Introduction to Algae and Catharine Arnston

Welcome back to the Broken Brain Toxic Gut Summit. My next guest is Catharine Arnston PhD, and when Catharine's younger sister was diagnosed with breast cancer, she set out to find the most powerful, alkaline, nutrient dense foods that could aid healing.

And what she discovered would change your life and the future of wellness. Her journey led her to algae, the world's most potent alkaline, high protein sustainable superfood backed by over 100,000 scientific studies, the United Nations and NASA, as well as the founder and CEO of Energy Bitz, Katherine has spent over 15 years researching Algae's incredible benefits from boosting energy and mental clarity to reversing aging at the cellular level.

Welcome, Catharine. Well, thank you, Jason. So glad to be here. Yeah. When I think about 15 years, I'm like, it went by in a flash. So, probably parents feel the same way about their kids.

Like, suddenly they're adults. And, I knew this was going to take me a long time, but in 15 years, I hadn't anticipated 15 years, and I've probably got another 15 to go.

Well, it's funny, because you're you're studying something. You're you're sort of like putting yourself all into this thing that most people, we just don't really consider ourselves with, which is algae.

Right? And yet it is like such a fundamental aspect of the global food chain, like if algae, if we had problems with algae, all life would be in trouble.

Right. So there's a fundamental energy source and it's also very, very unique. Yes. And it's very, very old. It was the first life on Earth, literally 4 billion years ago.

It's all documented. And, I can if we get to the point, we have time. Our mitochondria, which determine all of our health issues, evolved directly from algae.

And I have the science to prove it. So it's Mother Nature's cleanup crew on the oceans. It's Mother Nature's cleanup crew. And our bodies. It's the most nutrient dense food in the world.

And yet, outside of Asia, it's virtually unknown for its healing and medicinal purposes. We know it's a superfood, but we're not really sure what exactly does.

So, I'm here to help people understand what it does, because hopefully at the end of this lecture, you'll not ask yourself, why do I need algae? You'll say, well, why don't I need algae?

I mean, it does everything. And it's if it wasn't science based, you think it was too good to be true. But but it is and it is. And one of the reasons I, we having you on, is because I've been taking algae, spirulina and and chlorella for, I mean, at least 15, probably 20 years at this point.

Wow. That's like me like relatively consistently, you know, I've had gaps and whatnot. But, but I keep going back to it, you know, especially if anything crops up, if I'm getting any symptoms, if things aren't feeling right, going right, it's like it's one of these things that I just bring in.

And here's the reason why for me, because we're at this really cool period in time with respect to health, in my view, which is that we are on our technology, our ability for, for biologics, things like stem cells and, and and we're using AI and we have such amazing health tools that are so future based.

Right. This like next generation stuff. Right. But we also have these ancient tools. And to me this is where this is what I like to, to marry. I like to marry the new stuff that feels aligned and the, the most ancient stuff that has been around for so long because life itself knows what to do with it.

Like our bodies, know how to use this stuff. We've integrated this in such a, a deep way into our being. And so to me, this is. This is what I fall back on, right?

Things like the sun, right? And and the solar cycle.

What Algae Is and Why It Matters

It's like we can trust that life knows that for billions of years. Right? And this is one of those things. And there's not that many. And so when you find something like this that our biology know so well, this is something we can trust, to such a high degree.

Yes, you're absolutely right. And I tell people I can't take credit for algae. That's Mother Nature. But. And we'll get into this later on. I will take credit for growing it so carefully that we, make sure there's no toxins in it and that we preserve all the nutrient integrity.

Because if you use high heat to, dry algae, you, deactivate a lot of the critical, antioxidants and pigments. So I, as I explain to people, is like getting a great deal on a fabulous car, except you lift the hood, there's no engine in there.

So, but we'll get into that, as we go along. But, yes, algae is a foundational food for the world. And, I'm so proud to be helping people understand what it is.

And why they absolutely, absolutely must put it in their daily diet daily. Because and when you do, you'll notice improvements almost instantly. And it will replace a lot of things like other supplements that probably aren't being very well absorbed or doing, aren't working optimally in your body.

But let's, unwind a little bit and go a little higher level, give you a little history lesson about what algae is. And then we'll, we'll dive into the different types of algae and the two that are most beneficial and that most people may know a little bit about.

So algae, as I mentioned earlier, first life on Earth, it's all documented in, carbon dated, ice and whatever. And there's actually to, and it's everywhere and there's two main kinds of algae is, first of all, it's a food.

So it's its own food category. One category is called macroalgae. The other category is called microalgae. We're going to be talking about microalgae.

But let me help you understand what macroalgae is. It's that stringy stuff that washes up on shore, also known as seaweed, because it's only in the sea.

It's also known as also kelp. Now, it's good for you if you're if you want iodine, because anything from the ocean has iodine in it. And it has fiber, lots of fiber, but it's virtually zero nutrition.

So only in the sea, zero nutrition, lots of fiber, lots of iodine, microalgae, which is what we're really talking about today, is completely opposite.

First of all, it's everywhere. Yes. It's in the sea. In fact, it feeds the whales and the fish. But it's also in all the rivers, the lakes, the streams, the soil, your aquarium, your swimming pool.

And it's harvested as a food crop, as an agricultural crop, hydroponically in fresh water. And that's how we grow our. So yes, there is algae in the oceans, but whether you go to target or you come to us when you get spirulina chlorella, which we'll talk about, they're grown in in freshwater ponds.

