Summit Introduction and Guest Background

Welcome to the Bio Optimized Summit, where we explore the next level of physical and mental health you can reach through intentional and targeted optimization.

I'm Doctor Amy, your host, and today I have with me Doctor Neil Medley. He is a practicing physician and internal medicine and has really focused in on the difficult to diagnose patient, especially with mental health issues, anxiety, depression, and been able to treat this very successfully with lifestyle medicine.

He has provided continuing medical education courses to physicians and other health professionals around the world, and has now been published numerous times in the medical literature.

He is known for his health education seminars. And what we will be talking a little bit about today is the anxiety, depression, and he has developed a whole recovery program around this, but has also developed a depression and anxiety assessment test that I will want to hear more about.

And this is successful because it helps to identify the specific areas that an individual can focus on to improve their symptoms, as well as their emotional intelligence.

So he runs educational programs and has a brain optimization program that will be going into more detail today as well. As well as talking about kids and their brains, because right now, with them being home more and parents are needing to learn how to do the schooling and finding that their phone that their kids are on their phone a lot, or that their kids are having a hard time focusing.

And we need to have these tools and this knowledge to be able to help, help our kids be able to do well, even at home and out of their normal routine.

So thank you so much for joining us today, doctor. Natalie, I really appreciate you taking the time. Well, thank you, Doctor Amy. And, certainly glad to be with you. Good.

So I am really fascinated about the depression and anxiety assessment test, particularly because as this summit is very focused on being able to target and be very intentional about our ability to optimize our mental health, our physical health.

And this assessment test that you developed really speaks to that, because it helps identify the areas in which a person could get the most benefit from in their symptoms if they were to focus on that.

So what led you, first of all, to even think of developing an assessment test like that? And then what are those things that you test? Well, when we were seeing so much depression and anxiety in our clinic, in our clinical setting, and of course, one of my specialties was GI, and there's quite a brain gut connection.

And sometimes I wouldn't see anything wrong with the gut. Despite all of these GI symptoms and then to find out, it was actually from what was going on in here, and there was a lot of neurotransmitters in the gut that are identical to what's in the brain.

And so it was kind of, easier for me, I guess, to get involved in the mental health side of things. I approached this more from an internal medicine perspective, and in internal medicine, we don't just diagnose someone with swollen feet and, swollen foot syndrome when they have swollen feet and then send them out the door with Lasix or a diuretic.

We're going to try to find out the cause of the swollen feet. And there can be over 100 different causes of swollen

feet. And so when I was rotating with preeminent psychiatrist and learning more about what they do, I would ask them because often what would happen is the diagnosis of depression and anxiety is made.

Why the Anxiety and Depression Assessment Was Created

And then right away we're going into treatment without actually looking at particularly the underlying causes. And there are so many underlying causes.

Exactly. And that's what you've been able to really fine tune with this assessment test. Right. And so it's based on the fact that there are well over 100 causes of depression and anxiety at that time.

There was only thought to maybe be 14 or 16 causes, but, we were the first ones to actually, research all of the underlying causes that are potential.

And once we look at that entire list of underlying causes, we then have to try to go through that list and say, is this one a cause or not? And so, you know, we're going through and and it turns out depression and anxiety because the brain is so resilient, it takes actually four different categories of causes to actually bring it about.

So if we only find one cause or two cause, we haven't really found the the total package that's going to help the patient. And so we're always looking for at least four different causes.

And this depression and anxiety assessment tests helps us, to look at those over 100 causes and see which ones are operative. And it turns out the ones that are operative in most cases can be completely reversed, with sometimes very simple measures.

And, and so when we put people through the approach, getting rid of the causes that were active in them, we started to see results that were actually phenomenal, that were surpassing the traditional results with medicine and counseling.

Because we were actually touching and reversing the very causes. And how soon were you starting to see these results? Well, when we first developed our program, we did it over an eight week period because it was a community outpatient program.

So we would, work on 1 or 2 of those causes every week or every two weeks or so. And so we were seeing a very significant response normally. And for weeks and maybe in eight weeks.

And then, of course, people were seeking us out from all over the country. So we developed a residential program. And in that resident program, we started it as an 18 day program.

But our our data showed that people were getting better in ten days. When we dealt with all of these causes together at once. And so now we have a ten day residential program.

And, it's incredible to see how quickly the brain is able to change, once we remove the underlying causes that have been inhibiting it for so long. And I'm right there with you.

That's why I love working with the nervous system because of the neuro plastic effect. And so out of all the tissues in our body, like, we really can get it to change and get it to rewire.

And it doesn't take as long as people think. And especially when, like you, you've created this experiential process for them where you're assisting them, they've got the support, but you're hitting all of these underlying causes at the same time and allowing them to integrate it, because it's not like they're going home.

And then this is just one part of their life. This is their life for several days in your residential program. And it allows for such rapid rewiring of the brain and the nervous system.

Yeah. In fact, because it's so rapid, sometimes we are doubted. You know, we're actually, doing a program right now. And one of the participants from the Bay area that has had a lot of severe problems for a while.

