Introduction and Guest Background

Welcome back to the Reverse Alzheimer's Summit. I'm your host, doctor Heather Sanderson, and I'm so excited to have my dear friend, Doctor Greg Kelley joining us today.

Doctor Kelley is director of product development at Neuro Hacker Collective. He's a natural public physician and author of the book ShapeShift. He was the editor of the journal Alternative Medicine Review, and has been an instructor at the University of Bridgeport in the College of Natural Ethnic Medicine, where he taught classes and advanced clinical nutrition counseling skills and doctor patient relationships.

Doctor Kelley has published hundreds of articles on natural medicine and nutrition, and contributed to three chapters in the Textbook of Natural Medicine.

He also has more than 30 journal articles indexed on PubMed. His areas of expertise include nootropics, anti-aging and regenerative medicine, weight management, sleep, and the chronobiology of performance and health.

Thank you so much for joining us, Greg. It's such a pleasure to have you. Oh, thank you for having me. It's always wonderful to get to chat with you. So you and I have worked together a little bit at Neuro Hacker and like you said, it's always a fun time when we get together.

Because I learned so much from you. Every time we talk about formulations, products, about quality of products, about other products or science that's out there, the newest and the latest and greatest in brain health.

I just get this download that I immediately put into practice clinically and also usually for myself personally. So I can't wait to dive into it. Where I want to start today is the big vision of neuro hacker and what you guys are doing with the quality line of products and and what what the stamp on the world is from the team at Neuro Hacker.

Sure. So I think the I think in two words, neuro hacker is about performance optimization. So there may be different areas that we focus on over time.

We started obviously with the brain with the original quality stack. But the original reason for Neuro Hacker Collective was to help people perform better.

And I go back even to like decades in naturopathic medicine. And what drew me to that and what most resonated with me going through school and early on in practice, was kind of a question of what is health look like, and then how do we get there?

And so, you know, it's a just a very different way. And it's one that, you know, Biohackers now embrace and, you know, self experiment. Just lots of other practitioners as well.

But I think that that same mentality is where neuro hacker collective comes from. It's very much like all right, let's try to understand as best as we can what's going in this going on in this incredibly, complicated, complex adaptive system.

That's our body, which is functionally network layered within network, right?

Neurohacker's Performance Optimization Philosophy

Like our neural networks and our immune network and our mitochondrial networks and and anyways, neuro hacker collective, to me is just a group of like minded people coming together, endeavoring to understand more about what's most important to help people perform better.

And I what I love about getting together with people in our hacker is that the emphasis isn't just on like performance as it relates to like productivity or how much money we can make, or you know, how much we can influence other people or any.

It's really it's like, how can we show up better tomorrow than we did yesterday? It's all about like, you know, whenever I talk to some of the other moms, they're like, oh, I'm reading this parenting book, or have you heard about this strategy?

Or how's it going? You know, with your strategy. And it's it's really encouraging and collaborative and it's about just showing up as more whole versions.

And that that is the optimization. And I think this is a big shift from maybe what was going on ten, 20 years ago. You know, I think of the Silicon Valley guys that were like working literally overnight, 24, 36 hours and even a physicians right in residency just pushing through.

And the idea was to push and push and push until you, like, would drop. And this perspective is so different. It's about wholeness and optimization in a really healthy, balanced way.

Yeah. So I don't know if this would make sense to the audience, but I tend to like to to draw two camps when it comes to thinking about health. And and this is way oversimplified.

So take it with a grain of salt. But on one hand we have like the idea like, oh, like I'll just figure out and control the body into what I wanted to do, you know?

So that's been whether, overtly or not, the approach to weight loss going back, you know, for the history of weight loss. Right. Like if you like the, the vast majority of the, the approach has been eat less and exercise more.

The idea of if you just controlled calories in, calories out, you can have any body you want, which is of course that doesn't work right. And so on the other side, we would have trust your body, which is all right.