This is, we call them ponds, but they're farms, so hydroponically. So, so now you have, microalgae. Now it's completely opposite to macroalgae because it either has zero fiber.

Spirulina has zero fiber because it's a bacteria. It's not even a plant, or it has a little bit of fiber like Chlorella. And it has, but it has the most nutrient density in the world.

The United Nations has endorsed spirulina for 50 years. Is the answer to world hunger, because it has the highest protein in the world, three times the amount of protein a steak or chicken or fish.

And NASA has been feeding it to the astronauts on their missions for 50 years to because of this nutrient density, we have a quote from NASA that says one gram of algae has the same nutrition as 1000g of fruits and vegetables, 1 to 1000.

We sell our tablets in, bags of 1000, tablets. And I did that, use that math, and realized one day I got some here. Yeah, one bag has the same nutrition as 551 pounds of vegetables to give you a visual.

That's about 30 grocery carts of food right here. Now, you're not getting the fiber, but you're also not getting the headache. You're also getting the waste because they go bad quickly.

551 pounds of vegetables right here. So very efficient. Nutrition. So backing up again, little some fiber or no fiber, found everywhere and harvested as a food crop, completely nutrient dense.

And, it's been studied for, oh, gosh, 100 years. Over 100 years. The, Danish in the 1800s discovered it had the highest protein. And then it evolved from there.

There's 100,000 studies documenting the, efficacy and the health benefits. We'll talk about some of them today. Spirulina and chlorella. And it's been grown for 60 years in Asia, as I mentioned, as an agricultural crop.

So, it's very important people understand that it's it's, very ancestral. Doesn't get any older than the old. The first life on Earth is when you safely by other countries, the Aztecs.

It was a main source of food. And now within microalgae, you have two main categories. You have blue green algae and you have green algae. One blue green algae is spirulina and one green algae is Chlorella.

And I mention this because often you'll go online and you'll read about a toxic blue green algae closing your favorite beach. It's not spirulina, so just be aware of that.

Now I want to also, give a shout out to algae because it's Mother Nature's cleanup crew. It only showed up on your beach because there were toxins and bacteria in the water that you couldn't see, but you could see the algae.

So it's there to protect you from the toxins.

Spirulina vs. Chlorella Basics

It does it on the beach and it goes on in your body. But it's not spirulina, it's just another type of blue green algae, because Selena's the one that's harvested as food.

And then Chlorella is one of the green algae. Now, spirulina and Chlorella are completely different algae in terms of, what they do in your body. And we're going to talk about that today because spirulina is very much a brain food algae, which I'll talk to you about.

And chlorella is very much a gut health issue. Algae. So they, they really focus on different parts of your body. So you take them at different times of the day.

And they work beautifully together. And in fact, we do sell a product that's a blend of the two of them, but they do

completely different things in your body.

And we'll we'll walk you through some of that. So when we talk about the nutritional density, what are we talking about? Vitamins, minerals, of course you mentioned protein which means amino acids which are critical.

What is it about that that nutrition that is so, profound? Yes. Well, there's over 40 vitamins and minerals. There's probably 100. We, you know, we do third party lab tests here in the United States because we only sell either through our own website image bits.com or through clinics and, you know, doctor's office, functional medicine.

So they need to know, what's in there and what's not in there and what's not in there are toxins, and what's in there is this dense nutrition, but they only test what we pay them to test.

So we're up to about 40 or 50 nutrients. But I'm, I'm pretty sure there's probably 100 or 200 because there's all these things called factors and cofactors because here and I'll get to the nutrients that a second.

The great thing, one of the great things about algae is that because it's food, all of the things that make it work best and optimally are in there. When you take supplements, some supplements you need to take with food, some not with food, some you need to take with, with, citrus fruits, sometimes some without citrus, you're away from citrus.

Near better cases with algae. You don't have to worry about any of that because Mother Nature has done all that for you. She's put in the factors and cofactors.

So the pigments in the, cart nodes, all the things that help everything that's in there be absorbed and uplevel. So when you take algae, it's equivalent of living listening to an orchestra, because all of the different instruments that an orchestra harmonize and give you a much richer experience than if you were just listening to a couple of soloists who, if you're taking separate supplements, those soloists are playing different music and they're playing different instruments, and sometimes they don't sound very good together.

So algae as food, particularly ours, which, we don't use high heat. So it's a raw food. So this is I'm talking to you people who are vegan and raw and, vegetarian.

This is for you. It's also for, anybody who's carnivore or paleo. It's for you, too, because there are no lectins or oxalates or virtually none in spirulina chlorella, which my a lot of people go paleo or carnivore because of that.

But backing up to the question, what's in there? Well, you have all of your, all of your, minerals, so, that you absolutely need. So that's the magnesium. Potassium.

So these are all your electrolytes. More importantly, you have all of your virtually all of your aminos, both sustaining and chlorella. 18 of the 20 aminos, including the nine, your body cannot make.

So they they are essential aminos and, spirulina because it has, no cellulose wall. All of these aminos get absorbed instantly, which is why it's so satisfying for your hunger.

It can get into your mitochondria quickly to help you generate that super, that, cellular energy, also known as ATP, it's loaded with all of your B vitamins.

If you've ever looked at, energy drink, you'll see it's loaded with B vitamins, because B vitamins, convert glucose. And they need those are converted to glucose into energy.

So, you have all of your aminos, all the 18 of the 20, all of your primary, minerals, B vitamins galore and very important antioxidants that aren't found in other, other foods, like one we'll talk about later today called superoxide dismutase.

