Introduction to Genetics and Regenerative Medicine

– Well Kashif I am so excited to have you on this show. I mean when you're talking about genetics and regenerative medicine, I mean that that is like the thing to look at because that is that's like the information behind everything. – Yeah. It's a pleasure and honor first of all first.

Yeah. And you have to put these two worlds together because it really all these pieces of this puzzle we're trying to assemble and you're doing such a good job of that. This is where we gotta start foundational.

So excited here to talk about it today. – Well thanks. I want to read your you know, your your bio I mean your your your chief executive officer and founder of The D.

N. A company where personalized medicine is being pioneered through unique insights into the human genome. He's also the host of the unfilled podcast like unfilled because we need less pills growing up in Vancouver Canada in an immigrant household.

Kashif developed an industrious entrepreneurial spirit from a young age prior to his tenure at The D. N. A company and cash if advised the number of high growth startups in the variety of industries as Kashif toe into the field of functional genomics as the CEO of The D. N. A company.

It was revealed that is that neural wiring was actually genetically designed to be an entrepreneurial. So so that was that was good luck. – Yeah, it was you kind of fall into if you're if you're happy and successful and there's fluidity it's because you're doing what you're aligned to you know and if if there's frustration and we're going to talk about this. – Yeah, I love to, Yeah, because I I know yeah, with with kind of dopamine receptors and all these things and I'm excited to kind of a little bit more about it. However, his genes also revealed a particular sensitivity to pollutants now. Seeing his health from a new lens cash it doe further SRC the genetic pathways that lead to his own family's challenges and the opportunities to reverse chronic disease is a measure of success is not in dollars earned, but in life improved. I love that.

So, so what what drove me into genomics? I mean, that that's that's a I mean, it's not like one of those things as a kid, I'm thinking I'm gonna work into genomics. I mean, what, what made you take the plunge? – And it wasn't even as a kid, like I didn't even know the world existed until I was 30 years old, you know. I'm 42 now and like so many functional medicine stories, you know, I was sick, a lot of things hit me at that age.

And there's two things that attracted me to what I'm doing now, one is that I healed myself and we can get into that if you'd like from a number of problems.

Why Genomics Became Personal

The number one question was why I would ask the doctors, five different doctors for five different problems and five different pills, why is this all happening to me now I was not used to being sick. It wasn't before that date ever that I had any kind of chronic condition and all of a sudden I had five and there was no answer to the why it was more what I know you have this and here's the pill you take here is a cream to rub on your skin etcetera etcetera. And to me it's like it did not make sense.

My questions were, what did I eat wrong? What did I breathe wrong? You know, who did I talk to wrong, What's going on here? And none of that was part of the equation. And that's when I sort of self discovered my own human genome and in that I found that the science and the intricacy and the depth that could be gleaned from understanding the genome was so phenomenally intense blue mind mind but we weren't doing that. So we were really only going surface level level and looking at direct genetic problems with this gene equals this problem.

This equals this problem when the body doesn't work that way. And so my entrepreneurial mind turned on the one you talked about but also this passion turned on because after healing yourself the impact of going from sick to healthy and that relief like this is my mission now like I I don't ever want to go back to that and then I healed my mother and then I healed my niece and then my friends and I started to see that this is something that everybody needs. So I went from helping startups companies make the best of themselves and grow, which is literally what I did for a while to saying I need to build the startup company and not only that change lives and we've been doing that, we've been through many many many thousands of people now.

And it's been very rewarding. So long story short I wanted to fix people after fixing myself and fix the way genetics was delivered to people. – So the issue, I mean like in your case, I mean you have somebody you know all of a sudden sudden they get sick, they get all these diseases but the one right by them don't have any issue whatsoever. So obviously there's a difference between you versus the other individual and and what are those differences and who should be concerned about what and and that's where genomics really comes into play to really unravel that whole story about the individual and where where they should focus.

– For sure. I think it's foundational. If you anything you do. You know you receive a box from amazon, you got something new, You're gonna open that instruction manual, you're gonna read it and you're gonna make sure you don't put it together the wrong way. Even something as simple as lego you're opening the book when you're helping your kids and doing it the right way your D.

N. A. Is your human instruction manual. You have trillions and trillions of cells in your body that make up who we are. Each one of them has this instruction manual in it that's constantly reading the right section.

So each cell, kidney cell, heart cell liver cell it knows what page to read to do the job it's supposed to do. If you you and I haven't read our own human instruction manual. How do you know what you're doing well and you're not doing so well. And it's as simple as that these instructions drive biological processes. Some of us can tolerate something that somebody else can tolerate. Some of us are designed to do this and some of us are designed to do this.

If you don't understand that innate wiring. What is that wire frame of what what you're designed and what you're living with then how do you know what choices to make?

And no wonder so many of us are sick and aging rapidly and chronic disease and migraines and autoimmune conditions because there's so many more threats now today that we have to deal with right? And it's as simple as that.

That's what I got out of it is. I learned that there was not only what version of what genes and and what my instruction manuals saying. But there was pages missing from my instruction manual.

