

Biohacking Inflammation and Immunomodulation Using Genomic and Nutritional Insights



Kashif Khan interviewing
Bryce Wylde, BSc (hons), DHMHS

Kashif Khan

All right guys, today we are joined by Bryce Wylde, aka The Wylde Doctor. And this is not a joke, it's actually on his license plate. I saw him driving away from our office once, and it said The Wylde Doctor. I was like this guy is like, you know, putting it right in our face. First of all, thanks for joining us.

Bryce Wylde, BSc (hons), DHMHS

Police often mistake that as wild driver. It makes me- It defeated the purpose. They pull me over all the time for speeding as an excuse.

Kashif Khan

So people are probably wondering what's going on here because they can hear the shopping car, they see you moving around, and it doesn't look like you were prepared for a recording today. But what we need to tell everybody is that this was the intention that how many people talk to us, ask us about food and labels and, you know, what do I eat, how do I eat, when do I eat. We're going straight to the source. And we're lucky to have Bryce with us today. He's literally

going to walk us up and down the aisles, and show us all of what he's learned in the last few years. And it's going to blow your mind. Thanks again for joining us.

Bryce Wylde, BSc (hons), DHMHS

Thanks so much for having me. I really appreciate the DNA Summit invite and being a part of the group of wonderful lecturers. So, if you stumbled upon this one, we are right here in Toronto, Ontario where I was born and raised. In one of my favorite grocers, the Organic Garage. I love shopping but every time I end up in the grocery store, it really reminds me of one of my passions, which is to always revere and think of the idea of evolutionary biology. You know, how did we get from hunter gathering to just being able to pop into a grocery store and just grab whatever we want.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

Or, for that matter, maybe end up at a drive-through and in all of a matter of five minutes, be able to wolf down our full daily caloric load. So this always has me thinking, obviously I'm a very, very astute as to selection process, what I want in my body and the body of my family. So looking at labels is everything. But I thought maybe we would start off with the whole idea behind evolutionary biology or at least touch the tip of the iceberg as it pertains to what we maybe want to consider in so far as our genetic aptitude.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

And where this all kind of comes from. And so I kind of distill this down to four points. You know, what we're made of is essentially due to our genetic mutations. The discovery of fire believe it or

not had the most impactful, you know, decision on how we ultimately evolved to what we are today.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

And that led to having more time on our hands, which ultimately then led to agricultural practices. So this is a really interesting concept and I'm going to weave this in as it pertains to DNA and genetics. So, this goes back about five million years, where a gene called ARGHAP, or A-R-H-G-A-P-11-B, a single-point mutation on this particular gene sequence, allowed some folding of the brain to occur. So let me take a step back for a moment here. The idea that our brains, and we have evolved essentially due to our ability to think, to conceive with that personality, and to be able to be conscious of ourselves, evolved only because we were able to grow larger brains.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

And that only happened because our ability, or this mutation in this particular single gene, to fold the brain material. The head obviously couldn't just continue to get bigger and bigger. So this one-point mutation allowed for this expansion due to surface area and folding and rippling within the brain, particularly in the prefrontal cortex, okay.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

So that's the first sort of thing that happened about five million years ago, and because of that, of course, ingenuity and creation, and again personality and self-conscious awareness was allowed to happen and flourish. Now fast forward about two and a half million years, we started to eat meat, particularly meat marrow. Turns out probably the fat, in this particular-

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

New evolution of food consumption was probably one of the most important to fuel the brain, but also the B9 folic acid and B12.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

Found in meat. At this point though it was still raw until perhaps one day, a lot of, you know, theories suggests we started throwing meat on the fire and we saw it sizzle. We enjoyed the aroma or perhaps we came across a brush fire where there were animals, you know, literally being cooked within the fire and we sampled that. Eating cooked meat now turns out to be essentially digesting outside of your body. So this was part and parcel to the evolutionary process. We ultimately were able to digest, you know, prior to digesting. So this saved a whole lot of time. And that goes back to, as I mentioned, we have bigger brains now. We have more time on our hands because we're not eating all day, you see.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

At the end of the day, when we're consuming like our primate ancestors, still to this day those that didn't evolve or didn't have that point mutation ultimately through natural selection, this idea of natural selection being one of the biggest influencers on genetic evolution but also point mutation. This one mutation, that's ARHGGEF11 gene. Smarter, now we're cooking food, we have a lot more time on our hands. So what do we do with that time? We explore. We learn that we can get lazy.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

We learn that we can sort of essentially plot the land. And agriculture ensues. But there's a big irony here, and there's a big conundrum here. Soon as we realize that all we have to do is grow the land, and seed and hoe the land, and now we have access to all of these grains, and we learn to pulverize these grains, this is now only going back about 30,000 years, we get lazy. And we ultimately, you know, don't do the level of exercise that our ancestors were used to. We're not forging, we're not consuming a lot of berries and nuts, we're not- There's no variety in our diets. It's this monoculture of grain and starch and carbohydrates, which at the end of the day is not conducive to the millions of years that led up to that point. So what we have here is a situation where 30,000 years ago, where agriculture really blossomed and it became sort of the modern way of consuming a lot of grains and starches, the genetics within our body hadn't had the chance to evolve to be able to accept this new way of eating. And hence, even further to that sort of irony, here we are in a health food store today. And a lot of the solutions are to get away from carbohydrates.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

To get away from refined foods, to get away from processed foods, go back to the way we used to eat, the way our ancestors ate, which is closer and more adaptable to the genetics that we have, you know, held up within our biochemistry, within our body.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

So that's kind of a quick full circle as to the evolutionary biology and sort of fast forward to today.

