Opening on Gut Barrier and Microbial Trickle

We do have a trickle of microbes, of bacteria, pathogens and normal flora too, that flow across the gut barrier into the bloodstream. And this is happening all the time to everybody.

When you have dysbiosis, when you disrupt the balance of normal Flora versus pathogens in the guts, then that trickles becomes a flood of pathogens. That's one way that treatments of Lyme disease, if you're not careful, can actually disrupt the gut and aggravate your situation.

Hi, and welcome to the LyME Bytes podcast, where we shine a light on the misunderstood science of lyme and other vector-borne diseases, as well as the truths that many still miss.

I'm Dr. Mariah Hinchy, naturopathic physician and fellow of the Medical Academy of Pediatric Special Needs. I specialize in treating chronic Lyme disease as well as other complex inflammatory conditions.

Podcast Introduction and Guest Welcome

In this podcast we break down what's working and what not. We share the facts that most people miss, we challenge outdated thinking, and we give both patients and practitioners the tools to heal smarter.

So let's get into it and change the way we heal Lyma. Welcome to another episode. I'm Dr. Mariah Hinchy, and tonight I have the pleasure of talking with Dr Bill Rawls about how Lyme and tick-borne diseases affect our microbiome and gut health.

Welcome, Dr Rawl. Great to have you here. Please introduce yourself and tell us a little bit about you fell into treating chronic tick borne diseases.

Yeah, you fell in this right on spot. It's, um, I don't think most people choose that. it chooses them. And I was trained conventionally. I chose to practice obstetrics and gynecology because it dealt more with wellness and bringing life into the world.

So it was really wonderful, but it came with this obligation of covering hospital labor and delivery and emergency room. And in a small town, that was every second to third night.

Dr. Rawlsu2019 Lyme Journey and Recovery

And so I spent 20 years of my life mostly sleep deprived because when you have that kind of call obligation that keeps you up most nights when your own call and then trying to balance out with being active in community and being a good dad and husband, you know, it's just those things get shorted along with all your other health habits.

And by age 47, I crashed. But just stopping obstetrics and taking more time to sleep didn't fix me. I had just a range of symptoms. Cardiac symptoms, gut symptoms brain symptoms joint symptoms my whole body was falling apart.

The conventional specialist I saw really couldn't explain it. The most they could give me was a diagnosis of fibromyalgia, which really doesn't get you anything but treatment of symptoms.

And I just kept thinking, you know, it's got to be something else, and kept pushing until I finally found that I was carrying the Lyme Microbe Borrelia.

Then I thought, this is it, I can take antibiotics, get well, be back on my feet. But I didn't have acute symptoms. I had chronic symptoms, and I've come to appreciate that what we define as chronic Lyme disease is very, very different

than acute Lyne disease.

And it doesn't respond well to the types of antibiotics we Um, was in a situation where I really couldn't travel to pursue care and ended up, um, using herbal therapy and got my life back.

Not just like a little bottle of herbs off the shelf at the grocery store. I was ordering specialized botanical extracts and taking just handfuls of, of herbs and gradually got in my back and over a five year period.

big learning experience, all my symptoms gradually melted away. And I've been well ever since. My life's pursuit since that time has been really understanding why the herbs work and what this thing is that we call chronic Lyme disease.

Yeah, thank you for sharing your story. Thank God you got better because I know you are helping thousands and thousands of people recover in the same way that you did.

Well, like so many others like you, you know, we give back and you take what you learn and try to make it available to anyone else that might be able to benefit.

Yeah. And that's the whole point of what we're trying to do here. So thank you. Let's talk about what impacts Lyme disease has on our gut health and microbiome.

Yeah, well, when we say that word microbiome, a lot of people immediately think about the gut. But microbiomes is basically all the microbes that inhabit your body or a part of your And we have to respect that, you know, our gut is walled off from all the rest of our tissues.

The gut lining keeps the food and microbes contained. So they're active in there, but they are often active independently of us. our skin microbiome. So we have different microbiomes in the body.

