



## Episode 356: How to Improve Your Health Based on Genetics With Joe Cohen From SelfDecode

Child: Welcome to my Mommy's podcast.

This podcast is brought to you by Wellnesse, my new personal care company that is based on the recipes I've been making at home in my kitchen for decades. Many "clean" products simply don't work and this is why I have spent the last decade researching and perfecting recipes for products that not only eliminate toxic chemicals but contain ingredients that work better than their conventional alternatives and that nourish your body from the outside in. I'm so excited to finally share these products with you and wanted to tell you about our brand new dry shampoo! It can be used various ways. You can sprinkle it in clean hair to add volume and to extend time between washes, sprinkle it in hair that has not been washed in a day or two to absorb oil or sweat and you can work it in to color treated hair to maintain color-treated hair by not having to wash as often. It contains oil-absorbing kaolin clay and volume-boosting tapioca which work together to refresh hair at the roots. Lavender oil and cactus flower help to balance scalp and strands' natural pH. We even added hibiscus for healthy hair growth. You can check it out and try it at [wellnesse.com](http://wellnesse.com) and my tip is to grab a bundle to save or subscribe and save as well!

This podcast is sponsored by Alitura skincare. This a company founded by my friend (and previous podcast guest) Andy, who formulated these products to heal after a horrific accident left him with scars on his face. He mixed some of the most nutrient dense ingredients on the planet to create truly natural products that feed and benefit the skin, leaving it nourished and in my experience, hydrated and younger looking. I know from talking to Andy that he has literally gone all over the world to source some of these ingredients and is meticulous about testing them for quality and finding the combination that works the best. Even the name, Alitura, means feeding and nourishing in latin. My personal favorites are the mask and the gold serum, but all of their products are great. Here's a tip with the mask... mix with apple cider vinegar instead of water for an extra boost and to deep clean pores. I use the mask a few times a week and I use the gold serum at night and after sun exposure to keep my skin nourished and hydrated. Check out these and all of their products at [alituranaturals.com/wellnessmama](http://alituranaturals.com/wellnessmama) and use the code WELLNESSMAMA for 20% off and free shipping

Katie: Hello and welcome to "The Wellness Mama Podcast." I'm Katie from [wellnessmama.com](http://wellnessmama.com) and [wellnesse.com](http://wellnesse.com). That's Wellnesse with an "E" on the end. It's our new line of personal care products including hair care and toothpastes that are designed to nourish your body from the outside-in without any of the junk.

In this podcast episode, we go deep on genes and practical ways that you can improve your health based on knowing and understanding your genes. I'm here with Joe Cohen from SelfDecode, and he self-explains that he won the genetic lottery of bad genes. As a kid, he suffered from all kinds of inflammation, brain fog, fatigue, digestive problems, anxiety, depression, and a whole lot of other issues that were poorly understood by his doctors. Frustrated by the lack of good information and tools, he decided to embark on a journey of self-experimentation and self-learning to improve his health like many of us have, something that has become now known as biohacking. And after creating the biohacker's ultimate resource website called SelfHacked, he founded SelfDecode which is an ultimate biotech software platform for DNA-based health research and we go deep on that today, explaining how you can use your personalized genetics to understand health recommendations and how to meet your goals through a combination of these different types of science that are now available.

Very fascinating episode, I think we'll have to do a round two eventually because there's so much to cover on this topic. But for now, let's welcome Joe to the podcast. Joe, welcome. Thanks for being here.

Joe: Thanks for having me, Katie.

Katie: I'm really excited to jump in and learn from you on a ton about our genes, but more specifically how we can use that knowledge in a practical way to improve our day to day lives or potentially to improve health-related outcomes, especially as we age. And I think this is so fascinating because, at least from the research I'm seeing, we now know so much more than we did even just 10 years ago, that it feels that this is like an endless research topic. And it's so fascinating to me. I know it's also top of mind right now for a lot of people, with a lot more being in the news about different genetic factors related to immune health, and to respiratory infections. And I think that we have the ability to look at this data in a unique way. So to start there, I'd love to kind of start broad. I have a question from you regarding the castle analogy and I'd love to start there if you can kind of explain that.

Joe: Yeah, definitely. So, basically, you have to think about the immune system as a castle, right? And it's gonna tie into the genetics as well and how that plays in, like, because we basically categorize an individual's genetics into three different categories. So if you have a castle, for example, you know, the first way... You know, let's say if you have an invading army, what the invading army is trying to always do is trying to find a weakness in the castle, just, like...kind of, like, "Game of Thrones." You know, castles are very fortified and they try to find this weakness, some underground tunnel, some kind of piping system that maybe, you know, is easy to get into, that's not very well fortified. And so, if we look at it like a respiratory infection...you know, we could use COVID as an example because that's the most in the news now.

A very important gene that is mentioned a lot is ACE2, right? And what that does is that's basically like an entry system for the coronavirus. It's kind of like, the enemy found a way to get into the castle. They found, you know, this piping system that they're able to get into the castle. And so, that's kind of... You know, so finding an entry is number one. And the reason why finding an entry is important... And, you know, there is a variation in the population between how likely you are to get a respiratory infection. So I'll give you an example. Let's say in the air there could be like one viral molecule, and let's say, you know, you breathe in the viral molecule, you won't necessarily get the infection, right?