Kashif Khan

So yeah, that was a full circle while you literally made a circle around the store. We saw, I got to see the view there. And it's interesting because when you talk about ancestral, the way you talk about it, even just that first step, people don't realize how far back you have to go to understand what ancestral means. Meaning that, if you look at our DNA, which is hundreds of thousands of years old, it's not what did grandma do, what did great grandma do. That's a tiny blip versus how old your DNA is, and the practices, you know, the duration of what was done versus what we're doing now. And that's the gap that people aren't filling. And when we say ancestral, they're picking on the wrong stuff.

Bryce Wylde, BSc (hons), DHMHS

That's right, exactly. You know, so you know, evolutionary biology takes us back, you know, hundreds of millions of years. But some of these focal points as I alluded to are really only, especially those that disrupted us most and taken us off sort of the rails, have only recently been in the last few tens of thousands of years.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

You know, most experts believe that this and again, if we understand the idea of genetic mutation and natural selection, the pressures the environment puts on us so that this, you know, essentially encourages those genes that are most favorable to become part of the- Sorry about that, I just bumped into a fellow customer there. The genes that allow us to adapt and become most favorable to the evolution of our species, that's the general one way of, you know, understanding evolution at large. But these point mutations and again, taking us back just 50 million years ago to that ARHGAP11B, it's a single mutation. And as we look at, you know, with the DNA company and the idea that these, you know, single nucleotide polymorphisms, when you kind of put them all together in this big story, this may be sort of that one single nucleotide polymorphism on that one gene that perhaps allowed us to at least be able to conceive of our own DNA. Think about that one for a second.

Kashif Khan

Yeah, yeah.

Bryce Wylde, BSc (hons), DHMHS

The idea to conceive of ourselves as individual and masters of our domain. What we did with that information, however, is probably not as ideal as it could have been, you know.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

But this has led us to a new day, and a new age where we now can understand that genes and DNA are not our destiny. We're in a new age and understanding where, although you can't change your DNA, you can't change ultimately what our ancestors have, you know, developed through both natural selection and point mutation. You can however, manage genetic expression. And that's what this is all about today. Discussion on what do we eat, what do we potentially take to wash over our genes, I like to call it, to better manage genetic expression.

Kashif Khan

So I know that you've already been doing some shopping and whether people believe it or not, you're actually pushing a cart right now. And there's some stuff in there. We're going to dive into that and see what you got. But, one question about ancestral diet. I know often when you write and you talk, and by the way everyone should check out your books there's a lot of amazing information there. Just look them up, you'll find there's several of them. You talk about also fermented foods being a pillar of ancestral diet, which again we take as more of a garnish or supplement. But if you look at, again, going past grandma to our true ancestors, fermentation was really important.

Bryce Wylde, BSc (hons), DHMHS

No question about it. So the idea was that when we were hunting and gathering, and forging and eating primarily what we see behind us, you know, vegetables, berries, nuts, seeds, and of course, you know, the occasional bit of meat, a lot of these foods, as soon as we were, you know, able to find them had already entered their fermented phase. They were already degenerating, and essentially molding and fermenting. And what we've come to learn about that as science has caught up, is that introduction of those molds and bacterial sort of fermented foods. So meat that was already turning, or berries that were already fermenting is what added and propagated a microbiome.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

And we know how important the microbiome is. These are bacteria that live in our gut and they're called friendly. Not because they are friends per se, but because ultimately it's all about real estate down there. And when we have too much of the wrong bacteria, perhaps, or too little of diversity, that's really the key, diversity. So the more of the variation of strains and species that confer health benefit, the better. And because of this monoculture or mono agriculture rather, of diet, mostly, you know, processed foods with a lot of the micronutrients gone, certainly not

fermented. The variety of that has been lost over time. Ultimately destroyed a large part of the gut microbiome over the last, you know, maybe even just a few thousand years. So, we got to get back to our roots and eat like our ancestors ate. Which was essentially, people misunderstand this idea of paleolithic or Neanderthal or, you know, the diet of pre 30,000 years ago to mean meat, you know, eating, you know, bacon for breakfast and, you know, a hamburger for lunch without the bun, and then a steak for dinner, that's entirely a misconception of what paleo means. Paleo ultimately means forging or going back to the way that we ate at a time when we had to work for our food.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

And, you know and we ultimately also experienced a lot of what we now try to do more and more, and this is more of a fad than anything, but intermittent fasting. So we didn't necessarily have food in our bellies at all times. So we had to work for it, and we had to find it. And we had to learn how to find it, so that engaged our brain and all systems. Our intuition was involved in this process as well. So, we're talking about a lot of berries, the rainbow of fruits and vegetables weren't even yet accessible to us, turns out, especially berries, the you know, deep red purple varietal is the most important for us. For our immune systems and, you know, for our DNA, for that matter. A lot of polyphenols, a lot of bioflavonoids. So, consider eating the rainbow fruits and vegetables every single day.

Make sure you do get that in because now we have it available to us, and we have adapted to consuming that way. But for the, your ancestors of millions of years ago, we're talking about the occasional bit of grass fed organic beef, chicken it turns out as you know, is sort of more recent on the timeline. We haven't yet quite adapted to that. Lots of berries, lots of, you know, nuts and seeds. And that's really what made up most of our diets. And if we eat that way, especially if we're considering managing a condition, a condition for which we may, it may have dawned on us that relates to our genetic ancestry and or our family history, and or something we're contending

with today, it's my firm belief that eating like our ancestors ate, reverting back to that manner of eating, is going to heal a lot of what ails you.

Kashif Khan

Right. And when you talk about fasting, I know people are thinking in between meals, right, like keep your stomach empty. But you even go so far as to talk about the habits of centenarians, and even during the meal, like how much should you eat. You know, what's that level, what does full mean?

Bryce Wylde, BSc (hons), DHMHS

So full means, and this is one thing that the Japanese have really nailed. They refer to this as hara hachi bu, or eat as if you are, you know, 20% full, or eat as if you know, you have filled your stomach. Let me take that back. Not 20% full, eat as if you're 80% fuller, there's still a bit of a gap left in your stomach. I'm going to give you an illustration on that, actually, okay.

