



Speaker 1: [\(00:02\)](#)

Good Medicine On the Go with Dr. Nathan Morris and Kara Ware.

Morgan Knull: [\(00:10\)](#)

I think right now with so many people being stuck at home, for a lot of people that are turning to food and where neurotransmitters come in is what are we craving and knowing neurotransmitter or what that kind of genetics are with it, where the predispositions are, going to help us understand why they're craving what foods that they're craving.

Kara Ware: [\(00:32\)](#)

Economic pressures and unprecedented social circumstances are giving rise to a host of unhealthy coping strategies. Food cravings, increased appetite, insatiable hunger, bingeing on sugary or high fat comfort foods, we are literally feeding on fear. What are these coping strategies telling us? We first talked with Dr. Greenblatt in episode two about the critical importance of linking neurotransmitter genetic variations with the behaviors that drive harmful coping strategies. What genetic variants that when expressed drive us to snack endlessly, have insatiable cravings, to hear a commercial about food and instantly go to the refrigerator to eat again and or be back in the cupboard, right after finishing a full meal?

Kara Ware: [\(01:25\)](#)

This is the first of a two-part series exploring the relationship between our environment, emotional triggers, stress and our genetics and how these interactions are exacerbating patient's top objective, weight management, and their relationship with food.

Kara Ware: [\(01:43\)](#)

Nathan, what clues, insights can a nutritional genomics report provide clinicians to support patients breaking free from the cycle of feeding on fear?

Dr. Nathan Morris: [\(01:54\)](#)

That's a great question, Kara. And I think what we have seen is the critical importance of linking neurotransmitter variations within the genetic code, with the behaviors that drive harmful eating habits and neurotransmitters are simply just chemical messengers that are sent out that tell our body how to react to the environment and our biological stimuli. And these stimuli can include fear, anxiety, hunger, stress, sleep, and each individual has different triggers for their stress. And in these times, I think that is really important. And I think a lot of us are feeling a certain amount of stress. And so that is what we're talking about when we're talking about feeding on fear, and you could say beating on stress. I mean, it is something we've all been struggling with, right? And there is two main neurotransmitters that play a big role in our mood. So, we are going to keep it simple today, Kara. We're not going to get real complicated, but I think if we understand these two neurotransmitters and their role in stress and their health, then it becomes a lot simpler to understand how to address them.

Dr. Nathan Morris: [\(02:59\)](#)



So, one of those is serotonin, and this is a neurotransmitter that helps regulate sleep and appetite and helps with mood, inhibits pain. Serotonin also acts as nature's appetite suppressant, AKA satiety. When we see people that have decreased mood, they tend to want to eat more. And that is one of the reasons why, and it's also regulated by the amount of tryptophan available in your system, which is a precursor to serotonin. That's an amino acid, which can be increased when you eat certain foods.

Dr. Nathan Morris: [\(03:30\)](#)

Now, the other transmitter is dopamine. Dopamine is a very big neurotransmitter. At least, it is for me. I have a real problem with dopamine. So, this is one I have really studied quite a bit. And it is kind of our feel-good transmitter. It is the reason why people tend to have addictive behaviors or are thrill seekers. Those people that do crazy things, jumping off mountains on snowboards and stuff. There is seeking that dopamine, right? And this is a reward hormone. And people with problems with addiction also tend to struggle with dopamine issues. And I've often seen that when people are struggling, trying to overcome addiction, we see that they become more dependent on nicotine, more dependent on sugar and other things that drive dopamine.

Dr. Nathan Morris: [\(04:16\)](#)

So, dopamine, when we think about food and our relationship to food, and we say, "Oh, sugar is an addiction," we kind of laugh it off. It really is. If you've ever taken yourself off sugar and you've been dependent on it, it's truly a withdrawal. And it takes seven to 10 days sometimes. So, this is an important... If we can understand how, we are both disadvantaged and our receptors, which we'll be talking about today, that they're not binding dopamine well, or we're getting rid of dopamine too efficiently, then we can understand why we have some of the behaviors going to the fridge or seeking high fat, high sugar foods. And that really takes a lot of that burden off us as being flawed by not being able to fight it as well as we think we should. If we can support it, then it becomes a lot easier of a journey.