My body's just an amazing thing. It's trying to like, you know, learn, adapt to everything that it encounters. You know, so my relationships, what I eat, how I live my life, everything that I've done in the past, frankly, everything that maybe a couple generations before me did.

And so my belief is that it's trying to do the best it can with what it has available and what it knows how to do. And so my job as a formulator is to give it more of the resources that might need to be able to accomplish those things better, as opposed to let's block and tackle and figure out how to, slow this and block this and upregulate this.

So because of that, a big part of my emphasis is starting at the beginning, say, with something like immunity or with sleep, and what's the body trying to do then?

And are there resources that may be missing, resources that, you know, we tend to cater a lot to vegans and they're very health conscious. And in that subset there's just some things in the diet they don't routinely get as much right.

So could those just filling the tank like not trying to have, you know, incredibly large amounts of them, but just filling the tanks. Is there something there or something, you know, for like cognition.

So Colleen falls into that. I think the what I've read from the, Institute of Medicine. So in like a major health body in the US is about 80% of adults in the US just don't get enough choline.

They're getting some, but they're just running a slow deficit. So I don't like my belief is you don't have to give 3 or 4 times what would fill the tank.

You just need to make sure the tank's full for most people. And so when we craft formulas, I think right now, I think I

know we come much more from that idea of like, what?

Let's trust this amazing system, this network of networks and make sure we're doing a good job giving it all the resources that it might need to do a better job performing in this area.

So so we're here talking about reversing Alzheimer's. And you started with the quality of mind product and that being about optimizing cognitive function.

So tell me a little bit about what's in your mind, what the mechanisms are, how to do it, how you formulated it kind of with these strategies in mind.

Yeah. So I guess stepping back when I think of like the brain, I think of it in like, buckets of scales. So and this would be pretty common in like in medicine.

So you'd have like your attentional bucket and you have what would usually be called social cognition. So those are your empathy your ability to read facial expressions and body language and also your ability to be in tune with the emotions going on inside yourself at any moment in time.

Then you have executive function. So those are your ability to hold things in your head when you work with them. So working memory and you have your ability to it's called cognitive flexibility.

But basically change your mind or put yourself in another's shoes to to understand. So like slightly different than social cognition. And then you have, you know, your memory bucket.

You have your language bucket, you have your visual motor skills. So you have these different buckets. And so within those mind was really created so that your mind was created primarily with several buckets in mind.

But the focus, the memory and the executive function would be the big three and the key pathways that most need support. There are acetylcholine and dopamine.

So and when I think of like, Sapolsky, he was the author of Why Zebras Don't Get Ulcers and he's got a newer book. It's about eight years old now on the brain.

I'm drawing a blank on it, but I love one of the things he says in it. And it's he's talking really about the prefrontal cortex, but it's like, this is the part of the brain that gets you to do the hard thing when it's the right thing.

And so when I think of Call Your Mind, to me, a lot of it is on that and that's that executive function. Like what are the resources you would need to more routinely do the hard thing when it's the right thing?

Because what you see a lot in, you know, workplaces. But even in our lives, we're often going to do the easiest thing because it's all we have the resources to do in that moment when that might be something as simple as exercise or getting to sleep on time.

Yeah, right.

Qualia Mind and Cognitive Support

It's it's getting that effort to go, okay, stand up, get off the couch, brush your teeth and get in bed so that you actually get restful sleep or wake up a little earlier so that you can get to the gym or get outside and make those really good decisions.

Yeah, it would be one of my, I guess, my filters if I. So even for myself if, yeah, I've been working from home for a while now, but before I used to stop in the gym either on my way to work or sometimes after work depend on the season.

When the days got really short, I'd be much more likely to go after work because there was no, you know, sun to enjoy. And if I found myself, like, on my way home, driving past the gym instead of stopping at it, then I knew, like I'd tapped out right?

