Cytokine Storm Survival: Breaking Free From Chronic Inflammation Transcript

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Introduction to Galectin-3 and Lyme

Hi everyone. Thanks for joining me. I'm Doctor Mariah and Shay, and today we're going to be talking about how to calm your cytokine storm. More specifically, we're going to talk about galectin three and recovering from Lyme disease and how the two are related.

So we're going to start by talking about toxins dysbiosis and Lyme disease and toxins, including heavy metals like lead, mercury, cadmium to name a few, drive neuroinflammation and have a negative effect on cognitive function, behavior and neuronal alterations.

And this is going to aggravate Lyme disease as well as other chronic inflammatory disease symptoms. So we know that toxin exposure is directly linked with gut bacteria alterations including for Mickey D's and Proteobacteria.

Now, when these become altered, they can drive gut neuroinflammation. And this microbial imbalance can cause neurological impairment, including cognitive and memory and mood disorders.

So I know that most of you that have heard me speak before on healing Lyme disease know that after a certain point, I really don't believe that Lyme and co-infections are the underlying cause.

It starts out that way, but these stealth bacteria are so good at manipulating our immune system and causing immuno in comp incompetency by altering our terrain and driving inflammation that they actually create all of these other underlying causes in the body.

And so for us to be able to restore our immune competence and my ultimate goal is always to normalize and recover the immune system. We have to figure out what pieces of these puzzles, what part of the terrain and the biochemical pathways in the particular patient's body have been altered.

And then how do we go in and fix them while shrinking the overall bacterial load? So a lot of this inflammation is driven by an up stream alarm called galectin three.

And all of this is really what allows Lyme and co-infections to evade the immune system and thrive inside of the body. So I want to remind everyone of the role of the GI system in detox.

So if you look at this picture here and it's broken down into thirds, the first third looks at a very healthy gut and we can see that everything is intact.

Toxins, Dysbiosis, and Leaky Gut

We have beautiful micro villi and a brush border and everything, and we are keeping all of the, bacteria and toxins outside of the gut. And we are only letting in fully digest food, nutrients and things that are supposed to come in through these very, competent, tight junctions.

And then we can see, due to different toxins and microbes and inflammation, when dysbiosis sets in, we have a breakdown down of the border. And we have a breakdown specifically of these tight junctions.

And then we start to let in some of these toxic and undigested, antigenic food particles. Things that should be kept out of the gut are now getting in.

And this can lead to an inflammatory response and eventually autoimmunity. So one of the big points here to know is that if you start working with someone and you start trying to kill microbes inside of their body, whether you are using herbs or pharmaceuticals, if they have leaky gut, you are going to cause more toxicity and more

inflammation.

So we have to work on healing the gut and healing those tight junctions and restoring that selectively permeable barrier before we start trying to kill things, because otherwise the LPs is going to come across this border and activate nuclear factor Kappa Beta and kick off the whole entire inflammatory cytokine cascade, as well as bring toxic toxins in systemically.

And your patients are going to suffer with Herkimer reactions that they're not going to be able to continue doing their protocol without taking a pause, because often they're so severe.

So we always have to remember that the gut is really the crux of elimination when it comes to detoxification. And we have to make sure that it's functioning optimally.

And I would say, you know, as optimally as you can get a gut to function that has an inflammatory infection living inside it and the rest of the body.

So we kind of have to do a lot of this at once. So like I said, we have the presence of LPs from various bacteria that are dying, obviously from Lyme disease as well.

And that's going to stimulate nuclear factor Kappa Beta, which then increases, tumor necrosis factor alpha, interleukin six, interleukin one beta, and we have all of this stuff coming through the leaky tight junctions coming into the portal vein, into systemic circulation, and really coming in contact with our various organs, causing damage, causing cell damage, causing oxidative stress, and just really getting into like this vicious cycle that doesn't stop and ultimately ends up making us hospitable to these infections.

And we can see here where galectin three, which I'm going to talk about in a little bit, how this actually perpetuates all of this by enhancing this entire cytokine cascade.

So what is galectin three? It is a master alarm protein that responds to danger and so this cell danger could be infection. It could be injury. It could be stress.

But the bottom line is that it drives inflammation. And it does generate collagen nervous tissue many many parts of the body. So in the initial stages it's going to activate or I should say sorry in an acute instance.

So when we have an acute infection or injury galectin three is actually doing a good thing. It activates the initial immune response. So it calls all of the immune cells in and it instigates, their recruitment and infiltration to the sites of infection or to injury so that it can help it to heal.

It initiates proinflammatory and fibrotic signaling cascades again to help it heal. But when galectin three stays elevated chronically, it is going to fuel the immune dysregulation and suppression.

It increases inflammation. It causes fibrosis, cancer growth, metastasis, organ failure. Biofilm formation again enhances the cytokine storm and can lead to subsets.

So having galectin three elevated chronically is not good. And it's going to fuel the fire. So this right here is a picture of galectin three. But it's in its monomer form.

