



Using your Genetic Code To Hack Your Energy

Greg Eckel, ND, LAc With
Kashif Khan



Greg Eckel, ND, LAc

Welcome back everybody to the Bioenergetics Summit. I'm your host, Dr. Greg Eckel, I have Kashif Khan, the CEO and founder of the DNA Company, where he personalized medicine as being pioneered through unique insights into the human genome. He is also the host of The Unpilled Podcast, as he dove into this field of functional genomics, he revealed that his neural wiring was actually genetically designed to be an entrepreneur. However, his genes also revealed a particular sensitivity to pollutants so now seeing his health from a new lens. Kashif dove further and started to see the genetic pathways that led to his own family's challenges, the opportunities to reverse chronic disease. His measure of success is not in dollars, but in lives improved, welcome aboard.

Kashif Khan

It's a pleasure, good to be here with you.

Greg Eckel, ND, LAc

Indeed, our topic today is using your genetic code to hack your energy and I wanna talk about, because this is a new concept for a lot of folks and you're really out pioneering in the research so you give us the latest rundown on genetic research where and were we at.

Kashif Khan

Yeah, so genetics used to be, well in fact, I guess it still is. There's just a new layer that we do talk about, but it still is what does each gene mean? Meaning you get a report back, you sent in a sample, you did a test, and then you'll be told you have this version of this gene, this version of this gene and this version of this gene from there, somehow that gets interpreted either with a guide or counselor or a doctor or some software, you buy a test online and you log in and you see something. So the challenge has been there that the depth of interpretation has been limited by focusing on what each gene means when the body is a lot more complex than that. Yeah, there's



pathways and systems and things work together. It's more polygenetic as opposed to individual, right?

Greg Eckel, ND, LAc

Yeah.

Kashif Khan

And so that functional approach, that's what's new and what's really cool about that is we've moved far away from just the rare genetic conditions and looking at things like traits what color is your eye in your hair? Too much more complex things like chronic disease and aging at a very certain level. Things like energy, there's no energy gene. What five years ago, we'd have said, sorry, this is not genetics this is something else. But now we can see a very clear path to how whatever work you're doing in terms of your Bioenergetics energy here's a whole other layer of work you could do to optimize that because there's— everything is connected, right? It's very functional in nature and that's what we've learned.

Greg Eckel, ND, LAc

I love that the component, I always put a slight asterisk around when talking with patients around the topic, I love running genetic assays, but I agree with that component. It's a concert, it's a symphony, it's not just one gene independent of the others and so using that, are there specific research projects that are coming out, looking at the pathways and how the pathways interact?

Kashif Khan

Yeah.

Greg Eckel, ND, LAc

That's what your company is doing.

Kashif Khan

So we did do that, we did three things. First of all, we said, there's enough information there about DNA, many billions of dollars have been spent researching the human genome.

Greg Eckel, ND, LAc

Sure.



Kashif Khan

We know what the genes mean what we don't know is how they get to actionable insights in that concert that you're talking about how they work in systems. So that's the first thing we did. We looked at human biochemistry, human biology said, here's the systems that we already understand cardiovascular, hormones, neurochemicals of the brain. How do we now match and mirror DNA to instruct each step in that process, as opposed to this, she means this, she means this, here's a Baton pass. These genes are working together in a system to get to an end result, so that was one. Second was we need to then answer the question, well, if we now understand the genes and the system's better, why are we still not getting a hundred percent result? Even if we identify this person has a worse hormone profile for some problem, they still didn't get it.

Well, then there's the epigenetics, there's the choices of environment, nutrition, and lifestyle and so we had to figure out now that we've identified all these profiles, all these buckets that people fit in for different profiles, what are the loads that are either beneficial or problematic for that profile and it's not the same for everybody. So now the environment, nutrition, lifestyle choices can with great uncertainty point to a problem. This plus this takes you from 80% chance of Alzheimer's to you have Alzheimer's or 20% chance of not getting Alzheimer's to you do have Alzheimer's 'cause the same, we're saying the same thing, just the other way around. So that was step two, step three was we needed to come out of the lab, which is where genetics is studied on microscopes and petri dishes and wherever you see on TV, to how do you actually clinically apply this stuff so we did what typically isn't done in research. Genetically is we actually studied patients we opened a clinic and we spent three years studying 7,000 people so one by one, by one, by one we took it from this highly complex 22,000 genes each is 20,000 letters long so there's billions of letters of code to what's this person, what's this person end of one.

Greg Eckel, ND, LAc

Yeah, right.