Her psychiatrist said, you know, there's just no way I, you know, I looked at it's a ten day program. Someone like you, there's no way that they're going to get even closely better in ten days.

So I would not recommend the program. Well, she actually talked to some people who went through the program, and, and so she decided to try it out, but was skeptical because of water.

Psychiatrist. Said then, you know, now we're day six of the program, and she's saying, I'm already feeling far better than I have felt in years. And I know, you know, we're not even to day ten yet.

And so, it's it's really hard to believe until you're actually here and experience it. And of course, when you see the data, it's pretty easy to believe to, you know, the average, medicine for depression, the best we can get is to treat eight patients in order to get one that is going to have significant benefit.

It's the number needed to treat it's calm. And, of course, this is not a very good statistic. It's not I'm not I could help some. Right. You know, it does, help some individuals, but, because those medicines are just dealing with plugging vacuum cleaners.

From these neurons and not really actually helping us to build receptors. They're not actually helping us to build the actual neurotransmitter, that needs to be built, in that brain.

And they have very limited effects. But what we're doing is actually helping with the receptors. It's helping, patients to be able to restart their manufacturing of these healthy neurotransmitters that have been inhibited by some of these causes, that that we'll find out taking the that test, for instance, you're talking about that depression and anxiety assessment tests.

So many patients believe that, you know, even the community setting that test, even though it does cost, it's actually, the the most cost effective thing they've ever done, because now they have a list to be able to work on to really reverse this process.

Yeah, it can allow a provider to be very intentional and focused in how they're approaching that patient's symptoms, rather than throwing a medication at it and hoping for the best.

And I'll see you back in six weeks. And if it's not better then then we'll try another medication. It allows. Yeah, it allows a person to be, much more focused and intentional in understanding the root cause and then being able to address it.

Yeah. And you're right about it helping providers as well, you know, depressed and anxious people can sap a lot of time from providers and, when you can actually give them a test and then, work on things, in that test where the providers actually helping them through that whole process, it shortens the visit significantly, and it makes the visits far more happy for both individuals.

Yeah. And it really empowers the patient too, because now they have data to see, like where are the areas that they can have some action for themselves rather than taking a more passive role and relying on others?

They have a very active role in helping themselves get better because they've got a list of things that they need to do based on their assessment and what areas showed up.

As you know, the areas that that need some some balance and some health. Exactly, exactly. Well, let's talk about the rest of the brain and the nervous system in terms of if a person's maybe not experiencing as much depression or anxiety, but wants to optimize their brain function, who doesn't want to optimize their brain function these days?

Learn faster, be able to focus better.

Rapid Recovery Through Residential Treatment

Those are some of the the top searches that I'm, you know, getting people. And so I know that you've worked on this area as well of just optimizing the brain.

What are lessons that you've learned? What are tidbits that you can share with us from your knowledge and experience? Well, actually, Doctor Amy, it came out of our depression and anxiety work because, what we were, measuring.

Not at first. We started doing this measurement in 2007. And of course, we've been running the community program since the 90s. And, the residential program since 2002.

But in 2007, we added this piece, looking at IQ and particularly emotional intelligence, and we were finding that the average person was improving two standard deviations in emotional intelligence by going through our residential program and about one and a half standard deviations going through our community program.

It doing something right. Yeah. We were thinking, you know, if this is helping people with depression and anxiety, what would it do for people without depression and anxiety?

And so that's when we actually started to look at people that weren't necessarily suffering from a disease process, but seeing what they could do to really help pick up, their brains activity and function and being able to particularly help manage their emotions and get the proper motivation, and also to be able to markedly improve their focus and concentration.

And so, you know, we were seeing in ten days, we actually ran programs without depression and anxiety, just, brain optimization programs. These were people that couldn't pass, you know, the mCAT and were wanting to get into medical school or people needing to, pass, certain exams in order to be able to make it to the next level.

And they had tried the Kaplan courses and all of those sorts of things, but still they weren't there because their brain wasn't really ready for this and or attorneys that were losing their edge in the courtroom regarding memory or things of that nature.

And so we were, taking, professionals and finding out that by actually looking for some of the same things that caused depression and anxiety, by actually reversing those things, the brain was able to come alive again and really improve its ability to focus and concentrate, and particularly improve its ability to manage emotions and manage relationships and, motivation levels, you know, skyrocketed, as a result of this approach.

So that was gratifying. And that's when we came out with our programs just for Optimize Your Brain. And of course, there are several ways that, people can access that now, today.

But the bat, not all of those approaches involve that that task that you talked about. But the best approach is do. So it's worth actually paying for the that test, along with the brain optimization, so that you can make sure that you're clicking off, and really, working on each thing that might be inhibiting the brain from its true potential.

Yeah. And it's all on a spectrum. Right. And so you can have things that are compromising the brain health to the degree that a person is really struggling with moods and emotions and motivation.

But then you can have someone who's still on that spectrum. They're not as far on that spectrum, but they're still going to be having some level of compromise to their intelligence, to their, capacity to manage stressful situations.