Like there was that do the right thing when it's the hard thing. Muscle had been, you know, used up for the day. And so I think you're right, like where a lot of the things we're asking both patients to do, but of ourselves, when, especially when we're starting new things or learning a new skill that actually.

So I don't know if you would know this, but I, I didn't know it. So one of the things I learned recently in a book I read, I think it was incognito, but the gist of it was when an expert is doing something they're expert in, they use relatively little amount of brain energy.

But when a new person is trying to learn that skill, their brain is going crazy. And so when we're asking people to do new things, they're actually needing more brain resources than they'll eventually need to do that same thing.

And we see this at Marama at the residential care facility, you know, doing new things. It's something that's always in a reverse Alzheimer's protocol, because it does.

It stimulates those new neural connections as new synapses and new memory formation. And you can literally watch it on people's faces, the effort it takes to learn chess or to learn even, even things that maybe they used to know before putting puzzles, like just doing puzzles, gardening, learning the names of plants.

The effort on their face is apparent. You can just see it and then they're exhausted. They need a nap. And so what you're saying is it's very clear, and I think a lot of people will will relate to that.

The other thing I think of is that in society right now, we are getting more and more and more hits to do the easy thing. Right? It's very easy to just check Instagram or check Facebook, check email and and buy something.

You know, it's so simple to do. And and easy to do the easy things. And there's more and more and more of them to do. So we can fill our day very quickly with all the easy stuff when we know it isn't really what's best for us.

Yeah. It's, so one of the the metaphors I really like when thinking about the brain is by Daniel Kahneman. So it's he's the author of the book Think Fast and Slow.

And in that book he introduces these two characters, system one and system two. So system one is the really the character that would take over when we don't have a lot of energy.

But it's it's the automatic behaviors. And going towards the easiest thing where system two is much more akin to what we were talking about with the executive function.

It's, you know, like, you know, essentially overriding impulses and checking our behaviors and being much more effortful in what we do. And so the way I would tend to think of it is that, yeah, a lot of us, you know, unfortunately spend or too much of the time system ones running the show.

And that's great if we've got ingrained behaviors that the autopilot is going to get us the result we want, not so great. If the autopilot is going to be driving past the GM instead of going there.

So I think a key part of what I think about even with so this would be call your mind or when we develop the quality nootropic energy shot was can we give more resources so that system two will show up more and be able to run the show more of the day?

That's awesome. And then the other piece of making sure there's enough resource during the day is getting really good sleep. And so you guys have created a formula that really it took me a little bit to grasp this, because we're so used to seeing a sleep formula.

It's about going to sleep and maybe staying asleep. And this is where the benzodiazepines come in. You know, the Ambien, the Xanax, the whatever the next one is.

Those come from this idea of I need to take something to get to sleep. Even melatonin. Is this idea of FTP to some degree. A lot of the sleep formulas are about actually getting to sleep, whereas you guys have completely changed the conversation and you talk about sleep as a nighttime routine and how do we get the best out of our rest.

So I want to hear more about that, and then how it goes back into this idea of having more resource for that system, too, for those for those really good, that good executive function and energy.

Okay. So so the what you are describing, I think of as a fall asleep product, you know, like which I mean, there's no shortage of those, you know, on Amazon, the health food store, whether it's, you know, herbal, you know, or medications and we thought about that.

We actually tested out a few and, and it just was not like a sexy idea to so like and part of it's my story. So I know there is some people legitimately falling asleep to challenge for them.

But a lot of people it's to me at least, my story is sleeps like a bus. It pulls into the station on a schedule. If you if you don't get on and it pulls out without you, you don't get to decide, well, I want I want you to come back because now I'm ready to go to sleep.

You have to wait for the next bus. And so to me, the most important thing is starting to become more in tune to like, oh, the sleep seems like it's about to arrive.

I should drop what I'm doing and go to bed as opposed to. So I'm going to bed and I'm struggling to fall asleep. I'm still awake 35 minutes later. It's like it's because the bus isn't in the station.