I know it's a long word. It's very, very important for protecting your mitochondria from free radical damage. Now, the other thing that's in very high concentration is chlorophyl.

Chlorella has, more chlorophyl than spirulina. In fact, it's called chlorella because of that chlorophyl it. There's nothing in the world with more chlorophyl than Chlorella.

So a lot of people do take liquid chlorophyl. But, Chlorella has 25 times more chlorophyl than even liquid chlorophyl. And by the way, when you take a look at chlorophyl, that's all you're getting.

When you take chlorella, you get the chlorophyl. The are the 18 of the 20 aminos, the other 40 vitamins and minerals. And if you're ever wondering how important chlorophyl is, I'm going to show you a chart.

This is a chemical composition of your hemoglobin. And this is the chemical composition of chlorophyl. They're virtually identical except your blood has magnet or iron in the middle. And that's what carries oxygen in your blood.

And of course, chlorophyl has magnesium. High chlorophyl helps build your blood. And for decades they would give the injured or people are having surgery liquid chlorophyl because they would heal just as fast as the state had a blood transfusion.

The problem is, our soils are so damaged that, there's no minerals in the soil, so the plants don't have minerals and they certainly don't have chlorophyl.

My arugula, which I still eat, goes yellow after about day three because there was hardly any chlorophyl in the beginning. Whatever room, whoever's listening to this, whatever room you're sitting in, you could fill that room with a ruler and you still wouldn't come close to the amount of chlorophyl.

That's probably in a handful of these, the chlorella tablets, which are very tiny, by the way. The one this this one's the spirulina. It's a blue green algae. So you see, it's darker.

They're about the size of a baby aspirin. Except there's so nutrient dense that it's crazy. So very high. Chlorophyl. Very high protein. You could technically live on spirulina forever and not.

I'm not recommending anyone does, but it's just so rich with nutrients. And I will point out, once I was looking at the nutrient profile, the amino acids in particular of mother's breast milk, and I thought, gosh, that looks awfully familiar.

Sure enough, I went back and looked at all of our aminos and they're virtually the same. Amino is in the same proportion as in mother's breast milk, and we know mother's breast milk is the perfect food.

So spirulina and chlorella are number two. Wow. Yeah. And it's funny, I was about to pull out some of these, these energy bites here. And, you know, when I take chlorophyl, I just, I love, taking a handful, you know, ten, 20, whatever it might be, and just throwing in my mouth and chewing them because it's going to turn my mouth like this, bright green.

And for me, I mean, like, if I was going to go out in public, it would look ridiculous. But when I'm at home, there's an aspect, there's like a satisfaction I get from just like having this massively green mouth and green teeth because it's just like, wow, look at that.

Like, there's so much in there for me. It's just a reminder of like how powerful this stuff is. I can drink some water and you have some other food and it goes away like it's no big deal, right? It's not.

Doesn't stay in your mouth forever. Yeah, but I just love seeing how much this is. Just. There's so much green in there, so. Course. But let's talk about chlorophyl. Let's talk about the benefits of it.

And also maybe some of the, the I would say almost warnings. And I say that in a good way, because it's so powerful that if somebody is very toxic and they have a lot going on, you can overdo it in my experience, because of how much this works.

Right? Yeah. So yeah, it's not that you have to be super careful. It's just there's a little bit of mindfulness. You can't

just because ten might be good doesn't mean 50 is good for somebody in one dose. Right.

So there's a there's also something that we got to be mindful of.

Nutrient Density, Chlorophyll, and Bioavailability

They're on a sort of therapeutic. Yeah as well. Absolutely. So because most people are undernourished and so there's so much concentrated nutrition, just to give you an idea, I these microalgae, they're called microalgae because they're microscopic in size.

You can't see them. And I've read somewhere that you could get a I'm not sure if this is true or not, but I did read it. You could get a million microalgae on the head of a pin.

That's a lot of microalgae. So when you start consolidating it into these tablets, you start to understand this density again. NASA says a thousand times more nutrition than anything else.

So maybe this is a good time to talk about the two different algae, because, chlorella is the one that, people could have some detox effects, but, spirulina we've we've really never had a red any, issue regarding that.

Now, we, as I mentioned earlier, we do sell a product that's called vitality, which is a blend of the two algae. And I encourage people not to start with that because you may find that you like the spirulina better than the chlorella.

And if you don't start with them separately because you'll feel differently from them, you won't know that. So I usually start people on spirulina. Unless, of course, detox is your number one issue.

Now, why do I start them with spirulina? Well, almost everybody wants more energy. Almost everybody that I'm aware of would like to lose a little bit of weight.

Almost everybody seems to be, suffering from brain fog, particularly if you're over the age of 40. Almost everybody is concerned about their, not getting a chronic disease.

That's what spirulina will do for you. We call ours energy bits because it gives you energy. It has nutrients in there that will protect your brain and basically wake up your brain.

So we're giving you energy. We're satisfying your hunger because of the high protein. Also it's loaded with essential fatty acids more than Chlorella.

Omega three is in there. But there's another one called GLA that acts like an omega three. Now it's technically an omega six, but because we don't hit it, it behaves like an omega three.

So you have the high protein, the essential fatty acids, all of the B vitamins that convert the aminos into energy. And then you have this stuff called superoxide dismutase that improves the, operation, the activity of mitochondria, which generate your cellular energy and energy.