Kashif Khan

Truly personalized. That's what got us to now with certainty if I have your DNA in my hand, I can tell you the story about yourself that is so precise and resonate so well, I can tell you your personality. I can tell you do procrastinate, are you irritable, should you be an accountant, should you be an entrepreneur? We've got it at that level of certainty because of taking this research and then combining that with studying 7,000 people to understand how it applies in the real world, that's how you truly unlock the value what's inside this sort of human instruction manual



and why we can have conversations about things like energy that aren't even directly genetically linked.

Greg Eckel, ND, LAc

I love that, so let's dive in there that's a great segue, thank you. So what do our genes inform us about our energy levels?

Kashif Khan

So there's direct genetic inferences we can make, for example, what is energy? First of all, are we measuring literally electricity? What are we measuring? So ultimately it's the way you feel, how are you coping with whatever you need to do, what's your energy level when you ask somebody. So there's a couple things going on there, your actual mitochondria, which I'm sure you're talking about a lot in this summit, right? That's where you produce it so the ATP, the stores of energy, that reaction of the cells in your body are taking in oxygen and nutrition to create energy, that's what's happening all day long. In that process, they create oxidants, oxygen converts to oxidant. The thing that gives you life is slowly aging you as well, it's a free radical as so that's one thing you can look at. There's a gene called so SALL2, which determines this process how well do you actually deal with oxidation as a outcome of creating energy?

'Cause you might do a good job you might efficiently create energy, but you're so bad at dealing with the oxidant byproduct that it's sort of suffocating your cells, creating a bit of brain fog, inflammation, overall fog in the body 'cause the cells just aren't firing at their optimal so that's one thing you can look at. You can then look at, well, maybe I do that really well and efficiently. I don't suffocate and choke myself I clear this oxidant. Well, where do you clear it to you put it into the blood. So now if you don't have the right phase two detox, glutathione, and that pathway that draws things out of the blood, sends it to the liver to get rid of it. If you drink alcohol, you know what you do, your liver helps you get rid of it but there's something that brings it to the liver in the first place. There's gene in that pathway that you can have, what's called a copy number variation, meaning you don't even have the gene forget about what snip or what variant or what version you literally are missing a page from your human instruction manual.

Greg Eckel, ND, LAc

Hmm.



Kashif Khan

And in such a important biological process. This happens here unfortunately, why? 'Cause our ancestors didn't need it. The reality of the way they lived and the food they ate and the air that they breathe. Toxins weren't the load that they are today. Yeah, so we didn't inherit that from a lot of our ancestors, a piece of code that's missing so that toxin pathway, that metabolization of oxygen pathway, that's one big one. Then you look at things like hormones. The hormone pathway is very precise so this gray area of PMS, menopause, infertility, my hair is falling out, gynecomastia on men and man boobs literally and why are my hormones doing all these weird things that are treated as gray area.

It's actually very black and white with your DNA you can understand the hormone cascade in full so progesterone converts to testosterone convert to estrogen. Why is it some people go to the gym and they get super strong and big and bulky, but they can't see the fibers of their muscles. Why that some people can see every little strided line, but they can't get big. Why is that some people can lift heavy, but they have no endurance and vice versa and vice versa and there's all these different profiles. You're hormones direct what the outcome of your body, what do you look like, what you're capable of? So if you're misaligned in your choices to what you're meant to be doing and what you're designed for, you're gonna feel like you have low energy because you're using tool A for job B it's, it's really that simple.

Greg Eckel, ND, LAc

So you can get a specific prescription out for exercise, diet, all of these items.

Kashif Khan

Very specific and we'll talk about diet, that's another big one in terms of hormones, very specific in terms of general, here's what you are. But for women, it gets even more specific 'cause the hormone cycle happens for men every day for women we know it's a month long cycle so that same menstrual cycle that women go through men go like a manstrual cycle, it happens every day, right?

Greg Eckel, ND, LAc

Yeah.

Kashif Khan

So now in that menstrual cycle for women every week is different. That circadian rhythm, that flow week one you're strong, you can lift, push big, heavy things and go ahead and put on



muscle, week two, try and lift that heavy thing and you're gonna get an injury 'cause your estrogens are high and things are inflamed and your ligaments can't handle as much. And then the week three, you need to be more in recovery mode like yoga and low intensity. So that circadian flow again that week, what were you wired to do and what did you actually do is gonna lead to, I feel like I have energy or I don't have energy because you're not doing what you were wired to do that week.

Greg Eckel, ND, LAc

Backing up into the energy discussion.

Kashif Khan

Sure.