So anyways, to me it's a one of those non problem problems. For a lot of people, the key thing would be teaching them to be more aware of the feedback, the sleepiness, feedback basically.

And so when we developed Qualia Night, part of it was with that idea of like can we make a stronger sleepiness signal? Right. So it's less likely to be missed.

And the way to do that is to start well in advance of when you go to sleep, you know. So quality night we recommend taking at dinner time, but 3 to 4 hours before you plan on going to bed.

And what we did is we crafted it with things that again like resources. So if you, you know, to build melatonin. So tryptophan would be the building block.

You know, the co-factors like magnesium and B6 that work in that enzyme cascade to make it but not crazy high amounts. Just let's make sure there's enough and tryptophan is this interesting amino acid.

You have things like al tyrosine that a good diet. We're talking grams of all tyrosine in the diet a good diet in tryptophan may only be 800mg. So you don't need to do like crazy high amounts to top off the tang.

For someone that's running a little bit low with tryptophan, where tyrosine, you'd have to do more to proportionately move the needle. So. So that was one part.

The other part is, like a huge part of problems. Both going to sleep, but then not having good restorative sleep is would be called hyper arousal. So you know that wired and tired syndrome where you know you're fatigued but you go to lie down and it's just not easy to get the brain to quiet itself and go like, this isn't supposed to be about me. Oh.

So anyways, those were things like much more to me. Those are much more exciting things to try to address nutritionally than something that would be more sedating that you'd take just before sleep.

And so, you know, and then you got to, you know, like a few other things. So it's called the homeostatic sleep drivers. How sleep researchers talk about it.

So there's basically two things building it out across the day to make us alert and then make us sleep.

Sleep, Circadian Rhythm, and Qualia Night

So once our circadian wake drive and once this like homeostatic sleep drive. So just think of them as things that, are running against each other over the course of the day.

So the sleep drive, the longer we've been awake, the more the drive to sleep has built up. That's the kind of simple way to think about it. And the circadian drive actually gets stronger all the way through the day.

That's how we can stave off this greater and greater sleep drive. And then one of the things that melatonin cues is like, oh, it's time to like take my foot off the gas on this wake drive.

And then at that point you the that descends enough that, sleep drive takes over and we drop off into sleep. So anyways, you have these two competing thing.

So melatonin would be the key molecule in, the circadian wake drive, or at least the the darkness end of it. Cortisol is probably the key molecule or a key molecule at the wakefulness end of it at the beginning of the day.

And then adenosine in the adenosine pathway would be the the classically the key molecule in the the sleep drive pathway. So that's where caffeine comes in.

Caffeine works as an adenosine blocker. So if you take a lot of caffeine and it hasn't cleared out, we're blocking the sleep drive molecules that have built up from signaling their receptor.

Right. So things like that. We just when we were developing night that those were what we were thinking like, you know, are there things we can do for, you know, this hyper arousal, the wider and tired system for this adenosine system to, you know, to make sure that the body can make melatonin when it needs it, as opposed to let's, let's give it to it.

And and then the last system is Gaba is kind of the braking system for the brain. So, you know, we wanted to have things like ashwagandha, and like there's another one, it's called, Brahmi in our Vedic medicine.

But Centella Asiatica go to Kola that's also like works. And that gave it Gaba system. So we wanted to make sure we supported all these interacting things.

You know, and one of the things like we test out a lot of recipes sometimes before we launch a product and we knew sleep was going to be hard. So I bet we did 5 or 6 bouts of testing, each one feeling like, oh, we're getting a little closer before we eventually landed on night.

Well, it's, that this isn't supposed to be about me because I definitely relate to that way, but tired. And yet there are so many people who are in that space of exhaustion, utter exhaustion because they're balancing a busy schedule, parenting work, you know, what have you caring for elderly parents and the headlines lately?