And so, yeah, as you say, the same things that help this are often what, help a, a normal brain, right? A brain who's maybe not as far along that spectrum, but it's still the same things that feed the neurons, that help them do what they do best.

And then whatever it is that their function is, whether they're the memory cells or they're the neurons firing or

whatever, you know, neurotransmitters they're making, it's going to they're going to be able to do their job better.

When we have that optimized, nutrition environment, lifestyle, everything for the neurons. Yeah. And some of the most gratifying cases, we've dealt with are people who were thought to have lifelong learning disabilities.

That would they just would not be able to overcome. And so these are individuals that, for instance, were thought to never be able to be successful in an academic environment because they couldn't read and they couldn't have reading retention.

They might be able to read some, but they just didn't like it because they weren't able to retain it and be able to learn from there. And, yeah, this program has helped, scores of individuals, with their learning disabilities to realize that, yes, there were some things genetically and, and maybe environmentally that helped bring about this learning disability, but we can actually turn off, some of those gene mutations for nutrition and lifestyle measures, for instance.

And it can make a powerful impact. And then the individual, will actually be able to retain what they're reading and be able to become a better reader.

And, of course, that opens up, the academic success, like nothing else can. That is so exciting. Yeah. I love those cases where other professionals may have given up on them.

And then you turn their world around and they've got a completely different they come up with different dreams for their life. Because now what what used to be impossible for them was such a struggle that they could not get themselves through it.

Now is is just something that they are able to get through and so take barriers away. Yeah, exactly. You know, less from Oklahoma. We developed this program when we were practicing in Oklahoma, but less is one of those examples.

He had made it through the public high school system in, in Oklahoma, but really shouldn't have, you know, a lot of the public high schools today. No one's really passing the test, but they're still moving them up in grades because they think their self-esteem is dependent on them moving through these grades.

And, people, like, last, but they just realize he didn't have it and he wasn't going to be able to go anywhere. And he, you know, several years after graduating from high school, thinking that you know, he the best he could do is something not at all related to academics or reading.

We met one time, at the restaurant. They were called veggies in Ardmore, Oklahoma.

Brain Optimization and Neuroplasticity

And, he started asking me, do you think there's hope for me? You know, I would really like to be able to to do things. And, you know, at the time, I must admit.

And the question that he asked particularly was, do you think I'd ever be able to become a doctor? And my answer back to him was, being a doctor is not for everybody, you know, and but he kept pressing and he kept pressing and he says, I'm really motivated.

Whatever I can do, if you can help me with my brain, I'd really like to be able to see if I could do this. And I said, well, it's going to take some work, it's going to take some effort, but I'm willing if you're motivated.

And so we spent quite a bit of time together working with his learning disabilities and working with the nutrition and some of the genetic components that were having a barrier for him.

And, pretty soon he was able to, enroll in the university of Oklahoma. And then we had to work with him and his

studying techniques. At first he was making, you know, more high seas and his first tests in chemistry and biology.

But then, pretty soon he was able to move that up to A's. And now he's through medical school, and he's a doctor today, and someone who did not really pass high school.

That is incredible. So, I mean, yeah, when he asked you that question, you know, is there hope for me? It gives me chills. Right? There is there is so much hope, no matter at what age a person comes in and says, I want to help my brain.

Well, and that's because of what you mentioned earlier. And that is the power of neuroplasticity. You know, we have, the human brain is incredible as far as its ability to change itself.

It does require some frontal lobe. You know, one of the things I did was check with him to see if he had some frontal lobe function. In other words, does he have any ability to have analytical function?

Does he have any ability to accurately compare something with something else? And when I realized that he had some frontal lobe ability and he had some motivation, I knew his brain could completely change into a very sharp brain that could become a doctor and that's why I was willing to work with him on it.

And because of his motivation, and because he was willing to put in the effort, he's reaping the benefits of that. Yeah. So I know you've mentioned a few of them, but can you go into like, what are the categories or what are the pillars for the brain optimization program?

What does a person going to expect coming into this program of the different areas that are going to be addressed to help their brain and optimize them?

Okay. Well, one of them that has become a lot more common today is the brain is actually significantly impaired by the usual use of devices to that. No.

Yeah. The way we interact with our smartphone, the way we interact even with our laptop computer, the way that typical person does actually over time impairs our own ability to learn and retain knowledge.

And it also significantly impairs our ability to manage our own emotions. It's one of the reasons why depression and anxiety is skyrocketed. You know, when in 2012 is the year that 50% of Americans owned a smartphone, and that was the year that we started to see exponential rise in depression, anxiety, and also exponential rise in not being able to achieve well in school underachievement.

And this is one of the things, you know, I'm I'm also a college, president. We mark, Institute has an accredited, college, and we train a lot in the health, arena, nursing program and, and pre-med program psychology, those sorts of things.

And so I go to continuing education courses from other college presidents. The number one reason why college presidents lose sleep is the underachievement of students that they know are capable, that they're not achieving.