We have our gut microbiom, skin, microbioma, of our sinuses, nasal passages, you know, and all of these microbes are different.

Microbiome Basics and Bloodstream Microbes

I mean, there's even evidence that The microbes you have in your left armpit are different than the microbes in the right armpits, which is really interesting.

But all of these things are outside of our tissues. And what my interest has been is what is being defined is the tissue and blood microbiome that we actually have microbes that slip across these barriers, across the gut, the skin, and the sinuses, enter the bloodstream, along with all the other foreign things we pick up like tick-borne microbes and respiratory infections, anything that makes it to the constantly happening and it turns out that our bloodstream for microbes is more like a freeway than this sterile calm place.

Microbes are constantly coming and going and of course the immune system has to manage all of that. But some of those things slip by and end up in our tissues, our brain, and heart.

our joints everywhere. And it's not just one microbe. What they're finding is that we have microbes throughout our body, if we are healthy. If our cells are healthy, then these things can stay dormant and they can say dorm it for a lifetime.

It's only when they react, become reactivated that we have symptoms. So the gut microbiome is feeding that and other parts of the other microbiomes in the body are feeding.

That so all of that is relevant in that way. And how does getting a tick-borne disease infection sort of break that balance and push someone into a situation where they no longer have healthy cells and the cells can no more protect themselves from all of these different microbes?

Are you ready to transform the way you diagnose and treat complex chronic inflammatory illness? Because what if everything you've been taught to treat separately is actually deeply connected.

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So join us in Pompano Beach or from anywhere in the world. Don't get left behind. Register now at limebites.com. That's L Y M E B Y T E S dot com. Often it doesn't at all.

Okay. You know, when you look at. All of the tick-borne microbes, whether you're talking about Borrelia, Bartonella, all of those things that you hear about, they are all low grade pathogens.

And a lot of people really raise their eyebrows and are surprised to hear me say that. But how you define as a pathogen is the ability of that bacteria virus, whatever, to cause severe acute illness.

So Ebola is a severe pathogenic. That's a high-grade pathogen. Smallpox, that's high grade pathogens. So when you look at everything out there, SARS virus, it's medium to low grade pathogens.

How Tick-Borne Infections Reactivate Dormant Microbes

The mortality associated with Ebola, about 60%. Small pox, even higher than that. COVID, about 1%, about one percent. So it killed a lot of people because it infected so many people all at one time, but the actual mortality was 1% or less.

Tick-borne microbes, pretty close to zero. tick-born microbes do not kill people acutely. The chronic manifestations make ill people. They don't kill people acutely.

The win by stealth. So their motive is not to make you severely ill. Their motive to have a place in your body to hang out and wait for another host. Very interestingly, when I was researching my book, Unlocked Lime, I came upon evidence that a person, a human, thought out of a glacier in the Italian Alps that was 5,300 years old, lived to the late 40s, had some arthritis, wasn't in perfect health, but this guy was crossing the Alpes.

He had Borrelia, the Lyme microbe, and his tissues. This guy was crossing the Alps. And that just shows what happens with, in a lot of cases, that these things can enter the body and they do it very stealthily.

They bypass the immune system. The immune systems mop up a lot of the microbes, but if you get through, and if they can enter tissues and enter cells, they become dormant inside cells and just kind of hang out and wait.

And when our health is compromised in other ways, That's when we become sick. Um, that's, when these things reactivate, but it's typically not just Borrelia, not Just Bartonella.

It's Epstein-Barr virus and all the things that we know to measure and 10 times over that, maybe even a hundred times Over that. So we do have these microbes that you know, the science is showing more and more.

We have These things That are dormant in our tissues, tick-borne microbes can become dorman in Our tissues. And it's not until we do that other things happen.

I've interviewed thousands of people over the past decade and 95% of the people that I talk to. do not remember becoming ill around the time of a tick bite.

Yeah. I use the analogy a lot of times with my patients where it's like, you know, it is the straws on the back of the camel, right? And the camels, the immune system.