So the reason is because it also has to do other things after that happens, right? If there's just a soldier running into the castle, they're not necessarily just gonna be able to get in, right? They have to have that weakness or, you know, that genetic kind of variation, that weakness that allows them to enter into the castle. And so the ACE2 is kind of like the piping system that allows an invading army to get in, let's say the coronavirus army to get in. And that's kind of in the news a lot. So that's one thing. Entry is one big topic.

Another topic is, let's say you have your frontline soldiers. So once a virus does get into the body, you always have this kind of first-line response that you could still ward off...you could still mitigate the damage. Let's say some soldiers get in, they already found their way in, but you know, your body was able to mitigate the damage, and there wasn't that much collateral damage that was done. There weren't that many symptoms. And so what we see is, let's say in COVID, you know, a lot of researchers are saying up to 50% of people are asymptomatic. And, you know, every kind of infection, really, almost every one, there's a lot of people who are asymptomatic and it could vary. But the point is that, you know, we're seeing that there's a lot of asymptomatic people and because that can depend on your first-line response to an infection, whether it's COVID or something else. And then the next area that we looked at with regard to genetics and just in general, this is what you wanna think about, is kind of the emergency response.

So in a castle you have kind of like, let's say, you know, the last response when the castle has been breached and the bells are ringing, it's just...you gotta do whatever you can to get that virus out, the invading army out. If you're gonna be killing your own people, right...you might do that, right, in order to get the invading army out. So if you have to throw fireballs that are also gonna kill some of your own citizens, it's something that you may do if they're already... You know, it's either that or the castle goes down. And so, that is actually one of the biggest components of what we're looking at because that's where really things get bad, right?

And so that's, for example, like the inflammation. And IL-6 is a good example of that. But there's really many, many inflammatory molecules that you could have genetic predispositions that can go overboard, right? So in the castle, it could be, you know, some kind of last line of defense, where, you know, everyone's just doing whatever they can and collateral damage is done. In the body, it's kind of like IL-6. So interleukin-6 has some... You know, you want it to be balanced. If it's at a normal low level, it can help fight infections. But if it gets too high, then it can start killing your own cells and wreaking damage. And the problem is that when things just get too chaotic, it can overshoot, and then the body can cause too much damage, too much inflammation, and that's what would cause respiratory distress.

So the same complications from COVID actually happens to other respiratory viruses as well. It's called ARDS, which is an acute respiratory distress syndrome, it's a cytokine storm and it basically is exactly how it sounds. There's just a lot of inflammatory cytokines, it's a storm and it's an overshoot. There's just too much. It causes the lungs to collapse, it causes the body to go crazy. And that's where the complications arise. And, you know, researchers think that, you know, if there's already kind of an imbalance, right, if you're already imbalanced, let's say, for example, if you have COPD or cardiovascular disease, often these cytokines are already elevated. They're out of balance if you're not optimally healthy. And so, when you get any respiratory infection, that can then basically ignite the fire and then make it go a little too crazy. And that's kind of where, you know, the general health of the body comes into play, you know, the soldiers of the castle are well-fed and well-rested, and they're able to fight off the infection.

Katie: I love that analogy. And it also speaks to the fact that our genes are not our destiny. Because I think that's one thing that seems to be a pitfall when people start learning about their genes or they find out they have certain genes, whether it be methylation issues or COMPT or whatever it is, they feel like that's their destiny or they don't think there's much they can do about it. And that's what I love about what you guys have

is that you give people their genes and you explain them, but you also then give practical steps of ways they can support whatever those genes are. So let's talk about that, kind of in a broad sense and then we can go deeper on certain categories. But can you speak to the idea of what power we do have? You know, you've mentioned it a little bit in these, but how can we support our body in various ways, even if we have less than optimal genes in different categories?

Joe: Yeah. So what's clear... I agree with exactly what you said and I think people can, you know, have a misinterpretation of how to look at their genes. So if we take something like diabetes or cardiovascular disease, we know that they're diseases...that they're highly preventable, right? If you're exercising, if you're doing a lot of healthy stuff, diet, everything, right, you know, your blood sugar is gonna be more balanced, your cardiovascular health, your blood vessels, you know, your blood flow, everything is gonna be more balanced. We know that these kinds of issues and many other issues, but let's say just for an example, these issues, they're highly dependent on your environment and how healthy you're living. And what we also know is that they also have a strong genetic component, right?

And so what that means is... And I've had a lot of family, let's say, that died from cardiovascular disease. It's not a coincidence that, you know, a lot of people from the same family, from my grandmother's side, they all died from cardiovascular disease, and she also ended up dying from that, but she lived a lot longer, right? So my grandmother was always into health, for example. She lived to 93, whereas her sisters only lived to their 40s, most of them. Right? And so what we see is that, you know, we have this genetic component and that is significant, but you're also able to counteract it by being healthy. And what we're trying to do is, you know, basically show you a little more how to be healthy, right, basically how to be healthy for you.

So we're starting off with, "Here's some really good recommendations for improving your cardiovascular health, for improving your mood, whatever the issue, for improving thyroid health. Right? Here's the top recommendations and then let's prioritize it a bit based on your genetics." Because we also know that the same things don't work for each individual, right? Everyone knows that you tried something that someone else said worked for them and it didn't work for you. So what we see is that there's these things that can help and we also see that they don't necessarily help for everyone. And that's kind of where the genetics comes in. What's causing this difference in your response is the genetics.

