REVERSE ALZHEIMER'S SUMMIT

Functional Psychology for Peak Brain Performance and Cognitive Decline

Dr. Heather Sandison, N.D. interviewing
Dr. Brant Cortright, PhD

Dr. Heather Sandison, N.D.
Welcome back to the Reverse Alzheimer's Summit. I'm just absolutely thrilled to have Brant Cortright back today. I had a really phenomenal interview with him on the Collective Insights podcast, and I invited him back because of just the quality of his presence and the quality of the information that he has to deliver. I'm so excited for you to get the benefit of his updated information here today. Brant Cortright is a PhD and the author of the Amazon bestseller, "Holistic Healing for Anxiety, Depression, "and Cognitive Decline." He is professor emeritus with the California Institute of Integral Studies. And Dr. Cortright is a licensed clinical psychologist with a private practice in San Francisco, as well as online. He also has an online coaching and consulting practice focused on brain health, anxiety, and depression. He's the author of previous books, "The Neurogenesis Diet and Lifestyle," that's the one I've got right here that I was just telling him how much I appreciate, also an Amazon international bestseller, and psychotherapy and the spirit, excuse me, "Psychotherapy and Spirit and Integral Psychology, "Yoga Growth, and Opening the Heart." So Dr. Cortright, thank you so much for taking the time to join me again. It's really a pleasure and a privilege to have you here.

Dr. Brant Cortright, PhD
I'm happy to be here, Heather.

Dr. Heather Sandison, N.D.
So let's dive in to why is Alzheimer's, why are the rates and the incidents of Alzheimer's skyrocketing over the past 50 years?

Dr. Brant Cortright, PhD
Good. So there are at least five times what they were in the 1960s, right? So it can't be genetic, it must be something in the environment. If it's genetic, it's gonna take 10,000 and 50,000 years. So it's something in the environment. And my own sense is, it's a lot of things in the environment, a lot of things in the physical environment, particularly, but also in our emotional environment, our mental environment, our spiritual environment. So my approach is really holistic; body, heart, mind, spirit, that we exist on these different levels. And they all come together in the brain, right? We experience them all through the brain as a coherent integrated self. So the two major parts that I wanna focus on are that we are at this psychophysical being, so are psycho-spiritual being can't be reduced to our physical brain, and our physical brain can't explain our psyche.

They form one whole, but we have these different levels of who we are. So on the physical level, there are more neurotoxins in the environment than there have ever been. Wikipedia lists something like 200 pages with 30 neurotoxins on each page, each with its own Wikipedia page. Smog is a big one, right? The 2.5 micron particles are so small. They enter into the lungs, into the bloodstream, cross the blood-brain barrier, where they act like little wrecking balls in the brain creating inflammation. And we know that inflammation is behind most major diseases, including Alzheimer's. Alzheimer's patients have elevated inflammatory markers. Food is a big one.

The Standard American Diet, abbreviated SAD, is a recipe for Alzheimer's and cognitive decline, as well as anxiety and depression. Pesticides, glyphosate being the big one, which is both an antibiotic, meaning it wipes out our microbiome, which is a disaster, but it also opens up the tight junctions of the intestines and the tight junctions are what keeps out the bad stuff, but lets in the good stuff. So when those open up, we get all sorts of toxins coming into the body and the gut, that creates inflammation, leaky gut, and the same molecular signals that open up the intestinal tight junctions, open up the tight junctions of the blood-brain barrier. So we get toxins flooding into the brain, again, creating inflammation and leaky brain. Mercury, mercury from fish, from dental amalgams. Plastics, all kinds of plastics, endocrine disruptors. We could go on and on. It's never been a worst time really for the brain in terms of all the toxins that are floating around. And emotionally, there is a huge amount of stress. It seems like stress is increasing for most people.

Stress also has powerful effects on not only our mood, but our cognition as well. High levels of chronic stress create, first of all, inflammation, and inflammation is hugely important than cognitive decline. The amount of fear in the world. And COVID only made it worse. There is just been an epidemic of fear this past year, people have been scared out of their minds. And partly they've been scared because their brain is kinda set to be scared, that most people's brain is kind of pretty fragile at this point. That because of all of the neurotoxins, because of this media atmosphere that survives on anger and fear, that attracts eyeballs, we are living in a pretty stressful world right now.

And how much of this is really that it's a stressful world and how much of this is the brain thinking it's stressful because it's primed to feel that. Relationships, most people have less than optimal relationships. When our relationship world is less than optimal, the self becomes more fragile. There's more anxiety, there's more depression, there's more a sense of isolation. Isolation has a huge impact on cognition. People who are lonely deteriorate cognitively much faster than people who aren't lonely, and something like a third to a half of people over 50 complain of too much loneliness.

Spiritually, many people are just adrift at this point. And so if we can really work with the brain and the self on all these levels, work spiritually with certain types of meditation and spiritual practices, work mentally to have more clear logical thinking, work emotionally to have a more loving, peaceful related world, and physically, a diet and exercise that supports brain health rather than erodes it. I think this will go a long way towards preventing Alzheimer's and reversing cognitive decline to some degree with anybody who's experiencing it. The brain is incredibly resilient. Sometimes it's so far gone we can't do much, but we can always do something. And if somebody is watching this summit, they have enough of their marbles that they can probably come back and be doing quite well.