Greg Eckel, ND, LAc

In your research, you talk about the energy starting at the mind can you explain that a little bit more?

Kashif Khan

I would say that's one of the biggest things that we sort of unpacked is the neurochemicals of the brain because remember we met 7,000 people, so in these clinical reviews, we were able to document their behaviors and the neurochemicals of the brain we already understand kind of what they do. We didn't yet understand what genes instruct the three phases of a mood issue, which is the anticipation when it comes to, for example, pleasure, I'm about to eat something. There's the anticipation, I smell it I know it's coming it's starting. Then there's the actual instance of I bite into it and that peak pleasure that's the actual binding you feel it. Then there's a clearance you need to get back to normal so there's some enzyme or protein that gets rid of it, so you can do these three things in any different levels of intensity.

Greg Eckel, ND, LAc

Hmm

Kashif Khan

So take me, for example, my dopamine pathway, the one that we just talked about for pleasure, which also powers reward by the way so pleasure is enjoyment, reward is achievement I have the lowest density of dopamine receptors. There's a gene called DRD2 and I have a specific version of it that means I have very sparse density so I experience pleasure and reward way down here it's



hard for me to experience. The MAOA gene, which then metabolizes the dopamine and breaks it down I have the fastest MAOA. Then COMP, which is the gene that clears it out like the broom that gets rid of the, I have the fastest COMP so I'm feeling it way down here and it's gone like that. So for me, pleasure and reward are both very difficult, right. Now when it comes to my outcome, that could mean depression because I just didn't get any pleasure. That could mean achievement 'cause I go down the reward route and I start taking crazy risks and doing stupid things and becoming an entrepreneur like I am or I could mean addiction cause I go down the pleasure route so now that's one neurochemical. There's multiple neurochemicals that make up your brain so there's your ability to deal with trauma and pain, there's your response to stimulus and how sensitive you are to stimulus, there's how much meaning you give things and the weight you give things, all of that stuff can be highly supportive, are burdensome on how you perceive the world and there's some people that their energy level meaning remember what is energy, how do I feel? Meaning how is the person perceiving energy, it's how they feel, so how they feel may not be entirely accurate because of how they think they feel, right.

Greg Eckel, ND, LAc

Hmm

Kashif Khan

A person that has the opposite of me, the maximum dopamine binding. He is just so used to feeling pleasure out of everything around them it's just so easy when you give them something like a COVID lockdown, for example, and you take the pleasure away. They have this acute anxiety response, smash, crash.

Greg Eckel, ND, LAc

Yeah.

Kashif Khan

Because they're just not used to being down here they're used to being up here, energy drain, right. They haven't physically lost energy, but their brain isn't allowing them to function at that high energy level. They're crashing their mood issue is overpowering and superseding their actual energy level. So you get what I'm saying there and then there's certain people for whom, for example, their serotonin levels are off and so their brain has difficulty prioritizing stimulus. And so like, "Hey, please stop chewing your food like that. Oh, that clock is ticking too loud. Oh, stop clicking your pen I can't focus" right, so every little stimulus gets to them it's great in work because they're highly detail oriented and they can cross every T and dot every eye. But amongst



their peers, it could be problematic, like, oh, be careful how you talk to that person. That in itself is a burden they experience burnout from the exact same context that you tell somebody else it's okay, go do this. It's normal human work for them it causes burnout because they're over stimulated by the environment so they need something else. So all we're saying is that if you understand your genetic map of the brain, you understand to what degree you're experiencing these chemicals, which means you now understand how you're perceiving the world and if you start there, it's a lot easier, all the great tools and tricks that you guys have to get the best outcome from that.

Greg Eckel, ND, LAc

So now, so that leads into just because you have that snip or gene array doesn't mean that it's firing, right? So how important are epigenetics versus genetics?

Kashif Khan

Yeah, and there's two layers to that. The thing you just said, which is how much does that gene express versus, and we're gonna talk about there's two different ways to look at epigenetics. The conventional way is what you eat, what you breathe, how you exercise can change the degree to which a gene is expressing. I have the bad version of a certain gene, but if I exercise for an hour a day, it makes that gene work harder so there's certain things you could do to turn the dials. So that's epigenetics at the science level, at the functional practical level I just talked about myself and my dopamine pathway. Why am I not an addict and why am I not depressed? Because clinically that's what I'm designed for because my context so when it comes to everything about mood and behavior and everything about the brain, the context you are in has to be considered on top of your genetic map to get to an outcome.