And, this is an all time high, and it has to do with how they're interacting with their devices. Know so. What what are we doing wrong? How are we interacting in a way that's hurting our brain?

And what do we what do we need to do differently? Okay, well, it has to do with the anterior cingulate gyrus in the frontal lobe. The anterior cingulate gyrus is where our working memory is at.

It's where focus and concentration is at. And it's also the gyrus that we use to manage distressing emotions. And so this anterior cingulate gyrus be gone begins to shrink down whenever we're being distracted by something.

And so, students go online to do their homework and they have full intention of doing their homework. But then a Snapchat picture comes across their screen and, oh, I'm not going to be able to see that unless I look at it right

now.

And then a push notification comes, you know, if they're interested in BMW, the engineers have all devised this to figure out what you're interested in.

And pretty soon a little BMW car starts floating across the screen and you're going to see about the new, you know, model of the BMW and what it has different.

And so you're thinking, well, that's pretty benign. I can check on this. But every time that we lose focus attention to distract our brain into something that might be even equally as good, there's actually a shrinkage and a pruning that starts to occur.

This anterior cingulate gyrus. And so this is why focused attention is at an all time low. We actually the brain actually develops a habit where it thinks it has to to get away from focus concentration after about 90s or three minutes.

And so and this is why the YouTube videos have to be so short. Because we're actually gearing to people that are frontal lobe suppressed in their anterior cingulate gyrus.

And, you know, even our program today, Doctor Amy, is great as it is. It's actually for people that do have an anterior cingulate gyrus. The ones who don't have it are actually going to be turned off after about three minutes, because it's too much for them.

Oh, I, I'm going to have to really listen and focus and concentrate. And my brain's not capable of that. And of course it sells themselves short. And so we actually have to for those that are really caught up into this and they are driven to distraction.

Device Use, Attention, and Focus Training

They're looking at YouTube videos, all day and they're, you know, playing video games and they're, interacting with social media in the usual way. And they're spending hours and, online in these fashions, these individuals actually have to go through an electronic fence to build this area back up again.

And so, even in our program, now that the first lecture that we give now is actually on what devices due to the brain and why we're asking them to give up their devices here for ten days.

Ten days. So in my parenting program, I do 30 day fast. Wow. They're they're here for ten days. So we are we are actually going to recommend if they if they have an addictive relationship to their devices, which is about 80% of young people do.

We are going to actually ask them to go six weeks. So six weeks of any fast. And then during those six weeks they're going to learn how to be able to, use these devices in healthy ways and by healthy ways.

They have to turn off all their push notifications. They actually don't see their emails when they're coming in. They actually batch those emails. And so they take care of them all at one time.

And, and so they're working, you know, they have less time to do things and that sort of thing. But otherwise they are off. They have a goal when they're on of what they're going to accomplish.

No push notifications. So you don't see, you know, that's a, you know, very common today in the news cycle. But, you know, you're sitting there doing something useful and then, you know, a big news item comes in that Donald Trump said something about another woman.

And everyone has to, you know, check that out. What did he say now? And who is he saying it about? And it's just it totally, you know, destroys our it actually worsens our cortisol level.

Our adrenal glands actually respond to that. Cortisol levels go up, which also impair memory and also impair our ability to manage our emotions. And so this is why we have to totally change, the way our, our device relationship is and social media, you know, social media, a lot of people are excited about it first because they can connect.

But it turns out they end up comparing far more than they connect. And the comparisons are false because people present a false image of themselves many times.

Not very accurate. Genuine image. And so as a result, we feel worse about our lives because someone else seems to be having a great life. But we don't see what happened before that picture was taken or after the picture.

And if we did, we wouldn't be at all jealous of them. But, and so social media has to go and, these sorts of things, will make a powerful difference. It's amazing how quick that anterior cingulate gyrus can start to pick up.

And we'll even see it on MRI scans where it starts getting thicker. When we start treating our brain in the right way. Yeah. And there are exercises that people can do to help build this ability to focus.

It's like it's like an exercise that they can practice and what they practice, those neurons will get better at that function. And so this is something that you, can develop that skill better if that's not something that a person has or feels like they have a good focus now, something that they can practice and actually build that anterior cingulate gyrus in those neurons.

Exactly, exactly. And, of course, that's what they're doing in our program as well. You know, we don't short. And a lot of people say, well, wait a minute.

In today's society or a lot of young people go through our program, you know, right now, half of our program or those under the age of 20, they're between 15 and 20, in our program.

But they're thinking, you know, you need short bursts of education just three minutes or so and say, no, you don't understand. That's going to worse than them.

We need them to be able to have continual, focused attention, to become well educated. And so we're not going to shorten our lectures less than 50 minutes.

So the average lecture here is 50 minutes. And they're having to take notes and they're having to, to concentrate on this. And at first it's painful for them.

But pretty soon it actually becomes enjoyable and they're actually able to focus and stay focused. You know, during that whole 50 minutes, by the time this is over with.