Kashif Khan

Sure.

Bryce Wylde, BSc (hons), DHMHS

So imagine this bag here. Imagine this bag here is your stomach, all right. And if I were to go and fill that up. And do I just have not working. So if I were to go and fill up this bag.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

20% fill with, for example fiber, or fiber and water, non caloric entities. Okay, 20% full, there's 80% space available. And if you were to then fill up the rest of that during a meal time, you'd essentially be emulating what the Japanese referred to as hara hachi bu, or eat until you're 80% full. It's a hard concept for a lot of folks to get. But if you just follow that one little trick, which is

filling your stomach, which is approximately the size of, you know, two fists, 20% full, you only have 80% left to fill up. And so by doing that, and by honoring that practice, it's almost as if you are ultimately managing the slower release and you're better adhering to your caloric demand.

Kashif Khan

Right, so eat until you're 80% full, leave a 20% gap. And then that's- We don't even know yet what that does in terms of digestion and the load on your body. And, you know, but if you look at the outcome, these people are living to over a hundred.

Bryce Wylde, BSc (hons), DHMHS

That's right. The other thing that they really understand, and that they honor is glycemic index and glycemic load. And we appreciate, you know, there's many genes that we're looking at now, TCF, you know, 7L2, which is the, you know, insulin responsible for insulin sensitivity, many others as well. But the idea that glycemic index was always revered of in these populations that live beyond a hundred centenarians. And glycemic load, they intuitively understood this. This concept that the more refined a product or food stuff is, the quicker it's going to enter into your bloodstream. And the quicker it enters into your bloodstream, the harder, the more of a challenge it is for your body to adapt to that sugar load. One example I like to give by the way, that considers both glycemic index and glycemic load is a watermelon. Certainly if you're watching your calories and your sugar as a diabetic, you may be a little bit weary of watermelon. It's got quite a high glycemic index. However, if you consider the glycemic load, that is the total sugar that ultimately is within each serving size, it's quite low.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

So glycemic index of approximately 80 glycemic load of approximately five, for the average person, non-diabetic, watermelon's a wonderful thing to have. But if you look these charts up, anyone can find these on Google, glycemic index and glycemic load, it turns out that

centenarians in these pockets, Sardinia in Italy, Okinawa in Japan, you know, parts of Costa Rica for example, you know, Loma Linda in California, without thinking about it, these people are revering glycemic index and glycemic load besides what they consume. Which by the way, speaking of Okinawa in Japan, you know, there's a lot of things that these people eat, but shiitake mushrooms and green tea among other things. They love their bitter melons, their tofu, they love brown rice. And you might be thinking, well, that's a grain, and we just talked about how bad grain is. If you're going to consume a grain, and this population's adapted to it over time, because you know, this culture's been eating rice for a lot longer than most other cultures. So again, that's a little bit of the adaptation that goes along with that. But the idea is that the brown rice, or the whole hull and a sheath around it, the fiber intact versus a piece of polished white rice. This is a really good sort of illustration as the idea that this is going to take so much longer, the brown rice with a full sheath intact that hull to digest, and therefore to enter the bloodstream compared to a piece of white rice, which is boom, just like sugar to the body. You've got the Greeks that ultimately love, you know, their goat milk. And this is not like dairy at all. And their honey. So you have these individuals that are, you know.

Kashif Khan

Why do you say that, because some people are confused when it comes to the dairy aisle, and think that in general stay away, but people that's lean on goat milk, just seem to not have a hard time.

Bryce Wylde, BSc (hons), DHMHS

So there's a lot of things about dairy that again, are, you know, through evolution our bodies' lactose particularly found in dairy from dairy cows, our bodies have a problem with, and it's not found as some high concentration in goat milk at all. And again, I think it, demographically or where it is that you live in the world, this factors in because these individuals have been doing these things for longer periods of time, sometimes thousands of years, sometimes tens of thousands years. So there's a degree of adaptation, but the type of dairy that we're consuming today, being that it's from the cow, the dairy cow, most of us, and we look at this at the DNA company, MCM6, this idea that, you know, lactose is nothing that, you know, the average

individual probably about 52 or 53 percent of the world is actually lactose intolerant. And of course, what we're feeding cows. I mean, these little liposomes, these little fat, you know, pockets that ultimately, you know, that we find in dairy that hold a number of different things, such as, you know, particles from the grains that they're consuming. So if you're sensitive, certain grains are gluten. You might actually have exposure in some small subtle ways to consuming dairy. And hormones and all kinds of other things that we probably shouldn't be feeding cows, antibiotics, so this goes beyond just lactose, it goes beyond just the inability to digest dairy. And this is something of consideration that, you know, we're also over consuming dairy. We're over consuming gluten and dairy. If we could get rid of two things. That our genes have not adapted to, it would be gluten containing grain, so that is barley, rye, some oat spelt, particularly wheat and dairy, which is cheese, you know, milk from cows. With the exception, maybe of yogurt, you know, organic Vulcan style yogurt in most folks, you know, that's probably a good thing. Nicoya, Costa Rica, another pocket, squash, you know, yams. This is their preferred starch. And they do really well with that. I know we think about Italians, and this is Sardinia in Italy, they love their pecorino cheese.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

You know speaking of dairy, but it's fermented in, it's processed in a different way. The outcome is so high in essential fatty acids. So taking a step back to the evolution, we talked about our gap gene. We talked about, you know, developing a prefrontal cortex due to that, getting smarter, eating meat for more B9 and B12, then cooking the meat, which is like digesting outside of the body, all of which then continue to expand and grow the brain. There's another evolution that happened. This is only maybe about, you know, 40 or 50,000 years ago. And it was the FADS one and two gene. And this, this stands for the fatty acid desaturates gene. So this allowed us, and this is another one of those sort of point mutations. This allowed us to take things like fish, omega three fatty acids, some seeds, pecorino cheese more recently, you know, from, as I mentioned, Sardinia in Italy, they eat a lot of this, and extracting omega three fatty acids and use

that for, you know, enhanced brain function and growth. Particularly, EPA and DHA, eicosapentaenoic acid and docosahexaenoic acid. The other thing that they love in Italy, by the way, locally grown wine.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

And milk fissile tea. I'm imagining perhaps milk fissile tea because we know this to be very important for helping detoxification, maybe deals with, you know, the wine that they consume in that region. I don't know for sure, but it's a good thing to keep in mind when we're talking about diet and lifestyle of the modern age, and that is detoxification. It's so important to enhance that process.