And it s like there's finally just too much of an overload and that's when you have this huge change. Yeah, yeah, absolutely. And so it's other factors, you know, years of a bad diet, sometimes a perfect storm of stress factors of mental stress, my wife left me my office, I got fired from my job, and my house burned down and that happened all at once.

Or I had a battle automobile accident and ended up in the hospital recovering for two or three months. Those kinds of stresses seem to precipitate reactivation of these microbes.

And then what the microbes are doing when they reactvate is they want to create a food supply. So they start breaking down the things that you talk about.

They use enzymes and inflammatory cytokines when the immune systems break down our tissues, our cells, and to the create food source to grow more microbes and when that starts happening, It's like a pot boiling over that just feeds itself.

And that can affect everything in the body, including that gut microbiome and everything else. Yeah, absolutely. And then there's a lot of things when you're trying to treat these infections that can cause further disruption of the microbiome all over the body.

Would you like to comment on that a little bit? Well, there is that delicate balance of that gut that is so important. Everybody talks about the immune system, but we actually have four levels of defense.

It's really important to recognize all four. So the first level of defense is barriers. The gut lining, the skin, and the lining of our sinuses. And what those things are designed to do is keep microbes out of your tissues.

But those barriers are leaky. Things are constantly making their way across these barriers and getting to our bloodstream.

Defense Layers: Barriers, Immunity, Cells, and Flora

So our backup system, and it's really most important for acute infections, is our immune system that's managing these things that are sometimes a trickle, sometimes of flood, of not only things are part of us, from our gut and our skin and sinuses, but also respiratory infections and tick-borne microbes and everything else.

So our immune system is the backup plan. So that's a second level of defense. Our third level is our cells. A lot of people might appreciate that our brain cells, heart cells and all the cells in our body have the ability to expel or destroy microbes.

They use a process that is called autophagy that a cell uses to rebuild itself. Well, it's also how it gets rid of microbes. So our cells can defend themselves, but all microbes, and this is a really fascinating thing to study, all microbes they're finding have the ability to become dormant.

If conditions aren't favorable for the microbe to grow, then it just goes into a quiescent dorment state. And it can stay like that indefinitely. If you look at all the microbe mass of all microbes on earth, 60% of them are dormant in any given time.

So that dormancy is a key thing that microbes use. And you have to think about it that bacteria is like a hundred to a thousand times smaller than one of our cells.

A virus is whole lot smaller that that. bunch of microbes, a bunch bacteria inside your cells, but if they're dormant, the cell just keeps running on the organ.

So that fourth level, third level is our cellular defense, and then the fourth is normal. We have bacteria in our gut, on our skin, other places in the body that protect us from pathogens.

So we all have these opportunists that are there just waiting to digest us, to cross into our bloodstream, everything else. And our normal flora keep them in check by secreting substances that suppress growth of these other microbes.

They don't do it for us. They do because they want all the food to themselves in the gut or on the skin or anywhere else. And so they're suppressing their competition.

It just works for, for we've had this long standing relationship with them and it's kind of like, okay, yeah, we're going to let you hang out there because you're doing us a favor.

And so our immune system doesn't attack them. So it's a really interesting balance, but they're easily disrupted. Antibiotics, stress, there's so many factors that can disrupt that gut microbiome.

And once you do that, you lose that defense. An interesting study that I came upon, this was a study in 2015, is that they found that we do have a trickle of microbes, of bacteria, pathogens and normal flora too that flow across the gut barrier into the bloodstream.

And this is happening all the time to everybody. When you have dysbiosis, when you disrupt the balance of normal Flora versus pathogens in the guts, that trickles becomes a flood of pathogens.

So that's one way that treatments of Lyme disease, if you're not careful, can actually disrupt the gut and aggravate your situation. Because then not only have you got reactivation of the Lyne microbes and all the other things that you've got picked up in your tissues, you have this flood of pathogens coming in from the guts and layering on top of that.