But when it comes to, like, diseases and...you know, if you're really optimally healthy, you really can prevent pretty much all these kinds of chronic diseases. And what we're just trying to do is show you, like, how...basically kind of prioritize the recommendations a bit. You know, we're starting off with the things that will help you in a certain topic. That's why we always recommend, first pick a topic that you're interested in, right? So if it's thyroid, if it's mood, then you pick that topic and let's say someone already has some kind of issue with mood. Maybe they're anxious or depressed, then obviously there's probably some genetic component there because not the whole population is like that and a lot of people are eating unhealthy or whatever.

So you start off with that topic, and then we're giving you the recommendations that are generally good for that topic and then they're prioritized based on your genetics. And so, when it comes to things like methylation, it's a bad way of doing it because you're not doing it based on...you're not picking a topic first, right? You're not saying like, "Okay, I have a thyroid issue. Here's the best things I could do for thyroid," and then we prioritize them, right? Instead you're saying, "I have this gene and based on this gene, it's telling me I've got thyroid issues and then this is causing, like, all of my problems that I've ever had in my life." Right? And it's usually not the case. It could be contributing to one issue or another. But the point is, the way that the methylation...like going about it with just one gene and then concluding a whole bunch of things from that, I think is the wrong approach. And the bottom line is, like you said, that we don't give information unless there's something you can do about it, right? What we've found is that all these genes, there's always some kind of lifestyle, some kind of supplement, something that will be healthy for that topic, that will also counteract the negative effects for that gene.

Katie: Gotcha. That makes sense. And it makes sense to link them to symptoms and actual outcomes versus... I think you're right. Methylation was a big topic as people started to understand that, and there were a lot of articles that came out about the MTHFR variations and what that meant. So to go a little deeper on that, like, are there recommendations that we can implement based solely on genetics or do you think you have to weigh the symptoms as well? So, in other words, does everyone with certain MTHFR mutations, for instance, need to take methylfolate or is it more nuanced than that?

Joe: So in general, I think not, right? There are some exceptions, but as a general rule, if you have a certain variation for gene, it does not mean you should do something, right? If you have a variation of MTHFR, let's say, and you're eating a natural diet and your levels of folate are high, right, you're not taking synthetic folate, you know, not doing something, right, you're just not taking synthetic folate, your homocysteine is low, so you're checking your labs, and if you don't have any symptoms that have to do with that, right. You know, MTHFR could have to do with anxiety and depression, it could have to do with heart disease.

But a lot of these symptoms often have to act... Like, the homocysteine, for example, it generally has to be higher for the effects to... You know, the homocysteine is a good way to see actually how your methylation is. So MTHFR would be something good that then tells you, "Here's the labs that you need to check." And that's actually... The reason why we're integrating labs into self decode because we don't think that, you know, you look at your genes and then you make conclusions. No, you have to make sure that if you could check a lab, then you should with MTHFR, that's a great example for that. You wanna make sure you're also connecting it with a symptom that is bothering you or something...whatever it is, right. If it's a mood problem, then yes, and you have negative variants of MTHFR and your homocysteine is high, in that case, you wanna do something about it. Right? But just having the negative variance is not enough of a cause to wanna do something about a gene.

Katie: Gotcha. Okay. What would be some other examples, to keep it broad and then we'll kind of dial in, of categories that you feel like people typically will have symptoms line up with different genetic variations? And then because of that, have recommendations that can make a big difference for them, in categories. I know in

SelfDecode, I'm looking right now, one's related to longevity, to metabolic health, inflammation. Are there categories that seem like to have a strong correlation there?

Joe: Yeah. So let's say if we take mood, for example, right, a mood issue can be caused by a number of different issues. And as we see, let's say, you know, there's a big controversy about are SSRIs helpful and, you know, based on my understanding and what I've read, they can help a certain percentage of the population but they don't necessarily help most people who take it beyond the placebo effect. Right? And that's an example of where genetics can come into play, right? Not SSRIs, in particular, but just knowing if low serotonin is a cause of mood problems. Right?

And so, for me, for example, I know I have a lot of genes related to serotonin that would be improved by serotonin, right? And so something...for me, for example, once I figured that out, I started taking 5-HTP and it started helping me, right? I had a good effect from it and I've seen this in other cases too. When I was dating someone, she had very severe mood issues, and we looked at her genetics, and she actually had the serotonin genes, quite a few of them, and she changed overnight from 5-HTP and one other supplement, you know, lithium orotate. Right? She's never actually wanted to go off of them because she's never wanted to test it out and see which one or both of them... She thinks it's both of them, but essentially her life changed overnight from that.

And that's something that I was able to see firsthand, right? A lot of these people who have success stories I can't see them firsthand. But the point is that if we're talking about mood, it could be serotonin-related. It could be some kind of biochemical pathway that is related to mood in a different way, right? And something like, you know, many other things could be good for that. It could be dopamine-related. It could be GABA related, right? You know, and then, like, there's just a whole bunch of... It could be like neurogenesis-related. So some of the drugs are or some of the supplements, or...most of the supplements increase neurogenesis in some way. Exercise. A lot of these kinds of healthy behaviors contributes to neurogenesis.