And it has a blue pigment. It's called blue green algae because it has two pigments, chlorophyl, which we've talked a little bit about, and a blue one called phi cosine, and which is spelled with a y y quoi, which also speeds up the, what's called the ATP, which is your cellular energy.

So all of these things give your body, give your brain more energy, and you don't have to wait long. If you took 10 or 20 spirulina in half an hour, you would be, now it's, you know, it's not a it's not a stimulant. So you're not going to feel a rush of energy because it's at the cellular level.

It's like putting a log on a fire. Very, very steady energy. When you take a stimulant like caffeine, sugar, it's like putting paper on a fire. You get a burst and then you get a crash.

So I also say to you that once you start affecting things in the mitochondria level, in other words, you're you're improving the electron transport chain, the ability to make ATP and energy.

That means you're going to communicate with your own DNA better. There's going to be less reactive oxygen species at the cellular level. You're going to make hormones better, right.

So you're going to detoxify better for detoxifying at the cellular level. Right. You're right inside a cell. That cell does everything that our whole body does.

It digests that detoxifies. It communicates right. It sends out warning signals. It makes energy. So like when you start improving things at that level, everything improves.

Everything works better. Absolutely. And I tell people I and everything you eat affects your mitochondria. Also your circadian rhythm affects the amount of light, the amount of sleep.

So I like I you know, I'll digress momentarily the things people say, well what do you do to stay healthy? Well, it's basically everything that's free or almost free because we have a discount code.

You get well, get, get check out that real quick too, in case people are interested. What is that? Yeah. Bebe TGS, which stands for Broken Brain, Toxic Gut Summit, bbt GS energy Boots.com get to 20% off.

And when you use the discount code, you buy the large. Say you take ten tablets a day, which is what we usually suggest people start with. It costs you a dollar a day, so it's not expensive.

But the other things that are my foundational things that are all free sleep. Sleep cost you nothing. Movement to get skin out there for a walk. You don't have to go to do CrossFit unless you want to just move, get out into the sun.

Maybe not a high noon for long periods of time. Sunrise is best. Get the red light into your into your, into your eyes, into your skin. Not only for the D3, but because they they also energize your mitochondria and and by the way, that blue tint actually absorbs red light, right?

Like that's what's cool. People are taking methylene blue, which is a chemical. And look, there may be some advantages to that, but this is a natural source of this blue tint, this blue pigment that absorbs red light.

Right. So this is a it's a really cool combination. Yes. And in fact I was just on Dave asked for his podcast and we we did a little bit of a deep dive into that methylene blue versus phi cosine.

And he agrees that he's the one that mentioned that it's a chemically made product that actually overrides your natural body's, electron transport chain and phi cosine and is a natural product that works with your electron transport chain, doesn't override anything.

And it's from nature. So he and I both agree, it sounds like you two, to the things that come from Mother Nature, like this blue pigment, are pretty much always going to be better for you.

So if you like methylene blue, I would, I would, just suggest that you look into the additional benefits that you would get from, from the blue spirulina.

And I will say there's downside risks, and that's only blue. There's actually a lot of research now coming out saying, okay, there may be some benefits, but there may be some downside risks too.

So, you know, again, this is what happens when we have these artificial things is that we kind of have these side effects. We have these, you know, we can overdo it.

We miss the the ball. Right. And when it comes from nature, things tend to be pretty well dialed in. Yeah, yeah. Dialed in and your body knows what to do with them because that's the thing we didn't mention.

Is that so bioavailable, whether it's the protein, the amino, the, minerals, everything gets absorbed, particularly in spirulina because it's a bacteria.

So there's no work for your body to do. And in fact, I found this great chart that, you know, in a publication, I can send it to you. The publication is called Marine Drugs, and it's this whole great article about spirulina and all the amazing things that it does, and it shows all the different places in your digestive tract where it gets absorbed, it starts getting absorbed in your mouth, and then a small amount gets absorbed in your stomach, and then a larger amount gets absorbed in your small intestine, a larger amount gets absorbed in your, lower intestine.

And this is where all the, the, good bacteria are. And of course, everything ultimately gets fed back into the, the, portal vein, which leads to the brain.

So this and the, is part of the reason why the gut and the brain get so connected and why spirulina is so perfect because it's it's like making it's like, going on a highway with tollbooths, but it's but the tolls are good for you, so it's paying a toll in your in your mouth.

It's paying a little bit of money to your stomach. It's a paying a little bit to your Lorentzian, upper. And so every it's like leaving little, little pixie dust everywhere it goes.

Spirulina for Energy, Brain Health, and Mitochondria

So it's healing and nourishing all along the way. So it's pretty, it's pretty cool. But and one thing to go with when it comes to, you know, the bioavailability when a lot of people have, you know, brain symptoms, they're often going to have gut symptoms even if they don't even realize it.

In other words, oftentimes when we have depression, anxiety, you know, foggy thinking, we don't we're not breaking down our food. We're not digesting.

So there's there's an aspect of digestion that is weak or poor. So in that instance, what we want is something that is really easy to digest. We want something to be bioavailable.

And those amino acids that come from protein, those if they're easily, broken down and assimilated, then that's going to make everything that much easier, right?

So that that becomes a really, really important factor for somebody that has, you know, inhibited digestion. Well, in fact, I think almost we're getting to a point where it seems like the vast majority of people do have digestive issues if you're on medications, if you've been eating too much dairy, too much, too many, carbs, if you're traveling too much, you're not exercising.