Kara Ware: [\(05:02\)](#)

Absolutely. And of course, dopamine and serotonin levels are influenced by multiple things. But one main driver linking these neurotransmitters in appetite, hunger and behaviors is genetic variation in our patients. So, Nathan, before we go any further, will you explain, because we're going to use these terms quite often. What do we mean by genetic variations and SNPs or a single nucleotide polymorphisms?

Dr. Nathan Morris: [\(05:26\)](#)

Yeah. Kara, learning genetics is like learning an entirely new language sometimes. And I think we get a little bit overwhelmed with all these abbreviations that we are going to get, COMT, DRD2. And it sounds a little bit like alphabet soup. And when we are talking about SNPs, single nucleotide polymorphisms, and a lot of times I'll just use genetic variations. We all have millions of these, okay? This is nothing unique to any individual. It's what makes me look like me, and you look like you, and there's so many things that are so positive about having genetic variations but when it comes to some essential SNPs or genetic variations, it can really determine how we react to our environment, how we make in this case, neurotransmitters and how we respond to those neurotransmitters.



Dr. Nathan Morris: [\(06:12\)](#)

So, it just what makes each of us the way we are, but at the same time, it can give us some real insight into how to leverage these variations to feel better or to, in this case, understand why we're reacting the way we're reacting to our environment.

Kara Ware: [\(06:28\)](#)

There are many nutritional genomics interpretation platforms available. Nathan, you use PureGenomics in your practice Good Medicine.

Dr. Nathan Morris: [\(06:36\)](#)

Yeah. I am a little biased. PureGenomics has been around for five years ago. We started in 2015 and it was created, which I was a co-creator at that time because everything was so very complex, and it was so hard to take that information and apply it in a clinical setting. So, we decided to base it on three things. Is it researched? Is it relevant to the patient? And most importantly, is it responsive to intervention? And so, that's why PureGenomics was born.

Dr. Nathan Morris: [\(07:08\)](#)

Another interesting thing we did with it is we made it free to providers and to their patients. And if you have 23andMe or ancestry data, then you can just upload it and then your provider can go over it with their patients. And it is a really nice application that we were finally able to take all this data and really boil it down to what somebody can use in their practice in a very timely fashion. It didn't take a lot of time to understand what you needed to address, which is what is the patient there at your office for that day.

Dr. Nathan Morris: [\(07:46\)](#)

Now, one of the things, Kara, I wanted to bring up and you're going to hear us talk about this is the color coding that we see in most genetic reports. And we did this as well in 2015. We made things green, yellow, and red, and that kind of implied green is good. Yellow is maybe caution. And then red is, stop, take a look at this. And we realized that, that really was probably effective, maybe 80% of the time. But as we will talk about today with something like the COMT gene which is our ability to get rid of neurotransmitters or be slowed in getting rid of neurotransmitter, sometimes green is the wrong impression to give to providers because as in my case, I get rid of dopamine really easy. I am green. That means my wild type which is the most prominent polymorphism in a population is a disadvantage to me. So to call it green would be a really disservice to what we're trying to do clinically.

Dr. Nathan Morris: [\(08:50\)](#)

So, what we've done now, we've changed that to clinical significance. And then our report, we pointed out clinical significance and not red, yellow, or green. Now, that is going to be a little bit of a paradigm shift for a lot of clinicians, but I think it's time we do that because we can no longer use this, what I think is outdated system, because it's not really given us the clinical information we need. And I think you're going to help us with that bridge in the future with some legacy data you're going to put on your



website, right?

Kara Ware: ([09:24](#))

Yeah, exactly. I'm going to create a cheat sheet.

Dr. Nathan Morris: ([09:27](#))

Awesome.

Kara Ware: ([09:28](#))

So yeah, so we can help providers see the different SNPs with what they know, those color classifications, and then begin to be that bridge, as you mentioned to teach them now the alleles and the risk variant and PureGenomics really does that well for us in our new PureGenomics 2.0. But today, in our interview with Morgan Knull, who is a certified nutritionist, we are going to be talking about the critical importance of linking the neurotransmitter genetic variations with the behaviors that drive these harmful eating habits. Just to prepare you for what you are going to hear today, again, more of that alphabet soup, but these are some of the first SNPs to really, when you're new to nutritional genomics is to become familiar and to know their function. And so today we're going to discuss the COMT, the DRD2, the FTO and the TPH2.