Dr. Heather Sandison, N.D.
Yeah, and I imagine we have a lot of caregivers here who can now understand why I invited you because one of the things that I so appreciate is that you take this very comprehensive approach and certainly in my clinical practice, as well as at Marama, what we've noticed is that the more comprehensive we can be, the more we can identify those factors that might be inhibiting optimal brain function.

The more we identify them and do something about it, the better our patients do, the better our residents do. And so, although I don't wanna overwhelm people and add more stress, I hope that this is really empowering. I'd love for you to get into the steps that you're so great about giving people the kind of actionable things that they can do right away. So what do we do to reverse this trend on a personal level? What are the things, what can we do today?

Dr. Brant Cortright, PhD
Okay. Okay, good. Before we go there, I wanted to see if we can zoom out a little bit and get sort of a big picture view of the brain because that will then tell us how we can intervene in ways that are most helpful. So the brain just like the self is always growing, right? Like in psychotherapy, one thing psychotherapist have come to realize over the years is that people enter therapy when they're stuck, when they're no longer growing, right? People are depressed, anxious, relationship, whatever is going on. It's because they're stuck. They're no longer naturally growing. And what psychotherapy tries to do is to get people's growth process going again. And once that's going, once they're moving and growing again, things take care of themselves. Well, it's the same with the brain. The brain is not some static, dead computer. It's a living growing, moving organism. And this rate of growth, our neurogenic rate, is the most important bio marker for brain health that most people have never heard of. So some more context here.

Dr. Heather Sandison, N.D.
Yeah. And I want you to talk a little bit more about neurogenesis. That's the name of your books is, "The Neurogenesis Diet and Lifestyle." And I think this catches some people off guard is the fact that our brains can still regenerate and grow even into our later years, even into our senior years. So will you just confirm that I understand that correctly?

Dr. Brant Cortright, PhD
Yeah, absolutely right. That's right. So it used to be thought up until about 20 years ago that the brain stopped growing new brain cells once we reached our early 20s, and it was just a slow die off after that. Then some decades ago, three, four decades ago, they realized no that there's neuroplasticity, meaning the brain is making new connections among existing neurons. And then about 20 years ago, they discovered that actually the bearing makes new brain cells throughout our entire lifetime up until the time we die into late, late, late age. Now, at first I didn't know what the significance of that was, but then they began to

understand that when that growth rate slows, so neurogenesis is the process of making new brain cells, the generation of new neurons, and synaptogenesis is neuroplasticity, the brain making new connections among its existing neurons. So this general growth rate, neurogenesis, synaptogenesis, is called our neurogenic rate. So when that slows down, then we get symptoms. We get anxiety, we get depression, and we get cognitive decline in brain fog. People don't learn as quickly.

The part of the brain that grows new neurons is particularly centered in the hippocampus. Now the hippocampus is a very interesting part of the brain. So the hippocampus is this crescent, moon shaped structure. And part of it is involved with cognition and part of it is involved with emotion regulation, particularly the regulation of anxiety and depression. So when the brain's growth rate slows down, we stop making new memories as well, and we falter in our capacity to deal with anxiety and depression. So the hippocampus doesn't store new memories, it processes new memories. It allows us to make new memories. So in Alzheimer's, Alzheimer's massively attacks the hippocampus. And when that happens, the person stops being able to make new memories very well and they lose their memory. And people who have Alzheimer's, it's like when the memory goes, it's like it pulls the rug out from the self, like the person just isn't fully there.

They have a kind of blankness to them. Memory is the linchpin of the self. So it helps us learn new things, it helps us remember who we are, and it also helps in emotion regulation. So what happens with anxiety and depression is that there is a slowing of the neurogenic rate. And what happens in cognitive decline is there's a slowing of the neurogenic rate. Sometimes one half or the other of the hippocampus involved most often, it's both together. What anti-depressants do is by increasing serotonin levels, say for example, with SSRIs, they don't magically take care of some serotonin deficiency. There is no serotonin deficiency in depression, but what happens is that increased serotonin levels increase neurogenesis, increase the neurogenic rate. And with SSRIs like Prozac, they increase neurogenesis on the emotion regulation side, not on the cognitive side. That's why you don't get a cognitive boost with SSRIs. They only increase it on this side.

So what we wanna do is most people, because of inflammation, which slows down neurogenesis and synaptogenesis, because of high blood sugar which slows it down, because of these toxins, which slow it down, what we wanna do is we wanna increase the neurogenic rate. We wanna get the brain moving again, right? We wanna stop having to be

sluggish and slow down, which is the lead in to cognitive decline, Alzheimer's, and these other mental health disorders. So these common neural mechanisms underlie all of these things. So what do we do to get the brain moving again, to get it up to its highest neurogenic rate possible? So it turns out most people can increase their neurogenic rate by five times, if not more. And when that it happens, we get radiant rain health, right? The person is able to think lucidly, clearly, learn new things rapidly, figure out things better, there's better problem solving, and they feel good.

There's a sense in which it's just great to be alive. There's a way that there's a kind of resilience inside where when bad things happen, as they inevitably do, we bounce back. We have the resources to deal with it. We're not as knocked over by small wins. And when we are knocked over, we can come back. So in radiant brain health, there's this feeling of just, you can hardly wait to get out of bed and meet the day. It's like being a healthy four year old who just wants to get out there and meet the world. So that's what we want. A healthy four year old has a high neurogenic rate. That's what we want. We wanna increase that neurogenic rate like in childhood. So what I have in the book is the healthy brain diet. And there are four pillars to the healthy brain diet, neurogenic, ketogenic, anti-inflammatory, and gut-friendly.

