MERYL: Hello, everyone. Welcome to the rebel nutritionist podcast today. I am so excited. I have to tell you I have amazing guests always, and I always say I'm excited, but today I'm particularly excited, to have Yael Joffe on, founder of three X, four genetics, chief science officer, PhD in nutrition I'm going to bump that up, right. Just all over. Brilliant. I mean, one of the most brilliant minds I think in this space and love the work that you're doing. Love to be a part of this amazing revolution, because it really is that, and just excited about this conversation because it is so needed.

Um, we need to clarify some things for people because there's a lot of confusion around what genetics is this whole thing is what it gives us. So yeah, without further ado Yael, I am going to hand it over to you and take it away.

YAEL: Whoa. Thank you. Thanks for the intro. And great to be here. I love working with you so I am delighted to be speaking with you.

MERYL: so let's talk, let's clarify. What genetics and genomics is because when I tell people while I say genetics sort of as a capsule term because people relate to that. Right. But it's really **nutritional genomics** that we do.

So I think that is a good segue for us to let you explain, you know, what that means for the listeners that are out there, who are not healthcare practitioners who are not doing this work. What is that? What does that mean?

The difference between genetics and nutritional genomics

YAEL: Okay. I got it. Let's go. Let's do some genetics. One-on-one really, really good stuff.

Okay. So what we want to understand is two different concepts. **We're going to talk about two different concepts.** So one is genetics, like you mentioned, the one is genomic. So we'll start with genetics and we'll talk about why that's important. So **when we talk about genetics, we want to think about our DNA code**.

So we've all heard about the human genome project, where they sequence the code. And basically what that means is that our DNA is like a language. Four letters, ACTG and everything about us can be written down in our code. Just like you get computer code, **we've got our own code and we often call it a blueprint**.

Now imagine that 99.9% we are identical in our code. So our code is absolutely identical 99.96, but at 0.1%, we are different from each other. So sometimes I call these spelling changes in genetics. We call them nucleotide changes, but it basically means that **about three to 4 million places in our DNA, we're different from each other**.

Now, why is this important? It's because it really identifies and explains why we are different from each other. And this could be as simple as the color of our hair, the color of our eyes, how tall we are, but it's much more than that. **So it's these changes in our DNA that define how we respond to the world around us and in different ways.**

So it could be around the foods we eat. It could be the coffee we drink. It could be the dairy we eat. It could be the gluten. It could be how we metabolize different vitamins in our diet. But it's

even more than that. So it's not just diet, it'll be diet, but it will also be how do we respond to exercise?

What is, where do we excel most next size? How do we respond to stress and trauma? So when I talk about genetics or Nutri genetics, I'm really talking about **how do we respond to who are we in this world?** Why are we different in the way we respond to the world? And what can we learn about ourselves? So I would say **neutral genetics is about self knowledge.**

It's about **gaining insights about ourself that help us understand or practitioners understand about us ways in which we can really personalize our interventions based on who we are.** But even not only 50% of the conversation, but an important 50%, because that's the 50% we can test for. Right. So we can do a genetic test with a cheek swab and get these amazing insights into who we are and how we exist in the world and how we respond.

But the really, really exciting stuff that we get to do once we have these insights and have this knowledge is in the world of what we call **nutrient genomics.** And it's not really important that genetics or genomics, the most important thing to remember is that when we talk about genomics, we're talking about gene expression, how do genes behave?

Now, are **genes are behaving or misbehaving sometimes every second of every day of our lives.** And that means that they are switching on. And when a gene switches on it makes a protein, which makes something like an enzyme or a hormone. And when it does that, it makes something happen in our body. **So sometimes we want our genes to switch on, to make these beautiful enzymes, to make our body function optimally.**

Sometimes we want to actually switch off those genes because maybe we don't want that thing to be happening more, like inflammation. Sometimes we want inflammation to happen for, uh, acute amount of time, a short amount of time. And then as in the case of COVID, we want to actually switch off the inflammation.

So the great thing about this wonderful world of genomics is that we can have insight into who we are. And then with great knowledge, we can use nutrition, the foods we eat, the sacraments, we take the exercise we do to **switch on and switch off genes in such a way that we can absolutely Optimize our health to the highest, highest function.** So just to finish off, it's the two words that are actually more helpful to us are **insight**. We gain insight about ourselves and how we are different in our DNA sequence and **action**. What can we actually do in our diets to be able to change our gene expression?