So, yeah, you have to be really careful about not disrupting that gut balance or the gut scan, any, these microbiomes that exist outside of our tissues.

Right. So it's a really delicate balance because it is a double-edged sword, right? How do you get rid of an infection without using means that disrupt the microbiome?

And not only the micro biome and the normal flora that helps to protect us, as you just explained, but also that can exacerbate the breakdown of the tight junctions, for example, in the gut.

And then allow all of these toxins and pathogens to actually enter into systemic circulation, causing more toxicity, oxidative stress, et cetera. And it just seems like a vicious cycle that starts feeding itself.

Are you suffering from Lyme disease or another complex chronic illness and aren't sure who to trust when it comes to herbal supplements? Hi, I'm Dr. Mariah Hinchey, founder of Lynecore Botanicals.

As a naturopathic physician specializing in complex, chronic, infection-driven illnesses like Lymedisease, i needed herbal medicine I could truly trust.

That's why I formulated Lymencore botanicles. where our herbal tinctures are handcrafted in small batches right here in Connecticut. We use the whole herb, never isolates, to preserve the full spectrum of medicinal compounds.

Every single step from sourcing to extraction is done with precision to ensure maximum purity, potency, and consistency. These are the same herbal formulas I used to heal myself and have used for years to help my patients and family members heal too.

Dysbiosis, Gut Disruption, and Lyme Treatment Risks

And now I'm making them available to practitioners and patients everywhere. Lyme Core Botanicals. Herbal medicine you can trust from a doctor who lives this work.

Learn more at lymecorebotanicles.com. It does. And yeah, that's why you have to be really careful about using antibiotics. I think there is a place for antibiotics and Lyme therapy, but I it has to really be used very judiciously.

When we get right down to it, antibiotics do a, what they're designed for are to kill fast growing pathogens, things that are growing really fast. So somebody gets an acute pneumococcal pneumonia, those bacteria are invading the lung tissue and they're growing very fast.

Their doubling time is roughly about 15 or 20 minutes, so they are moving. And antibiotics depend on that fast growth to kill those bacterias selectively.

It's not that they like that we can target pneumococcal bacteria, what we're targeting with an antibiotic is fast growing bacteria. They're growing a lot faster than normal flora, but still with prolonged use of an antibiotics, you're going to start killing your normal Flora too.

Their medium growth, they're not turning over as rapidly. Let's look at what's the doubling time of Borrelia, the Lyme microbe. 12 to 24 hours and then if it's dormant inside a cell you're not going to get it at all.

So that presents a real problem with using antibiotics because to kill those bacteria you are going have to use those antibiotics for months on end, whatever therapy you have you're going to have to do it for months on end to get rid of that bacteria.

And you always run into the problem, two basic problems. You're gonna disrupt normal flora, which are allowing pathogens to flourish in the gut, and you are going create antibiotic resistance in those pathogens in your gut.

So you kind of get a double whammy. That limits the use of antibiotics. I think what everybody focuses on when they're trying to solve the problem of Lyme disease is how do I kill the microbe that's making me sick?

How do they kill that bacteria that is making sick. I have to find the bacteria and kill bacteria so I can get well. And the first thing they turn to is what they know, which is antibiotics, but it's not a good choice.

choice. It's not a solution that fits the problem. So first of all, there's always a lot more there than we can test for when you look at this bigger issue microbiome.

And second, they're all going really, really slowly. So one thing that I'd like to emphasize is it's not about the microbes. It's about restoring the ability of the body to contain the microbe.

And part of that is suppressing this overgrowth of bacteria and other microbes that are reactivating in your system. That thing is shifting your body toward breaking down your tissues to create an environment that favors micro growth.

you have to restore the ability of the body to contain that thing, and that's really important. Yeah, I think that is a vital point in all of this. So I'm going to pause for a second here.

Before we conclude this complimentary part of interview, want to give you the opportunity to let patients know where they can find you. and what you have going on.