Greg Eckel, ND, LAc

Hmm

Kashif Khan

So what do I mean, I know it's hard for me to experience pleasure and reward. Now my context was, my father passed away when I was in my late teens and I had to take care of my mother and my sister. So I started working and I started working really hard and that sense of reward that I got, that I kept chasing and chasing and chasing made me highly entrepreneurial because I needed to 'cause I had to pay the bills. It could've been, I grew up in a very wealthy family where my father lived until he was a hundred and there was no need to do anything and I probably would've gone down the depression route because I wasn't getting that stimulus and I wasn't



getting that dopamine hit or I could have gone down the addiction route because I would've found something that gave me pleasure 'cause I don't need reward, I'm taken care of. So I may have, would've gone down the addiction route and found something that, and this is why you see these stories are quite, they resonate based on the context, the highly successful person. That's also suicidal, right? The professional athlete, that's depressed. People that achieve high also have these mood and behavior crashes, 'cause the same neurochemicals power both the context you're in creates the outcome so that's your brain. Everything else, cardiovascular, hormones, sleep is about environment, nutrition and lifestyle, which is the same context it's just a little nuanced. Meaning these are the actual buckets.

You can have the worst hormone profile. You can have the worst cardiovascular profile I can predict the quality of your endothelial lining so your arteries are on your heart. The inner lining that actually the blood touches and flows through what quality lining do you have is it stainless steel or is it paper thin? Which means highly prone to inflammation. Now you could have the worst quality and you could have the best energy and the best health. Why? Because you're doing everything right you're living on a beach, eating, breathing, eating fish out of the sea. Perfect sunshine, vitamin D, sleeping well, no stress you're doing everything right or you could have a medium, not so bad version and live in New York as an investment banker and drink for lunch every day and not sleep enough et cetera, et cetera, et cetera, so here's the profile. Here's your risk if you do everything right your energy levels are gonna be great and you're not gonna be sick.

If you do everything wrong, even though you're the best profile, you're not gonna have energy and you're gonna be sick. So that epigenetic that context when it comes to the brain, it's literally context, where are you? And when it comes to everything else, it's environment, nutrition, lifestyle, these three things you have to triangulate around your genome to equal the net result and I think that's a much more practical way to look at epigenetics versus trying to measure a genetic expression, which how do you even measure that? It's so complicated and here's what you're wired for. Here's what you're doing it's no wonder you're sick.

Greg Eckel, ND, LAc

I love it. And that's a great you explained that very well on the epigenetics of the, what are you surrounded with? What are they getting bathed in and then how are they expressing, love it. So what are some key things people can do to hack their DNA and have more energy?



Kashif Khan

Yeah, so step one is understanding your profile so what bucket do you fit in? The six big ones we look at are cardiovascular. So everything about diabetes, hypertension, cholesterol, everything about your vascular term, Alzheimer's, dementia, all that stuff, right? That's a big one, diet nutrition. Should I be on a keto diet? Should I be a vegan? How well do I metabolize carbs, are carbs actually a problem for me, maybe they're not, insulin response. Then we look at mood and behavior, which we talked about. How is your brain wired? How do you perceive the world and therefore, what changes do you need to make and how you deal with people in your context. Sleep, the genetics of I can't fall asleep. I can't stay asleep. I sleep through the night, but I wake up feeling, not rested all three of those can dramatically affect your energy the next day.

Then hormones, everything about my innate body type and what am I doing with hormone production, clearance, metabolism, all that stuff and how that equals hair, skin, energy, vitality, youthfulness, all that stuff and the big one for this context is cellular health immunity and detox. How healthy are your cells? We all agree that diseases rooted in inflammation. What is inflammation rooted in? It's rooted in your cells being like you said, bathed in the wrong stuff, toxins, radicals, stress, cortisol, all that stuff so what are you putting your cells through that may cause them to age prematurely or be suffocating in the wrong stuff. So now between those six, if you kind of go through those, you become the optimal version of yourself. All of a sudden that max energy, that max vitality, 90 years old running with your grandchildren, instead of sitting on a chair, looking at them, that's a choice instead of hearing the story, actually riding the bike with them and being with them present in the moment.

Greg Eckel, ND, LAc

Yeah.

Kashif Khan

That's all a choice and so it's these six areas that we focus on, 'cause we believe once you've optimized yourself in each bucket, you should be able to reach that 100, 110, 120 quality years it's not just years to your life it's life to your years like truly vitality. And with that energy, that energy drag comes from doing everything misaligned to your genomics. So for the most part, we know what to do. There's gonna be a lot of great people speaking here that are gonna tell you great things. All we're saying is you can take the trial and error out, you can take the one size fits all out. You can open an instruction manual and know exactly what you need to do, where you need to focus 20 different things or people are gonna tell you 20 great things which one do you actually



need? If you can focus and first know, read my instruction manual, oh, this is the broken part I need to fix this. That's what your DNA is trying to tell you.