All four of these things are critical for brain health. So first, neurogenic. It turns out there are a number of compounds that jumpstart our rate of neurogenesis and synaptogenesis. For example, blueberries or blueberry extract, green tea or green tea extract, the EGCGs in green tea act like fertilizer for the brain. What they do is they increase BDNF, this Brain Derived Neurotrophic Factor, which is like miracle grow for the brain. That's what gets us moving. There is no, right now there's no bio marker for depression or for anxiety. However, some people are thinking that BDNF levels may be that biomarker. That based on your level of BDNF, you can tell pretty much is a person depressed or not. You can also tell how much their brain is in this growth mode where it's moving, moving forward. So a number of things like apigenin, a number of like bioflavonoids, apigenin, luteolin, . Another big one is hesperidin, hesperidin in the form of methyl chalcone, keeps new brain cells alive.

So we get almost 100% survival rate, which is also an important dimension to this. We wanna keep the new brain cells that are there online and working. Probably the most important, single most important thing would be omega-3s, omega-3 fatty acids, fish oil. Omega-3s are made up of ALA, which isn't terribly important, EPA, which is a strong

anti-inflammatory, and DHA, which also has anti-inflammatory properties but it's also the fundamental building block of the brain, right? Two-thirds of our brain is made up of fat, and a third to a half of that is DHA. So we want an ongoing supply of good nutrients in the brain, right? The brain is always under construction. And so we need good construction materials to keep it growing, to keep it moving, to keep it building.

And DHA is the fundamental brain structure, brain food that we need. Most people need three to four grams a day. If you have high levels of inflammation, you should probably do a ratio of two to one EPA to DHA. If you have good low levels of inflammation, then a one-to-one ratio of DHA to EPA is good. And it's important to do molecularly distilled fish oil because fish tend to concentrate mercury. And so in many types of omega-3 products, we get high levels of mercury, which is not good. Mercury is the second most potent neurotoxin, second only to plutonium accolade. So we don't want that, we want molecularly distilled, and we wanna make sure it's in a dark capsule so it doesn't oxidize. We don't want rancid fat coming into the brain. Let me just share one experiment they did with monkeys 'cause I think it's telling.

They raised one group of monkeys on a low omega-3 diet and one on a high omega-3 diet. And the monkeys on the low omega-3 diet had very simple undifferentiated brains at the end of the experiment, and the monkeys on the high omega-3 diet had very complex, richly differentiated brains, almost like humans. High levels of DHA and omega-3 increase your neurogenic rate by 40% and gives you the most important food you need for your brain. Okay. So the book goes into about 30 different or 40 different supplements, nutrients that increase our neurogenic rate. Along with that is eating in such a way that we don't eat foods that decrease our neurogenic rate. So what decreases it? Sugar, high carbohydrates, that will cut your neurogenic rate in two. A high sugar diet will cut your neurogenic rate in half. That is really bad news. When you consider the average American diet and all of the sugar that is consumed, it's no wonder there is a brain health crisis right now. We also don't want bad fats, unhealthy fats.

So we don't want seed oils, we don't want vegetable oils, these oxidize, we don't want high levels of omega-6s. We need some omega-6, but we want an omega-3 to omega-6 ratio of about one to one or maybe one to two, which grass fed meat has perfectly, but which

commercial meat does not have. Most commercial meat is a one to five ratio. So it's highly inflammatory.

Dr. Heather Sandison, N.D.
Can I say something real quick? One of the things that you hear commonly from a neurologist, primary care providers, from people even in the Alzheimer's world is that we should be potentially consuming low fat diets. And this comes out, I think the China study, Andrew Campbell has worked. Can you speak to like why that's incorrect?

Dr. Brant Cortright, PhD
Yeah. Yeah. So this has been the paradigm for the past 50 years. In the 1950s, people ate much higher levels of fat, lower levels of carbohydrate. And these rates of anxiety, depression, and cognitive decline and Alzheimer's were much, much lower back then. There was some bad science done in the 1960s that then got carried through and was made sort of standard dietary knowledge for decades that we need to have high carbohydrate and low fat. And then that will help us with heart disease and everything else. Well, it turns out that the more recent research in nutrition is now saying that has been a terrible mistake and that that is responsible for the obesity epidemic that we are experiencing right now, and that is behind much of the problems we see.

That's a driver of heart disease, of cancer, of auto-immune diseases, of diabetes, and certainly of Alzheimer's. So what we need, what happens with a high carbohydrate diet is that it produces insulin resistance. High levels of insulin are bad for the body and bad for the brain. They degrade every organ in the body. And the higher your insulin resistance, the faster your rate of cognitive decline. Even if you are not in the pre-diabetic range, even if you're in the so-called normal or healthy range, anything over 5.0 in your hemoglobin A1C, each 10th of a point raise in that results in a steeper line of cognitive decline. So a good test for everybody to do is the hemoglobin A1C to find out how insulin resistant you are. 80% of Americans have insulin resistance to some degree, that means faster cognitive decline.