There's are literal pages torn out that I was supposed to have. and it's no wonder that my business partner didn't have the problems that I had, would drive me home with my debilitating migraines because he wasn't missing the gene that was causing these toxins in our air way too.

Cause all these inflammatory responses to me that he didn't have because he had the gene to protect himself from that. So it's as simple as that. Read the manual, understand what you do well what you don't do well now, you know what choices to make and disease should be a choice.

– And frequently people when they think of like eating healthy, they go and and you know, we all should have paleo, we all should do keto or we all should do vegetarian. We should all and and so we get stuck in this going along with what we think is healthy. Not recognizing that what is good for one individual is not good for the other. I mean, are is it, am I metabolizing fat? Okay, I'm going to have the genetics for that.

So it becomes important in your choices of what you're eating and and I mean it bleeds into so many different things. – Yeah, I mean, the opposite of personalization is one size fits all right.

And the truth is that that's it is conventional because unless you have the technology to understand what is the personalized requirement, then really one size fits all is your best option. You read a blog, you listen to podcasts and something work, Let me try it and see if it works for me.

I might get lucky on the first try, but usually not right. Even something like the keto diet, you might actually think that it's working. But it's not because anyone that gets into ketosis feels amazing in the first couple of weeks. Doesn't matter what your genetics say.

You start developing ketones, your brain feels amazing.

DNA as the Human Instruction Manual

You're using fat as fuel your stomach. You can see your feet again. You're like what happened to my gut, right? And everything starts to feel good. But then if you don't have the right genes to metabolize fat properly, it starts to counteract and you get sluggish and then the brain gets a little slower and you're starting to store fat again like too many calories and not exercising hard enough.

This is exactly why. On day one you could have known what decision to make, right? Should I have gone on the genes that metabolize fats are very clear. The ethnicities for whom fat will actually trigger an insulin response. You know, most of the research is done on white yester, Western European males, not even Europeans, Western Europeans and not only women, men, right? So there's a very small subset of this planet's population for which most medical research is done.

Then you go over to a country like India where there's 1.5 billion people for whom saturated fat will trigger an instant response, which is not documented anywhere.

The medical medical literature, Right? This is a genetic phenomenon. So if you don't get personalized things don't work or they may, it's kind of like rolling the dice is what it is.

It's, it's Russian or like rolling dice. It's true for like you said, ketosis, it's true for the vegan diet. It's true for do I should I eat carbs or not?

It's true for your insulin response. So I was able to heal myself through three buckets, environment, nutrition and lifestyle. What can I actually handle in terms of exposures? What should I put in here?

Right? And what should I do every day, sleep, exercise, etcetera. Now that that's all matching the line to my genomic legacy, what I inherited. I'm fine.

I haven't had a problem in four years. – And, and obviously genes, I mean, you know, people when I do genomics on people, they say, well do I need to do this forever. You know, and, and then I say, well your, your genes never change.

I mean it's the same genes. You know, if you have, if you're poor metabolizing fat, you know, when you're born, you're still gonna be like, you know, now and then forever.

You know, right before you die. So it's, it's important then to understand what patterns you need to develop, you know, for the rest of your life that is in line with with your genomics. – Yeah, it's your personalized playbook, Here's what you need to do right? And what do you need to do again?

Those choices are environment, nutrition, lifestyle and then when it comes to mood and behavior, how you feel, it also has to do with context. And this is an epigenetic factor that a lot of people don't consider because it's not science based, it's more practical. Right?

If you talk to people with, why do you see these high performing celebrities or entrepreneurs? CEOs That are the at the top of their game that all of a sudden are suicidal that all of a sudden are addicts or they're hiding the addiction

because the same neural pathways the same responses lead to both the context that you're in determines the outcome. If you're wired like me to be entrepreneurial because I seek reward. My ability to feel reward is slim to none with certain genes and chemicals that drive that if I'm not doing that, you know what we call warrior genetics. My ancestors were constantly in battle fighting.

And so I'm designed to do the same to be on the front lines, thriving and striving. If I also decided to sit back what happened when I was in my early 30's, I got depressed because I had achieved some level of satisfaction at work and I had a team and I felt like okay I can take a break and I just didn't even want to get out of bed. I was depressed because that normal normalcy, that normal level of satisfaction and pleasure was far far below the threshold I needed to be at right. And that's where that context also becomes important. And we can dive into that if you like.

But these are the areas where again going right back to you said if you know what choices to make that are personalized to you, things get so much easier and so much better and you feel so much healthier. – And you talk to me a little bit about you know that the personality of your genetic personality because I know when people you know when they take your genetic tests and you have I mean obviously they can consult with somebody but you have very extensive AI that interprets the test and and gives you a huge amount of information and you know, it tells your whole life story pretty much in in that booklet. But in regards to them, you know what you how you should navigate life you know, becomes really important then to understand what who you are genetically, what you're good at. You know and what type of task you should tackle and and how you should tackle them. You know based upon your your genetics, you know, dopamine serotonin, all these kind of things. Right?