Kashif Khan

And that bottle you just raised up, you know, made me think of the oils, and how people think of Mediterranean food and olive oils, but they're not knowing how to understand what's on a label. And, you know, is it, there's a whole racket behind that industry of cutting oils with other things and not knowing what you're actually buying. So how do people know what's actually proper?

Bryce Wylde, BSc (hons), DHMHS

It's quite simple, actually, you know, just like grains are refined and pulverized, and denatured to become the powder sugar that they basically are. So, which is why we want to avoid cookies, cakes, breads, pastas, and anything that's ultimately originally a grain, and pulverized into that very, very high GI index, as I mentioned. Once you take a particular, a seed or a vegetable oil, and you refine that, you're in trouble, you are ultimately just adding fuel to the fire, as it pertains to inflammation. Inflammation is a medical buzz term of the day because it's essentially at the end of the day at the cellular molecular level, what causes all disease.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

And so refined oils can be essentially eyeballed and identified as translucent, transparent. You can see through to the other side. A yellow corn oil, or a very, very pale cotton seed oil. All of these have a lot of the omega sixes in them, by the way, as well, which are very pro-inflammatory. You know, starting from linoleic acid, we talked just now, but the FADS two gene. This is a gene ultimately that allows us to convert some alpha-lipoic acid into stearidonic acid, then downstream into EPA, eicosapentaenoic acid, then eventually to DHA, which is just downstream, ultimately what we want. And so the oils that you know, are very colorful, and are rich and ultimately not processed. So in that case, we're talking about extra virgin olive oil. I mean, it's dark green, right.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

You know, this is the stuff from the first press, not 10 presses later where there's still oil, but it's basically light yellow, maybe a tint of green. And then we're talking about things like red fruit palm oil, you know.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

So this is from the mesocarp, not the central part of the palm, which is white and very, very saturated. Not the saturated fats are bad, but it's very, very, you know, on its own saturated. So calories without any of the antioxidants that are ultimately beneficial for us, for our health. So red fruit palm oil, extra virgin olive oil, coconut oil. That's another one as well. Although it's not pigmented, this oil, and it's highly saturated. A lot of CLA or conjugated linoleic acid in there, and other healthy benefits, just entering the oil section here, that we can consume that can ultimately wash over our cellular mechanics, especially the lipid membrane that controls the, you know, nutrients in and out of the cell. Hormones, cholesterol, which is, you know, overly

promoted as a dangerous thing. So, but oils, we really have to get a handle on oils. I mean, we can cook with them. The other thing to keep in mind is if an oil has a low smoke point, you want to make sure that you don't cook with it. So fish oil, of course you can't cook with it. One of the healthiest oils. Olive oil really shouldn't go more than 375 degrees. Red fruit palm oil has a little bit of a higher smoke point as does avocado oil as does, you know, coconut oil. So look at the smoke point of these oils, and do not use them beyond their ability to not smoke. That's what smoke point comes from. Because as soon as you do, now they're denatured, and they're really messing you up, not just promoting inflammation, but also oxidative stress.

Kashif Khan

Mm.

Bryce Wylde, BSc (hons), DHMHS

So that's the top line on oils.

Kashif Khan

So I saw, you know, I've been watching the background. He's been walking around and by the way, I haven't had lunch yet. So, I've been trying to pay attention and see maybe what should I go grab. And I noticed, you know, lots of snacks and nuts and that type of thing. I keep hearing such conflicting with like adamant belief news about nuts which is absolutely, like you said, that's what our ancestors ate. They just picked it and ate it. And as absolute as that to stay away, omega six, it's going to make you sick. So what's the truth there?

Bryce Wylde, BSc (hons), DHMHS

So I think it's all, you know, the age old adage, everything in moderation, including moderation itself. And whereas I believe, you know, the idea that think about how this effort must have been for our ancestors to locate and find a stash of nuts. Which ultimately are by the way themselves fruit. It wasn't an easy ordeal. You don't just come across an almond grove or a bulk, you know, stash where I am here, and just like scoop it out. It's that concept of more than a handful, your

own handful of nuts in any given day isn't probably very good. Let's not forget no matter what we're talking about here, calories are still a thing, right.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

Most people dismiss calories so long as you have the right amount of micronutrients, vitamins, minerals. I'm not of that camp. I think we do have to understand our basal metabolic rate. I think we do have to have a command as to how much energy output. It's not all about calories in, calories out. We're not bomb calorie meters, by the way, this is where calories came from. The idea that you put a food like nuts into an oven, essentially blow it up, and that's the kilojoule energy release. That's how we know calories, right. The idea that this amount of food causes this amount of energy release, but that's not how we operate. Our digestive system is quite different than that. We're not bomb calorie meters. But the idea that the 4-4-9 rule applies. Four calories per gram of carbohydrate, four calories per gram of protein, and nine calories per gram of fat. These are very, so nuts and anything like oil, meats and fatty meats, of course, you know, count for this as well. These are contributing nine calories per gram to your diet.