Dr. Nathan Morris: ([10:21](#))

And those will appear in your show notes, right, Kara?

Kara Ware: ([10:25](#))

Yeah, absolutely.

Dr. Nathan Morris: ([10:25](#))

If people get overwhelm with that alphabet soup, don't worry, we'll explain it more in [inaudible 00:10:28].

Kara Ware: ([10:30](#))

Exactly. We are having help from the Pure Encapsulations medical education team to really create our show notes as handouts. So again, just more cheat sheets because we need all the assistance in this new field, this new rapidly evolving field. So, just to tell more about Morgan, she struggled with serious health conditions. And of course, like so many of us continued to try new diets to see what would work for her. And of course, that latest miracle supplement, that trap so many of us fall into. She spent decades guessing at what will help her feel well again.

Kara Ware: ([11:10](#))

And in 2017, Morgan had her genetics tested and a genetic consult with Dr. Penny Kendall-Reed and Dr. Penny, she's going to join us in the second part of the series. For her episode, why is the generic advice eat right and exercise bad advice where we talk with her about another side of using nutritional genomics to personalize diet recommendations, also about her new book, Fix Your Genes to Fit Your



Jeans and her genetic interpretation platform, GeneRx.

Kara Ware: [\(11:43\)](#)

So, Dr. Penny, she prescribed Morgan a specific protocol that included both supplements and specific foods that were supportive to Morgan's genetic makeup. And this protocol was Morgan's game changer and ignited her passion for genetics. Her practice, Morgan's practice is [feedyourgenes.ca](#) where she offers nutritional genomics consults and creates her clients customized meal plans based on their genetic nutrition lifestyle needs.

Kara Ware: [\(12:10\)](#)

What excites me about this conversation today is the empowerment patients can access when they hear Morgan say, for example, "This isn't who you are. Therefore you are," and the heart of functional medicine is discovering the why to the symptoms of our illness. And this really changes a patient's narrative from feeling shame or guilt or lack of willpower like you were saying earlier, Nathan, as the reason they're tipping into unhealthy coping strategies to a new narrative, "Hey, I now understand my genetic vulnerabilities and the extra nutritional support and the lifestyle changes that can change my destiny," and like, Morgan, this is a real game changer for patients.

Dr. Nathan Morris: [\(12:48\)](#)

That's such a great point, Kara. And I think it is about that word empowerment. I love that word because that is really what we're seeking with our patients. And you hear me say it all the time, because that is the difference between failure and success with our patients. Do we empower them? And it's important we start with our neurotransmitters when it comes to helping your patients with weight management problems. And also, if they don't feel good, they're going to have a hard time instituting your recommendations. And so, we really need to make sure we're addressing their dopamine and their serotonin so they have that desire to change. And that is what is really important about what we're talking about today is that personalizing the patient's response to help with weight loss or weight management, and also to help with their mood at the same time. And so right after this, we'll dive in deeper.

Speaker 1: [\(13:34\)](#)

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Kara Ware: [\(14:08\)](#)

So we know there are a lot of topics related to stress-induced weight gain, especially during the past few months. Of course, hormones, alcohol, sleep issues, depression, et cetera, and we do not have time to touch on all of these today as important as each one of them are. Today, we want to focus specifically on the dietary habits that are possibly a result of the neurotransmitter involvement, and the food

feedback cycles in our brains. Morgan, tell us why are neurotransmitters important right now in times of increased stress and uncertainty, and just in general, with the relation between stress and eating.

Morgan Knull: ([14:45](#))

I think right now with so many people being stuck at home, for a lot of people that are turning to food and where our neurotransmitters come in is what are we craving and knowing neurotransmitter or what the kind of genetics are with it, where the predispositions are going to help us understand why they're craving what foods that they're craving. So, let us say for example, someone is looking for that serotonin boost. Those are typically people who are craving more of those sweets, the chocolate and the cakes and sweet things. Whereas on the dopamine side of things, when someone's looking for that boost of dopamine, they're more on the saltier side of looking for chips, popcorn, peanuts, wine and cheeses type of things.

Kara Ware: ([15:35](#))

So, people are making up their neurotransmitters in relation to food because they're burning through their neurotransmitters a lot faster. Their neurotransmitters are shutting down production in times of stress.