– Yeah. So we I mean there's a lot of neurochemicals that drive your behavior but we try and focus just like we do it with everything else in genetics. You know what does everybody want.

They want outcomes. They want to change, they want to know what's wrong and how do I fix it if you break it down to the simplest terms and for that you don't need the big data dive that finding that need In the haystack you need the actionable.

Personalized Nutrition and Lifestyle Choices

Let's deal with the 90% that 10% nuance isn't gonna push the doll so much and it really comes down to a few neurochemicals. So dopamine your pleasure and reward pathway um address to be which drives your your adrenaline response which is more about how you deal with trauma negativity. It can lead to things like anxiety etcetera.

And we'll talk about that serotonin which is known as your mood regulator but it does so much more. And then brain drive neurotrophic factor, your ability to deal with neural plasticity and brain connection and what does that all lead to.

So now if I pick on some of these things like serotonin, the thing that's most spoken of is mood. How do I feel? Right? There's a supplement that some people take all five HtP for things like anxiety whatever because it balances your serotonin uptake.

So the gene five HTT LPR determines the length of your receptors. So to what degree do you experience and balance and regulate your serotonin experience not the deployment or creation but the binding and actual moment of that that serotonin experience.

So the in depth explanation explanation goes beyond just mood, it's the reptilian response of prioritizing stimulus that's really specifically what it does and that's why the outcome is mood. The symptom is mood, right? So we think about it a symptom, but the biology is when you think about a snake, a snake doesn't have a maybe it has a calm and attack, right? You bring your finger finger finger, That's not right because it literally doesn't have a maybe it is completely zen calm until it's triggering attack. So that serotonin pathway is what triggers stimulus. Pay attention.

Do I prioritize this or not? Right? So, so what we now experiences of people that are dis regulated for serotonin, it's

kind of like can you stop chewing your food like that?

I can't focus because that clock's ticking too loud, right? You're distracting me please, I need to go in another room. I can't work with you here because you can't your brain can prioritize some people, I'm working and I don't hear anything, I'm focused.

I'm laser. I don't even know that stuff is going on, right? And this is literally driven by multiple things, but mainly this. So now if you even just understand, there's one thing about yourself, even just that one thing then all of a sudden the way you perceive the world and like that person irritates me, that person bothers me and the people looking at you like I have to be careful and walk on eggshells how I say it right? That perception gap, it's driven by one neurochemical, they may be experiencing the world completely different than you and all of a sudden relationships, coworkers, things become a lot easier and then the outcome of anxiety and you know irritability and distraction and the symptoms go away because you start to understand it's a perception problem.

So that's one so we can talk about others for example. Andrew to be. – So. Yeah so the I mean so it seems to me then that these are like that the survival mechanism you know?

So this this is kind of how the individual is in wired for survival. Like you're talking about you know when when should I focus on this threat, you know or when should I focus on such and such you know which obviously becomes really important for like the snake or or you know any kind of survival.

So living then in society then you know obviously we don't need to fight for survival as much. – Yeah and that's it's true of so much stuff that one thing we don't realize we think of our ancestors as grandma and grandpa are D. N. A. Is 200,000 years old.

So the way we're wired today, we are like people of 200,000 years ago. The reality of our current environment lifestyle chemical exposure, social media scrolling all that stuff is a blip in time versus what our true ancestors lived through. So what we're wired for is what happened in the last 200,000 years, industrialization is what like two or three centuries old, right? The modern technology era is what 50 years old versus 200,000 years. And why are so many so many people sick and having mental health issues and mentally crashing because of the overload.

So yeah, if you're wired to do one thing cognitively. And this is why today literally today I read news that spider man Tom Holland canceled his social media accounts because he said it was yeah, it was it was causing him a mental mental health crisis. Why?

Because our brains are not designed for that much stimulus and if your serotonin is dis regulated it it's too much, it's too much. And if your dopamine pathways are off, then you become hooked on that stimulus and stimulus and stimulus and then when you move away from him and put it down. No wonder the Children are irritable and people don't have good relationships anymore because your brain is now craving that hit and hit and hit that. That's the way the dopamine pathway works and what you're now coming back to, which would have been okay for your parents who you're wired to do what they did, Is it okay for you anymore?

Right? So that genetic expression also gets affected even though you have a poor dopamine pathway, your over burning it over burdening burdening the pathway And I'll come back to reality, your brain is not ready for that.

It's like just like training other any other muscle, it's now wants to pump £300 instead of 20. Right? – And and yeah. And and dopamine. If you just kind of search for that stimulus, I mean it's like any kind of note nutrient, I mean you're gonna burn up your your reserve and then you need a higher stimulus in order to be able to trigger a dopamine response.

How Genetics Shapes Mood and Behavior

So all of a sudden you're just become this thrill seeker and you just need more and more, you know, in order to be able to uh you know to kind of feel satisfied.

So so tell me, yeah, so the serotonin, you know, we we have that kind of happy hormone but it is you know, specifically, what should I pay attention to?

I mean that and that's that's kind of like, you know, the survival component of it, dopamine. What what is the what was the purpose of dopamine? – So dopamine.