MERYL: I love that. That was great. I'm going to use that every time I have to explain what it is. Because it was succinct and it was well done, which I'm sure you've practiced a million times, after doing this and the thing that I want people to hear also pretty loud and clear is that **we are not diagnosing someone with a disease**.

Right. I hear all the time. I don't want to do my genetics or whatever, cause I don't want to know if I'm going to get into. Or, and we're not predicting that they're going to get a Z disease. Can you speak to just some of that in terms of, you know, what, like you said, it's gene expression, but I feel like people still don't really maybe know what gene expression is.

So. Just speak to that for a moment. If you don't mind,

Why people hesitate to get genomic testing done

YAEL: let's go back. I get the same questions you get. And I often get the question. I don't want to do a genetic test because I don't want to know what disease I'm going to get. So let's deal with that. So when genetic started out in the world of science, it started out in this space called medical genetics.

And what this means is that they are these rare genetic variants. So, you know, I spoke about spelling changes, changes in our DNA code. We can have a change in our DNA code that can have such a great impact, note the word impact, that by itself. It can cause so much disruption in our body that it can cause a disease.

Okay. These are very rare, very, very rare. And I'm not something that you and I will see with patients probably in our lifetime, maybe a couple, but generally not. very rare, but what we do see all the time is these spelling changes that by themselves, don't have such a great impact that they'll cause a disease.

But what they do do is in some way, **have an impact on the way that our body works**. **So they're not disease causing**. We cannot Tell you about diseases. **We cannot predict diseases. They're not predictive, they're not diagnostic, but they give us insight into how a body may be functioning or more importantly, how our body may be dysfunctioning.**

And if we do it right, which we obviously try and do, we never, ever try and make decisions based on a single gene barrier, one spelling change. Because again, they're not that powerful. But when we look at a grouping of these spelling changes together that are all impacting a metabolic process, that is important to us.

We, as practitioners can **gain amazing insight that enables us to decide what is the best, most personalized intervention we can offer**. So, this is the difference between medical genetics, which is not our work. We don't work in that space. We don't test in that space. If you do land up, having that kind of test done, you need a genetic counselor.

You need a doctor, not our world. **We are interested in diet, lifestyle changes, supplement decisions, exercise decisions. That's the world we live in and genetics informs us, but doesn't decide for us.**

How genomic testing relates to weight loss

MERYL: Excellent love it. So, yes, I hope that offers clarity because I do think people are just confused. So one of the areas people come into us for many, many different reasons. Obviously one of them is **weight loss**, especially as men and women get older.

I mean, we're going to touch on weight loss first and then, and then a couple of other things. But I feel like weight loss is always such that all powerful, you know, people just, that's our overriding factor of why people come in. So there's a twofold kind of question, if you will or discussion.

They think that we're going to do their genetics and we're going to figure out why their metabolism is so slow and that all of a sudden, we're going to be able to give them a magic bullet based on their genetics. That's going to change, you know, everything clearly, if there were a magic bullet, you and I would be sitting on an island somewhere in Fiji, hanging out,

having a drink. Oh, we would have found it by now. Exactly. So we know that yet people will continue to do the diet fads. And I continue to say, you know, it's just not the answer, especially. Doing this kind of work because now we dig deeper. So, people say, well, **how can this help me with my weight loss?** And one of the things that was interesting, I had a client come in yesterday.

She is struggling. She's one of these peri-menopausal women. She's in her forties. Used to be able to lose weight. Hasn't been able to lose weight. I'm like, let's talk, let's do your genetics and so forth. And we've done her other lab testing and there's been other imbalances, metabolic imbalances yet.

We've changed some things based on, let's say her labs and she still hasn't, she feels better, but she hasn't seen, let's say the results with the weight loss where she wants. And then we did her genetics or genomics. And found that she's not detoxifying. Well, **her inflammation is very high** and then I'm like, bingo.