One of the recent studies was that having a sleep deficit in your 40s, in your 30s and 40s sets you up for Alzheimer's. And so it increases your risk in measurable ways.

And so it's so important that we get enough rest, not only for that executive function the next day. I think we can all relate to, you know, days, nights of travel or something that's really disrupted our sleep and that our cognitive function suffers tremendously the next day.

So we can directly experience it. And yet those small shifts in sleep quality also, it can influence cognitive function,

especially over time, hugely the like.

I think because whereas sleep is almost this assumption that our like our body's not doing anything important than either. But our brain is crazy active during sleep.

The my understanding is the highest surge of ATP. So the brain's energy molecule happens just at the beginning as we start to go into deep sleep. And the reason is there's these, like, incredibly powerful.

They call them sleep spindles, but bursts of energy that migrate things we learn during the day to other parts of our brain, during deep sleep. And so during deep sleep, there's a lot of essentially memory consolidation.

Some memories are going to be pruned away, others will be made stronger things. You know, I, I can remember studying for exams in naturopathic school and I'd go to sleep that night and it would seem like all I did was dream about what I was trying to memorize.

That's your brain doing that, right? It's it's trying to do that. And then you have, it's usually called the lymphatic system, which touches in with that risk factor.

So that's basically like the system that cleans the brain for lack of a better way to describe it, from all the metabolic waste that builds up since it's, you know, like a voracious energy consumer.

And that again, I my least my recollection is that that happens mostly during deep sleep. So, you know, the better quality of sleep we have not only would impact memories, but it helps this repair and cleaning that should be going on at night.

And if we don't sleep well or, you know, I what I just when I was in the Navy in the 80s so this goes back quite a while. Sleep was just not a priority for the Navy back then.

I have no idea if it's the same, but you know, I would. I spent months at a time. We call it port and starboard. But six hours on six hours, six hours on, six hours off.

And in your at least one of those six hours off, you still had to do your job. Like the six hours on which just your watch station, you still had all your other responsibilities.

And so at most you would have a six hour window to sleep. But even that meant like, well, where was the gym going to fit in and where was eating going to fit?

So anyways, it was like I did this crazy sleep deprivation and, you know, through my 20s and, and it was fascinating to me in the 90s in naturopathic school and then encountering, you know, lots of really smart, you know, naturopaths and functional medicine MDS, how few of them had sleep on the radar back then, like it almost seemed like, like a good friend of mine.

I remember we were doing a project together, and had rented the company, rented a place for us in Redondo Beach, right by the pier. It was amazing. So the first night I'm there at, like six in the morning, he comes and wakes me up.

It's like, let's get up and, like, rollerblade to the boardwalk. I'm like, dude, I've only been sleeping for six hours, like, leave me alone. And his met his like mental story back then was sleep is a weakness.

I can't indulge it. And so like I have to be up and doing something healthy and and mine at that point is like, I've already done the sleep deprivation thing.

Like there's no upside to that one. Let me be rested and then I'm happy to join you for your like, rollerblade. So yeah, I think we've come a long way in the couple decades since, but I think it's still an area that it's easy to again in that like controlled trust analogy.

We started off with I, I completely trust my body if it wants to sleep for seven hours tomorrow and nine the next day, like whatever you need, you know better than I do how much sleep we need.

Given whatever you need, work you need to do. And you know, my job, as I view it, is to make sure again, I gave it good resources and that, like I'm listening for it.

And the more regular people are with their sleep schedule in general. So I, you know, like more or less like ten, ten, 15 is my, my normal bedtime. But somewhere usually right in there I'll feel sleepiness coming.

And whatever I'm doing, it's like put clothes, TV off, you know, pause the movie like like my only job is to listen for the feedback, not to try to make the sleep come when I want it to come.