So everything about our wiring, if you truly look at it in the right context, it's for us to evolve and become better to make the planet better to evolve.

The species, We all move ahead and forward. So we're designed to want more in everything. And dopamine is one of the key things that drives that it drives the sense of pleasure and reward. And the way you experience dopamine is in three stages first there's the anticipation. I smell some tasty pizza and I know it's coming and I start to feel the vibe. Then the actual sensation I bit the tasty pizza wow dopamine is deployed. That pleasure is the response.

Then there's a clearance. I need to get back to normal. I have to go back to work so there's enzymes and proteins that get rid of the dopamine right? So now in that cascade to what degree did these things happen?

Is determined by the genes that instruct each step. So the density of your receptors to what degree do you actually experience pleasure or reward? Dopamine? Pleasure is both?

Sorry powers both. It's you could have maximum density are very slim density and so all of a sudden you're always feeling good which means you don't really care. You're not that motivated because everything is good or you never feel good. So you're constantly looking for the next opportunity in the next reward and your A. D. H. D.

And you know then on top of that how long did it last? Did it last a really long time where you get stuck and you end up binging right because the pleasure response doesn't go away So it's hard for you to shift gears or does it clear very quickly in which case you didn't get enough satisfaction and you're ready to move on to the next thing which means that maybe the next wipe or the next meal or the next drink or whatever, right? Because whatever you just did wasn't enough.

So that's one layer. Now if you layer on top of that nor adrenaline, the address to be gene which drives your your adrenaline response. There's some people who are deleted. So it's not about a snip or a spelling mistake.

You literally can be deleted for part of this gene, there's a chunk missing, remove the paragraph in your page, right? They don't do a good job of responding to trauma. PTSD negative stimulus.

So if you are the low dopamine you know, reward seeking, thrill seeking person. And you also buying trauma because you literally imprint. So there's some people for whom they experience something bad and they intellectually captured it and the next time they're in a similar scenario, they can think through it. There's some people that did something bad and they imprinted the feeling and that's genetically determined.

And you do, if you do imprint the feeling the next time you have the fight with the hubby or you have to go into that building again or you see the same color car again that you have an accident, it's trauma, it brings back the feeling and that becomes your primary filter that becomes the way you now perceive that person or that house or that car and right?

– And this is if you have a dysfunction in the nor adrenaline receptor for for somebody like you know, a an individual that is a thrill seeker. You know, maybe he likes the dopamine and then he's out there to go and he thinks, well I should be a warrior, you know, I should go to war.

And then they have a dysfunction in the Nor adrenaline receptors. You know, the genetic that that makes them, then they will come home with the PTSD. They will hold on to those memories and they're not able to clear them.

– Yes. And now remember there's there's a variability and how much the gene has three possible outcomes, optimal no deletion, single deletion because either mom or dad gave me the bad version or full deletion.

The person in the middle has a highly functional relationship with trauma and pain, meaning that they're imprinting but they're using it as a tool. The third person who has a double deletion, it's a burden.

That's PTSD. That's that that's where they're clinically like I can't ever hear that noise that I can't go to work anymore. Right? The person in the middle is more emotionally intelligent, reading the room and understanding what people are feeling before they even say anything. Right?

So it becomes a primary tool for them in a filter. And that adds to that warrior genetics that makes that person now able to lead and be emotionally connected with people and understand what people are feeling and thinking before anything even starts. Right?

So so it's a difference of you know the same thing that may sound bad. Could actually be a superpower if it's used in the wrong in the right context. Then we move forward to BDNF brain derived neurotrophic factor.

– Well let's just and so with this though you can then really learn as to and what kind of environment and what kind of work and and what you know pursuit you should do you know depending on your your genetics. You know saying that yes I should be you know intelligence officer because this is what I can do or yes I can operate as an E.

M. T. Or no I should be an accountant. You know because I should not be dealing with any of those things I should you know because all of that will stick to me. You know like lou. – so we've done this work.

It's been really fun. I really enjoy it because we get to go into organizations like C suite all the executives and say that you actually shouldn't be the CEO right? It's the wrong choice.

And you two people that we already know that you always have trouble working together like they're hiding and no what are you talking about? We know and this is why and I'll use myself as an example.

So I am that person that has the low dopamine response and the fast clearance. So I don't feel much and when I do feel it it's gone quick and I do have the slight deletion in the new adrenaline response and my serotonin is all off.

So I, my personality if you want to coin it into an avatar it's high functioning anxiety. I'm constantly thinking and wanting to cross every T. Dot every I. And like never nothing's ever good enough you know and every little detail matters. When I'm in a meeting I talked to someone a week later and they're like no we never discussed that.

I say flip to page two of your notebook and look at the third line and they're like oh yeah I did write that down. Yes you did. I saw you write it down because every little detail matters and I can't let it go.

It's burning in my gut tail is dealt with. Then you have our co founder who has the maximum dopamine receptors and the very slow clearance. Right? So all of a sudden this we leave the room.

Dopamine, Trauma, and Personality Profiles

I got my 10 action items. I can't even think until I start working on them. He's on his laptop looking at vacations to Fiji because it's so easy for him to get satisfied that the meeting was enough.

