the Mthfr gene and I'm like hold up. This is not a being all indol of the world. Yeah, it's almost like a diagnosis anymore.

They come in like I don't know what I am going to do. Have MThfr. Come on guys. But that's why we're doing this. Yes, and let's break that down. So methylation is essentially your body's master tagging system.

It puts chemical tags on DNA, hormones, neurotransmitters and toxins that tell your what to activate, silence and eliminate. MTHFR is the gene that converts folate from food to the active form in your You're basically taking the folate from your food.

You go through this whole pathway. These enzymes convert this folates into a usable form so it can get into your cells. So it actually uses the methylation to drive the system.

MTHFR when it's impaired, you're running a whole system on reduced fuel. On your panel, when we're looking at something like the C677 gene, which is really kind of the most studied Mthfr gene.

is when it's hetero or homo, we're looking at this impairment. So not enough to have enough fuel. It's just not fueling your system when you have this MTHFR variant.

Then let me ask you this. How does Mthfr then affect things people wouldn't even expect, right? Like mood, energy, hormones. Give me some examples, please.

Vepalation runs so many pathways in your body. You know, we really kind of, at this point, studies say folate helps 250 different functions in our body, if not more.

So when those pathways are impaired, MTHFR can show up as unexplained fatigue, brain fog, mood instability, stress resilience issues, difficulty detoxing your hormones, and even difficulty-detoxing chemical compounds.

In women especially, we are looking at effects of estrogen clearance, which then connects to things like PMS, hormonal weight gain, and even fertility.

So looking something like methylated beef vitamins, specifically methylfolate and methylcobalamin, they are not synthetic. They are made in a factory downtown.

And this is where we want to have the most natural form of folate in our diet so that we can start to better fuel this system, especially when we have these variants.

So Piper, let me ask you this then. Why did, and again, this is off the cusp. Well, why do you think this became such a popular gene to look at? Honestly, because, you know, I would think to me the FTO gene, the gene we're doing next, to COMT gene.

Right? I love that gene like, Why do think MTHFR got so famous? Best way I could say it. I think, one, you have people who are starting to study these genetics.

You know, we've done so much work on the human genome project, and then we have all of these studies coming out. And I, think that you got a couple of people, who read studies about MTHFR and, then started connecting it to, how their patients were feeling, How they were acting and what their lifestyles were like.

and I just think it just exploded. Like when we look at the data, about 80% of the population or so has an Mthfr variant. It is not a be all end all gene.

it works in conjunction with so many other genes. But I think it was this way to be like, oh, I have this genetic issue and this is my problem. So we're trying to give a label to somebody's problem and I mTHFR was the guy.

No, no, No. I kind of agree with that.

COMT, Stress, and Reward Cravings

Like I said, there's really nothing in my infancy and learning about genes of why this gene became such a big, big thing, right? Let's get to the next one and that's C-O-M-T as in Tom.

And I love this one because this talks a lot about stress, dopamine, and estrogen metabolism, right? So this is a pretty awesome gene. I know it's a big enzyme.

Tell me about COMT, please. Yeah, so COMt is this enzyme that breaks down catecholamines. Catechylamines are things like dopamine, adrenaline, noradrenaline, and certain estrogen metabolites.

So it is the body's primary clearance system for these kinds of compounds. So when COMT is slower, all of these three linger. I kind of call it a traffic jam gene.

Like they just don't get cleared out very well. They just sit like a Traffic Jam and you're like, come on, you got to move. So you may feel more stress.

Your reward response to food may be amplified. Estrogen metabolites are going to recirculate rather than being

eliminated in your body. Your patients who have this variant, they have issues with clearing, you know, the hormones, clearing the catecholamines.

So it's not the worst case, but we have to look at it layered with other findings. We know like MTHFR, that folate is going to help feed our neurotransmitters like dopamine.

If you don't have enough folates, maybe you're not making enough of this dopamine, and then we're clearing it and we had this traffic jam going on. It's really important to really kind of look how all of these things are connected.

it is not one gene, it how they all work together. And I like it. And that's exactly what my next question is. Then how does the COMT gene affect people with cravings and stress or hunger?

Right? So when that dopamine lingers, are we talking about the traffic jam? We've got that synaptic space and that dopamines kind of sitting in there lingering.

Highly palatable foods, sugar, salt, fat, they generate a stronger reward signal. So the brain files these foods as high value experiences. Oh, these are so good.