So if you any upcoming events and then we're going to get back to this discussion and we are going dive much, much deeper and I want to hear from you really how you think we should tackle this problem.

Go ahead and tell everyone that's listening where they can find you and how they find find. The best way to find me is through the website vitalland.com.

I'm medical director for that company and that's where I do most of my work as far as the content I put out. You know, we build supplement protocols, but also educational programs for people.

Vital Plan, Herbal Therapy, and Restoring Balance

I also have a new book out called The Cellular Wellness Solution that you can get at any bookseller too. But those are the main places. Our goal is to restore the ability of the body to take care of itself and keep those microbes contained.

The ones in our tissues that are being reactivated, not just tick-borne microbes, but everything else. I mean, think of all the people that are tested and they find Epstein-Barr virus and mycoplasms and chlamydia and all these other bacteria, they didn't get those from ticks.

They picked those up as kids. they've been dormant in their tissues just like the tick-borne microbes and may become reactivated when everything else does.

but it's well beyond our ability to test. The spectrum of it is really pretty mind-boggling. How do we go about doing that? Part of that is suppressing the microbes, but how do you do that without disrupting the gut floor and what's going on in the got and really making a mess there?

Because so many people already have compromised gut function just from the stress of chronic lying disease. That may be aggravated by years of poor diet and everything else, but so it's a big deal.

What I found to be the answer is herbal therapy. It just really, really makes a difference. And more and more evidence is pointing to that. All plants have antimicrobial properties.

They have to. Every living organism has to have anti-microbio properties, And that's even including bacteria, have to defend themselves from other bacteria.

Funguses have defend them from bacteria and viruses, and plants do. We have a cellular immune system that was part of our evolution. Plants use a biochemical system to solve that problem.

So essentially plants immune systems is a very sophisticated bio chemical system. And that system is designed to protect the plants cells from Invasive viruses, bacteria, protozoa, yeast, virtually everything, because plants are having a lot of the same threats that we are.

Some plants have particularly good antimicrobials, and it really depends on the microbe stress that's present in that plant's natural environment, you know, how robust a system it's building.

So we know that a lot of herbs have really good antimicrobial properties. And that's been my interest in just looking at this thing and how we can evaluate this system for Lyme disease.

But the key thing about herbs is it's not a single chemical like an antibiotic. It's a spectrum, this robust spectrum of hundreds or even thousands of chemicals that are affecting microbes not one way, but in dozens of different ways that is suppressive.

So it's a really interesting system, but like our immune system. Our immune is selected for pathogens, that spares our normal flora, right? Let's do the same thing.

That system affects pathogens but doesn't affect normal Flora. And that's actually been documented in scientific studies, which is really fascinating.

It's something that I observed throughout my whole recovery. You know, antibiotics would wreck my gut in two weeks. And I started taking these really potent herbs thinking, well, I might get two week out of it.

Good luck. But that didn't happen. My gut actually improved the whole time I was taking herbs. Wow, this is pretty fascinating. Years later after observing this and so many people actually found somebody took the time to document and then to study.

but they don't disrupt normal flora and antibiotic resistance or resistant bacteria is unknown with herbs. It doesn't occur in the same way that it occurs with an antibiotic.

So we've knocked down those two problems. That opens us up to consider, well, maybe this is something that we could use for months or years to suppress these things.

But the really great thing is it's not just the antimicrobial properties you get. The herbs are also protecting cells of the body, throughout the bodies, and they are protecting the cells from free radicals, toxic substances, virtually every stretch we can think of.

At the same time, a lot of our herbs have immune modulators, they're balancing immune functions, so they reduce those inflammatory cytokines. the microbes are using to drive tissue destruction.

And at the same time, they're blocking enzymes that are affecting ourselves and affecting the ability of microbes to invade ourselves. So the herbs are doing all these wonderful things all at one time.

That allows us to use them as this foundation of therapy to do what we need to. And again, at the same time, they're suppressing pathogens in a gut and allowing our pneumothorax to recover, which is exactly what we need with all this stress.