So, for example, I have low BDNF, lower BDNF, and that's this brain-derived neurotrophic factor, it's basically like this...it's water for the brain and it helps the neurons grow. I have lower levels and I know that if I don't get enough sun or if I don't...you know, it's either sun or enough exercise, my mood dramatically goes down. And some other people might not experience that same drop. But sun is really important, light and sun is really important for increasing BDNF. And that's why I always wanna live in, like, a sunny area because, for me, like, it really has a big effect on my mood. And even though it has an effect on everyone's mood, probably more in mine just because I have these variations in the BDNF gene.

Katie: Got it. That's fascinating. And from reading through my own report, it seems like sun exposure and vitamin D, that is something that seems to be supportive of quite a few different potential genes. Is that a common theme?

Joe: Yeah. So the interesting thing is that, like, you know, the way normally you're looking at why something is healthy is you say, "Well, getting sun is healthy, right, just because it's healthy, vitamin D," you know? You don't really think about it in terms of your genes. But then when you actually, like, dive into it, right, you see the biochemistry of it you say, interesting, it counteracts the negative effect of this gene on this issue, right, whether it's BDNF and mood. So it increases BDNF and it can improve mood. We already know that it improves mood, getting outside being in light... Right? But we see more detail how it can improve mood.

And so we see, not only from, you know, just general studies saying like, let's say, you know, "The more you are outside, the happier you are," whatever. If you live in a sunnier location, you might be happier or whatever it is. The point is that we see the specific biochemistry that, oh, sun is increasing BDNF, and BDNF is really important for our mood and, you know, an upbeat mood, and things like that. So what we're seeing is that, generally, healthy behaviors they tend to counteract a lot of negative genetic variance. And that would kind of make sense because if you are living an optimal life, we don't see a lot of issues coming into play, right?

We don't see diabetes or cardiovascular disease or a lot of other issues. Right now, sometimes people are trying to live an optimal life and they can't do everything, and that's very understandable. So, you know, something that we're doing is we're trying to tell you, "Here's what maybe you should focus on more." Right? Exercise is always gonna be healthy, some moderate exercise. Getting outside is always gonna be healthy. You should never not do it because it's not in your genetics. You know, it's not a recommendation, but we do see, like you say, that these things are coming up a lot in the recommendations just because, you know, these are the mechanisms by which it does it. And so even if you're already, you know, exercising every day, I think it's important...at the very least, it's very interesting to know that, "Oh my BDNF is lower. I understand why exercise is, you know, making me in a better mood" or "I have an issue with my opioid gene or my endocannabinoids, and I can understand why exercise is helping me improve my mood also." Right? So, yeah, I think...like, I agree with exactly what you're saying,

Katie: Do you feel like, based on or...like, how would you prioritize these things? So, like, looking at my own genes, I have quite a few related to longevity, for instance, and then there are supplement recommendations, and lifestyle recommendations, and diet recommendations, based on all of those. What are your recommendations or, like, how do you prioritize which ones to start with and which ones are gonna be the most important?

Joe: So number one is all the recommendations for a specific topic. We always take into account, as a very important factor, how it impacts the topics. So if we're talking about a longevity report, we make sure that every recommendation is good for longevity, whether it's improving your genes or not, right? And so number one is, like... So you're asking, how do you prioritize which recommendations to do? We do that for you in the genetics report. Right? So we have these kind of blog posts that focus on one gene at a time and you could then sort it. So you can see, for example, let's say, for respiratory infections, I could see the top seven genetic risk factors that might either be causing complications or something like that in you. And everyone has some, right? If we have 35 posts on the topic, then you're gonna have some of these genetic variants. And the idea is to know how to counteract that, right? But we also have the report to basically do that work for you so that we can, instead of trying to, like, read every post necessarily and trying to see every recommendation, what



we do is we prioritize the recommendations for you in this report that you get. And so number one is you wanna look at the prioritized recommendations in the report, what's number 1, 2, 3? It generally could go up to 20.

And the other thing is you wanna scan the recommendations and say... You know, let's say you're looking at your symptoms and your lab tests or you're working with a doctor or some kind of health professional and they, let's say, recommended something. And you say, "Oh, you know what? This is coming up on my report also. Let me check more into that," or something like that, right? So a lot of it is... You know, even when we're already taking into account the general category that we're working with, whether it's respiratory infection, so everything within the respiratory infections recommendations, they have some kind of studies showing that it can help respiratory infections. And we will provide that information so that you could see.

So you wanna also make sure that it's just... You know, just look at it and be like, you know, "I've been thinking about taking this and, you know, I think it's good for my body." So you kind of want a general overview, whether it's you or a doctor or someone else, somebody looks at it...and you can do it yourself and be like, you know, "I've been wanting to take ashwagandha anyway for some time and I just haven't been taking it" or, you know, "I haven't had enough motivation to exercise enough lately." And so maybe it gives you a bit of extra motivation.

Katie: Gotcha. Yeah, this is fascinating. I've been diving into my own data and looking at all the recommendations. And it really is fascinating to see all of this that we have information on now. It's fascinating. Going back to the respiratory side and the immune side for a minute, what are you thinking, like...Obviously, immune health is a huge topic right now and it's probably gonna stay that way for quite some time. Are there any commonalities in recommendations there or especially problematic genes that people would wanna know about? And then to what degree do you think we're actually able to mitigate some of these more severe ones that are risk factors?