Morgan Knull: ([15:48](#))

Well, I think what happens is I always kind of describe our SNPs or these genetics like light switches. And just because we have them does not mean that they're turned on, but what does happen when we're under a lot of stress or trauma happens is they tend to turn on and then maybe that demand for those neurotransmitters is larger due to the stress that's impacting the position of those SNPs. So, and then what happens is we get into this habit of sort of self-medicating. So, I know I need that boost of serotonin. I am going to eat that chocolate every day. And when you add that layer to your snacking issues, that you're somewhat self-medicating to get the boost, it gets really tricky then to help someone break that habit.

Dr. Nathan Morris: ([16:34](#))

So Morgan, with those foods you mentioned, are they getting the precursor amino acids with those?

Morgan Knull: ([16:41](#))

Yeah, I would say so. I mean, when you're looking at precursors for, you've got the 5-HTP, obviously for your serotonin, but on dopamine, you've got like L-tyrosine and things like that, that you're searching for.

Dr. Nathan Morris: ([16:57](#))

You mentioned that and I think chocolate is a great example. I mean, that is a great source of tryptophan and a lot of people really crave it. So, do you find that supplementing sometimes with these amino acids helps with that craving?

Morgan Knull: ([17:11](#))

Absolutely. So, when I am trying to get someone snacking under control, I need to understand what's going on, on the neurotransmitter's side, what's driving them to these certain snacks and then what can we plug in to help support them? So, that might be on the serotonin side, a 5-HTP. It might be for dopamine, L-tyrosine, some Rhodiola, but it is also giving them healthier snack options I find as well is really important. So maybe we are looking at Stevia-sweetened chocolate chips and some healthier options to that snacking, just so they have some tools in between. Because sometimes when we are supplementing that can take some time for it to kick in. So, we really want to get them some help in the meantime.

Dr. Nathan Morris: [\(17:59\)](#)

Excellent.

Kara Ware: [\(18:00\)](#)

So, we're talking about dopamine and serotonin and the relationship to food cravings. So, where in a nutritional genomics report do you first look at? What are the SNPs, the polymorphisms that you are looking at first? Let's talk about the dopamine.

Morgan Knoll: [\(18:15\)](#)

Okay. So, well, in relation to the dopamine, the first place that I am going to see what's going on with snacking is under the metabolic section. And I am looking at the FTO SNP. I want to see if it is variant to see if snacking itself is going to be an issue because the FTO is really the driving force behind satiety. This is your snacker. These are people that are not having one chip, they are eating the whole bag. So, we kind of get an understanding of the basis of the snacking there. And then we skip over to the cognitive side of the report where we can see, okay, what is going on with DRD2, COMT, those are your dopamine SNPs. What is going on with TPH2. That is your serotonin SNP. So, are they snackers? And then what are they snacking?

Morgan Knoll: [\(19:07\)](#)

And really when you look at the FTO and you connect it to say, for example, the dopamine SNP, that can be a tricky one because dopamine being our reward and pleasure seeking neurotransmitter, okay, I'm going to the fringe because I'm a snacker without FTO, and I want that salty snack. I am getting my boost, but that boost is not lasting long. So, I'm going back to the fridge and it's just the vicious cycle is starting, and I've got that FTO so I don't feel full. It's kind of a perfect storm.

Dr. Nathan Morris: [\(19:41\)](#)

Yeah. That connection between FTO and DRD2 is interesting, Morgan, because I think about 18% of the population probably has both a problem with this satiety and then the dopamine receptor and they really are finding out FTO is the satiety SNP, and actually is the most researched polymorphism out there that really indicates a tendency to gain weight. I call it, eat the ass end out of a mule SNP because it is. I have lived with that and the dopamine issues. And so, I think, as we look at this and we look at FTO, if we are just looking at, oh, let's just look at weight and let's not look at neurotransmitters. I think we are really doing a disservice to what's driving the FTO, which I really still haven't figured out exactly

everything that's going with that polymorphism, but we know dopamine is really connected into it. And it actually shows with FTO and DRD2, we rewire. The more high fat, the more high sugar, we rewire that we need more and more of it if we have that polymorphism.