And cognitive decline and Alzheimer's, it takes 20 years 30 years really to develop. So you can't start too soon on this. The other thing is that the Standard American Diet included a lot of bad fats, meaning fats that are easily oxidized, which when they're oxidized, it creates inflammation in the body, in the blood vessels, in the brain. And so as long as we're eating good healthy fats, so maybe 20, 30% of saturated fat, animal fats are good. We need a

certain amount of that. And we need a certain amount of unsaturated fats. So avocados, olive oil, depends on sort of nuts you do. Macadamia nuts are great, eggs, meat. Again, if it's pastured meat, pastured eggs, with these commercial eggs and commercial meat, we get not only high inflammatory markers, high levels of inflammation, but we also get high levels of glyphosate because commercial meat is fed GMO corn and soy, which has huge amounts of glyphosate in it.

Also you're getting antibiotics. So you're wiping out your microbiome, you're creating leaky gut, leaky brain, you're creating inflammation. So the more recent research the past decade, particularly, I think has really overthrown this low fat-high carb diet and replaced it with a much higher fat, lower carb, moderate protein approach that looks at the type of fats we're doing. That's really critical. And the sources of those fats that most studies that talk about where you shouldn't eat meat, or should only eat a little bit of meat, they're talking about commercial meat. They're not really talking about grass fed or pastured. So that's a big confounding variable in this research where it doesn't tell us what we really need.

Dr. Heather Sandison, N.D.
Right. And then so you talk about the neurogenic diet and then also the ketogenic diet. One of the things we ran into with the ketogenic diet is that elderly folks, they start to lose weight. Do you think that that is a problem if they're losing some weight or do you think that maybe that's beneficial, maybe a neutral? What are your thoughts?

Dr. Brant Cortright, PhD
Well, partly it depends on their weight to begin with. A lot of older people are overweight, in which case it's a great thing to lose some weight. Yeah. Most people on a ketogenic diet do lose some weight. Some of that is just water. And generally they hit a plateau somewhere along the line. And it, again, depends on how much fat they're eating and how much they're reading. But yeah, most people tend to lose some weight, but then it tends to stabilize in my experience, I don't think that unless they are too thin, that it wouldn't necessarily be so much of a problem.

Dr. Heather Sandison, N.D.
enough calories, right? cutting out the carbs, people are concerned about weight loss, but I'm sure you encourage the same. But we'll just consume more, more avocados, more

coconut oil, more of everything else that is on that good list for your brain. So ketogenic diet look like from perspective and how do you guide people towards that and why?

Dr. Brant Cortright, PhD
Well, so we have two sources of fuel; glucose or sugar and ketone bodies or fat. We can burn either sugar or fat. Most people are pure sugar burners. They only use that for fuel for the brain and for the body. That produces over time, insulin resistance as we talked about. But also it turns out that glucose aside from producing insulin resistance, it's also a dirty fuel. It produces oxidation, a lot of toxic byproducts. So ketone bodies or fat is another form of fuel. And it's actually a more efficient from of fuel because it's a very clean fuel. It burns cleanly. It also produces more efficient energy.

So in the heart mitochondria, they operate 26% more efficiently. And since the heart mitochondria and neural mitochondria are very similar, they believe that that is the same as the brain. So if you can imagine your brain operating at 26% greater efficiency, when a person is in what's called nutritional ketosis, meaning their blood levels are 0.5 or above, it feels like you are operating on all, like your brain is firing on all six cylinders. Like you are operating on a higher level. There's a clarity, there's a smoothness, there's a stability that just doesn't happen if you are just a sugar burner. Now, most people, and I found this myself, found it a difficult switch because carbs tastes so good. Everybody is so addicted to them, and they just creep into the diet.

So it's hard to know if you're in ketosis or not, unless you actually do a test, either a breath, have a, what is breath meters or a blood test, I guess is the gold standard. So, but once you do make that switch and after about six or eight weeks, your metabolism really is able to become more flexible. It shifts into a ketogenic mode. And at that point, you just feel really good. I was talking to a friend of mine about this for years.

And just a couple of weeks ago, he finally got into ketosis and he said, "Wow, this feels fantastic. I had no idea." It's hard to convey to somebody how good it feels to be in ketosis until they actually experience it. And it's hard to get many people to try it. And so if they can at least reduce carbs and increase the good fats, it's in some ways like turning an oil tanker, it takes time for most people. If you're in a controlled environment where you can really dictate the food that people eat, you can do it immediately, it's great. But for most people,

it's gonna be somewhat gradual shift where over time they will then say, "Okay, I'm gonna just do this," and then they will see how good it really feels at that point.

Dr. Heather Sandison, N.D.
At least seen that clinically, that people often what will happen as a caregiver will do it with their loved one who's struggling with cognitive decline. And then the caregiver decides, oh, I'm gonna stay on this because this does, my mood is better, my gut is better, everything starts to get better, I'm thinking more clearly. I think that's the most common thing. And then of course the weight loss, most people welcome that. The ketogenic diet, what exactly, does it do anything in particular to the hippocampus?

Dr. Brant Cortright, PhD
It also increases neurogenesis. It's neurogenic. A ketogenic diet is neurogenic also. Ketone bodies stimulate neurogenesis and synaptogenesis. I think that's partly why they increase mood and increase cognition. But apart from that, they also are just a more efficient fuel. Also ketone bodies reduce inflammation. One of the major researchers in this area, two guys, have a couple of books out called "The Art and Science of Low Carbohydrate Living." And they looked at 17 inflammatory markers on a ketogenic diet. And they all went down on a ketogenic diet, all 17. So it's a very anti-inflammatory diet as well, which is great.

Dr. Heather Sandison, N.D.
And it's also a detox diet because you're turning over more fats, you do tend to start letting go of more fat-soluble toxins in that process.