During stress, catecholamines spike and clear slowly, prolonging that fight or flight response. Food becomes a coping tool because it temporarily dampens that response So, you know, when they have this COMT, these types of patients and clients may have an increased desire for these sugary, salty, fatty foods.

So let me ask you something. So would that be considered your stress eater having this gene? I think you could definitely work that into somebody who's a stress-eater, but really just kind of like this.

It's that reward. Or even people who are like, oh, I nailed my presentation today and I can't wait to eat this cheeseburger. The reward, right? No, got it.

So that's a big, big gene. And again, when we go over it in the office on the A-Print, it comes up on multiple test soliloquies and it's huge for me helping people.

PPARG and Fat Response

I want to get to the next one because this is important because you have the United States of America, you had 93 million diabetics, pre-diabetics and type 2 diabetic, that is a lot of people, would you agree?

Absolutely, a ton. I would say that's one of the biggest health risks affecting this country is people who don't even know if they're prone to being a diabetic.

So the PPARG, the insulin sensitivity and metabolic syndrome gene is something that is near and dear to my heart. I have a patent pending and hopefully next time we talk that patent will be approved on how Body by AIM deals with diabetics and weight loss and our program and system that I developed the AEM method.

on how to lower those things. And one of the things I've seen using the apron pipers, you know, that PPAR gene is so big. So do me a favor, tell us about it.

Actually, Tell us all about because especially the dietary fat response. I love that, please. Yeah. So you could call it PPARG, sometimes we call P-PARGE.

But when we are looking at this gene, it is a nuclear receptor. It really governs fat storage, insulin sensitivity, and inflammatory signaling. So we know that the patients that you're working with who have this variant It means that they benefit from increased polysaturated fat intake.

So that practical layman's term translation is olive oil, fatty fish, walnuts, avocado are genuinely more therapeutic for this person. Not just generally healthy, but specifically we can match it to their genetics.

The saturated fat, heavy diets are likely to work against this profile, which is relevant for anyone who's considering keto or carnivore. I bet you've had people who were like, I did keto and I could not lose weight.

They're eating the right fats. Wait a minute, wait a moment, you're telling me, guys, I'm learning something today, so the pea porridge gene, if that's red, it's dominant, your telling keto or carnivore is just not the program for them.

not the right program. And so again, you have people throwing spaghetti at the wall to see what fits when it comes to diet and they're trying all these diets.

You know, my mom's a great example. She tried keto and she was like, I just kept gaining weight. I'm like well, let's look at your genes and go back and get you the Right.

Well, you think about it, it actually makes sense because when people come in and they're very sensitive about their insulin or sugar levels, they are going to say, well, no carbs.

So when you eat no-carbs, are thinking those two big… See guys, this is why you watch Beyond the Scale because even Dr. Dubiak finds things out as we go through this.

I love it. Alright, exercise response, the fat-burning genes, love, Love, LOVE. The ADRB2 and the ADRRB3 genes. Please, how do these genes determine whether who burns fat more effectively than the others?

Exercise Response Genes and Fat Burning

So ADBr2 and ADBR3, they encode our receptors on fat cells that respond to adrenaline. So the signal that breaks down the stored fat. If these receptors are impaired, exercise doesn't trigger fat release efficiently.

So somebody who is in your clinic and they have this dominant gene, they are going to have some issues. But if it comes back with a normal function, that's generally good news.

It means that moderate intensity exercise should promote fat breakdown effectively. If you have the gene you need to understand that exercise isn't going be your key factor for weight loss.

Like if you're out trucking it every single day, it may just not be the factor that you Yes, exercise is important, this does not mean don't exercise.

This just means chugging your behind off may not be the most effective way for you to lose weight. Yeah. And you know, and I'll have people say, why I walked my dog, just like Alina, when we have the chefs and we're walking them around, people will say why walk my dogs for three miles?

But think about how many stops you're just getting off course. It's not close. So I know it's exercise, like you said, it something, but I tell people these genes are so imperative because You know, I'm not a marathon runner.

Okay. I don't, i'm a treadmill guy. Not even close. So it's amazing. Cause when I got my jeans back, like son of a gun, that makes sense. Because when i do a hit training, right?

Like a boxing or something, well I'll say boxing because that's actually what I do. Right. I feel fantastic and that's when I do get results. So it makes perfect sense of how accurate that gene really is.

That's why we're friends. You are a boxer. I am too. No, no, I'm not a boxer. For extra cardio, you know what? I'll take this boxing class. But in my mind, I'm a boxer.

All right. So next, besides stress and people finding stress relief. I don't think there's anything close to the next one of what people try to get relief for and that's sleep.