Dr. Nathan Morris: [\(20:45\)](#)

So, it's a really fascinating connection you brought together there. And I think, if we see the FTO, if we are looking at weight and people gaining weight, that you have to look at the dopamine and that connection. Can you talk a little bit more about COMT? I know COMT is catecholamine methyltransferase and it is our ability to get rid of dopamine or to hang on to dopamine. So, can you explore that a little bit more because I think that's probably one of our big, I guess, holes that allows dopamine to leave our system or allows us to plug the hole depending on what our genetic makeup is.

Morgan Knoll: [\(21:21\)](#)

Yeah, absolutely. So, if I am looking at those DRD2 SNPs, I kind of imagine that being that's our receptors, so to speak for our dopamine and then our COMT is going to be our clearing station. So, let's say, for me as an example, both of mine on those sides are impaired. So dang, not only am I not making enough dopamine, but I am clearing it out faster than I can hang on to it. So, those are really important to look at when we're trying to support someone's snacking and they're using food and the amount of food and the consistency, or kind of nonstop snacking to support that side of things.

Dr. Nathan Morris: [\(22:05\)](#)

So, with the COMT, when we talk about that's where we metabolize it. So, when we are looking at a COMT, somebody that's in the previous report was green, meaning that their COMT works really well, that's actually not a good thing as me and you know, we both suffer from this. We get rid of dopamine fast then we have, or myself, I have FTO issues. I have DRD2. So, when you have that gene that is working perfectly, it's actually not working perfectly for you. You are going to have more issues with dopamine needs. And then if you have what used to be red, where you were a slower metabolizer, this actually will work to your advantage because you're going to keep more dopamine around, also other catecholamines. So higher levels of stress are not going to be great cause you can't get rid of your catecholamines as well.

Dr. Nathan Morris: [\(22:52\)](#)

So, that's not really good or bad. It just depends on the situation. And so that is why we need to look at genetics as not a... It's kind of a double-edged sword. In one case, it may be great if you're able to get rid of things real easy, and it's not so great if you're needing more dopamine.

Morgan Knoll: [\(23:12\)](#)

Exactly. So, if I see someone... Someone will look at their report and they will see a red DRD2, and then a red COMT and they're like, "Oh no." And I am like, "Actually that red COMT is helping you out right now because you're not making enough of the dopamine. It's just slowing you down from clearing it out." So sure, for other reasons, like you mentioned, we're going to want to support the different SNPs, but in that case, red is not always necessarily a bad thing, right?

Dr. Nathan Morris: [\(23:40\)](#)

Right. Right. And I think that is a really important point for the listeners is to understand that depending on the situation, if you're trying to get rid of estrogen, red is not good or being homozygous for this, you can't add a methyl group to estrogen and get rid of it. But if you're looking at dopamine and appetite and other things, this might be a very good development for you.

Morgan Knoll: [\(24:03\)](#)

And that's one of the other things that I love working with food for people because if we see that, maybe we're happy that it's not clearing out that dopamine. We are a little worried about the estrogen. We are going to look at foods with an abundance of raw cruciferous vegetables to help you with that estrogen side of things. So, I like to plug in food as often as I can to support those SNPs.

Kara Ware: [\(24:26\)](#)

Morgan with the FTO, the obesity gene, and as Nathan said, it's one of the most well-researched gene, when this gene is being expressed, is this what is driving patients back into the cupboard after they just ate? Is that the right gene that seems to be that underlying driver, even if they just ate, they're back in the cupboard 30 minutes later?

Morgan Knoll: [\(24:50\)](#)

That's exactly it. I mean, before I realized that I had this SNP, I was like, I could eat my lunch and then eat it all over again. And I just thought, there is something wrong with me seriously. And I was talking to a client the other day who had this SNP and they have had just a heck of a time with any type of diets and the failure and the burden that they have carried on themselves has been pretty unfortunate. And I was like, I bet it is hard to eat that small amount of food when you're always hungry and you don't feel full. Let's support that, and then let's see what a diet looks like after we've helped you with that.

Kara Ware: [\(25:28\)](#)

That's great. Just to recap with the dopamine, you're taking a look at the COMT, which is helping us to know how someone is clearing their dopamine. And then as a result you want to then go and look at the DRD2 to see how they are utilizing because it is well established that connection of diet and obesity and the dopamine signaling. So, it is really important to start with those neurotransmitters. And then you're also taking a look at the FTO role, which is that obesity gene, appetite and satiety.