Joe: So, as we've seen respiratory infections, like a lot of other issues, whether it's diabetes or cardiovascular, you know, let's say, with COVID or other respiratory infections, let's say the flu, right, who's dying from the flu? People who are really old or people really, really unhealthy. Right? And so we're seeing kind of the same thing with COVID, which is basically, like, you know, who is generally...? Generally, it's people who are unhealthy or are very old. And so it's kind of fitting into the same pattern. And so what that means is obviously that, you know, how healthy you are is going to have to do with how well your body responds to, not only COVID or Coronavirus but any kind of infection. And so that's clear, right?

And so what we're doing is, you know, we're giving you things that will help in some way, right, maybe mitigate the symptoms a bit, maybe... You know, it should help in some way, lower inflammation so that you're...maybe it lowers the likelihood of your immune system going crazy. So what we're doing is we're giving recommendations that maybe we would give anyway just to be healthy, right? Maybe vitamin C, especially, let's say if you're deficient on something, right? If you might be deficient in zinc or vitamin C or vitamin D, then that's a no brainer, right? These are really important for the immune system and you wanna start taking them

anyway. So we're giving things that are generally pretty good and pretty healthy. Zinc could be a good example. And then we're prioritizing it.

And so, I do think what we are seeing is, like, for these genes, we're seeing the same things that we see in other ways as well. There's a lot of healthy lifestyle factors that can counteract negative variations of these genes. And so, for example, let's say when it comes to IL-6, you know, there's genetic variations that can increase baseline IL-6 or increase how it responds to an infection, and other cytokines as well. I don't have any IL-6 issues, but I have an IL-17 issue and you actually have the same genetic variation, and that actually can cause other types of inflammation that I've dealt with in the past. It can cause a whole host of inflammation...types of inflammation.

And so that's an example of something that I would wanna deal with anyway, regardless of respiratory infections or whatever. But when it comes to IL-6 or IL-17, there's many, many ways, many, many healthy ways to lower the cytokines so that they wouldn't go crazy, right? And the earlier you get to these things, the better, right? If you are able to improve your health before an infection, that's the best. And so we'd always recommend, you know, prevention over treatment. Right? And when it comes to treatment, there's no, let's say, clinical studies that will say vitamin C can help COVID. We don't know what will actually help COVID 100%, in terms of supplements because there's no studies and they won't make the studies, right? They're doing studies on drugs and so there are some, you know, positive studies on some drugs, but there's no study done on zinc, as far as I'm aware, yet. Right? Maybe they use it as part of a combination or something.

But essentially, we're not gonna get these studies on natural stuff and we should... Just like, we don't really... And if we do, it's gonna be a small study. Everyone's gonna criticize it or whatever. But we kind of are used to that for a lot of other things also. We get small studies, but there's no generally huge trials that are replicated three times, you know, and it's, like, published in the best journals, right? We don't really get that just because they don't have the funding. But what we do see is that, you know, we do know that, let's say, zinc could be beneficial and we do know that it can counteract some of these genetic variants. And we will prioritize that more if we see that there's a good fit between zinc and the negative variants that you have. So, I do think that this is something...just like we see that you can be healthier and it'll lower your risk. So the healthier you are, you know, before you get it, that's obviously ideal. When you get it, it gets a little more gray.

But still, if you're doing things that can help you lower inflammation, I personally think that should help. Right? You know, and then if you already have respiratory distress, then that's too late, pretty much, right? You don't even have control of your health anymore because, generally, you'll be on a ventilator. So you always wanna do prevention rather than a treatment. That's always ideal. And especially when it comes to respiratory infections, you want your body to be in top shape. And what we give you recommendations basically to show you, here's number one, how to make your body in top shape with your genes, taking your genes into account, also in a prioritized way. And also that if you do get it, hopefully, it'll lower inflammatory cytokines that you're at risk for. And hopefully, that will, you know, lower some risk in some way. But in that regard, there's no clinical trials, let's say, generally speaking.

Katie: Yeah, absolutely. And I think at the end of the day, I 100% agree with you that prevention works so much better than having to mitigate these things once you're already having any kind of active problem, whether it be an infection or some kind of other chronic inflammatory disease. And I think understanding our genetics in a deeper way gives us the ability, like you're saying, to be proactive about that and to do the things that can hopefully avoid the problems in the long-term. And especially with things like COVID, which just seems so confounding, like you said, because some people have shown no symptoms at all and then some people get very, very ill.

These are potentially clues that help us figure out, like which way people are more likely to go and help people mitigate those things. So I feel like long-term, this may be also a hope in being able to decide and know who can safely go out and still maintain normal life, and who needs to take more steps, to be a little bit more proactive. And I think that the same lesson applies to so many other aspects of health, longevity, and genes. Because just like with COVID, some people can get it and be asymptomatic, and handle it just fine. I feel like even with other genetic reasons, people might be predisposed to something and still never struggle with it or never get it. And that's where, like, the lifestyle factors come in. So I'd love to go a little deeper on a couple other genes and just learned about them, somewhat selfishly related to my own, but also because they're ones that seem to be relatively common. And one that came up for me was PEMT, which seems to have a connection to fatty liver. Can you kind of give us an overview of what that is and what that means?