There's a thousand reasons. And then also very often you're constipated and we'll get to the constipation because that's chlorella that will help with because that's a gut allergy.

But yes. Spirulina, you'll notice the improvement in focus, within half an hour, certainly if you chew it and, if you chew it, it's within minutes. But most of all, do swallow.

I will admit, most people do swallow the spirulina. This swallowed wholly me without chocolate. Yeah, because it's so chewy. But it still gets into your bloodstream very, very quickly.

And then it does do all these, it gives you all that energy satisfies your hunger. If you on on GLP one, please take it. Because when you're, on a GLP one or on a very restrictive diet, you're not eating well.

Your body is making cells every nanosecond, and it needs building blocks. You can't you can't build a building without, you know, the cement and everything that goes into the structure.

If you want a healthy body, a healthy structure, healthy brain, you need to be giving it building blocks. And spirulina

has the nutrients that give you those building blocks.

So and as I say, you can swallow them if you don't like the taste, if you swallow them. By the way, there's absolutely no flavor and no repeat. It's not like fish oil.

So, if you don't like the flavor, you're good to go. It just just open your mouth. Start with ten. 20 will give you a, a better experience. 30 is really for, therapeutic amounts or lunch.

And they're both spirulina Chlorella, by the way, are ketogenic. There's zero carbs. They do not break a fast. I do intermittent fasting every day. I love it.

I use the spirulina chlorella throughout the day, and then like around 4:00 or somewhere, I have a full meal. So really great. If you're doing intermittent fasting and it makes the fasting easier because you're not hungry, you're still able to focus and once you get you into a rhythm.

So, so that's, that's that's when, why we suggest most people take the spirulina in the morning or the afternoon that 2:00 slump. Perfect time to have another 10 or 15 spirulina, one calorie per tablet, by the way.

Or before a workout. So anytime you're feeling fatigued, hungry, brain fog, you'll get, a boost, you know, within half an hour. But to your point, Jason, it also starts feeding the mitochondria.

And this, the way that your, your cellular energy, as you mentioned earlier, is created through this thing called the electron transport chain and spirulina and chlorella.

But mostly spirulina have nutrients that improve the the speed of the way that the energy is created. So you just get more of it and it's more efficient.

And then the way I want why I want to mention the efficiency is because carbs, processed carbs, cause more of the because what you're electron transport chain is sort of like a relay race.

And the way it works on a relay race, you have a runner who passes the baton to the next runner, who passes the baton to the next runner. They want to cross the finish line well, in your electron transport chain.

Your runners are actually these molecules, whether they're called proteins. And instead of passing a baton, they pass electrons and the speed at which the electrons get pass and the efficiency generates the, more or less of this, cellular energy called ATP.

Now, when you start to, have too many carbs or you're stressed or too many toxins are in your body, which this is about everybody, the mitochondria start expanding.

What happens to things now? Those runners are farther apart from one another, so they can't make the pass very well. So the electrons don't get passed, which means your energy drops because they haven't been able to complete the pass.

The other thing is those dropped electrons don't just disappear, they leak out into the mitochondria and become free radicals, which damage the mitochondria even more.

The mitochondria DNA. So it expands even more until basically it explodes. And then, then you have what's called necrosis, which means you've left, you've lost that mitochondria as a source of your energy.

Think of your mitochondria as lights in your bill and an office tower. You can't do any work if you don't have any lights on. So if you have a power shortage or your light bulbs just go out, you're kind of out of luck.

Same with mitochondria as you hit 40 and after 40 particularly they get damaged. It's like the lights in your building going out. So you have less and less cellular energy to think.

That's why you get brain fog to to do activities. That's why you get fatigue. That's to, operate optimally. That's why you can't sleep. That's why you put on weight.

It's all because your poor little mitochondria have become damaged and are dying, and you just don't have enough of them to to help you think clearly, work clearly, digest clearly.

But the good news is we can help you with that because there's a nutrient called superoxide dismutase that normally protects your mitochondria from these free radicals, and your body makes it for you from the moment you're born until the age of 30.

And then it slows down. And at 40 and after 40, you virtually have none. And what this superoxide dismutase does is when those free radicals that are being released as a byproduct of your ATP production, which happens automatically, it's sort of like having a big golf umbrella.

If you get stuck in a rainstorm and you have one of those golf umbrellas, you pop that thing up and you're protected from the rain. You can probably get 5 or 10 people under your umbrella, right?

You haven't stopped the rain, but you stop getting wet. Superoxide dismutase is the same way, does not stop the rain of free radicals, but it converts them into oxygen and water so they don't damage the mitochondria.

Now you have this big golf umbrella until the age of 30, and then by 40 it's about the size of a toad's umbrella. And by 45 and afterwards, it's about the size of a cocktail umbrella.

And that's why your mitochondria get so damaged and decreased in quantity after the age of 40. And 45. That's why metabolic disease goes through the roof at that age.

That's why your brain is a working. That's why dementia kicks in depression. All of these. Because here's thing your brain has the most mitochondria. Brazil I have some science that shows there's 2 million mitochondria.

Purcell in your neurotransmitters 2 million. So when those lights go out in your mitochondria, guess what's going out. First, your brainpower, your ability to remember your ability to process thoughts.

That's what's causing, all of these health issues. There's a great book by the doctor, Chris Palmer, called Brain Energy, and he's a psychiatrist. He's, professor at the medical school at Harvard.

And his entire book is about how all brain related issues, post-traumatic stress disorder, depression, Alzheimer's are all due to damaged mitochondria in your brain.