That was the work right and not to say that we don't achieve outcomes. We both achieve outcomes. The difference is I'm constantly chipping away at little things and just getting everything done whatever the next thing is I'm focusing, he will dive deep and binge on one thing and do it better than anyone can do.

But the other eight things on the list never get started. So now that we understand this about each other, we are complementary as opposed to the friction we used to have. There was constant fighting, challenging. Like you're doing it wrong or you're doing it wrong. No, you're doing it wrong.

We just perceive the world entirely differently. He focused on the priority and quality of work. I focused on sort of the vision and all the little pieces of the puzzle that all needed attention to make sure nothing was ignored, right?

So if you understand this about yourself, we've done this work for like black Ops military navy seals, who should actually be frontlines, pulling the trigger that can make that fast decision without any hindrance, who can come back without shell shock and PTSD and trauma. You know, we've done this work with athletes in professional sports teams who should actually lead the team, who should be that anchor in the background. That's the sort of dependable, reliable person, right?

So it becomes very easy. I would argue that if I have your D. N. A. I don't ever need to talk to you to understand your personality at T. I'll describe exactly how what your problems are with your wife or your husband or whatever or whatever, you know, how your kids think of you, how you think of your kids, What happens at work? It's it's very very black and white.

It's just new information. So this just isn't comin right? We've been doing this ourselves. And just one last thing. The reason why we're able to do this uniquely because you won't often see this as a part of genetic reporting is because in our research model we can clinically reviewed 7000 people. So we literally sat in front of 7000 people and interviewed them one by one by one. Clinically with their D.

N. A. In our hand to understand why do they behave like this? Why do their eyes move like this? Why do they not comply to what we said and why does this person overdo it?

And we started to make these uh sort of call them avatars or buckets that people fit in and the strength trends started to become obvious and now we know what T.

That oh you're in this bucket, this is how you behave. And it's very very clear. – That's fascinating. And that's you know like you're talking about your your partner yourself.

I mean now you understand your superpowers instead of being agitated because that individual is not behaving like yourself. You know, so then you can respect that individual because you know that this is how he operates and and and that way you can just utilize that to a max. – Exactly the same thing that could potentially be a crutch could be a superpower. And this is where the thing I said earlier, context is key to that, right? Are you in the right role in the right room?

So if I speak to this clinically, you know, I I remember the first thing that comes to mind is this young lady in New York who was a friend of a friend uh and she was on multiple pills, did not talk to the family, could not go to any family party without there being a blow up, Right? And this type of, you understand the sort of profile. So we discussed her profile and it was very, very clear when I first saw her profile, by the way, I thought she was some high performing artist executive, somebody who had achieved something great.

Instead she literally was, you know, borderline barely surviving, right? And clinically representing anxiety, depression. She would eat her breakfast at three in the morning and then not like her entire day was just disrupted.

So what we realized is she was wired for greatness, right? She was wired to just do amazing things. But her family was extremely conservative and her family believe go get married and give us grandchildren.

This woman was designed to go build amazing things and change the world, right? She was a visionary. She was but in the wrong context, not that didn't fit, you know, it's like putting a lion in a box, you know, it doesn't work. And so now the context is so important because when we coached her through it and the family was listening and when I started to understand the context, then I started talking more to the family that I was too, I was like, I guess that dinner she behaves like this and when you talk to her it's more like this. And yeah, that's it.

That's it. That's that's the problem. I said that's not her problem. That's you boxing a superpower. You need to open it up and unleash it. And this person should be leading the family not being a drag on the family, right? And when they started to see that she started making changes and the family started making changes.

And we had a few calls and she's thriving. She's thriving. Because you have this person who imagine taking someone that's wired to be the greatest athlete and Chaining them up and not letting them run and that's what her

brain was wired to do a mental athlete. – How cool what what what a gift I mean to to really then understand that this is this is who, you know, my daughter is or my spouse or and also obviously myself, but then to give them by understanding then give them that freedom and that right to be who they genetically are designed to be. – Yes, exactly.

We are all when it comes to mood and behavior and mental health, I don't believe. So There's some clinical like, you know, chemical imbalances. That's a mental health problem that somebody who was born with a genetic condition. And this is true by the way for most systems in the body, cardiovascular hormones. Everything the majority of it is chronic in nature. You weren't born with it.

It's not part of you. You made the wrong choice is probably not your fault because you weren't taught otherwise. And then it led to you crossing a threshold that your body couldn't cope with. And it expresses now into some symptomatic condition. That's 85% of what we're dealing with in the 10-15%. Yeah, there's innate genetic deficiencies which cause a problem. That's not what we're talking about.

Those people need medical attention. The majority of what we suffer from, we don't have to have. It's just us being misaligned to our genomic legacy and other legacies to our gut microbiome legacy and an environmental legacy.

And there's other systems in the body. And when you start to understand what you're made of and what you were designed to do, we are all wired for granted this, right? Our ancestors all struggled.