They don't know how to sleep. They sleep horribly, they sleep too much. It's unbelievable how sleep is dominant.

And you know, as practitioners, Piper, we know that how beneficial sleep was.

So let's get into the clock. jeans, literally the clock jeans.

Clock Genes, Sleep, and Circadian Rhythm

So what are they and why do they matter, honest to goodness, for metabolism? I mean, you hear like sleeping better will definitely help, but why? Why, why, Why?

Yeah. And you have several clock chains on your panel. Every cell in your body runs roughly on this 24 hour biological clock. Clock chains are those master regulators.

of that timer. They govern when you burn fat, when cortisol peaks, insulin sensitivity is highest, and when your hunger hormones rise. So when these genes are disrupted, either genetically or behaviorally, the metabolic consequences are significant because it can lead to weight gain, high blood sugar control, abdominal obesity.

We really have to look at how these jeans all work together to help people sleep and regulate their metabolism. So I want to talk about something that has affected this country and people like I've never seen before, Dr.

Gibson, and that is sleep, right? So many people can't sleep. Don't know how to sleep don't, sleep well, get too much sleep it's such a big thing. So, I wanna get into the clock genes.

What are they and why do they matter for metabolism so much? Yeah, so you on your panel have several of these clock genes, but really they have to do with our body and how it runs on a 24-hour biological clock.

So clock jeans are those master regulators of that timer. They govern when you burn fat, when cortisol peaks, insulin sensitivity is highest, and when hunger hormones rise.

When these genes are disrupted, either genetically or behaviorally, the metabolic consequences can be more significant, seeing the weight gain, poor blood sugar control, abdominal obesity.

Gotcha and it's amazing to me there's so many ways that they tell people to sleep but you said something to be a couple weeks ago and I want to touch base on this is what are the most practical interventions for better circadian gene variants?

Yeah, so morning light exposure, 30 minutes, no sunglasses. It's when you wake up, go outside, thirty minutes after waking. And this is really for a strong behavioral reset.

Something else you can do, which is awesome. Leave your electronics at home. Go camping for three days. no electronics, just sleep and wake with the sun, go to bed, all of those things makes a huge difference.

Also for these people avoiding the after dark eating, especially when we're seeing them flagged on this report and you have some specific supplementation you can help them with at your office when they have these kinds of genes, but really being consistent with their sleep, wake cycle.

So even on the weekends when you tend to stay up till midnight messing around cause you're like, Oh, I can sleep in the next day. It really is not good for these genes.

You really need to stay on that schedule. If you go to bed at 9 o'clock during the week, go about at nine o clock on the weekends. So, you know, Go to Bed at Nine or Go To Bed At 10 and Wake Up At 6 a.m.

you are going to feel so much better. And all of these things are gonna be better regulated. Yeah. and you Know what? The proof's in the pudding. so today, different background behind me.

We're in my satellite office and the satellite offices is only six minutes from the Pittsburgh airport, right? about less

than 20% of my patients in this office work in the airline industry.

It is unbelievable how sleep is so affected on the results, their blood work, the relationships. I mean, it's big, big big. All right. Let's get to the last couple.

These are my fun ones. Ready? Because I'm doing this right now. So the CYP1A2, the caffeine metabolizing gene, take it away. What's it mean to be a fast caffeine metabolism?

Please. Yeah. I think most people who have this gene variant know they have it. I am one of them, and if I cannot have caffeine past noon, if have I caffeine passed noon I'm never sleeping again.

So what we are looking at for your panel is fast metabolizers. Those who have an AA genotype on your panels, they clear caffeine from their bodies roughly twice as quickly as slow metabolisers.

And when that effect wears off faster they tend to consume more caffeine and consume it later in the day. Late caffeine consumption is going to interrupt your sleep, And that person may feel fine falling asleep, but it reduces that deep sleep that they get.

So maybe you're that. Like my husband who was like, Oh, I can have coffee right before bed.

Caffeine Metabolism and Vitamin D Variants

But then you just don't get that sleep. When you combine this with your clock genes, you know, it can create this compounded circadian rhythm disruption that can really undermine your weight management.

You know, a lot of the times anymore that I'm asking patients about, hey, how's your sleep? Oh, it's all over. So it just not about stress anymore. It is about genetically of how you are processing things.

You now, just like you said with your husband, Allie can have a cup of coffee and go right upstairs to bed and sleep, right? I can't have coffee late, but I just can go rate to bad.

But it is funny. Like you say, Hey, you got to stop drinking it at noon or you're going to be up for three days. That's pretty awesome test. Yeah, and I think that's a fun gene.