So A, they have to be in moderation, because you know, you just can't- If your body desires approximately 1800 to 2000 calories a day for the average size male without exercise, 1500 calories of fat and nuts is no longer healthy. So again, that moderation, a handful. The other thing we want to consider is how long are these nuts sitting around. Where did they come from, are they irradiated. Because at the end of the day, a lot of nuts are to keep bacteria off, and are they contaminated. So you want organic non irradiated, non-contaminated. And often what that is aflatoxin. Aflatoxin is a very, very dangerous spore that ultimately, you know, grows on things like peanuts, which is by the way, actually not even a nut. Peanuts and cashews are legumes of the legume variety. But nuts are notorious for carrying aflatoxin and other, you know, contaminants. So, I know that's a long list to keep aware of, but to summarize, your own handful of clean non irradiated, non-contaminated nuts. And that's really all our ancestors would've consumed, you

know, we're talking, we're really not talking, most of us way over consume food. We way over consume calories, bottom line. And to get a hold of that, it's really to appreciate again, we'll get into that maybe next, is whether you have predispositions to desiring to overeat.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

And of course, what kinds of genes play a role in that, you know, executive function that mental and emotional process as well as just generally satiety, there's a lot of hormones. Ghrelin, leptin, adiponectin, these are hormones that are control of telling our brain, you know, that we want more food. And when we have just all of this stuff all around us, notice that I'm in a health food store. And so much of this stuff is refined. A lot of the stuff that's gluten free by the way, has a higher glycemic index and a higher glycemic load.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

Than average. I mean, so you just got to be aware of these things and calculate in your head, have a good understanding of your genetic aptitude. Along with, as I mentioned, you know, the amount of calories that your body needs to function effectively and optimally, as well as how much energy expenditure on top of that, that you're producing on a daily basis.

Kashif Khan

Yeah, there's people like you described that often, there's a vice, meaning that there's the one thing that they just kind of let go of it. It could be the Doritos, it could be the sugar, it could be some kind of drink that's caloric, some juice or something. So how do those- There's one thing to understand if it's genetically driven, meaning your inability to feel satiety, you know, leaning on food emotionally as a coping mechanism, once you're aware of those things, it becomes a little easier to cope, but how does somebody, I think everyone agrees with all of what you're saying.

But to actually do it in practice, like how do I not eat ice cream at night, right, what do I do? Is there, do you replace it? Is there a habit you adopt? What's the thing that actually helps people build the plan and stick to it?

Bryce Wylde, BSc (hons), DHMHS

So as you well know, there's a few genes that we look at that, you know, we can determine what predisposition, as you alluded to earlier, we might have, and understanding is power. Knowledge is power. So we look at DRD2. The dopamine receptor relationship to the saturation of the dopamine receptors on post synaptic nerve endings accounts for a large part of how we seek pleasure and reward.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

Food is a huge source of pleasure. Huge source of reward. Understanding that is power. Understanding also the degree at which that dopamine might fit on that postsynaptic receptor and all of the other catecholamines that play a role. So COMT or catechol-O-methyltransferase plays a role in the length or duration of time. We might feel that reward. So understanding just those two genes as you well know, is going to determine whether or not somebody seeks regular constant reward and at what rate, and at what amount. And then this interesting gene, the MC4R gene, which is the snacking gene, we affectionately refer to it, right.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

I mean the desire to constantly, you know, binge or have snacks throughout the day. So the dopamine that relates to bingeing and snacking throughout the day. So your question is pointed and it's interesting, it's also loaded. So understanding our genetic susceptibilities, there are some

supplements I'll get into that momentarily, but I'm a huge believer in the art of forecasting. And what I mean by that is this is actually borrowed largely from ericksonian psychology and neural linguistic programming, NLP. And if you know you have this propensity or predisposition, both genetically and characteristically to snack and binge on those foods that are, you know, the late night ice cream, as you as you put it, or bag of chips shouldn't dive into is the night before, and this is a very simple exercise, the night before the next 24 hours ahead, you take a piece of paper, three columns. It's very simple. On the first column, and it's like you're an editor of a movie. So on the first column, what you're going to do is write a list of maybe 10 different items that you're going to call Preconceived Notions. So that's one column. The second column is where you're going to put the title, Edit. And again, you're editor of a movie.

So you're making a movie here of your day ahead, 24 hours ahead, not next week, not next month, not next year, just 24 hours ahead. Then the last column is called Outcome. So in the first column, you're going to list preconceived notions and we all have them. If I asked you what you had for your day tomorrow, if I asked you to sit and focus for five minutes, what do you have on your schedule for tomorrow, what emotions will you have related to those elements or items within your agenda. What are the outcomes that you predict or preconceive. Most of us are very, you know, resourceful. And we would know, we would know those at least 10 items, how we would respond to them emotionally, and what we might do about them as you know, reflexively. And so if we know those things and we map this out, it's very powerful. So in this first column where you put preconceived notions, it's all those items with emotions attached. Then the job is to edit them. So what about them didn't you like? You didn't like going to the fridge at 11 o'clock at night and binging on that tub of ice cream. Okay, so that's the behavior. The edit is-

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

What you're going to do about it. And so you can decide what you do about that. It's either and most likely a healthier snack, maybe not even having a snack, but rather going outside, taking a

deep breath of fresh air, doing a five minute meditation. Maybe it's doing 20 pushups instead, go figure. I mean, just engaging the brain in some type of a feel good reward scenario actually works. Whatever it is you decide to do, that becomes your edit. And you're going to do that for each of those items. You play that over in your head. We speak to ourselves by the way. This is another interesting gene FOX2P. This gene is related to language. As soon as we develop that ability to communicate language, we speak to ourselves, try to have a thought without language of some sort. It's impossible. So, because it's so powerful, and it's so ingrained in our neural network, speaking to ourselves in that edit column, and playing it over and over, this new reality, like I will not go for the ice cream, I will instead do a focused, you know, five minute meditation with deep breathing, and you play that over and over.