Now let's work on this stuff because what people don't seem to understand, and you mentioned it, what we really look for are these metabolic or what, you know, biochemical processes, right. But our bodies, it's not just a one plus one equals two X equation. If you do this. And you know, if you, if you eat this way and you exercise this way, you're automatically going to lose weight.

We lose sight that there's a whole slew of biochemical reactions that we have to consider. And if those are out of balance, nothing is going. So I love the fact that, you know, we can look at this and say, okay, well let's address inflammation and detoxification as a biochemical pathway.

Because I think if we address that first and we were seeing that, right, we're addressing the inflammation because she has, according to her genetics, a lot of pro-inflammatory.

Which means **her fat cells throw off a lot of that inflammation, which is probably hindering her from losing weight and the rest of the body**. So, you know, it's like, like we said, we're not diagnosing, but we're helping them understand where these missteps are. And so maybe speaking to how we look at what we call unpacking a report.

Right. How has it meant to be looked at if you want to sort of qualify?

YAEL: So let's talk about our patients who come to see. And are doing multiple diets, they try keto, and then they're doing paleo and then they're doing it. They're barely eating and whatever it may be. And they can't understand why they're not getting the weight loss that their best friend is getting, their sister's getting.

And their work colleague is getting. because it's working for them and it's working for every celebrity that you can possibly imagine on social media. So how come are they not seeing it? So one of my great interests is around **the genetics of weight management**, because my first degree was as a dietician like you and I couldn't fathom this idea that if we all ate exactly the same food and exercise the exactly the same amount, we would all lose weight and we would all have this perfect body because when I looked around me that wasn't what we were seeing at all and the way we were trained as dieticians and I was a very long time ago, is that when a patient came to see me and said, I followed what you did, I decreased my calories. I increased my expenditure and I haven't lost weight.

My initial, immediate reaction was you're lying. You're cheating. Absolutely. You're not telling me the truth because there was a simplicity that if I just did what you told me to do, I should have anyway, well, history has taught us that much too, but what, but where we've actually found the answers is in genetics because.

How do genetics affect our appetite?

So **we know that there is huge, huge variation in how people respond to the calories that they are exposed to in the world and how they store those calories in their body and how they burn up those calories**. When a patient comes to see us, we want to have a sense. Remember what I said about, I want to understand who they are.

I want to understand how they exist in the world. And I want to understand how they respond now in this case, what I'm particularly interested in is **how do you respond to food and calories?** How do you store it and how do you burn it? So when we started understanding the genetics of obesity, we understood that it was way more than just metabolic rate because when I was studying, it was like everything in the world is blamed on metabolism or my best friend's got a fast metabolism, but actually the complexity. So much more interesting than that. And so when we look at an individual and we try to understand, and I'm talking about over and above what mirrors, which is around detox inflammation, which I hundred percent agree with.

I'm talking about just **the metabolic pathways, biochemical pathways that speak to how we engage with calories**. So let's think now, I arrive at the buffet, right? The big buffet table. I've

gone to my favorite restaurant and it's a buffet and everything to me, it looks absolutely delicious. And I'm with that best friend that I just mentioned.

I take one, look at that buffet and I load up my plate and I go to the table and I start eating and I finish it. And then I'm like, oh my God, there's more food. There's more food on the table. I'm going back. And I go back and I'll go back. And my best friend is like, but we're full, we ate, like we filled our plate.

We've had enough. And I'm like, no, we can never have that. So now I've had a completely different response. So when we started studying genetics, we understood. That **our genes could impact every single way that we engage with foods in terms of our locus of control**. So when I see food, how controlled am I around eating it?

Genetics influences my appetite. So I may have a greater appetite than my friend. It used to be thought that everyone had the same hunger, the same appetite and the same food. Absolutely not true. So we all experienced hunger in a different way, and we all experienced the tie to your fullness in different way.

So I might've had a plate of food and not felt full. She might've had a plate full and thought full. Then we started understanding that not only are we driven to eat. In a different way about seeing food, feeding food, feeling hungry, not feeling hungry, but when that food comes into our body, **how do we metabolize those calories?**

How do we store those calories? And that's when you spoke about that kind of pro-inflammatory fat, how do our fat cells called adipocytes? How do they engage with those

calories? And then the last part of it? Yeah. How do I burn up those calories? Because we know that some of us are super efficient at it.