Constant stress, constant problems. They all struggled. And everybody in the tribe had a different role and they all did their role. Well, they had no choice.

Using Genetics to Match Roles and Context

They wouldn't survive if they didn't write and now we're all sitting with our pot lights and our swimming pools wondering why we don't feel right. – Exactly, we think we're suffering. Yeah.

Spiderman deleting his account because he thinks suffering. – Yeah, exactly. – So what was the last, we had one more BDNF brain derived neurotrophic factor.

So this is a gene and by the way, just to go back to all this stuff in in relation to regenerative medicine, medicine, this is all super important because if you're gonna go do something and invest in something and not first understand how you perceive the world, right? And how you perceive the treatment, how you comply to the treatment and what changes you need to make and how those changes are gonna stick. Right?

You you've you've added a piece which is a very important piece. This is this is the tool, right? But you need to create the train the terrain. Sorry for the tool to work. And a big part of that terrain is up here, how you think, how you are you ready to heal, right?

And people like yourself do this work right? You're obviously a phenomenal clinician. But the the channel challenges a lot of, a lot of people don't, right? So a lot of clinicians don't think about it.

It just, you know, prescribe and treat and just let's stick the thing and then injected and done. My job is done there's a lot more that needs to be wrapped around and that's why we're talking about this stuff.

So okay, so going back to BDNF brain derived neurotrophic factor. The primary thing that it's sort of spoken for and studied about is neural plasticity and concussion. So how well do you take a bang on the head and how quickly do you recover? But that's a very sort of elementary version of what it actually does. So when you talk about neural plasticity, how well do you develop neural connections in the brain?

The outcome of that is multifold? If we talk about mood, how much meaning do you give things? So if you're BDNF is off, so you have the person that binds the trauma, right?

They experience additional stimulus because their share of trauma is off. So that thing that was traumatic also was a little more stimulating, right? So they experienced more nuances about the thing and they may give it a lot of meaning, right, if you're BDNF is off, there's also a weight on your shoulders is a burden to that trauma.

That's shellshock, literally the shell. So there's trauma and then there's shell shock. I remember the feeling but it's also like, oh I can't handle seeing it again.

Right, so now that's where you get that clinical, like this person needs a lot of work, which is that that girl by the way that we're working with, then there's a flip opposite, they can have the optimal BDNF and now you have a person that doesn't give enough meaning, right, that is able to like myself, I have that optimal BDNF so I can go fight and do things and be on the front lines because it again, who is that person that can pull the trigger right repeatedly?

That has to do their job over and over again. This is the work we did for literally navy seals, right? And both of those, that's just mood, how much weight, how much meaning the drama queen response crying over spilled milk.

It's very easy to predict even just with this one gene, but there's other nuances that you've been hearing, then there's, you know, applying it to like work and lifestyle.

How well do you develop skills if you don't do a good job of neural plasticity and developing new synapses and neural connections, then you probably aren't the doctor that also writes a book and also hosts the summit and also speaks onstage and also helps with the legal and the marketing. I just do this. Right.

– How did you know that? That was me? Think about asking, walking into a primary care clinic and asking the average clinician, can you go host a summit and interview 40 people like no, it's it's a very straight no. Right. But the thing that they do, they do so well with those blinders on and their subject matter expert.

So picture the author that all they will do is right. They won't even shoot a video right there, A researcher there, author. But the in depth level of information they're going to give you because the way their brain is wired but then they can't develop new skills at that same masterful level. So it's that person that's a great specialist versus the generalist. Both are valuable, depending what context you're right. And now again that young lady who was this great spell who are designed to do one thing really well and be a scientist that discovered something at a level of research that nobody else could possibly dive into was being forced to be the specialist. Go work on the family farm, go do this, go do that, stretching the brain to a level that was not meant to be stretched to.

And all of a sudden there's a misfit, you can't learn this, you can't do this because they're not designed for that, Right? Give her one job and give baker be the master of that and she'll do better than anybody. Give her 10 jobs will fail at all.

10. Right? – So the B. N. D. F. I mean or brain BDNF. So if you have a dysfunction in it, you you have a lot of meaning and whatever it is that you're doing, which means obviously meaning brings emotion and that kind of hard wires it into the brain. So you'll you'll remember that forever and you'll you know, you'll be able to talk about it in details and in so many different ways.

So so it almost like it becomes you know the dysfunction of I wouldn't say that, it's a dysfunction but it's just how genetically you are made, you will have that super power, which obviously is really, really important and then you know like like yourself you're saying, I mean it functions optimally, you know, it doesn't, you know, you don't bring a lot of meaning into it so you can, you can, it doesn't stick as much even though you're detail oriented, you know, so you can still kind of say you wrote that on such and such page because of other components, you know, with your dopamine and Yeah, – I remember every detail but I never write an email more than two lines, right versus our our science team were I asked one question and the answer is an hour long and really it could have been 30 seconds. – It would drive me crazy.