And that's important for them to be able, you know, we've got to be able to model something where they can become very well educated. Yeah. I'm, I have been, feeling that this idea that we, that we cater to difficulties in focus by making it easier for them, making things shorter for them, I feel like that's been counterproductive.

And what we actually need to be doing is building their skills, building that, practice into their day to focus on things for longer periods of time, build that skill up, build those neurons up so that then they don't have as much of a handicap in that area, and they can, you know, come up to a new level that they never even knew is possible for themselves. Yes.

Yeah, exactly. It is it is crucially important. And, but most educators are don't understand the brain how like you do, Doctor Amy. And so they're thinking that we have to change the way we do things in order for them to become as educated as we were.

And we don't realize they'll never become that educated, unless we're able to get their brain to change. Yeah. So when they do use technology, you suggest that it be for a very focused amount of an activity, right?

Like checking their email and they check it all at once. They're not doing anything else while they're on it. Is it for you? Is there a period of time that they need to limit themselves?

Or as long as it's a focused activity, then that should be okay for the brain. Studies are showing it's ideal to be on your device less than an hour a day, and so that's the ideal time.

Now, you know, if you're working, you know, people in the hospital setting, they're working. They're looking at charts, and they're having to spend a lot of time staring at that computer.

You want to make sure in your work environment, all your push notifications are off. You're not getting any email notifications. You're not getting any texting notifications, and you're just focusing in on your work environment.

And of course, the more that you can work off of that screen, the better it's going to be as well. And for health care providers, their their level of happiness is very much related to how much time is not on a screen.

I really believe that. And so the more you're on a screen, the less satisfied you are going to be with your work performance. And so use the screen for what it needs to be used for, and then get off that screen and have real face to face social interactions or, or real hands on things to do.

And, that'll be very, helpful. And then apart from work, less than an hour a day and, this has been shown universally now over a million people, it has, been shown to be, the most effective.

You know, it zero is great, too. But sometimes we need these things, in focused ways. And so limiting it to less than an hour and certainly less than two hours.

And not at bedtime. Right. Very important point. Because of the light, that comes. And so we know that melatonin levels which is your fix and rejuvenate nighttime hormone.

And it helps you remember what you did that day and what you learned that day. Melatonin levels will go down significantly if you're using any screen, even a television, within an hour before bedtime.

And it's actually even best if you go three hours, but certainly not an hour before bedtime. And so that means and also early to bed, early to rise is going to double your melatonin output.

That's one of the things that's highly effective for the brain to be able to to change. I can go through my own story in my own academic career of how my brain was able to do far better, and when I changed my bedtime to early, and going to bed at 9:00.

And so, for me, you know, any device after 8 p.m., it's just not going to happen. And so that's going to be a crucial element in, in your long term success.

Good. There's so much more that we can dive into that topic, but I know that there are other categories and pillars in the brain optimization. I want to make sure that we have time for you to touch on those.

So there's another category or pillar in the brain optimization program that a person can expect to be addressed. While nutrition is an important component.

And, you know, this is where dopamine and tyrosine particularly are important now. And of course, tyrosine turns into dopamine and dopamine turns into norepinephrine.

So dopamine is going to motivate us, and know where epinephrine is going to be able to keep us alert and keep us with focused concentration, as long as these two are in the appropriate balance.

If no epinephrine gets much higher than dopamine and it's too high, it'll actually cause anxiety and it will cause us to, lose focus. And this is what ADHD is often about, where we're driven to distraction because of the, the high

adrenaline, or the cousin of adrenaline.

No adrenaline being on board. And so it really does shut down that frontal cortex. Like, it makes it less accessible because you're now running on your survival system, your limbic system, not your frontal cortex.

Yes, exactly. And, of course, this means that we actually need to get tyrosine into the brain. Tyrosine and tryptophan, by the way, tryptophan is a large neutral amino acid that we need to make serotonin from in order to make melatonin at night, which also helps for brain optimization.

But the, tyrosine and tryptophan, we have to get those to cross the blood brain barrier. A lot of times, people and this is why we don't measure dopamine and our epinephrine and serotonin, the bloodstream, because we can make that in the gut.

And another places, but what we have in our bloodstream has nothing to do with what's in the brain, because those molecules are too big to cross over the blood brain barrier.

So we actually need to be able to produce that in the brain itself, which means we need the substrates and tryptophan and tyrosine are too large to cross the blood brain barrier on their own.

And so they have to have the proper carrier to bring it across. And of course, because a lot of people don't understand this principle, this is why they're actually medicating people to try to help them academically with Adderall and these sorts of things, that do cross the blood brain barrier.

And can cause, you know, a at first improved focus, but at quite an expense, down the road.

Nutrition, Neurotransmitters, and Methylation

But how much better to be able to not only get that tyrosine, but get it in the proper amino acid balance, where we're able to saturate that carrier to bring tyrosine into the brain, and where our manufacturing plant can start producing dopamine and or epinephrine in a balanced way.