Kara Ware: [\(25:55\)](#)

May we go ahead and move on to the serotonin pathway and what you see there? You have said a little bit about how that's the craving for chocolate and driving us into those cravings. How else do you support this? Tell us about this gene, the serotonin, its function and how you support that.

Morgan Knoll: [\(26:14\)](#)

Well, I do find that both people who have either got the dopamine or the serotonin concerns that they're trying to get from their food. I find that they both have a really hard time because they do not

understand why they're behaving this way. And there is a lot of blame. I find it specifically worse with the serotonin group because they are really looking to feel good. And knowing that they are craving the chocolate, and they're craving those sweets because they're really looking for that boost and that feel good neurotransmitter. They want to get that serotonin up. I find that explaining that to people really lifts that burden off them. And once you understand, okay, I am going to the fridge right now for a piece of chocolate because I'm not feeling so hot. And I know I need a boost of serotonin. Once you give someone other options, maybe I will go for a walk instead. Maybe I will try this other snack. Maybe I will take that 5-HTP supplement. Once you're giving them the tools, you're really pairing them up with success to be able to avoid those unhealthy eating habits.

Kara Ware: [\(27:25\)](#)

Yeah, and you're almost changing the narrative. It is as though I don't want chocolate. I want to feel good. So, what other options do I have? And you're helping them brainstorm those tools.

Morgan Knull: [\(27:36\)](#)

Exactly. And that is pretty much how I say it. This is why you are. This isn't who you are.

Kara Ware: [\(27:43\)](#)

That's what I said.

Morgan Knull: [\(27:46\)](#)

So, figure out how to get around that. And then we can be successful in leading you in a healthier direction. And this isn't because you're a major failure and you love sugar, it's because you're looking to get a feel good boost and let's get that for you in other ways.

Kara Ware: [\(28:01\)](#)

The last few stressful months have highlighted and exacerbated these unhealthy eating behaviors for many of us. In times of increased stress, we burned through these neurotransmitters a lot faster, and production actually may shut down. And so, in episode two, with Dr. Greenblatt, we learned how these genetic variations play a role in supporting mental health. And today Morgan gave insight into how these genetic variations also play a role in food cravings and appetite and satiety issues. These four genetic variations or SNPs maybe of critical importance to help patients break the cycle of feeding on fear from the impending mental health crisis that has been triggered by COVID-19 and other current events.

Kara Ware: [\(28:45\)](#)

Let's review the practical tips Morgan shared to support these four genetic variations. If we have symptoms such as craving chocolate, the sweeter snacks to boost serotonin or craving the saltier chips, cheese wine snacks to boost the dopamine or constantly snacking between meals and back in the fridge after you just ate from the FTO influence.

Dr. Nathan Morris: [\(29:04\)](#)

Yeah. So, Kara, you summed it up well, but I'll kind of go a little more in depth. So, keeping it simple, that's probably the most researched polymorphism or genetic variation that we have, which is FTO. And we see that there is a real connection with this and the need to snack between meals, as you mentioned, but this is also a little bit of oversimplification, but this one makes you really want to eat and not feeling full after you eat. And so protein plays a really big role here, and we want to make sure that the patient is getting sufficient protein, around one gram per kilogram, a pretty good equation there or 1.2 grams per kilogram, but this person is going to need a little bit of protein to help with that satiety.

Dr. Nathan Morris: [\(29:44\)](#)

And this gene, FTO, is very connected to the dopamine receptor, DRD2. This dopamine receptor, the fact that if we are not able to bind dopamine as well, this FTO polymorphism tends to be even more aggressive in our appetite. So, we are really wanting to support if we're seeing both FTO and DRD2, we really want to support that dopamine production. And so, we can do that in a number of ways by improving the entire scene. Or one of the cases that I really like to do is there's a natural supplement called Rhodiola Rosea that really slows down COMT, which is our third dopamine SNP.

Dr. Nathan Morris: [\(30:22\)](#)

So, COMT, catecholamine methyltransferase is really about adding a methyl group to dopamine, which helps us get rid of it. And if we are really good at getting rid of dopamine, then that's a problem if you're having a need for more dopamine. So, slowing it down with something like Rhodiola is very helpful. So, when we look at COMT, we are looking at it to say, how well do I get rid of things like norepinephrine, epinephrine and dopamine. And if you are not getting rid of things very well, you're going to have more dopamine, but you're going to have more anxiousness, but that's more in line with what Dr. Greenblatt had talked about. So, please go back and review that episode because it's a really good discussion on that.