Yeah. Sorry. – Right, so now, but there's a place where that's purposeful and meaningful and then you start to see these profiles that fit in academia and why all these people behave like this and the profiles that fit in

entrepreneurialism and why these people and when these two groups speak to each other, they both say you're crazy, right? Because this is what you're you're you're doing and you're wired for the job that you're meant to do, which is why you're doing a good job, right? You're and this person is good at this, this person is good at this? Some people can lift £300 Some people can run 10 kilometers, What are you wired for? And even that hormonally we can determine by looking at your hormones innate body type, innate capacity.

I mean, there's so much more. You ask a question about the human body and D. N. A. Can inform the personalized answer for you.

Hormones, Detox Pathways, and Female Health

That's really what we're saying. – So, so let's let's go. I mean, brain is so fascinating because obviously that is what drives our direction drives, you know, it it drives us in so many different ways and without without the cockpit, the plane wouldn't fly anywhere, You know, so we we kind of need the brain, but then hormones is is kind of like right up there.

I mean, it's one of those that, you know, it guides all the functions throughout the whole body. So genetically you can then look and see in regards to, you know, thyroid disorders, estrogen, progesterone, testosterone adrenals, pituitary, all of those kind of things can also be looked at through through the genetics. – Yes. So if you ask me of those 7000 people, where did I feel we had the most impact? I would say it's in female hormone health and not because we're the best at it, but we we do do a good job, understood it. Well, we'll talk about that.

It's also because the current model sucks so bad, right? It's you're a woman, you're supposed to have hormone problems. It's supposed to be bad. You're supposed to worry about fertility and menopause and PMS and all this stuff.

So which is absolutely not true. So the reality is that the way we look at medicine, it's a chemical business biochemistry, right? So we're measuring things symptomatically after they've already happened.

Right? The cholesterol emia is the response to cardio in industrial information. The real disease inflammation cholesterol emia your body's response. So you're measuring something way after the disease started. Same thing with hormones.

We're only looking at the symptomatic expression and then measuring hormones today in a woman's menstrual cycle. You measure on 30 different days, you're gonna get 30 different numbers, but it's a complete circadian rhythm.

So what you need to understand genetically your innate capacity to produce hormones, what do you actually do? The jeans are very black and white? It's very gray, problematic business can be very black and white.

So what does it look like? Progesterone converts the testosterone converts to estrogen? There's a gene that does each one of those slow, medium fast, you know which version you have then all of a sudden, how heavy is that testosterone pot being filled? I now know, how many hormones I made did I then convert it into estrogen?

And how quickly or did I clear it? There's a gene that gets rid of the testosterone before it gets converted to estrogen. How well did I do that? Or you can convert it into DHT which is the manly man version of testosterone that gives you ripped jack muscle where you see every stray did strided fiber and it's hard to add belly fat but your hair falls out cystic acne and other problems.

Right? So with this map you can be very, very certain about problems and solutions. So for women specifically and I'll focus there for a second if you are estrogen dominant, you're filling that testosterone bucket, you're very quickly filling the estrogen bucket and you're also estrogen toxic.

Like when you have your menstrual cycle, you first convert into a metabolite 24 or 16 hydroxy estrogen. Those are three options to is great clean stuff four and 16 or toxic potent toxins.

And a lot of women are on these two buckets. So if you are estrogen dominant and you are estrogen toxic then your month over month creating this toxic metabolite and causing inflammation to your body. Okay, why then do some women have a problem and some don't. While some women are also taking a birth control pill for 10 years and fueling that estrogen bucket.

This is why I said environment nutrition lifestyle. These are the loads that you have to add on the genetic profile to get to certainty some women go on B. H. R. T. Without knowing which part of that cascade to intervene. Right?

Where do I need to actually block or change or turn the dial it just a random take some estrogen right? All turning into estrogen toxicity. Then you start to look at the detox detox pathways.

And how well do you get rid of that estrogen toxicity? There's very clear path of what we call glucuronidation, glutathionization anti oxidation. These are the three pathway that are involved and comped by the way, the same protein that clears the dopamine also clears the estrogen toxicity. So if I and this is where I can even ask you a question about your personality and start to predict things about how you feel hormonally.

Now you can again, you can see there's a lot of sort of nuances that you can start to very precisely predict what's happening in that woman's body. If again, just like your brain map. If I have your hormone map, I don't need to meet you to understand your body type.

Can I see your abs or not? How nice has your hair and skin is a cystic acne been a challenge. Is PMS a horrible rollercoaster, right? Is menopause gonna be a disaster?

Or do you literally go through menopause and not even notice? Right, Some women are blessed, but that comes with its own suite of problems. Right? So estrogen dominant androgen or testosterone dominant estrogen toxic androgen toxic. Each one of those has its benefits and its problems. So we can we can take this very gray area and make it very, very black and quite certain precise and all of a sudden infertility, fibromyalgia, Pcos, you know breast cancer, even ovarian cancer, The why behind all these things, why do they happen?

And then you can be very precise about prevention. – And that's the thing is that once you then know what your weaknesses and there are plenty of tools out there that can support these different pathways.