And so that gets into foods, you know, greens are high in. And tyrosine, pumpkin seeds are high in tyrosine. So is watermelon compared to the ratio of the other amino acids that will saturate that carrier.

And so once we're out of caffeine free program for two weeks, watermelon is going to be almost as stimulating as caffeine. But it won't produce that that buzz or not.

Not so much a buzz, but you kind of feel wired where you don't feel greatest under the influence of caffeine. But, watermelon? Well, why are you at all?

But it will help keep you alert. And it's doing that because you're getting tyrosine into the brain and you're able to make the dopamine and know epinephrine from that.

Yeah. These brain chemicals are essential. And many people think that whatever symptom they're having it's just because they don't have enough of a brain chemical but they don't understand like there are building blocks to them.

And we need to be able to get them across that blood brain barrier. And there are ways that we can do that through the nutrition piece. Exactly. Yes. And this is something it's gratifying for me.

You know, we've been dealing with nutrition on the brain now for many years, but, now even major psychiatric journals are talking about nutrition, and nutrient supplementation now needs to be considered a mainstream element of psychiatric practice.

Awesome. Yes. Yeah. The evidence is overwhelming. Yeah. It really needs to be a mainstream element of

psychiatric practice. Awesome. Now, you had also mentioned, epigenetics and genetics.

So let's talk about that a little bit. Are you referring to methylation or what? What genetics are are you mostly working with and talking about? Well, methylation is one of those.

There's there's multiple, aspects of the epigenetics. But some people, are born with a genetic mutation where it's more difficult for them to methylation and provide that final step to make, dopamine and norepinephrine as well as serotonin.

All all of those neurotransmitters that I just mentioned require a methyl group, to add, that on at the end. And so if we are under methyl lighting, we're going to tend to have a decrease activity, in our synapses in those particular areas.

And it tends to come with a personality. So when we are under methylation and I just want to say doctor, now be careful here because I am a strong under math later.

So just be gentle as you describe the personality traits here. Well, you know, that's probably why you're a doctor. There are some good probably why I'm a doctor. That.

Yeah, those are some good things to know about. And one of those, good things is you tend to be competitive. Right. And, people are competitive where they, you know, they want to get that a or it might be in the sports world, the pitcher who has to do whatever he has to do to strike out that batter.

So the best pitchers tend to be under methylated a lot of times the best, more academic individuals tend to be under methylated, but they also, can have, struggles, emotionally.

And they, they have a greater tendency to obsess over things, a greater tendency to ruminate about things. Things happen and they tend to ruminate more.

It's it's more difficult for them to just have it go like water off a duck's back and let it go. And so, they also, can have, well, you know, and compared to over methylated, over methylated is they are individuals that are more naturally empathetic.

In fact, you'd like to have it over methylated to be your neighbor because they're going to care about you more naturally. And, they're going to be very social with people that they don't even know.

The under methylated is they tend to be more reserved in people that they don't know. And they're they may be social in their families and, and things, but but social affiliation is not near as high priority for them, as it is for like it over methylated and so but they'll struggle with anxiety and depression.

So a lot of professionals in the medical world, sports world, you know, a lot of these, under methyl lighters are struggling because of their, lack of the the same ability to be able to make these neurotransmitters.

Yeah. And so here are people who are relatively high functioning, high performing. And so they, they feel this embarrassment that they would even have emotional or mood problems, not realizing that, hey, it's this genetic, it's the methylation problem, and it causes these imbalances in your neurotransmitters.

And there's something that you can do about it. We can support your methylation process. And so I take my Sammy on, on a daily basis for my methylation and have had titrated down to the, to the right dose for me.

Yeah. Yeah. And it's, and it's and it's worked great. And I remember when I went and I, I was trained under Doctor William Walsh at the Walsh Research Institute for the methylation, and he had us do the test.

And, you know, they showed the range of, for me, it was the whole blood histamine. And that's how we determined the methylation status. And I was looking at examples from his patients and what numbers they were coming back.

And I pulled out my results that I had done two years ago, but had just never really followed up on it. It was off the charts. It was so much higher than any of the examples he was giving, and I felt really embarrassed.

And at that point that here I had been sitting on this data for a couple years that could really have helped me. And and yet I hadn't, I hadn't acted on it.

So it was just one more big piece for me to then be able to be very intentional and targeted in my nutritional plan, because it's also helped me adjust my diet in order to best support my methylation process and get those neurotransmitters in the right balance.

Yeah, no, it's very, very important. And it's one of the, reasons as well. You talked about the nutritional plan because one of the amino acids that helps us with the methylation is called methionine.

We haven't mentioned that earlier. But methane is present a lot in, in whole grains. And for individuals that are on a gluten free, diet, many times, if they're in under methylated or they're going to have some challenges on that gluten free diet and they're going to feel like that, they really need to go into more animal based diet in order to get their methionine, which can also have its consequences if you've got cholesterol issues and those sorts of things. And so, for a gluten free individual, who wants to keep their cholesterol and other things under control, that where that's where maybe a theanine supplement or something like that could be enough.