Dr. Nathan Morris: [\(31:01\)](#)

So, these are the three polymorphisms that really are important to be looking at when we're looking at neurotransmitters and the role they're having in a weight when it comes to dopamine. The other polymorphism is TPH2. There is more alphabet soup. I know it gets a little overwhelming. So just to reiterate, you can go to our show notes and really understand these better, but this is really how we go from tryptophan, which is amino acid that naturally occurs in our diet to 5-HTP, which is a precursor to melatonin, and most importantly, what we're talking about here is serotonin. And so, if we're not able to make serotonin, then we're going to have some real issues with mood. And as we been talking about during this episode, mood and appetite are directly connected, and people like this are going to be seeking things like chocolate, things like sweets, which are going to support that.

Dr. Nathan Morris: [\(31:54\)](#)

So, we really need to support that with something like a supplement, that's like 5-HTP, which is just that next step that bypasses this polymorphism or this genetic variation. So, it becomes that simple. We want more serotonin, let's give the body what it needs to make that serotonin.



Dr. Nathan Morris: [\(32:10\)](#)

I always talk about, Kara, that this doesn't have to be complicated. Maybe this is just where you want to start in your practice. Just looking at the neurotransmitters and the role they are playing in mood and the role they're playing in appetite. Maybe you could just pick these four and look at these and it can be as simple as that. Everybody wants to teach you how to be Tony Hawk if you were on a skateboard. And I use that example a lot because that's one of the reasons I took a while to look at genetics because I felt like it was so complicated.

Dr. Nathan Morris: [\(32:39\)](#)

I was so overwhelmed, and then I realized, you know what? I just want a skateboard to go from point A to point B. I want to go down the sidewalk. I do not want to all these tricks. And you know what I'm a much more effective position because I keep it simple and the patient is not overwhelmed and you overwhelm the patient, you've lost them. They just want to know what the practical things are I can do. And that's where nutritional genomics report can be either very overwhelming or very simple.

Kara Ware: [\(33:04\)](#)

Yeah, that's such a great explanation. And PureGenomics is the platform that we use, and it doesn't make it easy to follow. It is genetic simplified. And all the polymorphisms on the report are backed by science. And it allows you to identify the relationship between your patient's genes, nutrition, and wellness. And it has education embedded in the platform too to help you go from point A to B, like you said. And this two-part series really will help you stop that guessing game and address two rather significant patient objectives, mood and weight management. And you can begin to personalize truly for each patient. We no longer have to guess. And our next episode with Dr. Penny Kendall-Reed why is eat right and exercise bad advice.

Dr. Nathan Morris: [\(33:51\)](#)

Yeah, that's right.

Kara Ware: [\(33:51\)](#)

She will give important insight to use genetics to personalize the weight loss plans. And plus, we're going to talk with her about her new book, Fix Your Genes to Fit Your Jeans.

Kara Ware: [\(34:03\)](#)

So, if you're interested to get started with nutritional genomics and we recommend going into puregenomics.com, make an account. If you have your raw genetic data from 23andme or ancestry.com, we highly recommend getting started adding yourself as a patient and your family and generating your reports first, and then be sure to schedule a free PureGenomics business integration consult, where we can plan how to get started with education and application and brainstorm how this tool will be integrated into your unique patient workflow. And of course the other technology platforms you use to drive your practice.

Kara Ware: [\(34:41\)](#)



So, remember to visit us at karawarecoaching.com/podcast, to get the show notes and links to resources, and also follow Dr. Morris at Good Medicine and myself, Kare Ware Coach on social media for more practical application insights to today's most important business and healthcare topics.

Kara Ware: ([34:58](#))

All right, Nathan, we will be back with our friend and our guests, Dr. Penny Kendall-Reed.

Dr. Nathan Morris: ([35:04](#))

So looking forward to it, Kara.

Speaker 1: ([35:06](#))

This is Good Medicine On the Go with Dr. Nathan Morris and Kara Ware. For more information on this podcast and to schedule a free business integration or nutritional genomics consult visit karawarecoaching.com. That is K-A-R-A-W-A-R-E coaching.com.