We all burn calories at different rates

If you give us a bunch of calories, we're going to bet it up and it's going to have no impact on our body age, but there's a bunch of people who just, what they'll say is they'll. I look at food and again, Now, this is true. This is real. When we look at genes. So now imagine I can go to a practitioner like you and I can have a genetic test and I can find out all these things about myself around am I more prone to have a loss of control around food or snacking behavior, around hunger, around appetite, around storing food.

So all the things that would've made me absolutely brilliant living on the Plains of Africa are now not working so well for me in the buffet. So for me, the understanding of how genetics impacts weight and it's about 50 to 80% of the decisions we make around food will be driven by genes, right? Has given me **the most extraordinary empathy and understanding for the weight journey of patients**, because when they walk in and they say, I did what you said, And I haven't lost weight.

I'm wanting to understand what is it about your body that is engaging in a different way? So that's a very long answer, but I think it's so important that people understand that if **there is no one diet for everyone**.

MERYL: we've been saying that forever and ever, and ever, and now we have the proof to say, Oh, look, no, this is how your body metabolizes food.

This is what your appetite and satiety are like, and we can show it to them. And I think for so many people, they feel so validated because now it's not just. Oh, like you said, right. It was, oh, why, you know, I'm looking at my friend who can eat everything and I can, and you feel bad or you're not losing weight at the same rate or it really, you know, what is the struggle there?

And I say on my podcasts, I say on my videos that I do, I struggled for a really, really, really long time. People don't believe me. I'm like, oh no, I did. There's people who can validate. I didn't have the opportunity to have my genetics when I was in my twenties, but **I did every fad, stupid diet out there**.

I was never that person who could eat all of the ring dings and not gain weight. And I was like, there's something wrong with me. There's something. And, finally, when I started to become more intuitive with how I was eating, which I think is partly, you know, there's some genetic component to that, but even more so when I really understood my genetics.

That's when things started to shift for me. people still say to me, you hardly eat. I'm like, it's my genes, you know? I know how to eat for my genetics. I know how to eat for what makes me feel good and what keeps me at a place where I want to be.

And so that I think is so, so, so important that people hear that. I know you're like going through the report, like appetite and satiety, pro-inflammatory fat right. Metabolism. And I still have questions on that, but I think we'll have to save those for another day because that's probably a little more technical.

I think there are people who still find it frustrating. And they're still trying to peel away the layers. When you say to someone, I think it's the hardest thing. And I've had clients, I'll actually

bring it up where they say, okay, well, my metabolism is slow, right? I've got that inefficient metabolism and I'm not so efficient exercise wise at burning calories.

Why we’re not all meant to be thin

YAEL: It's a struggle. And that's what I was going to say. You know, **just because we know your genes doesn't mean we have the silver bullet** and you said it. So, but what it does, is,I've had patients crying on the other side of the table for me, because for the first time, as you said, they feel validated.

They like the struggle, is real, the pain is real. And so part of our work with our patients. And part of our work ourselves is when we understand who we are and the genes we were given is **understanding the reality of our journey**. So it may be that when we say let's figure out like, this is your current way.

This is where you'd like to be based on your genes. Maybe we should make some adjustments. Actually going to **build in some other parameters of health around this**, because for some of us, **we're never going to be that thin person**. We just are not going to be. And remember, if everything is about evolution, that we were never built to be that thin person, we would have been the survivors.

How genetics can help us rethink the ‘ideal’ body shape

So it opens up an amazing conversation about **what does health mean to me? How do I feel in my body?** And then we can bring in some **cognitive behavioral therapy**, it just opens up a **different world that isn't about calories in and calories out**. Because just because we

understand our genes doesn't mean that we can give you a bullet and say, oh, well, we'll fix that now because we are not changing genes.

So remember we do a genetic test. Because your genes don't change and we're not doing gene editing, so we're not doing Crispr. So **we're not going to change your genes**. We go to try to **optimize the processes as best we can**. We're going to try to build the most targeted, personalized intervention we can, but we also **have to work within the parameters of what your genes are and get the best possible outcome**.

MERYL: Yes, exactly. I mean, boom right spot on there because. And this is the struggle where, you know, you sit there and look at someone's genetics and you're like, oh yeah, you are never going to be that thin person yet we, or, or, you know what you're picturing, you may want to be like, because genetically you just can't.