Now do you or you know, I know you're supposed to be asking me questions, but I'm getting to know you, too, doctor. Amy. I don't know if you utilize the the doctor's data methylation profile and follow up to see how you're actually doing with the supplements and with your change in diet and lifestyle. Yes.

So we definitely track it. And what I do is if a person is not on any medications that would affect the whole blood histamine level, right? I start with that test just to get a baseline for determining their methylation status.

Yeah. More and more people I see coming back is under methylation. That seems to be just a societal shift that we're experienced in. In the last few decades.

I've noticed errors. Yeah, yeah, I still get some over methyl letters, but just not as many. But then my population of course is has usually been people very much affected by early childhood stress and trauma.

And we're trying to shift that. And so definitely there's a prominence in under methylation with those with that kind of history. If they're on any medication that affects the whole blood histamine, then that's what I'm using doctor's data and I'm getting the whole methylation profile because the medications won't affect that.

And so it's more it's a more expensive test. But that's when I would use it. If they're on anything, anything that would affect the whole blood histamine level.

Yeah. And I often use it even if they're not on medicines for follow up. Yes. Track. Right. Yeah. You know, ideally it because the whole blood histamine due to the genetic nature of that doesn't always come down in the normal range, even when you're methylation normally.

Exactly. And there can be other factors that are influencing a person's behaviors or mood. And so knowing that, hey, do we have the methylation piece at least headed in the right direction.

And then we can, you know, figure out, well, you know, this must be some other areas where we need more work, then that can also be very helpful in tracking it with with the tests.

Right. Yeah. Good. Yeah. So that can be a component, you know. And of course over methylation can also be a component. But you know, if you went to the Wall Street and I know the Walsh, biochemists are, are trained also in the spiral disorder.

And speaking of learning disability, this is something that can really affect, you know, our ability to read and retain a

big. So, this is, something where we can really be able to make a significant difference with some dietary changes and also a change in, and, in supplements.

Exactly. And then even the copper excess. Right. Like having that copper excess copper to zinc, 95 of 95% of women with postpartum depression are found to have a copper excess.

And so it can be something as simple as an imbalance in one of these nutritional factors that we can correct. And what a difference it makes for our biology.

Yeah, exactly. Yeah, that's very important. And what excess copper does is it actually drives dopamine into no epinephrine. So exactly. You get that adrenaline and the oxidative stress that comes with all of that.

Yeah. Yeah. Very good. And so zinc is you know zinc has been starting to be utilized in a lot of different settings in the mental health arena. But one of the things that helps us with is getting that copper level down as well.

Exactly. Yeah. I, I was blessed with all three of those. Doctor Natalie. Oh, is that right? Yes. When I did my testing, I saw that, yes, I had been blessed with all three of those.

Yeah. So it's kind of interesting when you have a payroll disorder and, and under methylation together because of how those interact, it's often different.

Yeah. Yeah. If you hadn't been in under methyl later and you had only been a Pi had the payroll disorder, you probably would not have been able to, you know, get your doctorate.

No not and and and do as well. So the under methylation actually counteracted some of the learning disability section of the payroll disorder. Yeah. But not the emotional part probably as much.

And so no. And yeah, there's been periods of my life where I didn't know all this stuff yet I was still very much in conventional medicine practice, and I was on two different mood medications and still not feeling like I was optimized.

And that's when I kind of got off of that course. I'm like, no, this is not how I want to continue. And so worked on getting off of those, which was a struggle not as much of a struggle as I've seen other people struggling to get off of some of the mood medications.

But yeah, it took it took some time, took several months for me to titrate down off of those and feel like I was still feeling well physically.

Exercise, Three-Dimensional Activity, and Music

And yeah, been able to learn all of this other stuff that's made such a huge difference in my life. Greg. Well, you probably didn't have much of an MTT for this, or your homocysteine must not have been high, otherwise the Sammy would have produced some problems.

So at least you didn't. I mean, you know, you had three, which is bad enough, but, if you start getting 5 or 6, that's when it can. Yeah. Be a little complex.

Exactly. It can get complicated at that point. Yeah. Yeah. Good. Any other pillars or categories of the brain optimization program that we want to mention?

Briefly. Yeah. Well physical exercise and working with your hands. And so endurance exercise is going to improve your mitochondrial centers. And actually becoming physically fit is better for your brain than it is your body. Yes.

And so, yeah, fitness is a very major thing that we do in our programs, and we're actually measuring the fitness level in regards to the cardio vascular aspect of things.

And we will see a nice parallel in brain performance that might have been familiar with the work of, John Ritter, psychiatrist from Harvard. But, he has a lot of his, therapy in helping people, with lack of brain optimization is just becoming fit.

In fact, he's developed a program even in high schools where the ones that get the A's are the ones who, who have the biggest change in fitness levels.

So often the jocks are not the ones getting the A's. But it's the ones who have not been exercising at all. And then they see this major change in fitness level, and we'll see that brain improve.

But what is even less, emphasized is working with our hands in three dimensions. And so in the back of the frontal lobe of the brain is where our hand in three dimensional activity occurs.