They also reduce our stress hormones. And yeah, it's just really fascinating to see all the ways these things work. It is, it's amazing. And I love how all of the different constituents in the herbs work synergistically, right?

So not only are you not having side effects, but you're having Side Benefits, which is just wonderful. I loved this conversation so much. It does a lot of fun.

So I like to think about it like if you went to see a symphony, you go hear the Christmas pops and you walk in and there's one violin. And that would be nice.

I'm sure the music would beautiful if the musician was talented, but you add in the other strings. and the brass and all the other parts of the orchestra, and you have this sound that's just so much more than each of individual instruments.

And I think of herbs in the same way. That synergy is each herb's benefits are enhancing the benefits of other herbs. So when you combine them, you just get these wonderful effects.

Yeah, I couldn't agree more. And I think the, you know, the great thing is, is that when you're using herbals, why look at it as you are more, your rebuilding the body, right?

You're restoring function to systems, You are restoring health, fixing the immune system and helping the patient to heal.

Why Herbs Outperform Antibiotics for Chronic Lyme

while you're using the various antimicrobial actions of some of the same exact herbs to slowly shrink that infectious

load. And it's kind of like the infectious loads going down while the quality and the health and functionality of patient is going up.

you know, and then in the end, once you've restored their health and balance, their body can actually hold all of those infections that you have been talking about kind of in remission, put them back into their dormancy.

Yeah, it's true. It is really cool to see how nature works. And it is just so far beyond what we are technically capable of. I just think it so important for people to consider that boost from natural therapy.

There are so many other things that have value that you can do, but building that foundation with herbal therapy and other natural therapies I just think is exceedingly important to really get where you want to go.

Yeah, I do too. Anything if you had to, you know, give one piece of advice to patients that are listening, what would it be? Yeah it's that same thing.

Don't focus on killing the microbe as much as restoring your body's ability to keep all of your microbes in check in that internal tissue and blood microbiome that we're going to be hearing more and more about.

That's so important and one of the most important things that I think you can do right up front is starting to take a really good regimen of herbs And there's so many herbs that we have so much evidence for right now.

It's really important. And beyond that, you know, just doing the things that you need to do to restore your health, healthy diet, low stress, getting enough sleep, all of these things are so remarkably important, they're not easy.

Taking herbs comparatively is really pretty darn easy But the more you're doing, and I think building that foundation is so important, I see so many people, And I get it, you know, You get desperate.

Nobody likes to be sick. nobody likes symptoms. And you just want to go somewhere and say, hit me with something that's going to make me well. I'd get that.

But so, many, people miss those obvious things that they need to, be doing that are so and they go directly to invasive and often expensive therapies that sometimes come back and actually make their situation work.

Yeah, you know, with chronic tick-borne disease, I would say it's one of the few diseases or conditions where, like, there is no magic pill. You know there's no magical pill that's just going to make the pain go away.

There's not magic pills that are just gonna fix the brain fog. or your heart palpitations or thyroid issues or depression and anxiety or insomnia or fill in the blank because it affects every single cell and system in your body.

I think we could all learn a lot from these infections. A lot about our bodies and what our body needs to heal because there isn't any simple solution when it comes to Lyme disease.

It's like you've got a almost be in it for the long haul and be willing to make these lifestyle changes. Change your nutrition, change your outlook. There's so many things and then that in conjunction with using all of these wonderful herbs just really helps someone to get like on their healing journey.

Yeah, absolutely. I think those things are always important. But it's interesting, I would say at this point in my journey, I would confidently say that if you understand what's driving chronic Lyme disease, you fundamentally understand, what driving every chronic illness.

It's fundamentally the same thing. Different microbes, slightly different stress factors, but that's what is driving illness and what we're not doing in our conventional system.

for chronic illness is addressing the underlying causes that are driving the illness. We're just chasing the symptoms. And that's why people don't get well.