Then let it go takes, you know, five minutes, guess what happens? The next day it's much more likely that your default mode network will go to that new edit versus the preconceived notion. And this is where it gets even more powerful. And the brain is incredible this way. So I don't care whether you have the lesser, you know, optimal variant of the DRD2 dopamine and the, you know, the poor variant, the MC4R, and now you're a seeker of reward and you're a snacker, doesn't matter. This will still work for you. But what you want to do is you want to practice this more vehemently if you have those genetic predispositions, and maybe even consider some supplements that I have in mind.

But the end of the day, the next day, this is where it gets very powerful. When you study your expectations and edits, the preconceived notions and the edits, you will notice, there's no miracle here, 6, 7, 8 times out of 10, what transpired were the edits, not the preconceived notions. That's where your brain starts to change. That's where your brain starts to realize this is possible and it's very powerful. You know and so there's interesting. Number one, just this off the shelves over here. Tyrosine, where did that go, tyrosine and theanine. These two essential, or non-essential rather, amino acids can help the brain make more dopamine. So in the case of tyrosine, there's a limiting factor, B6, pyridoxine hydrochloride. So tyrosine and B6 makes dopamine. So if we've learned that we have the lesser optimal variant of the DRD2, so we have less dopamine

receptors, and maybe our COMT activity is fast, so it's disengaging that dopamine, variations to that as well, where we are more likely to desire reward. And that comes in the form of snacking and food often. Taking tyrosine might actually help to fill the gap. And the other thing is the theanine, most of us who are in that state, depending on our ADRA2B gene, by the way, as you well know. As it pertains to adrenaline and the hamster wheel, and maybe overthinking some things and fight or flight, so that's that variation between going to, from sympathetic to parasympathetic and back, theanine. Theanine is an incredible amino acid that helps to create more focus, attention, alertness, and concentration while remaining relaxed in alpha wave activity. That's what we want. If we're an individual, you know, with the lesser optimal variation of the ADRA2B and, you know, the individual who perhaps relies more on the reward, that combination can be dangerous. So those two right there are what I'd recommend for that scenario.

Kashif Khan

That makes so much sense that if you think about the context of snacking, it's usually you're at home, get zero sleep. You're now sitting there, time for yourself, and you get bored because you just went through this high paced day that we live through, and you're used to certain pace and all of a sudden it's Netflix and chill or something along those lines. And you're looking for pleasure, and it's so easy to get it from your pantry. So if you can turn that need off by supplementing, which is a big question for people, like, how do I feel good, how do I- I'm not hungry, I'm bored, or, you know, just that simple tweak can help somebody with that whereas often very difficult to let go, you know.

Bryce Wylde, BSc (hons), DHMHS

And where you get the biochemistry right to begin with. So the foundation we talked about at the top, where it comes to diet and maybe considering to eat more like our ancestors ate, because that's how our bodies have evolved more in line with those foods, so that we're not creating this imbalance and influx of sugar.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

Which in of itself is going to cause turbulence and, you know, ups and downs and undulations of our blood sugar, which in and of itself causes craving. So that's a double edged sword. So first getting that biochemistry right in a transition, especially by the way, as you know, if we learn about the TCF7L2 gene being a suboptimal variant, and we're more predisposed to insulin insensitivity, alpha-lipoic acid.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

Alpha-lipoic acid, this moonlights like vitamin C at night, by the way. It's a water and fat soluble antioxidant. It gets in and outside of the cell, but incredible for sensitizing insulin. We also, as you know, we use this at the DNA company in the detox optimizers, it pertains helping us flush free radicals, and flush toxins along with-

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

Selenium and acetylcysteine. Another really good one, is this you know, just recently, you know, on the map, in terms of managing insulin, managing sugar in the bodies, has actually been compared to Metformin in some studies.

Kashif Khan

Wow.

Bryce Wylde, BSc (hons), DHMHS

Berberine, berberine, yeah it does as well or better in some studies to managing insulin and helping to upregulate insulin sensitivity.

Kashif Khan

Wow, that's incredible. So how do people know dosage, you know, often there's, it's what it says on the bottle. But then when you go talk to a naturopath or functional medicine doctor, they ignore that, this is what you actually need to do.

Bryce Wylde, BSc (hons), DHMHS

So, you know, this is the good- The good news of today is that a lot more naturopaths and people in my line of work and profession are coming to understand more about the power and the application of genetics and genomics. So I think it really does start there. I have this saying, you know, your health is an investment, never an expense. And a few hundred dollars that it would cost you to learn about your genomic profile, to engage with your genetics and your DNA, to know best what to take in the first place will also help somebody like a naturopath inform on the dose.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

So it's a little, because there's two different things here. Sometimes we're looking to solve a problem. So there are individuals out there that are looking for solutions, and okay, we'll look at blood work, and this is a live snapshot of the day, the week, the last month, last few months, that's all it is. It's a snapshot. And if A1C levels, for example, aren't looking so hot, which is looking at, you know, basically sugar attach the hemoglobin over time. If you're fasting insulin, or you're fasting glucose levels or your insulin production not looking so hot, we might go to things like berberine.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

And we're informed about the use and the dosage given your body size, your height, your weight. But when you're using this for genomics, and this is much more powerful to, you know, understand the variations of these genes that you have, so that lifelong dose, at the right dose for you, of that particular ingredient like we do at the DNA company, that's where the magic happens, because that's going to help to prevent these things from occurring in the first place. You can supplement without lipoic acid, and you can supplement with berberine and the like, just by knowing genetic aptitude. You don't have to wait till there's a problem to find that solution. You can manage genetic expression. That takes me right back to what we were saying earlier. You can't change your DNA, but you can manage genetic expression. So just learning about what these susceptibilities are, and then washing over them with the right diet and the right ingredients. And by the way, lifestyle as well, we just talked about one very powerful, besides exercise, lifestyle to engage with the power of forecasting behavior.