And spirulina and Chlorella to a lesser extent, have the highest concentration of this stuff called superoxide dismutase. So when you take it for a hunger or energy or, you know, athletics or whatever, you are still getting this superoxide dismutase, which goes straight into the mitochondria and protects them so they can start growing again so they can improve their energy again.

And literally it's like turning the lights back on in your brain. And it happens naturally. Pretty cool. Absolutely. Yeah. I mean the mitochondria are our everything.

I was talking to a mitochondrial researcher, in Europe and he said he said to me, there's no disease in which mitochondria are not implicated. So very many condition.

And mitochondria are, are affected. Right. In other words, that the mitochondrial DNA, the mitochondria, as you mentioned, when they get damaged, right.

They're a little sort of bacteria like organelle that have their own DNA. So those get damaged, the cell cannot function. And and that happens enough.

We're going to start to see symptoms. In various tissues. So really, really important to keep, our mitochondria healthy, and give them what they need.

The other side of that is the gut, right. So for me, these are the two pieces in this sort of the longevity space that I always try to focus on was how do we improve the gut and the microbiota, and how do we improve the mitochondria?

I ironically, or perhaps not, we have basically microbes. You know, mitochondria are kind of like a microbe that we adapted into ourselves. They have their own genetic code, and we have these microbes in our gut that have their own genetic code.

And we are our DNA. Our human DNA need to be communicating with all three of these. So that's a three way communication, right? When any or all of these start to get out of balance, fatigued, disrupted our health decline.

So these are the two components. And now that kind of leads me into chlorella. So this is this is a really powerful one. So what is it about chlorella that is so beneficial for the gut deliver the whole gut ecosystem.

Absolutely. Well, as I mentioned, spirulina is a bacteria. So, Chlorella does belong to the plant kingdom. And in fact, I designed all the packaging. So on the package, I put a plant so people would know that is a plant is delina is a bacteria, and it came from the ocean. So.

So it's, chlorella. It does belong to the plant kingdom. Why is that important to know? Well, it has fiber in it. And in fact, that fiber, that soil as well is the heart of, say, as well in the plant kingdom.

Chlorella for Detox and Gut Health

And why is that important? Because it attaches to toxins, heavy metals, glyphosate, pesticide, all that know metals, aluminum, lead, alcohol, lactic acid, anything that your body, shouldn't have it in there.

That's that's dysfunctional. It attaches to them and and removes them. So it's called chelating. A lot of people are familiar with activated charcoal.

I'm not a big fan of that. Because it will pull out all minerals and can leave you dehydrated. Chlorella will never do that. In fact, it's loaded with all those same, electrolytes that spirulina has, so you'll never have that problem.

It only pulls out the toxins. So that's number one. The hard cell wall removes toxins of any kind. So it's like a binder. And by the way, maybe you look in the, you know, some you'll see on some other chlorella that it says cracked cell wall.

So this is what you're talking about, right. We need to crack that cell wall ahead of time to kind of unlock the potential here, right? Yes. So because it is so hard, it has to be cracked and the FDA has regulated that any Chlorella sold in America must be cracked cell wall.

And it makes sense because it's so hard your body could not get access to the other 40 vitamins and minerals that are in there that we want you to be able to benefit from, like high stripped van the world, which is a precursor to melatonin, which helps you sleep, 40 vitamins and minerals.

The 6,060% protein is a little less than spirulina, but yes, it has to be cracked cell wall. So the Chlorella hard cell wall is a binder. That's number one. Number two.

But fiber also feeds your gut biome. Your gut needs healthy bacteria so they can create what's called short chain fatty acids and encourage the healthy bacteria to grow in your gut, not the unhealthy.

And so that's what chlorella does for you. It also has the highest chlorophyl in the world. We mentioned this earlier. It's got 25 times more of the liquid chlorophyl, 500 times more chlorophyl than a regular.

And these are numbers from the Linus Pauling Institute's website, chlorophyl. As I mentioned earlier, build your blood, but it also kills bacteria everywhere.

If you do it like you do in adjacent, it's killing it in your mouth, but it also then travels through your gut, through your colon. A lot of there's a lot.

And, the incidence of colon cancer has, gone up. And so chlorella would help, you know, prevent that because of the ability to, the chlorophyl is very cleansing and killing bacteria.

So I want to clarify this. I want to clarify this, too, because it doesn't work like an antibiotic. Now it's wiping out our microbiome. It's actually balancing.

And if there's any imbalances, we have pathogenic species starting to, accumulate or build up or become imbalanced. This will help naturally balance the biome and bring it back into a healthy function.

Absolutely. So. And yes, so it feeds the gut biome. The healthy bacteria to to help you be healthier. It also has the highest glutathione out in the world, which is a, detoxing, nutrient, particularly for your liver.

So, and it glutathione is also a master antioxidant. So high of thought on the world actually has the three precursors that create glutathione in your body.

So that's really important. It also, for whatever reason, it's the chlorophyl, the glutathione, the fiber. It stimulates what's known as peristalsis, also known as a bowel movement.

I refer, because I tell people, look, it it's not just critical. It is critical to put the nutrition in that your body needs, but you've got to get rid of what I call the junk in your trunk, too.

You've got to detox in your body. Detox is four ways sweat, breath, urine and bowel movements. And a lot of people are constipated. And if you aren't having a regular bowel movement, which should be every day, it's like having a garbage truck parked in front of your house permanently.