So you mentioned that you guys found some unexpected results when it came to quality of sleep and its, effect on immune function. So we talked a bit about detox being one of the the priorities during sleep and the memory making and kind of making sense, some emotional processing, some processing that happened that night.

And then you guys also noticed that immune function was better when you get better sleep. Brain. Yeah. So did I understand that? Right. Well, there's a lot of ingredients that are in this call.

Your night would be the sleep product also happened to be really beneficial for the immune system. So like reishi that it's a Chinese mushroom would be one of those.

It's, it's classically thought of as a Zen tonic. So Zen would be that kind of the idea of like, peaceful centeredness would be like a quick summary of it.

Right? It's not that quality. So while we're sleep, while we're sleeping, the immune system is also still busy. But I think a lot of what it's doing is communicating from, you know, what it encountered during the day and getting ready for whatever it might encounter tomorrow.

So one of the things that this would be a complex systems thing, but it's super important for the brain, super important for immunity networks main job is about predicting the future.

So like the the way like I think exercise is something can people can relate to. And we talked really quickly about weight. But so my like my metaphor for lifting weights 30 years ago was, oh like my muscle is going to get bigger because I lift weights, right?

So like the more I lift it, the more frequently the better. Where my story now is, no, my muscle gets bigger because it thinks I might do that again in the future, right?

So like my only job is to convince it I'm going to be doing this thing in the future. And so and a lot of that like ability to predict smartly into the future, I think gets or is impacted by what happens during sleep, because that's when all the repair and, you know, the communication quiets down and things like that.

So I think for the immune system, if if a product's doing a good job on restorative sleep, it's generally going to do a good job on the immune system because it's just hard to have, like, think of fever dreams, you know, which most people have experience, maybe not knowing that term.

But when someone has like an acute flu, they'll usually have very fitful sleep with really weird dreams, right? When when we have when the immune system is doing a lot of work, we don't sleep, rest fully, and the immune system so, so.

And I think what you might be confusing is the other product quality immune. When we tested quality immune we started getting this feedback from people saying, wow, like my sleep was so much better.

That's exactly what I was thinking. No. Yes. Thank you for clarifying. Yeah. And and I want to kind of connect the

dots there because sleep is so important.

I mean, just absolutely paramount for good cognitive function. And immune function is also so important for cognitive function because in the in the realm of Alzheimer's, what we find on autopsies of people with Alzheimer's is that there's beta amyloid plaques and how proteins are often a defense mechanism against immune invaders.

Things like pigeons that live in the gums, things like herpes simplex, and also, our Lyme aspire keeps other higher keeps it. Of course, syphilis has a neuro syphilis, manifestation.

So a lot of these immune things that are going to trigger the immune system, a lot of these microbes are really, really important that we have a functional immune system that can fight back to prevent cognitive decline.

And I and, you know, so when I think of the brain's immune system, like the first word that pops into my head is microglia, right?

Sleep, Immunity, and Brain Health

So they're like this special type of cell in the brain that functions as the brain's Mac macrophages. Which those are the ones that kind of, you know, gobble up debris and things that, but it's essentially the after effects of trying to counter whatever the, the challenging thing is.

And, you know, the immune system, I think, you know, we tend to think of it mostly for its role in invaders, but it does a huge amount for just repair.

Right? So if we lift weights, our immune system has to be working super hard. If we're, you know, my guess would be, doing more brain training types of things, right?

Like all of those things are going to cause more requirement to do healing. And our immune system, that's a huge part of its role. So yeah, I think of, like one of the interesting things to me like is you tend to have this is just in, you know, in terms of how the ingredients would be pitched to me as a product developers like, oh, you like Doctor Kelly?

We have these nootropics and we have these ergo Gen X for exercise, and we have this product for the you can system. And oh, and we have these ones for sleep.

And one of the things neuro hacker likes to do is and Daniel Smock in particular, one of our founders would say this is like we like ingredients that do more than one day.