Dr. Brant Cortright, PhD
Yeah, yes, yes.

Dr. Heather Sandison, N.D.
What is your perspective on exogenous ketones. So do you ever suggest that people use ketone powders or even MCT oil as like a supplement?

Dr. Brant Cortright, PhD
Yeah, I think that can be a good way to kind of get people getting sort of sneak previews of where they're going before they're fully their. And I think some people also just, it helps them even when they are on a ketogenic diet, it helps just like instead of coffee, some

people will just have ketone, exogenous ketones. And it turns out that there's a lot of cognitive benefits that happen just with exogenous ketones, probably most of the cellular and metabolic benefits come from having it happen naturally. But many of them, not all of them, but many of them do come simply with exogenous ketones as well. So I think it can be a kind of way of getting people into it. It also can be a way, I've seen it almost be abused, almost like a drug, like people just sort of amp up almost too much on it, like too much coffee, or you can also do that. It can be like rocket fuel all, it's like. So there's a, you can overdo it as well. I've seen that a little bit.

Dr. Heather Sandison, N.D.
One of the struggles I think people run into is they go towards intermittent fasting or they start adding fats, but they're not reducing their carbs. Is there a benefit that we can get from increase in fat and intermittent fasting? I don't, actually, we should chat about that. How do you feel about intermittent fasting? And can you do part of it, but not all of it and still get benefits?

Dr. Brant Cortright, PhD
Yeah. Yeah. Certainly intermittent fasting will create some ketones depending on how much of a space there is. And the idea is that we do wanna be metabolically flexible, right? We wanna be able to both operate with glucose and with ketone bodies, we wanna be able to do both. So many people, I think benefit from a cyclical ketogenic diet where once a week or twice a week, they will have a carb refeed day. When I do that, I kind of feel like a veil. Like I'm a little bit loggy, I'm not quite as with it. And so I kind of like it in terms of my taste buds, but cognitively I'm not crazy about it because I'm just not operating in quite the same way.

So yeah, if a person can get this, I mean, again, whether they reduce carbs, whether they increase fats, however they get there, I think moving in that direction is gonna be good, but it's not until they really reduce the carbs that they're gonna really get there.

Dr. Heather Sandison, N.D.
The benefits. So you don't recommend that people stay on a ketogenic diet forever. What happens next? So once someone's going to do keto adapted after six or eight weeks in ketosis .

Dr. Brant Cortright, PhD
Yeah. So my own sense is that it's helpful for people for a good couple of years, anyway, that there's a brain healing that happens. That is great. And then for some people it's great to stay there, but that not everybody needs to. If you are young and you don't have insulin resistance, you might be fine for awhile to bring carbs back into your diet. And I think you wanna be as low carb as possible, but if you can do carbs, more power to you. Sooner or later, you're gonna be reducing carbs, I think for most everybody.

So my own sense is that not everybody needs to do that again, depending on the person's age and their metabolic flexibility. I am 90% ketogenic, but I do cycle out occasionally just 'cause I think that that is helpful and that your body adapts to anything. And so if you stay purely ketogenic, there can be a kind of paradoxical increase in insulin resistance over years for some people. I found that happening and I know a number of people that happened to. That the cyclical ketogenic diet then stopped, my hemoglobin A1C dropped lower when I did the cyclical after a while. So everybody's metabolism is different. I think it's just a matter of experimenting to see.

Dr. Heather Sandison, N.D.
So have we gone through the pillars of the healthy brain diet?

Dr. Brant Cortright, PhD
We've gone through two of them.

Dr. Heather Sandison, N.D.
Two of them, okay.

Dr. Brant Cortright, PhD
Neurogenic and ketogenic. So the third one is anti-inflammatory. So there are a number of good nutrients to do that have a natural anti-inflammatory effect on the body. A good blood test for everybody to do is called the highest sensitivity C-reactive protein. It's a general inflammatory marker. Most people have elevated inflammatory levels. So if your level is 0.5 or above for a male or 1.0 and above for a female, it would be good to bring that down. And most people are above that.

So first of all, this involves not eating foods that are inflammatory, such as deep fried foods, french fries, really bad, fish and chips, much as I used to love them, really bad for the brain, anything deep fried that high amount of, it oxidizes the fats and it creates inflammation. A high carbohydrate diet is an inflammatory diet. Another reason to go on a low carb diet. And certain things such as again, green tea is anti-inflammatory, omega-3s, but things like borage oil, let's see, black cumin seed oil.

Dr. Heather Sandison, N.D.
seed oils. Now is flax seed oil an exception to that?

Dr. Brant Cortright, PhD
Flax seed oil, that is mostly ALA, isn't it? And ALA in the form of flax oil does not increase EPA or DHA. People say if you're a vegetarian, do flax oil, but it turns out that their body just doesn't convert it to the two types of omega-3 that we really need. So I think it's virtually useless. If a person is a vegetarian, they should do an algae form of omega-3. So black cumin seed oil, highly anti-inflammatory, tart cherry extract, highly anti-inflammatory. The book goes into a couple of dozen anti-inflammatory things we can take that lower our inflammatory levels naturally.

We don't wanna take things like ibuprofen or something like that. That's of course not gonna be good for many systems of the body, but we wanna eat an anti-inflammatory, and for many people, some supplements are also helpful in that. And then the fourth pillar is gut-friendly. So what we want to do is we want to repair the tight junctions of the gut, and we want to increase microbial diversity. So first of all, repairing the tight junctions so the person doesn't have leaky gut anymore.