You don't want that. So chlorella stimulates bowel movements. It does exactly what vegetables would do. And so I tell people, if you take chlorella every day, if you don't like vegetables, you don't really need to eat anymore, because what do vegetables do?

They give you phytonutrients. They give you fiber and they help you have that movement. What does chlorella do? It has fiber phytonutrients and helps you have bowel movements.

Problem solved. And I want to say something to on that because, you know, vegetables are this kind of double edged sword for a lot of people. You got to figure out which ones you actually tolerate well with your Constitution.

Some are better raw. And we want those enzymes and we want those the access to those very low, the sort of living food, but some vegetables we actually need to steam or cook because otherwise they're too irritating for, for most of our guts.

Right. So vegetables are kind of a tricky one. A lot of the time I'm not saying they're bad by any stretch, but I think there's a misunderstanding with this idea that they are always good because they're healthy.

Vegetables have compounds that are trying to prevent, you know, you and I from eating them. Now, some of these we've learned to assimilate and we work well with and some are still kind of a little bit toxic to us.

And they can create problems. Whereas spirulina and rather chlorella doesn't have that. And it's still raw. Right. Like you because you're not treating and pressurizing it.

It's still raw. And here's what I noticed. Not everybody's but ours is. Yeah. And I'm going to I want to I want to talk a

little bit about poop. Okay.

So, what I've noticed is that when I take these on a regularly, my, my bowel movement is more full. It's not hard and compacted and like, you know, you don't have that that, that issue.

Getting it out. But it's nice training, you know. Exactly. It's nice and full. Right. And this is important. Like you want I don't know what they say is like soft banana, soft banana texture.

Right. That actually coils up in the, in the, in the toilet. Like that's what you're looking for. And when you see that, that's a healthy sign that your bowels are functioning in a really good way.

And we're sweeping out some of that build up that we get in the, in the intestinal walls. Right. This is a really good thing. Yeah. A good poop is a is a very good indication of, of good health and, it's funny that we're talking about that because honestly, it's, it's a, it's a miracle.

It's so many people are constipated and, you know, it's it's a it's a real problem or they have the opposite. They have diarrhea loose and very. Yeah, yeah. That's problematic. That's, maybe, you know, chlorella has been used for decades to help with people with Crohn's or IBS because it has this blend of the chlorophyl, the, the bacteria, the fiber, the, the, you know, the bowel movements.

It's it's unbelievable what it will do for you. And it does it all naturally. So, and don't be worried if it looks dark, your poop looks a little darker, and people thought maybe it was blood in there.

It's just a dark green. It's just right. Because, the chlorophyl only gets absorbed a small amount in, in different places, and then it moves through your colon with the stuff that I call the junk in your trunk, so that you don't your body says nope.

Thanks. Don't need that. Thank you very much. And it's it's the sweeping, out of stuff because you don't want it sitting there because your blood will circulate around the colon and pick up the toxins and redeposited them into your cells, and we don't want that either.

So, I just I should call it poop bits if I wanted to. I mean, I'm never shy about talking about bowel movements because I once I really learned how important that was to understanding my own health, it became a focus.

And. Look. Yeah, it seems weird. We've we've made it, taboo to talk about in our culture. But at the end of the day, we all do it, and we all need to.

We need we need to understand what's happening. And and it's it's one of those things that we can monitor on a daily basis to tell us what kinds of foods are beneficial, what kind of imbalances are happening, what what might be going on that are going to lead to ill health.

So it's it's critical. And look, I think we're all human. When we have a good bowel movement it's great. Right. Like it's just a good thing. Right. So the more that we can make this a regular occurrence and again you know, because we're it's it's bit by bit part of the kind of light.

Yeah. And is it's it's we're making progress. It we can actually restore the healthy function of the gut. Right. So it's like it's not like this is a Band-Aid that we're applying over and over again.

No, no, there's actually healing happening while we're taking this that really. Yeah. And the other thing people may or may not be aware of is that your immune system, which is your body's first line of defense to viruses and diseases and toxins, is pretty much in your gut.

80% of that immune system requires healthy bacteria. So it's it's really, really it's your first level of defense. It helps you recover from, your day, from alcohol if you're drinking still, because it pulls it, identifies your body, converts alcohol into toxins.

So it literally removes the alcohol straight from your bloodstream. And you are sober in an hour and a half, and you will never have a hangover. If you're an athlete.

It identifies, lactic acid as a toxin. So it removes the lactic acid so you don't have what's called Doms, which is the late onset muscle soreness the next day.

And so all of these things are going on, in your body that you're not even aware of, but chlorella up levels, that and the other thing that you need to know is your body goes through a repair cycle when you are sleeping, when you're getting your beauty rest, that's when all the the hard stuff, that's when your construction teams are repairing the old streets.

Same thing in your body. It your repair cycle requires you to be in a deep sleep. Chlorella number one has the highest tryptophan, which is a precursor to melatonin, so it'll help you get into that deep sleep.

It also facilitates repair. It has something called Chlorella growth factor, which speeds up the growth of your of your, cells when they're repairing and stimulates, stem cells release the chlorophyl is killing bacteria.

The hard cell walls are pulling out aluminum out of your brain and lead out of your eyes, out of your cells. And so everything is, know, getting cleaned up while you're getting your beauty rest, and they're all gets deposited down in your colon and boom, you've got that nice, you know, trip to the bathroom.

So it's very, very important to take chlorella before bed. You can take it any other time of day. I do throughout the day I put sea salt on mine or I eat it with pistachio nuts.