Joe: Yeah, before I go into PEMT, I think you brought up a really great point in terms of a genetic risk versus, like, general risk, right? And so one thing that's really important to know about these things is that you can have a high genetic risk and a low actual risk, right? And in that sense, researchers are having a hard time predicting based on genetics what you will get, right? Because it has to do with so many different factors that are not genetics. And there's many ways to counteract your genetic variants that you might be doing unconsciously, but you're living healthy or whatever. Right? So it's very important to understand the difference between genetic risk and just general risk.

And so let's say if we get to something like COVID or some kind of other respiratory infection...and by the way, respiratory infections are one of the top killers in the U.S., for sure, and probably the world, definitely the developed world, right? And COVID is just like another one of them, right? So it's just making it worse, but it was already one of the top killers. So respiratory infections and infections, in general, are a very important topic. But when we're talking about risk, it's very hard to predict, you know, based on your genes, whether you're going to get COVID, whether you're going to, you know, have complications from it or whether you're gonna be hospitalized with it. That's why we actually created another tool that's kind of a companion to it, which we look at certain kinds of data, like, you know, for example, what are your underlying preconditions?

You know, we're looking basically...like, what's your age? We're looking at a bunch of different data that is more predictive, right? So if someone has a condition, you know, like, let's say if somebody already has diabetes, then that's actually more predictive than any other genes that you might have because we know that this person is unhealthy, right? And so that's why we kind of... When it comes to genetic risk, you have to be careful that it's just saying, you know, you maybe have a higher genetic risk, but it doesn't actually tell you your absolute risk, which is why we have that tool to tell you here's your factors that we can see, right, visible

factors, here is your risk for hospitalization. Here is your risk of death." And things like that. But then you always see, like, some kind of weird case where somebody looks healthy and they have complications. That's more genetics, number one. And two, they're probably not that healthy, they just don't have any diagnosable condition. Right? So I wanted to get that out of the way of genetic risk versus general risk. Now you wanted to look at PEMT, now, number one is, PEMT... So first of all, like, I said, it's PEMT... I'm assuming you're interested in metabolic health with regard to PEMT?

Katie: Yeah. And also the liver connection. I know fatty liver is a big topic right now. I'm seeing it more and more in the research.

Joe: Okay. So what I see, for example, is... Yeah, so let's say, PEMT is associated with fatty liver. And when we looked at the metabolic section, you were able to see that that was the first gene that came up in terms of... We haven't done a very... That's probably the least extensive section out of all the categories we have. Like, for example, right now we're very focused on gut inflammation. And, you know, let's say, before that, we were very focused on COVID and respiratory infection, so we really went hard on that. But let's say for the metabolic section, just for the genes that we're looking at, we see that PEMT, you know, is... So let's say, for example...here's a way to think about this.

You can actually check if you have fatty liver, right? I actually got checked if I had fatty liver just for the heck of it. And it turns out that I don't have any fatty liver, the size of my liver is perfect. It was I think 14 centimeters if I could recall. But essentially, you can check. They can do an ultrasound and see the size of your liver. I don't know if they do it as, you know... I actually did it in India, so I don't know if they do it, like, in the U.S. or whatever. But essentially, even if you can't check for it, there are other ways of knowing. Like, for example, if you're overweight, then it's more likely that you have fatty liver, much more likely.

But really, like, the best way would obviously just be to check, if you have fatty liver, what's the size of your liver? So let's say if you told me, like, "Okay, I got checked for fatty liver or I have a lot of things that would make me believe I have fatty liver. I have these risk factors." Now, we say, "Okay, if you already have fatty liver," and especially if you're trying to be healthy... If you're not trying to be healthy then, you know, it's just like, okay, there's gonna be genes, right, because there's people who don't eat healthy and they don't have as fatty of a liver as some other people, right? There is a variation in how fatty the liver is, within the population of people who are eating unhealthy. So there's definitely a genetic component, but there's obviously a very strong lifestyle component.

But let's say there are always outliers in all these examples, right? There's people who could be doing a lot of things well and then they still maybe have fatty liver. It's generally pretty rare, but it does happen. And that's where especially, especially, especially you wanna look at the genes, right? So you already know, let's say if, or you already suspect that you have fatty liver, what are the genes that are putting me at risk for this? Because there has to be genes and so like you did, you went to the category section and automatically categorized the genes that were putting you most at risk. And so if we look at PEMT, right, this basically is very important for methylation and choline, right?

And so it's thought that a lot of the negative effects from these PEMT variations are as a result of lower choline. And we know that having a higher level of choline intake can help liver health. And so when it comes to, let's say, this PEMT gene, I haven't looked at it, in particular, but let's say if I just scroll to the recommendations, it's basically giving recommendations like I would have thought. It's basically saying if low PEMT activity impairs choline production, so then you should make sure you're getting enough from your diet to compensate. And then it tells you things like beef, liver, eggs, chicken, cod-fish, shiitake mushrooms, these are sources of choline. And then it shows us the supplement section that...choline supplements. It gives a bunch of choline supplements.

And then it also shows that, you know, estrogens, even plant-derived estrogens, they can help increase PEMT, they basically boost PEMT production. And so these are some good ways, for example, to counteract this specific gene. Are you getting...? You know, so if you check your liver, especially, or if you have risk factors, it could be very high cholesterol is a risk factor for fatty liver, being overweight, diabetes, that's for sure. you know, having high blood sugar, high fasting blood sugar is a really good way. Triglycerides, in particular, would be a very good way to estimate if you have, you know, fatty liver and whatnot.