There is something called ion gut health put out by Zach Bush, which is really helpful in this. There are a number of probiotics, a number of strains that help heal the tight junctions. So those sorts of things are good to do. The book goes into a number of strategies in that regard. The other thing we wanna do is increase microbial diversity. So people talk about taking probiotics and some strains are probably good to do because there are certain strains that when people take them, they've been shown to reduce anxiety and depression scores by 50%. There are other probiotic strains which have been shown to increase cognition scores. So our microbiome has many, that we have as many cells that are bacteria in our bodies, as we do cells about 40 trillion.

It used to be thought it was way more, but it turns out it's about 40 trillion. So of that, in indigenous cultures, they've got about 20,000 strains of bacteria. In the west, most people have 10,000 strains or as few as 500 or 1000, which is terrible when it comes to immunity because 80% of our immune system is our microbiome. And the more diverse an ecosystem it is, the more diverse any ecosystem is, the more resilient it is. The less diverse, the more vulnerable to collapse it is. So it's the same with the human microbiome. We want to increase microbial diversity back up to 20,000. We wanna increase by hundreds and hundreds of strains, thousands of strains. So there are certain kinds of probiotics that actually do help that. The problem with taking just a few probiotics, is that a spike in monoculture. It's just taking one or 10 or 20, but we want hundreds, thousands. So plantarum, for example, increases microbial diversity. It invites a lot of other strains into the intestines and decolonize their.

Dr. Heather Sandison, N.D.
Repeat again.

Dr. Brant Cortright, PhD
What?

Dr. Heather Sandison, N.D.
What is it called again?

Dr. Brant Cortright, PhD
Plantarum. P-L-A-N-T-A-R I think it's U-M. It's either a lactobacillus or bifido. I think it's Lactobacillus plantarum. The book goes into, there's a few others also that have that same effect. There are certain types of prebiotics that also increase microbial diversity, and just eating a high fiber diet increases microbial diversity. Just that. Also just going into nature and breathing, you get hundreds of strains into your nose, into your mouth that eventually work their way down into your gut. If you're swimming in the ocean, swallow a couple gulps of water that'll increase, you get hundreds, thousands of new strains in that.

If you're out digging in the garden, don't clean your hands immediately, let it begin to colonize your skin and it works its way in. We want being in nature is the single best thing, in a variety of nature. So the mountains, the beach rivers, whatever, that increases microbial diversity and avoiding antibiotics whenever we can unless they're absolutely necessary

because that is just a disaster for the microbiome. And that is why most developed, those people living in developed countries have a really impaired microbiome.

Dr. Heather Sandison, N.D.
A lot of the patients they see clinically these days are quite sensitive. And so they can't always tolerate probiotics or some of the thing that we've discussed really profoundly shift the microbial balance in the gut is digestive enzymes. So when we're under a lot of stress and we're not getting enough hydrochloric acid, we're not getting enough digestive enzymes, oftentimes there's a couple of things happening.

One is our food can be putrefying and allowing the wrong gut bugs to grow because we're not digging through quick enough. The other thing that happens is it's not quite the right environment, either the pH is too high or too low. And so the microbes that should be there aren't in the place thrive. I'm wondering if you run into this as well.

Dr. Brant Cortright, PhD
No, I'm interested to hear you say that. I have not really done much stuff around enzymes, I just . So it's interesting to hear you say that. It makes sense what you're saying. Yeah, yeah.

Dr. Heather Sandison, N.D.
We've seen it on the testing. So when we do testing, plan testing, and then when we go back and look, oftentimes digestive enzymes are the only thing someone can tolerate and that's the only thing we have changed, then we retest and we see that the microbial balance has shifted really extremely much more than I was expecting before I saw it with my own eyes.

Dr. Brant Cortright, PhD
That's very interesting.

Dr. Heather Sandison, N.D.
But I think also a testament to what you're describing around being out in nature, getting exercise, kind of doing all of these things, gardening, all these things that lower our stress levels as well help us to produce those right enzymes, and again, create that environment that supports the right microbiome.

Dr. Brant Cortright, PhD
Yeah. Yeah. So we have now covered the four; neurogenic, ketogenic, anti-inflammatory, gut-friendly.

Dr. Heather Sandison, N.D.
Well, I'm glad to have you here because again, like the comprehensive approach that you take and you are a clinical psychologist. So I kind of switch gears and go into how are psychological factors really influenced? So we talked about the anatomy of the hippocampus and how depression and anxiety and dementia are, but I wanna talk a little bit about the psychology and how our psychology can influence dementia. As I mentioned earlier, there are so many caregivers joining us for the summit and caregiving itself can have a big impact on psychology and what we've seen as well as lifestyle. A lot of what we've talked about today, and what we see is that people who are caregivers are actually at very happy rates have risk of developing dementias. And we know, I think I don't have to tell any caregiver, that stress plays a big role in this. But since I have the expert here in the clinical psychology, please dive into this for me.

Dr. Brant Cortright, PhD
Okay, good, good. So we've covered kind of the brain side, the physical brain side, although there's also exercise, sleep, other things there, but we've covered a lot of that. So psychologically in terms of emotionally, cognitively, spiritually, there are a number of things we can do.