Kashif Khan

So while you're there in that, you know, supplement section, you talked about, you know, it was really cool, because your approach is functional where it's not just here's the berberine to deal with, call it, insulin, and glucose, right. But here's also, the supplement that will help you with your perception. So you don't have the craving. So it's a sort of double edge attack, you know, coming from two fronts. So we dealt with the starch and glucose. Is there anything you recommend on the fat side in terms of supplements.

Bryce Wylde, BSc (hons), DHMHS

Yeah, so yeah. So there's the whole advantage to optimizing macronutrients and micronutrients, right. So when we're talking about macronutrients, we're talking about fats, proteins and carbohydrates. You know, some of the things that we study at the DNA company is, am I one that is, you know, going to do well from a particular macronutrient diet or not. One of the most fadish diets right now is the keto diet. Huge focus in concentration on fat consumption. This was originally studied as it relates to individuals who had seizures, grand mal seizures. And it was determined through research that if we were to feed these individuals high amounts of fats in their diet, 80% and higher, we'd cure the seizures. Seizures would go away. That's of course not

for everyone. But what we also saw as a side benefit in some cases was weight loss. So fast forward to today, this is now surfaced as a bit of a weight loss fad. However, it turns out perhaps even upwards of 25% of the population has a gene known as the APOA2 gene, should you have the non-favorable variant of that gene and consume a high fat diet. Your body doesn't know what to do with the fat as well as the average individual, you put on weight. So there's ways in which to, I wouldn't say trick or advantage that, you know, would never recommend somebody with the APOA2 variant we're talking about consume high amounts of fat, but even the healthy amounts of fat that they consume, they might want to consider taking a lipase.

An enzyme that ultimately helps break down and manage and deal with fats in their diets better. I mean, that's not going to prevent them from storing fat, but there's a relationship here as well as it relates to macronutrients and enzyme production in the body. The same with amylase by the way. So the AMY1 gene, this is the idea that, you know, some individuals are more sensitive to a high carbohydrate diet, and the propensity to have fluctuations with blood sugar, as well as, you know, weight storage and so forth. This individual with this genetic propensity to a poor breakdown of the fat from the amylase that starts in the mouth. That's where the breakdown of carbohydrates start, all the way through the digestive tract. They might actually theoretically benefit from taking amylase. So I believe that there are these macronutrients that we can supplement with, not just to, you know, enhance digestion, but as it pertains to potential predispositions found within our genetic susceptibility and our aptitude.

And for that matter, you know, there's individuals that are on all sorts of diets and have all sorts of goals and weight loss aspirations, getting all of what we described, you know, right to begin with. Understanding our genetic susceptibility, getting, you know, a hold of the right frame of mind. And it becomes, I wouldn't say easy, but it becomes something manageable, you know, for these individuals. There's no such thing as a fad, it won't work for you. You know, don't take my word for it. Try these different, you know, methods. I believe that if something seems too good to be true, we've heard this age old adage before, it is. You know there is no one single ingredient or one single diet or one single miracle cure. That's going to bring you to your right state of mind,

energy and weight. It is entirely the overarching genetic susceptibility, predisposition environment, and day to day routine.

Kashif Khan

And I know you were, you've been working on the project recently where you've been studying, researching and trialing how to improve people's cellular health. Because I know the thing you talked about earlier, inflammation being the root cause of so many things, everybody talks about that. And so, when it comes to weight, you know, and macro, micros, we can get very precise. You took a step back and said, you know, when it comes to cellular health, here's what kind of everybody needs to be at their optimal, right. And so what are those things that if someone were to just walk into that supplement section and say here's a two or three, four or five things that you should be doing, what are those things?

Bryce Wylde, BSc (hons), DHMHS

So here I go again, this is real life folks walking in a grocery store. Bumping into things. Yeah, so great question. So some of the research that we've done in the thousands of genetic samples through the DNA company, we saw some general themes. So we don't actually speak about this at large, but it relates to something I said earlier around how humans started eating meat this point in evolution about two and a half million years ago, still raw, but nonetheless, the access to B9 and B12 played a huge role in our, you know, mental and cerebral development. And that's because B9 and B12 are so crucial for something called methylation. Which can also almost synonymously be related to inflammation.

So without these two micronutrients, it's hard to, you know, essentially satisfy cellular inflammation, and processing even DNA repair and protection of the DNA itself. So getting methylation correct, as we saw these trends in a lot of individuals who had methylation defects in their DNA. The other thing we see is a trend of poor detoxification. And so when you're- And by the way, this is not just referring to the ethereal, you know, industrial plumes of smoke that come out of manufacturing hubs and cities, or, you know, chemicals that you might clean your home with, or wash your clothes with, we're talking about just the day to day process, the metabolism of our breathing, and our eating on a day to day, that we make chemicals that we have to then detoxify or metabolize out of the body. So we saw these trends of poor methylation,

poor detoxification, and also some additional trends of cellular mechanics, in this case, energy. Mitochondrial function being a bit of a challenge. So, if you address an optimized methylation in the average population, if you address and optimize detoxification in the average population, and if you can help manage downstream mitochondria, by the way, this is the currency of energy in your body ATP. This is the centrality, there's original, there's hundreds and thousands of them in every single cell of the trillions of cells in your body. By helping and supporting mitochondria with the right antioxidants and support mechanisms, you're going to attain more energy. Which means metabolism as well. So those sort of, that trifecta methylation, detoxification, mitochondrial support, energy, metabolism, the average individual by supporting them.