On the one hand you can feel very validated. The other hand, you can feel very deflated because here you are trying to be something. **I don't even know that it's so much something that they themselves want to be. It's the ideal.** Or the ideal of what you should be, right?

Social media. We talk about this all the time.**The disordered eating behavior that we're seeing is rampant. It is rampant in young people**. It is rampant in every age group. I will tell you I've got 70 year olds who are still dealing with this because. **Because social media says, you need to look like this to be accepted.**

I always thought people would, like you said, right. We're judging that person who's coming in, who can't lose weight because we're saying, oh, you're lying to us. Or you're not telling us. And

society, even though we've got on the one hand, these campaigns that are like, all body sizes are beautiful.

And, and I love the models that are out there that are real models, right? Yeah. So that's the idea of what we would like to put out there. And yet the reality is, is people are not happy with that,

YAEL: and we've still got a long way to go. And **I'm hoping that genetics is part of that conversation because when you look at genetics, you understand the reality of that, of that ideal. It has no place in reality** and genetic shows us that. Yes, that it's not real. And often whenwe look at the individuals in social media who are extremely thin and have this path, there's other stuff going on, there's other stuff going on. So, you know, **I think we've got a long way to go around normalizing our bodies**.

But what I love about genetics is **it becomes your journey**. And you've got it. Like, and that's again, like it just, it just, you got to own your own journey and that starts with knowing who you are.

MERYL: Right. And I always say **you're balanced on the inside. You end up looking really more like what you'd like to look like on the outside**.

But I also want to touch on somebody because you said something about evolution. And it was funny because I just had this conversation with my daughters. We had this really heated discussion on Monday. And because they got, I always call it the thrifty Ashkenazi gene, right.

Yeah. Right. Because those of us that have family that, you know, from Germany and Poland and Russia, we do right. Talk about the survey. **Our genetics were really programmed for us to**

survive. Which is not that long, skinny, you know, archetype that we want to be living in a very cold country.

YAEL: Exactly. And, and so the ability to gain weight. And **to store calories and hold on to them in a cold, cold faraway country was a huge evolutionary advantage** to survive. If we had burnt up every calorie we ate and we were thin, we would never have survived our kind of Polish, Russian roots.

How changes in the food production have affected our health

And there's so many examples. I mean, there's so many examples like it. So actually **the whole of genetics is about evolution** because what's happened is **DNA is actually really old and very ancient and changes very slowly, but our diet and our lifestyle changed dramatically**. So the moment we had the industrial revolution and we stopped growing our food and milling our flour and making bread from it.

And we could buy processed food from the shops. And I mean industrialized our food system. There was a huge. Disconnect between our genetics, which is ancient and doesn't change. And our food system would change dramatically. So we went from so the way that our DNA works is actually food should be scarce.

We should not have access to it all the time when we do access it, it should be in an unprocessed version and we should be able to extract the maximum value out of that food. And **if you think about our lifestyle now, food is everywhere. Calories are everything everything's processed. We are Inundated by food, which is the complete opposite of our DNA.**

And that is why I mean, that's why it's diabetes and that's why it's heart disease. And that's why it's obesity because **it's a clash between our DNA, which is ancient and is meant to be about scarcity and our food system, which is abundant**.

MERYL And that's, that's what I tried to tell my girls. I'm like, we have not evolved enough.

Our DNA has not evolved. To catch up to where we are, with food and exercise or lack thereof. I said the exact same thing. You said it a little bit, right?

YAEL: Maybe they'll listen to me and they'll believe me

How constant food and little movement impact our health

MERYL: yes, exactly. And I am going to make them listen, but everybody else needs to listen to this too, because I always tell people we eat too much.

We should not be snacking as much as we're snacking. Not only do we eat too much and the wrong foods, like you just said, we don't move. Right. If you look at where we were **from an evolutionary perspective, we moved, we were hunters.** We gatherers all day long. Our bodies expended tremendous amounts of energy.

We expend a fraction.