And a number of things we see that contribute to dementia, cognitive decline, Alzheimer's. So on the emotional level, how we feel has a big impact on not only what kind of chemicals in our body, but also what happens in our brain. So high levels of stress, as you've mentioned, negative emotional relationships, relationships where there's a lot of anger, where there's bullying or where there's fear, where there's shame, shame is highly inflammatory. When a person feels shame, their inflammation levels go way up. So stress is one of these funny things where we want a kind of goldy locks zone of stress. We don't want no stress, right? The brain wants stimulation, optimal stimulation, optimal engagement with the world. Too little stimulation and neurogenesis and synaptogenesis slow way down. We also get anxiety, depression, and cognitive decline.

All those things happen when we are under-stimulated. When we are overstimulated, same thing, we get stress, so we get anxiety, depression, cognitive client. So most people complain of too much stress, right? It's chronic stress that is unremitting. Moderate short-term stress is actually good for the brain that increases BDNF and increases our neurogenic rate. We want a kind of optimal challenge to meet the world. The brain wants to be stimulated in an optimal way to use its capacities. And so that when we are optimally engaged with the world, meaning if it's too easy, it's boring, if it's too hard, it's frustrating. But in that middle zone is where we find the flow experience, where we are sort of meeting the world, our capacitors are coming forth to meet the challenge, and there's this wonderful state of flow where we are acting on the world, and there's a sense of accomplishment, there's a sense of competence in the whole thing.

Self esteem goes up when that happens. In the type of stress most people have, however, it's constant, it it's too much, it's ongoing. And with ongoing stress, what happens is that the stress hormones never go down. There's no break from it. So we need to have some kind of break from stress. We need to have some way of turning off whatever is causing the stress and resetting our nervous system. And so that's why sleep is so important, why exercise can be important, why meditation, spiritual practice can be important, but also relationships. Relationships are a source of stress for many people, but we also need good loving, supportive relationships to reduce stress, right? That good emotion regulation is where I can modulate my anxiety, my depression, my stress, and I can do a lot of that internally.

But I think one thing that psychology has really discovered is that we also need other people to help us regulate emotion, to help us integrate our emotion. We need to have a friend who can put a hand on our shoulder and reassure us that we're okay, that we're loved, that we're doing okay in the world, that they're there for us when we fall down, that we can't do it all alone, right? That that life is a team sport. We need other people in this. And so the quality of those other relationships, the self is fundamentally relational. We exist in a web of relationships. And when those relationships are toxic, are stressful, are scary, are negative, are angry, or are even just kind of unresponsive. We experience stress, we experience alienation. When those relationships are loving, supportive, sweet, then the parasympathetic nervous system kicks in. We feel, ah, all is okay with the world.

So the quality of our relationships is hugely important, just like the quality of our engagement with the world is important. The quality of our engagement with our job is important. Finding this golden lock zone, if not too much stress, not too little stress, optimal engagement. And also too little, I think we talked about this earlier, too little contact, not good. People who are in solitary confinement, they go crazy or many people really can go psychotic in those situations. People who are just in a hospital bed interacting very, or just living alone, terrible. It's a huge... Loneliness is a greater risk for heart disease and dementia than smoking is. Unbelievable. So we need relationships, but we need good relationships. Not just any type relationship, but you could need good nourishing relationships. And that's true for caregivers as well as care receivers.

Dr. Heather Sandison, N.D.
So then in that radiant, you described radiant brain health. So these are some key psychological factors. We've talked about some key dietary factors. Are there other things that start to encompass so that we should include and talk, in terms of talking about a radiant brain, like this optimized perfectly functioning brain?

Dr. Brant Cortright, PhD
So two other dimensions, the cognitive and the spiritual. So the cognitive side of this is it really comes down to lifelong learning. The brain thrives on learning new things. When we start learning cognitive decline sets in. There's measurable cognitive decline at two points in life for many people.

One, when people graduate from college, and second is when they retire, unless they move into a profession where they use their brain, or when they retire, they continue to use their brain. Then there is no measurable fall off. So we need to be using our brain in many different ways. It's not just a matter of doing crossword puzzles. That doesn't generalize across systems. We need to cross train the brain. So we need to do reading, we need to do writing, we need to be learning new things that are not necessarily even cognitive, like learning to cook or learning to garden, or it doesn't have to be when people talk about learning, they often associated with school. And so many people are emotionally, and they're educationally wounded, right? That the current educational system makes people feel like they're not smart or that they can't learn.

And so they get turned off to learning, and that's a terrible shame because every brain has a unique kind of genius to it, has a unique set of capacities. And even if it doesn't fit into the conventional, standardized educational system, still, there are resources now that most people can avail themselves of where we can tune into this and that we can really find ways of learning new things that are right for us. So when we learn new things that stimulates neurogenesis and synaptogenesis and increases our neurogenic rate. So even if it's just writing emails, even if it's just, we need to be reading and writing, that is terribly, writing a journal, very helpful emotionally, as well as for cognition. So lifelong learning, that is the key for cognitive health.

Dr. Heather Sandison, N.D.
One of the things we tell our study participants at the clinic and our patients, of course, and then over at Marama is we want to be doing things that help you to relearn executive function, because that's what's gonna keep you independent as long as possible. And that's very motivating for somebody who's maybe staring down the face of potentially moving out of their home or having to move in with someone else, or have a caregiver in their home, or even end up in a facility. So whenever we can kind of put it in that context, like, okay, we want you to try new things for your brain, but not just for your brain, but so that you can stay independent for as long as possible. So you can drive on your own, so you can shop for yourself, so you can do all of these things without needing to depend on someone else.