But, I don't care how you take it. Definitely take it before bed. Now, for detox purposes, you do need closer to 20 or 30 for the immune health and general, wellness.

Ten would be sufficient, but you need to have that 20 to 30 per day. So can you bring that up in ten tablets? Ten tablets, ten tablets. But well, for chlorella you really need the full 20 or 30 at one time for the detox benefits.

But I can promise you it tastes like, well, qualifying delicious depends on where you where you are, but it tastes more like a soynut or a sunflower seed.

Most people, especially when I put sea salt on it. Or pistachios. My favorite is a salt and vinegar flavor. They love it, and if you mix it with macadamia nuts, it's like eating potato chips.

So now you know you don't need melatonin at night. Take some chlorella now you will go to bed and you will feel refreshed, cleaned out. I say we take a shower in the morning every day to clean our bodies.

Taking chlorella every night before bed is like giving your body shower from the inside. And the average adult in North America apparently now has 800 toxins in them, and most of them have not been tested.

And even if they were tested, they were tested in isolation. We don't live in isolation, so all the a little bit of toxins from the air, a little bit of toxins from your, emfs, a little bit of toxins from the planet or microplastics, they all layer onto your, in your body.

And the way what happens in your body, you get too many toxins, your cells can't communicate. So nothing works well. And your cells have something called cell receptors.

So they are looking for a particular nutrient so they can help get it into the cell.

How to Use Energy Bits and Final Takeaways

But if you have too many toxins it's like they've they've moved in and they they've stolen the parking spot where the nutrient is supposed to get in. So even though the nutrients are getting in, they're not moving into the cell.

The chlorella will get rid of that person. Those stoled your parking spots like the, the, you know, the, the truck that comes along and, whatever. So now the nutrients can get in so they work as a team.

It's nutrients in, toxins out. That means more nutrients can get in and more toxins get out. So it's a it's a two step. Yeah. This is this is definitely one of the things that I love because everybody can take this right.

Spirulina are beneficial for the elderly. They're beneficial for people who are sick, who have brain issues, gut issues, who have, autoimmune conditions beneficial for children.

Right? In fact, I'm and I'm glad you brought up the chlorella growth factor. I wish I had the study, available, but I recall seeing a study that looked at, children's development and the children who got Chlorella growth factor had like 20 points higher IQ.

And I forgot how long that study was. But after I saw that, I immediately started giving my my young one chlorella growth factor in, because it's going to support his neurodevelopment.

So this is something that everyone can take. Everyone should take in my opinion. And it's, it is one of the most cost effective, efficient ways of getting all these amazing things.

So, Catherine, this has been fantastic. Thank you so much for coming on and educating us on all these little details. Please tell us where, people can go to get these energy bits and also just remind us of the discount as well. Yes.

So our main website is and or our only website is energy. That's e n e r g y b for boy, I t for Tom. As for Sam, by the way, we call them energy bits or recovery bits is the chlorella because they're bits of food.

There's nothing else in there, nothing added, nothing subtracted. It's the way food is supposed to be, just 100% nutrition. So they're little bits of food your kids will love them.

Yeah. Instead of giving them a PowerBar before a soccer game, give them a bunch of spirulina and then give them some chlorella, before bed. And like, we were talking about children so they can have any amount but generally we say give them half of their age or up to half of their age.

So if they're ten, give them 5 to 10 a day. If they're four, give them 2 to 4 a day. But our, So they're great for kids. Your pets will love them. Oh my God. Yeah. Great for pets. Brazy.

So you drop a few on the on the on the floor. Just be aware. Never leave your bag, unguarded on the on your counter, because I they will leap up to that and they will eat the entire bag.

The animals are smart. They know what's good for them. So. So give your pets the same opportunity to heal themselves. I the 20% discount code again is b b t g s which stands for Broken Brain Toxic Gut Summit b b Teague's.

It works on everything. We have large bags of remember the chlorella is the wellness one and the gut health one. Spirulina is the blue bag of blue green algae for your brain and your mitochondrial health.

But we also have fun canisters that open up that you can shake them out and then you replenish with the bags. We have, little travel size boxes. But anyways, just come to our website even to read our blog because we, we publish every month, a blog with lots of science references.

We're very active on social media at Energy Bits is our handle. And I'll just leave me with one final thought. Algae isn't new. It's just new to you. And, as I mentioned earlier, the Aztecs used it 250 years ago as a main source of food.

The gypsies wrapped themselves in to that, for all the health benefits. And you didn't know about until someone in

America helped you understand what they were.

And provided you with a, safe source. That's what we do, because we're known for having the safest, highest density algae that you can get. So it will give you full value, but it's not new.

But, it's not grown here, which is why you don't really know about it, but we're trying to change that. So, give it a try. I promise you, you will not be disappointed.

It will save you money, save you time, maybe save your your life, quite honestly, because of the, So our. We're in such a crisis right now, so we want to help everybody get better.

Yeah. And I've been taking this stuff for 20 years. And once I came across your guys's product and read, all about the importance of the quality that you guys put in this, it made for a very easy switch, so.

Yeah, yeah, I can I can speak to, the benefits of this stuff. I've been, Yeah. You know, it's been benefiting me for so long. Yeah. And, again, it's just it's not something that is really that difficult.

So, again, go to energybits.com. The code is BBTGS. And that'll get you 20% off. So again, Catharine, thank you so much for being on the break. Thank you everybody. Be well.