And we also like to make sure for an important thing, we've got multiple ways we're doing it. And so, you know, something like night also has immunity built in and cognition ten and something like mind while it's a new Tropic stock.

One of the fairly frequent pieces of feedback we get is and so, mind you, would take first thing in the morning. Right. It's very like it's the kind of the opposite update.

It's to get all these neurotransmitter pathways in the brain ready to go. So you can have the executive function and system to can show up and work harder for more of the day. But oftentimes what you do at the beginning of the day will have a ripple effect.

On the flip side of the coin for sleep. So one of the the early pieces of feedback we got from people taking quality of mind was that quite a few said, oh, you know, I'm sleeping much better, which, you know, wouldn't surprise you because everything's connected.

You make the brain work better at this part of the day. It's not you shouldn't be crazy. Like, you know, like this absurd thing to understand that it might do better at the other end of the day as well.

And yet so many of the interventions these days that come from conventional medicine and even some supplements are not that right. It's very much the control side of your analogy instead of the trust side.

It's that, you know, that we're going to knock you out at night and then, you know, good luck. Hope you're not drowsy in the morning. Yeah, that's, So anyways, those are things we would look for, right?

Like, so like the externalities. Right. Like did where they said, well, immune. It was a positive externality. Right. Meaning like, you know, like one of the unexpected things that showed up was, wow, like 45% of the people that took it told us they're sleeping much better.

And, and I was one of those, like, I can't I use an aura ring to measure mine. And I think, like, I don't think I'd ever had an hour of REM sleep. I always had pretty good deep sleep.

But REM was always, you know, like 40 to 60 minutes. And the first week I was on it, I had a couple of nights that were two, 2.5 hours of REM sleep, which, you know, it didn't stay that way, but it definitely affected my like, that part of my sleep.

Dramatically negative impact. So another one of the pieces that you've already mentioned is ATP production. And that happens in mitochondria. So you guys developed a product called Quality Life that helps with mitochondrial function.

I'm curious specifically why that's important to cognitive function. So I mentioned earlier that the brain is a voracious consumer of energy. And by energy I was specifically meaning ATP.

The molecule you just meant. So the the general estimate is that the brain uses about 20% of all the ATP that's made in the body every day. So the, I guess this is like shortest and simplest explanation is the brain just can't do all of this work if it doesn't have enough energy.

So what, like I remember, so this was probably about a year and a half ago. There was a like, I, I read, Science Daily every day and neuroscience news.

I get in my. But anyways, the gist of this was it was a study on, 20 year olds to 30 somewhere in that age range. And it was about empathy. And the gist of it was some people were really good at it, but for most of them, it took a lot of mental energy.

Like essentially it felt like work. So they weren't good at it. And that idea of, like being able to put effort into things mentally shows up in, you know, like it would show up in a lot of cognitive decline with aging.

It shows up in a lot of like the common complaints we would hear as doctors with patients, you know, brain fog or, you know, inability to follow through on our intentions and things like that.

Right? That, that effort piece, that's that's energy, like mental work takes energy or like the same types of resources that physical work would. So I like at least the way I would think of like, why is, you know, mitochondria performance in ATP important for the brain is because that's the busiest must mousehole that of everything.

Right. It's never not working.

Mitochondrial Energy and Qualia Life

You know, different neurons may be shut down or, you know, not working as hard at any given moment, but the brain itself is working hard. 24 seven so I think, Dave Astbury in, I believe it might have been his second book, but it was, It was, it had space anyways, like his, that book.

And I'm sorry about not having the title. Right. But that book he goes into, the main focus of it is why mitochondria are so important for the brain. So yeah, I, I think like again, all of our products have in common that there's some

mitochondrial support because to do better in anything mitochondria are important.

The brain they're the most important. And I mean, part of the reason we we started with quality of mind like a brain product is our story was. Most people aren't going to get better in other areas unless we can make the brain work better.