I mean if you easily become estrogen toxic, I mean then you know the but you need continually support that pathway and obviously you need to stay away from plastic and and all these Zeno estrogens like you know, like the plague. But then you know that and you you can take those action steps in order to be able to and then minimize the risk that comes along with being estrogen toxic and estrogen dominant. – And you also know precisely where to intervene, right? So you know, okay, here's my threat.

So I have to remove because when it comes to resolving things at a genetic level, what we're saying ultimately is you don't do a function. Well the instructions broken or you do it a little too well, like maybe you convert to many estrogen's right? So you're doing it either.

So there's $2 you can turn I can look at genetic expression so there's foods or supplements. I can take that turn that dial in whatever direction I wanted to go or I have to eliminate the things around me that I do not have the capacity to deal with. Those are the $2 you turn.

Now. The question is where do I start? So if you have that map, you know exactly and precisely where to intervene, I am highly estrogen dominant and I'm highly estrogen toxic.

Okay, so do you need a supplement to slow down that estrogen conversion? But wait a second. I like my body type. I like my big hips and I like my, you know, okay, then we're not going to slow down the estrogen.

Male Hormones, Recovery, and Performance

Let's just clear the estrogen toxicity, right? So you can intervene at the right place, get to the outcome you want

without the trial and error, without the one size fits all the pain of trying things that don't work and then you get you lose your motivation. No, here's exactly what your map is saying is broken and if you plug this gap or hole things are gonna change.

It's very clear biochemistry and D. N. A. Just doesn't lie. It's clear. – And we can translate, I mean we're talking about the females, but this can obviously be translated into sure males as well.

I mean people that are are wanting to take testosterone, they wanted to get ripped. You know, what kind of impact fact is that testosterone? How well are they building it up? How quickly are they getting rid of the testosterone? How effective is it?

So we've been that way, you can do the same for a man as well. – I would say exactly. You know, where we are in Toronto, which is the hub of hockey training, right? A lot of the great trainers are here because Canada, where hockey sort of comes from, we have a long winter.

– I'm from Sweden. I love hockey. Yeah. And I love it every time Sweden beats Canada. But it's, I mean, it's just so awesome that rivalry isn't existed forever.

Yeah. – So what ends up happening here is we get a lot of NHL players that come to us through their trainers and their doctors with unique problems. It's kind of like they've seen every best doctor in the world, but there's still one thing they can't fix.

So that's when they get to their genetics and let's try and figure it out. And we had this unique scenario, I would say like 2018, 19, around that time where a number of players were sent to us with man boobs, right? And libido problems.

They had beautiful skin and beautiful hair, but they had libido problems and Dino master. So what we saw happening was the trainers were saying, hey, you don't recover as fast, you get more injuries.

You don't have that sort of velocity. You probably need some more testosterone. So they would give them what's called androgen gel pack that you put on your stomach, your skin absorbs the androgen gives you more testosterone if you have the fast version of the gene that converts testosterone and estrogen, all you did was give that person more estrogen. But I also understand that in a practical sense, I need testosterone. Take testosterone.

It makes sense, right? But you don't know what your genes are doing with what you just entered your there's an instruction in your manual saying find testosterone converted to estrogen and testosterone converted to estrogen all day long.

Right? So add more testosterone. Some people convert it all to estrogen and then all of a sudden it's not working. I don't feel good. Given more. That's the answer. Given more.

Right? That's when they came to us with the gyno master the libido problems and we had to turn it off and we intervene in a different place instead of giving testosterone. Why don't we just stop the clearance of the free flowing testosterone? He has so he just happens to have a fast version of the gene that gets rid of the testosterone.

So it's not there for long enough that doesn't make it, it just escaped. Then we also have to tell them you need to work out at this specific time for you. There's there's two, so women have a menstrual cycle monthly. Men have a menstrual cycle.

We do it every day, right? So every single day we make and get rid of our hormones the same thing that women do monthly and the peaks are at 6 to 8 a.m.

If you sleep at sort of a regular cycle and 4 to 6 p.m. In the evening. So for men like myself that clear your testosterone, you'll notably feel stronger during these times.

You'll notably have less injury at these times, notably feel like you need to go home and visit the wife at these times, right? Because the testosterone peaks and that's when you feel the most manly that you'll feel during the day.

So there's, and this is why I say intervention isn't always appeal. It's lifestyle environ, nutrition, lifestyle might mean this is the time of day where you need to work out you, but for other another guy it may not matter because testosterone doesn't clear it stays throughout the day and and and that's what's so cool with genomics.

– I mean we can go in into digestion, vitamin D. I mean all these different things, I mean you you learn your immune system, your and and all of this, you you can then learn in regards to you know, your genomic manual that you can get and that's that's what's so cool what you're doing well cash if it's been such a pleasure, I mean it you're such a wealth of knowledge, it's it's so so incredible what you're doing and the problems you're solving and the guidance that you're giving people, you know, it's it's really amazing. It's thank you so much.

– It's a pleasure what you're putting together here for everybody is amazing. Like people need this information, education, It's hard to find. You know, it takes people like you to bring us all together and share.

So this is awesome. – Well, thank, thank you so much, Kashif, I appreciate this. – Pleasure.