So my stepping point is to say, okay, let's take everything that we've learned with Lyme disease and let start applying it everywhere else. Because if we do these things, we can start getting a handle on all of chronic illnesses.

I'm excited. I haven't read your book, but I am going to now. You and I had had a conversation a while ago, and the takeaway that I walked away from that was thinking, I wonder if someday we're going realize that almost every condition is caused by some sort of microbe in the body.

Everything from all of our mental issues to physical issues, you know, some virus, bacteria, fungus, Some microbes, right, that's changing our biochemistry and driving it.

We are much closer to that than you might know.

Healing Foundations and Long-Term Recovery

I've been following the world's literature for years, scientific literature, and those connections are there, but they're being ignored by conventional medicine predominantly because they don't have anything to treat it.

They don't have any tools to treat it. Antibiotics don"t work. Drugs don' t work, and if you don t have tools, to feed something. I mean, this is the big deal with chronic Lyme disease.

This is why doctors don´t want to mess with it, because they dont understand it and they dont have anything to treated with. And when you are confronted with something like that, you just want it to go away.

Yeah. So again, we understand chronic lyme, yes. And yeah, so when you look at Borrelia, the microbe associated with Lyme disease, it's been connected to dementia, Parkinson's, breast cancer, virtually everything, but expand outside of that and look of these other things that we're calling co-infections.

Bartonella has been found in various kinds of cancer cells. Babesia shows up in odd places. Chlamydia, mycoplasma, Epstein-Barr, and these are just the ones that we know about that were commonly tested for.

So what I'm finding is there's a whole lot more and what we don't understand is the full scope of all the microbes that can potentially be in our tissues in a dormant state and the possibility that some of those things are actually symbiotic and they actually may be important for ourselves to work properly.

So there is still a lot we have to learn but those connections a chronic illness, 20% of cancers are now absolutely connected with a microbe. I think sooner or later that will be a hundred percent.

They have been able to, it was an interesting experiment that they took an algae, which has eukaryotic cells, cells like ours, and they were trying to define what causes cancer.

So they exposed this algae to all kinds of carcinogens and all these toxic chemicals and stuff. And the algae just died every time. No cancer. Just died.

But then they took the allergy and put it in a closet so it wasn't getting sunlight. That stressed the cells. And then, they exposed it to an intracellular bacteria that's common in that algae, that exists in the algea even when the alga is in healthy state.

They exposed the stressed cells, the stress algae cells to that bacteria. turn to cancer every single time. And what they found was that the bacteria was inserting its gene for unregulated growth into the genome of the cancer and causing it to have un-regulator or unrestricted growth.

So you think about it, that's the connection. All of our cells have restricted growth, When you look at a heart cell or a brain cell, you can't have that thing just dividing randomly.

It has to be in a very, very restricted control growth that's defined by the genetic program inside the cell. All bacteria

have unrestricted growth. So long as this food's present, they'll keep right on growing.

Throw them in a Petri dish full of food, eat all the food and they keep growing at the expense of all life around them. The fact that when our cells become cancerous, the take on unrestricting growth like a bacteria, and then you start looking at all these microbe connections, you can't not think that there has to be a microbe connection.

And then you look at all the different tumors and cancers that they started finding intracellular bacteria, including Borrelia, but a whole lot of others inside cells.

Even there was one study that was talking about different tumours have different intracellular microbiomes. So yeah, it's pretty fascinating. But The herbs, they can protect you.

All herbs have anti-cancer properties. Every herb that I've studied, somebody's looked at it and found anti cancer properties along with the antimicrobial properties, so definitely something we should be paying attention to.

I could not agree more. You're speaking my language. Thank you so much for joining us. Once again, would you please tell the audience where they can find you and about your books and anything else that you would like to leave us with?

Yes. Again, I'm medical director for our company called Vital Plan, that can you find me and information about me at vitalplan.com. And yeah, and my latest book, The Cellular Wellness Solution.

Thank for having me. Thank you so much for being here and thank all of you at home for watching. We'll be back soon.