Oh, absolutely. Let's get the vitamin D, the big vitamin on the block. So if someone has three vitamin-D pathway variants, can sunlight alone fix it? You know, not reliably.

When we're looking at somebody with one or multiple vitamin d variants it's really broken down into several different steps. And so, for example, this panel that you and I have looked at, like a precursor in skin is consumed faster when we have this DHCR7 gene.

And we also have to look at how quickly that vitamin D is cleared. So sun exposure really addresses only part of the first step. That means there's system leaks at some point.

And so supplementation with vitamin D and then monitoring those levels are really the more reliable approach. So, you know, You have a recommendation for what you are looking at on what your panel and what that vitamin supplement recommendation is going to be.

But you have that capability to then look at these genes and say, hey, based on your genes, Based on these compound factors, sunlight really won't fix this.

but here's the amount of vitamin d that we should really be supplementing with. and Then you can monitor that. Right. And I love that we're making a point out of this vitamin D gene because so many people, like I said, hey, listen, we are in the Northeast.

We don't see the sun more than 100 days a year, right? Sadly enough. So we know for a fact that enough sun exposure is still not going to be relevant enough to increase our vitamin B.

This is a great gene, guys, on the Aimprint to have done. Piper, you have one last gene and I actually want to add one, but for yourself, this is such the main focus on your practice, which is the inflammation risk, the IL-6 and the TNF alpha gene.

So please, take it away. Yes, so this is really one of the things that I focus on a lot. So IL-6 is this pro-inflammatory signaling molecule. And chronically elevated IL6 contributes to, for your patients in your office, insulin resistance, fatigue, joint discomfort, reduced response to weight loss interventions.

When we are looking at somebody who has this elevated production predisposition, we're going to have a more aggressive inflammatory response. So we start to see this imbalance with inflammation.

Diet, quality of sleep, stress management, they aren't optional for these people. They are really therapeutic interventions. And so when we started to look at something as well like TNF, so T and F can be an up regulator or a down regulator of inflammation, but when I'm looking at it.

I explain it to my clients like TNF is the party guy. He's like woohoo. And if he comes in and you have a bunch of inflammation in your body, he's going to be like, yeah, let's ramp that up.

Inflammation Genes and GLP-1 Response

So you see this compound issue of increased inflammation when you these variants and so for us and for your clients it's like how do you focus on this anti-inflammatory lifestyle diet environment that's really going to be that therapeutic intervention for you body and your genes and you life.

It's true, it is 100% true. Listen, I want to end it on one of the genes that I think is captivating our clients and our patients right now and that is the GLP gene, right?

So word of day, GLPs in the weight loss industry. So how neat would it be Dr. Gibson, if I told you there's a genetic test that can check your GLP sensitivity to see how well you would do on a GLT, would that not be its weight in gold?

It is worth its way in Gold. And honestly, I think this is the coolest gene on your panel. I love it. And I won't look at it because I don't have clients that we are going to look, but for somebody in your industry where you're looking at metabolism and weight loss and healthy metabolic function, it is the coolest and I'm so excited about this gene because GLP-1 R, which is the gene, you know, one of the genes you're looking at, it encodes the receptor for those GLP-1 medications like ozempic and legoby and how they actually bind.

So if we can look at those genes and say, oh, You have some variants here. They may have a receptor that is less functionally, genetically responsive to that medication.

It just won't work as well. You may people that come into your office and be like, GLPs just didn't worked for me. And then you are like. And that's what I do.

They come and I just go like this. Let me show you what i have in my bag. But no, all kidding aside, it's one of the neatest variants. It's the coolest jeans that I've seen from a weight loss perspective.

Because listen, we know that they work extremely well when done correctly, right? But to really have that knowledge of how well or how horrible that person will do on them, it's worth everything to me.

So listen, I want to thank you for this episode. Like I said, we're going to be doing a series, guys, with Dr. Gibson and myself on the Aimprint. Stay tuned for it.

Thanks for tuning in. And if you guys love this, episode, hey, share it, tell everyone about Body by Aim, the Beyond the Scale. The Aim print alone can also be purchased right off the website at bodybyaim360.com.

and can be shipped anywhere in the continental United States. So, Dr. Gibson, I thank you for joining me today. It's always a pleasure. Thank you. You're welcome.

Talk to you soon. Thanks for spending time with us on Beyond the Scale. If today's episode helped you see your health differently, like the show, share it, and we'll see you next time on beyond the scale.