Greg Eckel, ND, LAc

I love it, yeah. The way that I will talk to folks around that is that you get to go right to the front of the line, the head of the class. We take the guesswork out because of we know your platform of what you're operating. So we go right up there to the beginning on the highest leveraged motion and movement. So I really thank you and appreciate your information and the way that you describe this so very sometimes you get into these conversations around genetics and epigenetics and it gets very convoluted very quickly and this is very understandable, digestible and usable, quite frankly. I mean, I think the brilliance it's shown, you've done your homework and you're helping thousands of people around the globe now with this. So thank you.

Kashif Khan

No, it's a pleasure. We love doing it and I mean, for us it doesn't feel like work. It feels like when you're changing the world and you're helping and save lives. I don't stop working until I sleep at night and even then I'm sleep I'm working in my sleep.

Greg Eckel, ND, LAc

Asking questions to be answered in the morning it's great.

Kashif Khan

Yeah.

Greg Eckel, ND, LAc

Well thank you for coming on the Bioenergetics Summit. Any last parting words, any inspiration that you'd like to leave people with?

Kashif Khan

Well I truly believe that disease and aging are a choice I've seen it in myself and let me give myself as an example. When I started on this journey, I was sick, like really sick, I was 30, I'm 42 years old now. I was 38 and when I was 38, I had eczema to the point where I couldn't open my left eye it was yield shut. I had psoriasis to the point where if I would clasp my hand in a fist, it would bleed. My knuckles would bleed so I would have to keep my hands open like this. I had migraines where my business partner would have to drive me home and I'd be vomiting out the car from the pain.



Greg Eckel, ND, LAc

Wow.

Kashif Khan

Gut issue, depression it all hit me all at once and the question I kept asking the doctors, five different doctors for five different problems. Why is this happening? What did I do? Because it doesn't make sense that for 38 years, I didn't have any of these things and they all just happened what did I eat? What did I breathe? And no, no, no their answer was like, what do you have? And what pill do you have to take? And I started to believe that, but it didn't still, it didn't make sense, didn't make sense so I kept pushing, kept pushing and that's when I discovered my own genome and I found that there was pieces broken and pages missing and no wonder that my office being on top of a manufacturing facility, where they were pumping pollutants into the airways that I was breathing every day was causing such an inflammatory load in me that I eventually started to express all these problems. My business partner, by the way, the same genes that I was missing he had a extra copy. So he was a super human detoxer and had no problem and what you're capable of is so important versus the terrain you're in and so this is where I've learned myself. At that time I did a biological age test to figure out how old I was on the inside. When I started to learn that you can take charge of your health and I was 43 so at the age of 38, inside I was 43. I'm now 42 we've been building this for some time. My biological age is now 33.

Greg Eckel, ND, LAc

Nice, that feels really good.

Kashif Khan

And it feels good because everybody can do this. You're not born with Alzheimer's, you're not born with breast cancer, you're not born with cholesterolemia, you're not born with a Lipitor prescription. These things all happen sort of 50 plus, it happened to me a little earlier because I was breathing in toxic gas every day, but it happens like 50 plus 'cause that's how resilient your body is. It will fight but at that age, your mitochondria dips, your hormones dip, you can't fight anymore and you start to get sick, right. So one thing I should add, we've spoken a number of these summits and people always ask, is there any kind of promo or anything? And I know if we created one, but we'll make sure to it's Bioenergetics summit, right?

Greg Eckel, ND, LAc

Yes.



Kashif Khan

So we'll put a BES promo code, give everybody a discount. Thank you for spending your time here. So it's our way of saying thank you. So if you just go to the website, use the promo code BES. I'll make sure that that's live right after this. I'll go set it up.

Greg Eckel, ND, LAc

Perfect. And we'll also share that. We'll share that with folks around the interview and make sure that everybody knows how to interface that way. That's great.

Kashif Khan

Yeah, we'll make sure 'cause I know everybody always asks that question.

Greg Eckel, ND, LAc

Yes.

Kashif Khan

So we'll get that set up for you. So when you go through it yourself you'll experience, the choices are easy, right, it will get you to that max. So that's my long drawn out closing statement.

Greg Eckel, ND, LAc

I love it. Thank you so much. and thanks for coming on the Bioenergetics Summit.