And so let's say you either directly check or you assume that based on, you know, what I just told you, you probably have fatty liver or whatever, then you wanna make sure that you're doing these things, that you're consuming enough choline, then maybe you're increasing some plant compounds that can increase PEMT, that are generally healthy anyway for a fatty liver. And a good example of that could be green tea, right? So, green tea is associated with liver health and it reduced liver enzymes in 80 people with fatty liver disease. It also has some estrogenic potential to it. And so green tea is like a good generally healthy way of counteracting the PEMT and also increasing your choline. And again, if you just had the PEMT gene and you didn't have fatty liver, you didn't have any of the risk factors for it, like I said, your triglycerides are low, your fasting blood sugar was very great, then it's not something you need to worry about because you're probably living a healthy lifestyle, that it's not coming into play even.

Katie: Gotcha. Yeah, that's super fascinating. And, like, I was reading through this...it's interesting because I know I've done the liver test as well. My liver is fine and I have really normal fasting glucose and my triglycerides are normal. But in reading this, I do have to avoid eggs because I'm intolerant to them and I typically have too high of iron so I don't eat much red meat, especially liver. And so I did start supplementing with choline recently and noticed a huge difference just in how I felt. So this was helpful to know that there's a higher likelihood of deficiency of choline with this, which I've kind of found by experimentation, but it's so helpful to see it kind of laid out along with what other supplements can be really helpful.

And I think it's so fascinating to get to go through these reports and kind of figure out and prioritize based on symptoms and have the ability to input all that data together.

This podcast is brought to you by Wellnesse, my new personal care company that is based on the recipes I've been making at home in my kitchen for decades. Many "clean" products simply don't work and this is why I have spent the last decade researching and perfecting recipes for products that not only eliminate toxic chemicals but contain ingredients that work better than their conventional alternatives and that nourish your body from the outside in. I'm so excited to finally share these products with you and wanted to tell you about our brand new dry shampoo! It can be used various ways. You can sprinkle it in clean hair to add volume and to extend time between washes, sprinkle it in hair that has not been washed in a day or two to absorb oil or sweat and you can work it in to color treated hair to maintain color-treated hair by not having to wash as often. It contains oil-absorbing kaolin clay and volume-boosting tapioca which work together to refresh hair at the roots. Lavender oil and cactus flower help to balance scalp and strands' natural pH. We even added hibiscus for healthy hair growth. You can check it out and try it at [wellnesse.com](http://wellnesse.com) and my tip is to grab a bundle to save or subscribe and save as well!

This podcast is sponsored by Alitura skincare. This a company founded by my friend (and previous podcast guest) Andy, who formulated these products to heal after a horrific accident left him with scars on his face. He mixed some of the most nutrient dense ingredients on the planet to create truly natural products that feed and benefit the skin, leaving it nourished and in my experience, hydrated and younger looking. I know from talking to Andy that he has literally gone all over the world to source some of these ingredients and is meticulous about testing them for quality and finding the combination that works the best. Even the name, Alitura, means feeding and nourishing in latin. My personal favorites are the mask and the gold serum, but all of their products are great. Here's a tip with the mask... mix with apple cider vinegar instead of water for an extra boost and to deep clean pores. I use the mask a few times a week and I use the gold serum at night and after sun exposure to keep my skin nourished and hydrated. Check out these and all of their products at [alituranaturals.com/wellnessmama](http://alituranaturals.com/wellnessmama) and use the code WELLNESSMAMA for 20% off and free shipping.

For anyone who's not familiar, who has not done genetic testing before, kind of walk us through what that process looks like. I know that there's a link in the show notes at [wellnessmama.fm](http://wellnessmama.fm) for anybody who wants to run these reports and be able to see all of this data for themselves, but kind of walk us through the process.

Joe: Yeah. So I just wanna touch on one thing that you said, in particular, because I think it was an amazing example of something I spoke about before. So the first thing that comes up is diet, let's say. And you see, beef, liver, eggs, you know, and like those are two great sources of choline. But for you, you already know that they're not meant for you because you're sensitive to eggs, I'm sensitive to eggs as well, and you're trying to lower your iron or whatever, so you have other data points that you're looking at. And this is what I was kind of saying before, that's one way to prioritize. But you're not gonna do these things if you already know that there's other reasons you don't wanna do that.

And so you go to the supplement section and it says choline, right, "Take these kinds of choline." And that's essentially what you did, right? So I think the way you did it is not... You don't wanna read it and be like, "I gotta take beef, liver. It's telling me I gotta do it," right? You also wanna, you know, use some common sense and use your general knowledge of your body in other ways to, you know, guide you in that process. And if you don't feel like you can do it, you can, you know, work with a coach or someone else. But essentially, you

want this information, you also wanna look at it in a holistic way. To answer your question, in terms of the genetic process, how somebody would get started in this. Basically, you have to, number one, have your genetic file. And, you know, there's a question, do you wanna get the whole genome or not?