And what we found is that learning these new routines, these new rhythms for taking care of your brain health is exactly that, right? When you have to learn to cook a little bit differently, you've gotta shop differently, so you write a different list. if you prepare foods in a different way, you maybe pack foods in a different way, you go back for different leftovers, you eat maybe in a different way, chewing more thoroughly, slowing down, maybe there's different people you're interacting with. And those things are part of the treatment is how new that is. And then it's challenging. We encourage people that that's a good sign, lean into that. That challenge means you're building new neuronal pathways.

Dr. Brant Cortright, PhD
I really like that way of framing it, that you're building executive function. I think that's a better way of talking about it than just lifelong learning. I'm gonna use that. I think that's a

really nice way that people can kinda get, oh yeah, this is important. Yeah. I appreciate that way of framing it.

Dr. Heather Sandison, N.D.
Oh, I'm so glad please. It's all yours. So spiritual piece.

Dr. Brant Cortright, PhD
Yeah. That's right. So it turns out that there are a couple of different spiritual practices that have a profound effect on the hippocampus. In fact, the entire length of the hippocampus, both the emotional side and the cognitive side, where it increases neurogenesis and synaptogenesis along the entire hippocampus. And there's very few things that do that, most are one or the other. So two forms of spiritual practice are different forms of mindfulness practice and different forms of heart opening practices.

So mindfulness practices are different spiritual practices that bring us into the here and now. And these are generally classified as either concentration practices or open awareness practices. So concentration practices are where we concentrate on one thing, for example, the breath, say the breath in the belly, where you just tune into the sensations of breath coming in and going out, and you just passively disregard all other content of consciousness and just tune into those sensations.

And what happens as you do that, say for 10 minutes or 20 minutes or half an hour, is that you see all the thoughts that you have, you turn into the monkey brain monkey mind, and you see how noisy the brain is, but then after a while, the dust begins to settle and you begin to tune in more and more acutely to those sensations. And you see there's a lot of sensations down that you were never aware of before, and the sensations become subtler and subtler, and you tune into finer and finer degrees of sensation around the breath. How does that happen? You are coming more and more into the here and now. So that's one form. The other is open awareness practices where you're not focusing on one thing, but it's more like just the open sky where you are simply aware of whatever arises in consciousness. In some traditions, it's like you step back into a silent witness consciousness.

In other traditions, you simply are aware of whatever arises, not holding on to anything, simply allowing it to arise and pass away, and have the next thing arise and pass away. And again, over time, you, first of all, see how noisy things are. But over time, the noise begins to

settle down. One thing the mind can do that doesn't stir up more dust is pure awareness. Just awareness itself allows the mind to settle. And as it settles, it wakes up, it comes more and more into the present moment. And so the senses come alive, they become a more and more aware of how we're feeling, what's happening in our minds, and there's a kind of equanimity which sets in. There's a natural, just kind of peacefulness that we begin tune into because we're tuning into our inner being, our deeper being. And where peace comes from in all of the spiritual traditions is from our inner being.

That's the real source of peace. So as we tune in to that, as the noise begins to settle, we also become more and more present centered, more and more in the here and now. So those practices, for as little as 20 to 30 minutes in the morning and the evening, after eight weeks produce measurable changes in the hippocampus. Again, they used to think that it would take years to do this, but in small amounts, even, it happens very rapidly in the brain. The other types of spiritual practice are hard opening practices. So this can be like devotional prayer, this can be different kinds of compassion practices, sending compassion to myself, to my friends, to my family, to the larger world. This can be tuning into the heart and focusing on a feeling of love or devotion or aspiration for the divine. And then riding that feeling deeper and deeper into the heart. There's a number of different heart opening practices.

And these also seem to have this same profound effect on the hippocampus and on synaptogenesis throughout the brain. These spiritual practices are... This really shocked neuroscientists when they discovered this because they didn't study meditation. For years and years, I thought, well, nothing's happening. But when you do meditation, you see actually there's a lot happening. It's a very dynamic state and they were surprised to see just how dynamic it is also physiologically and how good it is for the brain. So if we can work all of these ways, physically, emotionally, mentally, spiritually, then we're gonna be cross training the brain, then we're gonna be creating this kind of radiant brain health that is gonna optimize our neurogenic rate. And once we hit our neurogenic stride, then life is a joy at that point.

Dr. Heather Sandison, N.D.
How incredible and how inspiring. Brant, thank you so much for sharing all of this wisdom. It's so much information in this that one summit. I feel like, or this one interview, I feel like this is like one of the most valuable talks that someone could hear, because it does takes

this comprehensive approach, impacts so much value into like barely over an hour. I'm really just so grateful that you're sharing your time and your wisdom. I want everyone to know where they can dive in deeper. I know you're in the San Francisco bay area and you are also on social media and available for televisits as well.

Dr. Brant Cortright, PhD
Yeah, yeah.

Dr. Heather Sandison, N.D.
So where can people reach you?

Dr. Brant Cortright, PhD
brantcortright.com, bcortright@gmail, on my website, there's ways of contacting me. And my books are on Amazon, and through the books, it also has my website on there as well. And thank you for saying that. I am really touched by your words. It's been a real pleasure to speak with you here, Heather.

Dr. Heather Sandison, N.D.
Always a pleasure. Thank you again.