So these are some of the ingredients that we're looking to, you know, study in the population at large. We are continuing to study to propagate more mitochondria PQQ, ubiquinol. These two things will protect the mitochondria and help them divide, and then downstream something called NMN, nicotinamide mononucleotide, will actually help create more ATP. So now we've got more energy and metabolism. To get rid of the toxins and control inflammation, glutathione and curcumin, which is the extractive turmeric. And these things together, separately and together, as you mentioned, will manage the biggest contributing factor of all disease. Bar none which is inflammation. It's a buzz term of the day for that reason. So now we're controlling and managing cellular inflammation, producing more energy and enhancing detoxification. Here it is right here. This is turmeric see that bright yellow color there.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

That's turmeric. This stuff here, you extract curcumin from this, and you're controlling cellular information. So this is the learnings that we've gathered and garnered from thousands and thousands of customers at the DNA company. And so that's a non-personalized yet from obviously these big numbers extractions, but I still recommend anyone who cares about their health and anyone who understands the notion, your health is an investment, not an expense.

They are still N of 1, they're still an individual, and they still should get their genetics identified through the DNA company.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

To learn exactly what they should do about their predispositions.

Kashif Khan

It's funny because as I'm listening to, I'm reminded that last night I was looking at some data because we're working on a project with this sleep tracking company that everybody knows, but I can't say the name yet until it's actually live. About how to improve people's sleep through their genetics. And so I was looking at some of the data. We have our detox pathways and we have about 5,000 people that went into a study where we looked at their detox pathways. And the thing that I didn't know, we just never looked at the data from this perspective, the GSTM1 gene, which is one of your key, you know, genes in the glutathione pathway, it's possible to have what's called a copy number variation. Meaning it's not just the snip you were talking about or that variant imitation, you're literally missing a copy, right.

Bryce Wylde, BSc (hons), DHMHS

Yeah.

Kashif Khan

Or two copies. The thing that blew me away is only 8% of those 5,000 people had both copies. So-

Bryce Wylde, BSc (hons), DHMHS

Right.

Kashif Khan

Close to, I think it was 49% had zero. It shocked me. I didn't realize how big and prevalent this problem was. And then the balance, you know, close to about somewhere around 40%, had one copy. So that like 50% capacity. So if you think about what we're wired for, again, going back to exactly where we started, who are our ancestors, our ancestors aren't last generation, they're tens of thousands, hundreds of thousands of years worth of ancestors, who are not designed for this current reality. And that's why only 8% of the people in our 5,000 data pool, but there's a lot more people we've been through, but this particular study we've done around glutathione had both copies of the GSTM1 gene. You know 92% of people out there walking around with no proper defense system. And you wonder why people have so many inflammatory issues, right.

Bryce Wylde, BSc (hons), DHMHS

The end of the day, the most simplistic view is that we really didn't need them as much as we now rely on them.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

And same thing with, you know, it's another example, the APOE variation that we study at the DNA company, there's a lot of reverberate for this in cardiovascular medicine, health world for pertains to the acronym, the apolipoprotein E it's kinda like a vessel, a ship, a carrying molecule for cholesterol. So it's very important as it pertains to cholesterol distribution, but we now also know through extrapolation studies that this has a lot to do with potential for the predisposition to Alzheimer's.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

So it's not one equals the other, but the variation of either carrying a three, four or four, four might increase your chances from retrospective studies of developing Alzheimer's by anywhere between 30 and 40 percent or more, and upwards of 80% respectively. So I'm saying all that only to mention that it was, there was a time in evolution where the APOE4 variant was actually beneficial.

Kashif Khan

Yeah.

Bryce Wylde, BSc (hons), DHMHS

You know, walking the Savannahs, stepping on, you know, some kind of, you know, projectile that ultimately caused an infection. Having that four, either three, four, four, four variant had a huge role to play in our ability to engage our immune system to tack those foreign entities.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

Whereas today, we turn those guys on and there's a whole mess that ensues autoimmune kind of process, inflammatory process that it ultimately ends up in part in the brain. And that can cause a large part of the pathology involved in Alzheimer's. So it's interesting how through evolution, these are favorable and then ultimately can sway the other direction. So there was, we didn't deal with a lot of toxins.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

As we're dealing with today. And we didn't have to contend with them in the concentration of levels that they're at today. So, probably that, you know, it'll be another, you know, few million

years until we ever catch up. Those of us who have double copy variations, I guess are, I suppose, are lucky. And that brings me back to the idea that if there was anything that we could do, the average person, is to first test ourselves so that we know that we have this null variation to be that much more conscious and aware of toxins in our environment. Because we talk about detoxification as this new, you know, this broad reaching concept that we should go to the health food store and reach for these for the detox elixirs or take this detox drink. It's so much more important to understand your predisposition, and then avoid the toxins in the first place.

Kashif Khan

Right.

Bryce Wylde, BSc (hons), DHMHS

Right. So versus trying to triage it by putting something into your system to hopefully detoxify. So again, it's another perfect example where knowledge is power. First understand your GST genes and your SOD2 genes and all the others that are responsible for enhancing detoxification in your body.

Kashif Khan

This is awesome. You know, first of all, I think you should check your Fitbit because the number of steps today is going to be off the charts. You can probably write off your shoes as a business expense, you know. You wore them right through them today. I did want to ask before we jump off. I'm sure a lot of people are going to love what you have to say and the way you think, how do they, you know, get access to your books and is there a website where people can go to to learn more?

Bryce Wylde, BSc (hons), DHMHS

Yeah, sure, thanks for asking. Yeah, so wyldeonhealth.com features, you know, half a million pages of free information. A huge proponent of checking, you know, supplements with maybe drugs you're taking. So we offer an interactions checker on there, that people can look through.

All kinds of blogs and diets and recipes and so forth. So wyldeonhealth.com and they can learn more about the books that I've written at the same place.

Kashif Khan

Great, and while just everyone knows W-Y-L-D-E, right.

Bryce Wylde, BSc (hons), DHMHS

Yeah.

Kashif Khan

So wyldeonhealth.com. Thank you, Bryce, this was awesome. Thank you for driving out there, and giving us this live tour. That's so meaningful and so much more impactful. This was great, man.

Bryce Wylde, BSc (hons), DHMHS

Appreciate it, thanks so much Kash.