Right now getting a snip chip or a whole genome, the whole genome is not gonna offer any additional benefit than getting a snip chip that... A snip chip is basically like a partial sequencing of your genomes, things that 23andMe and Ancestry do. Right? And so, we do the same thing. The reason why we offer a chip is number one is it's a bit better than 23andMe and significantly better than Ancestry. That's number one. And also it integrates better, of course, right? These other companies are often trying to not allow you... You know, they're making it harder, basically, to upload your stuff to other companies. So, we allow you to, you know, just buy it, you know, use the swab, send it back, and then it's automatically uploaded. So, it's a bit easier.

But in addition, a lot of people are very insecure about their data privacy. That's the number one issue that we have. And it's actually a very important issue. And so, first of all, you know, our whole team is very aware and very concerned about data privacy. And, you know, it's not part of our model to sell data to pharmaceutical companies like 23andMe or Ancestry. The thing is that even if you didn't trust us, generally, small companies, I mean, not generally, small companies can not do what 23andMe is doing. You basically have to have 10 million genomes in order to sell to a pharmaceutical company or, you know, in the millions, right? We're a boutique, you know, genetics company that is...

We don't have 10 million genomes, even if we wanted to sell it, we would. And again, we're very, very against that. So, that's the other reason why we offer our own chip for people worried about genetic privacy. So, you know, if you want a slightly better chip or you're worried about genetic privacy or you want a more convenient approach, you're able to buy through us and it's the same price as 23andMe and Ancestry. If you already have a file from 23andMe or Ancestry, you don't need to buy our file and you just upload it, right? So you sign up, you upload it.

And basically, the model that we have is a subscription model. And we have a cheap price so that people can afford it, right? So right now it's, \$59 a year and it's gonna go up when we add the lab test to it, which is soon. But essentially, the reason why we have it based on the year is because we're always coming out with new science, new reports, new blog posts, new risk assessments, new lab assessments, and a bunch of new information that you can constantly keep up to date with, right? It's like you can almost... We're making it so that you can use it daily and so that, like, you can read the blog daily and see, you know, what's the new information coming up, whether it's about COVID or respiratory infections, or it's about, you know, some other issue that maybe came up, or you just got your lab test done. So with our personalized blog, which is what we were looking at, right, it's basically we have blog posts coming out very often, right, and you're able to read that like pretty much every day and look at the...

It's all personalized. Instead of something that's not personalized, it's very personalized for each person. So the content actually changes...the recommendations, the content, the risk phases that you get, they all change based on your genetic variations. And so basically somebody would...number one, they have their file, they

upload it. If they don't wanna... You know, they could download a couple of reports, get some recommendations about the topics that they're interested in. I always recommend, you know, what are you interested in? If you wanna improve cognitive function, we have that. If you wanna improve longevity, we have that. These are kinds of things if you don't have a problem, right?

If you have some kind of problem or you're very concerned about something, it could be respiratory infections, we recommend looking at that specific thing and that specific report, and following the recommendations there, assuming it fits in with your general understanding of what's good for you. Right? And then the other thing is the blog, which is really important. You can look at the specific genes. The report does include information, but the blog is way more comprehensive. And so you could categorize based on, "Here's the category I want." So let's say you looked at metabolic health...I'm interested in metabolic health. And then it shows you which are the posts that are most important for you. And PEMT came up first and it turns out that it is probably the most important for you, definitely from the posts that we have, the genes that we have.

And so then you look at that and you look at the recommendations. And so, that's essentially how an individual... And then we also have this, you know, genetic symptoms and conditions analyzer where an individual...let's say, if we don't have the topic, they can look at snips in some area and...you know, it just requires some more digging from themselves. But we have this whole platform that allows people to dig in in different ways. Right? But the report and the blogs are much more hand-fed, whereas the rest of the platform, you know, you have to, like, put some time into it. But that's also very helpful, right? You could, like, look up any topic and they'll show you what the snips are, that are related to it. So essentially that's how... And then an individual can cancel at any time if they don't wanna be on the subscription. And so that's essentially how an individual would get started in this.

Katie: I love it. And like I said, I'll make sure that there are links in the show notes, people can find all of that. I know that there's also a discount code that you guys have offered and that will be in the show notes as well. I think we'll have to do a round two one day as well because I think this topic, truly we could do a dozen episodes. There's just so much information and more coming out all the time. Like you said, you guys have new reports all the time. I just was excited to get you on to talk about the genetic risk factors when it comes to respiratory disease because that's so top of mind right now.

And it really is helpful to see, like in my own data and I'm curious to do it with my husband, and my kids' data as well, what those risk factors are and ways that we can support the body, and kind of understand all of our own risks, as we navigate this whole chaos right now. So, Joe, I'm just so grateful that you are here and that you've shared all of this. I definitely would encourage any of you guys who are interested to check out the links in the show notes, [wellnessmama.fm](https://wellnessmama.fm). And I'll still post those on social if you are listening when this first comes out. But, Joe, thanks so much. This is so fascinating. Like I said, I think it's a topic we're gonna just continue to learn more and more about.

Joe: Thank you so much for having me. It was definitely a pleasure.



Katie: And thanks as always to all of you for listening, sharing your most valuable asset, your time, with us today. We're so grateful that you did, and I hope that you will join me again on the next episode of "The Wellness Mama Podcast."

If you're enjoying these interviews, would you please take two minutes to leave a rating or review on iTunes for me? Doing this helps more people to find the podcast, which means even more moms and families could benefit from the information. I really appreciate your time, and thanks as always for listening.