And a big part of making the brain work better is, you know, that acetylcholine and dopamine and neuroplasticity and supporting those things. But another big part is making sure it can create enough energy to do all these things.

Yeah, that's so exciting to be able to give people the resources. And I certainly, you know, of course, use these products that clinically and personally and have seen really, really great benefit, profound benefit for for patients and experienced it myself and, and these resources as we age are also a little harder to come by.

It's just like getting gray hair. And for some of some of us balding and for others not as much. But, the part of the process, the natural process of aging is that we don't have as many digestive enzymes to digest and assimilate our food.

So it's harder and harder to get things just from what we eat. We also tend to, you know, as we age, you know, not cooking for a big family. Maybe it's just 1 or 2 of us.

And so the tea and toast diet is very common amongst seniors. And, you know, of course, a big part of our work as naturopathy doctors is suggesting a great diet and supplements, although they should be supplemental, can be really, really, really important.

Part of actually getting that cognitive optimization because of the way our digestive system ages. So these products in particular, you know, I've seen such great clinical benefit with and I'm really excited to have you here sharing what you guys have seen and how you came up with that at all.

Well, thank you. And you're right, I think it's, like the the populations I think about that are most resource starved are so as we age for sure for a lot of reasons, like, especially what you shared.

But then people that are on really strict diets often will inadvertently be, you know, running a deficit in one or more nutrients because of their, their efforts to eat a really, controlled diet and, you know, and, and I think there's lots of upside to things, like being a vegan.

We're a vegan company, but there's, you know, you could go down choline, carnitine, creatine. You know, it's well, there's just a lot of things that are going to be more challenged to keep enough of if you're not supplementing the diet.

In that case. So tell me, who shouldn't try quality products? I just want to talk about contraindications. It's at least at some level. Are there some people that you would steer away from using these products or certain ones in the line.

Yeah. Well, we don't, like, our products are intended for women that are pregnant, lactating or trying to get pregnant. And it's it's like in our, our like we tend to be very conservative.

Who Should Use These Products

So if something isn't proven safe and useful for them, we would just say like, you know, wait, let's do other things then. Our products really haven't.

Like, we don't make them thinking of kids or teens. So, you know, that's something that if someone is choosing to do, it's not something that we would have tested out as extensively on our own.

Like, we, are really thinking of our products primarily for adults. So so those would be the if, if like, I know you and I both, you know, will individually maybe work with someone that's like a, you know, late teen.

But it wouldn't be something that as a company, we were doing. Yeah. I have clinically seen some great results with quality of mind and teens. And yet I think that having that conversation with the doctor is important, making sure it's the right thing for that individual.

I think people who are suffering, more severely with anxiety or depression as well, should work with the doctor. Yeah. I think, you know, like in general, it's always a good idea to, check with your doctor.

The truth is, for a lot of our products, we would need a doctor like you to understand whether it would be prudent to do. But for, you know, any of the more challenging, mental emotional disorders, those are just really hard anyways.

And so, yeah, I don't I don't think those, like, our products, we would say are not suited for people that are on, you know, anti-depressants, anti-anxiety medicines, things like that.

That's such an honor to have you here. I really appreciate your time for breaking down these products and for enlightening us all about how they work, how they've been formulated.

I'm so impressed with Nora Hacker. Obviously, that's why I show up and and collaborate with you guys so often. It's because the integrity is so high and really the value you bring to the spaces is phenomenal.

So thank you for showing up for doing what you do and for being here. And James and I did just want to mention, to anyone that's listening to this is there is a, coupon code for $25 off call your mind for any of listeners, and it's raise for reversing Alzheimer's.

And we are going to have that in the show notes. And, and everyone will get an email reminder of that as well, so that they can access my coupon code.

And really excited for where people to get access and try it out and see what happens. Well thank you. Thanks again for having me. It's always like I said as we open.

It's a pleasure getting to talk with you every time. Thanks, Greg. Okay. Bye.