YAEL: A long distance athlete is doing an obscene amount of training. And that has its own issues. We, when you compare our activity to what it was, it's nothing, we're nothing, we are completely sedentary. And you know, those of us who sit at a computer. Like I do. We are

completely substantially even exercising four days a week, five days a week for an hour, which is really good.

Actually, it's nothing **we were on the move all the time and our bodies were built for that**. And that's why we have insulin resistance and that's why we have diabetes. And that's why we have obesity. Complete disconnect.

MERYL: Yes. that this is such a powerful conversation because people need to hear that.

Not just from me, they need to hear it from you, and they just need to hear this over and over and over again.

Why health is more important than weight loss

Let's for a second, divert away from the weight. And let's talk about the other important part of this, which is **the health aspect, because I always say to people just because you're thin, doesn't make you healthy** and you don't have to be.

you can be healthy without, without the weight loss. So, let's talk about how does the report help us? Because I also see people who have metabolic syndrome, right? It's not just the overweight. And I have people who have GI disorders and we know the whole gut microbiome is another conversation, but really **let's talk about health because people want longevity**.

They want disease prevention. How does this also help us with that.

YAEL: So one of the issues we have both in what we studied as dieticians, but also in medicine is that there was idea that, of this kind of disease concept, you know, that we get a disease and

it's got a whole bunch of symptoms and we're going to treat the symptoms, whether it's with drugs.

Even if it's a diet intervention based on symptoms. But actually what we understand from studying things like functional medicine, functional nutrition, integrative medicine, is that **these diseases do not happen overnight**. So we don't go to bed one night, perfectly healthy and wake up in the morning and suddenly have one of these chronic diseases.

They take 5, 10, 20, 30 years to develop. And t**he reason that happens is because there is a dysfunction** happening in our bodies every single day, all day that over the time becomes more significant and **eventually causes our bodies not to be functioning optimally**, which manifests as these symptoms and these diseases.

So what we really want to do is we want to understand. Defining the disease, because that's not particularly useful to us. We want to understand **what are those little small dysfunctions that have been happening for so many years, 24 hours a day, that over time, cause this overwhelming dysfunction in my body**.

And if we can understand those and we can fix and treat those, we can start unraveling and pulling back this idea of that. So the way the genetic report is both is to be able to do just that we want to start right at the, what we call **root cause analysis**. We want to understand what was going on in our cells, in our body that might not have been functioning.

Detox inflammation, oxidative stress, the things that you mentioned, what else has happened? Let me think at the next level, we talk about **a systems level**. What else might be happening in

our body that might be happening 24 hours a day. Over many years, that would be causing dysfunction. And we look at things like glucose and insulin.

We look at our hormones and how our hormones function, even things like histamine can have an impact over time. Gluten can have an impact over time. So we want to start unpacking. Old lipid metabolism, cardiovascular, vascular health. You know, heart disease does not happen overnight. It is something that happens over time.

So imagine now, **if we can get a sense of what these small dysfunctions are and we can intervene and correct them, we can start reversing**. Or **delaying the onset of these diseases**, because what we know is that whether it's heart disease or diabetes or obesity, many of these dysfunctions in our body are the same.

They manifest as just different diseases for different reasons. But actually the dysfunction is the same. So, if we can treat upstream work is what we say. If we can **treat the root cause**. And that's what the genetic test does is it gives us insight into what is happening upstream or at the root cause to cause dysfunction that we can address to roll back this idea of a disease that we've got.

MERYL: Yes. they'll see red on their report from, a nutrient test or they'll see deficiencies, or they'll see metabolic imbalances, like blood sugar or cardiovascular things. And they're like, oh my God, I got to do all this stuff.

And I'm like, no, **if we do your genetics, if we hit the nail on the head in the right way, like you say, upstream at the root cause, all of those other things will fall in line** because like you said,

all of these things are not that different. Right. If we control inflammation, if we control some of these things, detoxification and all of these systems that we forget that we have, right.

I did a podcast and said, it's like looking at a car. If you don't look at all of the systems in a car, the transmission oil, the filters, this, that you're, you're not going to have a healthy car, right? Your car is not going to run optimally. It's the same thing in your body. If we're not looking at all of these systems as a function of where is the root of the inbound.