And so, every day it's actually good to have an exercise of at least 20 minutes where we are working with your hands in three dimensions. And of course, you know, the dishwasher has prevented people from working with their hands in three D, so, you know, not, using your dishwasher and just washing dishes for maybe 20 minutes a day, you know, playing the violin, gardening, even playing ping pong, has been shown to be healthy, for the brain.

And so this gets us away from the two dimensional aspect, which is what all the screens are about. And it's that three dimensional aspect that's going to improve our brain performance significantly.

Learning to play tennis. You know, there's there's a hundred thousand things we can do, and, and learn better in regards to, working to improve our coordination in the three dimensional world.

And that aspect is going to help our brain performance. And it really does help because it engages so many different areas of our brain at the same time.

Right. And so it it's the cerebellum. It's the proprioception. It's the visual. It's the space. It's it's especially cross body movement. Like it's engaging so much of the brain at the same time, both sides of the brain.

And that's, that's really where you're going to get your biggest punch through the time that you're investing. I teach a freshman course, here we mark college.

It's a required course for anyone getting a bachelor's here. And, I mean, it's actually called optimize your brain, but they're getting their grades based on their habits of brain optimization.

So they have to 20 minutes a day, they have to do something with their hands in three dimensions. And you ought to see the blank stares. Moderate kids today.

And I did that mean, like, typing on my phone? Yeah, exactly. They'll ask for anything like that. What about computer? Isn't it? You know, there's some typing on that key now that doesn't count.

And they get frustrated because it turns out kids for weeks will do things. That's not at all working with their hands in three dimensions. And you'll notice that even in the sports world, you know, when I grew up, you know, everyone pretty much knew how to play some basic sports.

But not anymore. You know, you'll take people out there and, and it's just, it's very clear that their brain has not been able to function in a three dimensional world.

But it can learn to do that. Yeah, even as an adult. And so, then they'll notice an improvement, when they do that. And unfortunately, ping pong is pretty good at the institute here.

And so often that's how they'll, they'll do it. But, we'd almost rather that they go out and garden or work in the cafeteria or maybe take some violin lessons or, you know, things of that nature.

Well, and it's even the variety, right? It's not playing the exact same thing, but it's the variety mixing it up using different parts of your brain in different ways.

Yeah. Yeah, exactly. And then, along those same lines, it turns out music is also healthy for the brain. And so in our brain optimization program, there are six principles of music, particularly when we combine them together that have been shown to be very healthy for the brain.

And, of course, Albert Einstein, yeah. We wouldn't have Einstein without music. You know, he was sent home in the third grade, and he was told by his teachers that he would never amount to anything academically, that he would just have to be a common laborer.

And, his mother, they didn't really have homeschool, you know, things available for him at that time. And so she says, well, he's going to be home. Let's just at least teach him the violin and learn how to play the violin.

And that whole process of going through that. And then with learning the beautiful melodies and the consonant harmonies, and all of the aspects of the brain that come together, in regards to music.

And he learned how to improvise as well. And he said whenever he was stuck on a math problem, he would get out his violin and he'd be able to solve it.

And so, he was on to something there. And it turns out, that, the research has shown that healthy music can indeed impact the brain in some very powerful ways.

Absolutely. And I'm thinking of even, like, the integrated listening system that has been shown in studies that will help this neuro plastic effect of the nervous system.

And so I think it's a several week program where kids especially will listen to the music. And again, it's just very complicated. You know, the resonance and the different harmonies and their brain, like, you can track it, you can see the difference in their brain waves, their brain function, their focus.

After this type of program, because it really does affect the nervous system and the brain. Yeah. And then once they learn those basic things, they can actually become creative.

And and that creativity component is very frontal lobe enhancing. And so normally by the end of even a ten day program, we're having the gas because music is is part of this whole thing.

We're actually having them right. Some music or maybe write poetry that goes with music, in a certain way. And those are creative things that are helping to really enhance that brain, you know, optimize it.

That is true. Like when a brain is optimized, it will naturally go into a creative state. It's when it's struggling that we're going to be more in the limbic system, more in the adrenaline, more struggling with the imbalances.

But when we have it optimized, like that's when we know it's optimized, is when it really just thrives and wants to create. It's very creative. Yeah. Absolutely.

Good. Well, thank you so much. Is there anything that you would want your or our audience to know?

Final Takeaway: The Brain Can Change

As a final thought for how they can optimize their brain before we finish up today. Well, I would just like to mention to your audience that we're not stuck with the brain that we're born with.

Thank you. The brain can very positively change, and it's well worth any effort you put into it. You know, I think the wise man, said that there's, you know, all the rubies in the world are not to be compared to wisdom.

And so, work on everything that you can do to obtain better performance of your brain. And that's where wisdom comes from, from that brain working well and very rationally.

And, it'll be well worth the effort. Good. Thank you so much for joining us today, doctor. Natalie. Thank you. Thank you for joining us. Yes. And together, let's find that next level of health and aliveness.