So it's just a single little monomer. And what happens is is this. And here is called the carbohydrate recognition domain. And it has a binding site for ligands.

And ligands can be numerous things. You can see this whole list here. Some of the things that were very surprising to me was actually to see collagen for Avastin.

Glucosamine can droit in didn't surprise me about the LPs. The type of polysaccharide, but any of these things can bind. And then what happens is, is activate set.

So again all the way over to the left, you see the galactic three monomer. And when the ligand binds into that carbohydrate recognition domain it actually makes an active galectin three.

And tomorrow. And so these pants are Mars will bind to the cell membrane receptors and form this galectin three lattice. And this is the actual scaffolding or the backbone that is formed for biofilms.

So really it's like this pilot light that keeps this inflammation. It's like just the source of keeping the flame going that ignites this uncontrolled inflammation.

Immune dysregulation, ation, mast cell activation, biofilm formation and really triggers almost every debilitating Lyme symptom that we see. So not only does it drive all of these symptoms and all of this inflammation, but it allows pathogens to evade the immune system by being the structure of these biofilms.

So galectin three levels have been seen to be higher in patients with mycotoxins illness, including damp building syndrome, those exposed to black mold.

And this again is going to fuel the uncontrolled inflammation, biofilms and immune dysregulation. Galectin three levels have often been found to be higher in people with a heavy metal burden.

So a lot of these things that we see as comorbidities with Lyme and co-infections, we also see even in dependently as causing higher galectin three levels.

So that might be one of the links. So also super important. So MMP nine the matrix metallo protease nine is a collagen ace. So it breaks down collagen and it breaks down the extracellular matrix.

Right. Which is what allows these pathogens to move through the body and break down our joints and connective tissue to release the nutrients, especially with lime, that they need to feed.

How Galectin-3 Drives Inflammation and Biofilms

MMP nine also disrupts the blood brain barrier and causes leaky brain and leaky gut. And of course, this is going to cause that redistribution of toxins back into the body instead of out through, you know, a bowel movement.

UN galectin three also drives the cytokine storm hawks dimer reactions and activation of the LPs. It increases mast cell activation, causes high histamine levels.

It drives allergic inflammation, asthma, airway inflammation, and of course, autoimmunity. Additionally, it's going to cause the neuroinflammation that we see causing the common cognitive deficits as well as Alzheimer's and dementia.

So again, in an acute infection, it's important it acts as the alarm that calls all of the immune cells in causes that initial inflammatory response a little bit of fibrosis to heal an injury or to combat an infection.

It's when it becomes chronically elevated and acts like that alarm that never turns off, where it continues to drive inflammation as well as adhesive pro fibrotic and proliferative pathways that cause immune suppression, where it really becomes a problem.

So galectin three will prevent immune surveillance by crosslinking T cell receptors and cd40 five by binding glycans. It suppresses adequate immune responses by blocking T cell receptor activity.

It also decreases T cell signaling and inhibits dendritic T cell and natural killer cells function. So it does a lot of negative things that actually fosters an infection, becoming chronic.

So this is a closer look at the same galectin three lattice that builds the biofilms. And really if we look at the foundation of biofilms we can see that it's actually the adhesion of Borrelia.

And other pathogens that cause biofilms that are basically, enhanced by galectin three. So not only by its structure, but by kind of like binding and calling everything together.

So when it happens in the extracellular matrix, it exploits fibrinogen, laminin, glycol, amino glycans. When it happens on the cell surface, it uses integrins.

And it goes through these different stages, of maturation where finally it's like it gets so big that some of the bacteria start coming out and escaping and going active again.

So it's important to note that this isn't just responsible for the biofilms for these, vector borne diseases like Lyme. This also is utilized in like dysbiosis.

So we have when we're immuno compromised or when we've been on a lot of antibiotics or when we're really inflamed. And we have the overgrowth of opportunistic bacteria in the gut.

Now, those opportunistic bacteria are able to exploit galectin three and make their own biofilms. So a lot of times it's not just Lyme for example, in the biofilm.

It's like now we have all of these other pathogens hiding in the biofilm as well. So we have viruses, fungi, parasites, etc.. And this is a vehicle now for all of these things to avoid the immune system.

But another point that I didn't bring up. Yeah, is that this is a place for all of these things to hide and actually avoid medication. So a lot of the pharmaceutical, medical antibiotics cannot penetrate the biofilm.

And so even though you've taken them sometimes for months or years, if you have not broken down the biofilm, that medication is actually not getting to those organisms at all.

Therefore it's not killing them, it's not getting rid of them. Okay. So galectin three is upregulated in compromised intestinal epithelium and it binds to the pathogenic bacteria viruses fungi, parasites sites and allows for this tissue adhesion and immune invasion.

When you also have compromised tight junctions. Again it's going to allow for the translocation of pathogens, immunogenic food particles and endotoxins.