It's exactly like you said, everything is going to then stem from there and **we call it a different disease, but it really doesn't matter what the name of the disease is**. It's there is a dysfunction, how do we make it function? And I think one of the other things that we don't pay enough attention to that I love about what the report gives us as well.

Why our health is also affected by our lifestyle

And this work gives us the lifestyle piece, because we talk about stress and stress is everywhere. Yeah, people disassociate and they're like, oh, I'm stressed. I mean, give it lip service. As I say, right. We just sort of ignore it like, oh yeah, I'm stressed. That's life. And yet we don't realize how far reaching the effects are.

YAEL: And how we, how we respond to stress. So it's so interesting. So one of the, some of the areas that we look at, **one of my favorites of these metabolic areas that we test for in our genetic tests is around mood and stress resilience**. So we know that we all have stress in our lives, but how we respond to the stress will be very different.

And remember, **when you respond to stress, it changes something in your body**. This is real, it's physical stress. **We have a different stress response, which is determined by genes**. We have a different ability to manage depression, anxiety, trauma. And even when you think of post-traumatic stress disorder, why some individuals will have exactly the same experience and not get PTSD and others will it's because our genes change the way stress hormones work in our body, which will determine how we respond. So a hundred percent, you know, stress is part of our lives, but **it's such a huge influence on health that we need to understand what our relationship is with stress**. But most importantly, how our body is responding to those stresses and what we can do to obviously help that, especially if it's having a detrimental effect.

So. Those are some of the areas we look at, we look at cognitive function, how it is not just about memory loss or Alzheimer's, but cognitive function. How do we keep our brain functioning? Optimally? So there isn't a single thing that happens in your body from top to toe that isn't influenced by your genes.

Nothing, absolutely nothing. And we want to have those insights to be able to kind of understand, like what is going on here? Who are you? Let's try, to really roll, roll back the door. Go back upstream, get to the root. As you said, hit the nail on the head and try to fix things because it's stuff that it's like, we were talking about weight and you spoke about detox.

So many people think if I just go on a diet, I can lose weight and then understand why they don't. And then when we find that the pathways for detox and inflammation are so high, you can do anything, but **if you don't resolve those core processes in your body, you will never lose weight. And that's the stuff that genetics has taught us**.

MERYL: Right. people will spend less time, less money, less energy. If they just invest in their health and themselves for a little bit of this, right? **Think about how much money and time people spend on these ridiculous diets** and then they look at me and they say, well, this is hard work.

It's not, it's creating these small little shifts.That's a whole other thing that behavior. And we'll get into that, you know, at our next session, but, lots and lots to discuss, but I've loved these points. I mean, we can go on and on, but I think we've really touched on at least a good discussion to start for people and let them think, who's this for, this was only reserved for people who can afford it.

And really **everybody can do this test. It is not an expensive test.** You know, the consultation to do this is not expensive. And maybe people think it's thousands and thousands of dollars. Yes. Years and years and years ago when they first sequenced DNA. **It's a $300 test and you, you get a consultation with me.**

I mean, it's not a lot of money. I'm sure people have spent way more and have gotten way less. So,

YAEL: And you're looking at one, so **it's not something you're doing every three months, this is something your genes don't change**. I mean, I really do think there's huge value in it.

And it's like, you've got to know what you don't know.

MERYL: Right. Even if you don't really want to go, what you don't know, you got to know what you don't know. So I love the conversation. I appreciate your insight. You are brilliant. Continue with this brilliant work. This will not be the last time you and I talk about this.

I'm sure we're going to get more demand for more conversations. So, any last parting thoughts?

YAEL: Oh, no, thank you very much. As I said, love the work you're doing. **love how you've integrated genetics**. I think. Yeah. Maybe my last thought is that **genetics doesn't live in isolation**.

Genetics is not an answer to it. It's **got to be used by practitioners who understand how to bring genetics into their practice and combine it with everything they know about their patients**. This is a piece in the puzzle. This isn't a whole puzzle by itself. So we shouldn't think that just doing a genetic test will give you all the answers.

It's a genetic test, alongside everything else that we do with our patients that really enables us to make **true, personalized nutrition**.

Excellent. I love it. Thank you. Thank you for being on. Um, and again, this will not be our last conversation.

My pleasure. Thank you.

This is the rebel nutritionist signing off for today.