And so we're going to have this upregulate lation of these foreign particles entering into systemic circulation causing systemic inflammation. Central nervous system symptoms.

And you are definitely going to have an intensifier. Horkheimer reaction. So you're going to have them more severely and more frequently. So really it is galectin three from an upstream standpoint that is fueling the cytokine storm.

And mast cell activation. So specifically the following cytokines are upregulated by galectin three. So this is chemokine ligand six interferon gamma.

Interferon gamma induced protein ten. Interleukin one beta. Interleukin one alpha. Interleukin six. Interleukin eight, interleukin 17, tumor necrosis factor alpha, nuclear factor, kappa beta, and MCP one.

So I will point out to you that these are pretty much you know, especially nuclear factor, kappa beta, TNF alpha, interleukin one beta, interleukin six, interleukin eight are the main cytokine as seen in a lime infection, but also in damage from an ongoing long haul like spike protein from Covid damage.

So I don't want to necessarily say long haul, because who really knows what the mechanism of action of of long haul even is? But we know there are studies that show that we have these prolonged, elevations of a lot of these same inflammatory cytokines.

So galectin three, is going to perpetuate this. So in summary, galectin three forms the backbone scaffolding for the biofilm structure. It's going to promote the adhesion of pathogenic microbes to epithelial tissues.

It's going to shield the pathogens from immune surveillance as well as drug therapies. It drives cycles of dysbiosis to systemic inflammation. And it causes a rise in our response to our toxic body burden.

Infections, stressors and other inflammatory triggers. So it's really like the pot stirrer. So we can block galectin three with a specialized type of modified citrus pectin.

And so before I get into it modified citrus pectin. Really well actually let's start with pectin. So pectin is huge. It's 100 to 300 killer Daltons. It's not ingestible.

It stays in the GI tract. We do not absorb it. Modified citrus pectin in comparison, is extremely small. So it's gone through this modification and ification process where it's less than 15 kilo daltons.

It is digestible and it actually can be absorbed systemically so that it can work systemically, not just in the gut. And that is the key difference. So if we look over here at our little activated galectin three pants armor with the ligands attached, and then we see modified citrus pectin induced or introduced, it has a stronger affinity for that carbohydrate recognition domain.

And it kicks the ligand out. And when this happens it busts the tumors back up into monomers. And that actually helps to break down that lattice. So I kind of hinted on this earlier.

But basically the modified citrus pectin inhibits a critical step in the biofilm host adhesion. And so whether we're using adhesion adhering sorry to that extracellular matrix or to the cell surface, it starts with the ligand activating the galectin three the Act and three making the Panama's the tumors making the lattice.

And then this cycle starts where it starts to kind of like glom onto fibrin actin, laminin heparin to Corrine and glycol amino glycine glycans. And it makes like this sticky 3D EPS that basically everything just gets to hide.

And when it's doing it on the cell surface, it uses integrins, can draw and sulfates, proteome glycans and mucins. And so this modified citrus packed in the specialized type is the most researched galectin three blocker.

And it actually attenuates these effects. So not only does it stop the tumors in the lattice, but it stops all of these adhesions as well. So there are studies in vitro that shows that modified citrus pectin supports or supported the microbiome balance.

And it showed antimicrobial effects against multiple strains of staph aureus, including Mars, which is pretty impressive. And then it had, a synergistic effect when when using the combination of PAC to Sol and SFO tax team.

So there's another study that showed the anti adhesive and endotoxin reducing effects against E coli. So it showed that it enhanced lactobacilli growth.

It had an anti adhesive effect against the Shiga toxin producing E coli. And it inhibited it from binding to the cells. And remember things have to bind to cells to gain entry.

And it also had a reduction in the cytotoxic history of the Shiga toxin itself. So in summary modified citrus pectin is going to bind to galectin three.

Modified Citrus Pectin as a Galectin-3 Blocker

It's going to disrupt the biofilms which is going to expose toxins as well as the infectious organisms. Luckily, the modified citrus pectin can actually bind some of these toxins, including LP s and heavy metals, specifically lead, mercury, cadmium, arsenic, modified citrus pectin defends against pathogenic gut bacteria.

It enhances lactobacilli growth. It supports a healthy immune system activity, and it promotes a healthy immune or sorry inflammation response to injury or infection.

So there's also some studies that show that it is protective to the blood brain barrier, and that it actually prevented disruption of the blood brain barrier with post aneurysm, subarachnoid hemorrhage, it prevented post SRH early brain injury.

And it inactivates MMP nine so that you don't end up with that increased great, brain permeability that you get a lot of times after, a head injury, head trauma, etc.

there are studies that show that it improved learning and memory, and then here are super important for dealing with a similar reaction. So for those of you who don't fully understand what a Horkheimer reaction is, when you kill a bacteria, or even a fungus like Candida, they release their endotoxin.

So as you kill them with lime for example, their outer membrane, little piece breaks off. It's called LPs or lipopolysaccharide that binds to GL actin three and activates it.

And LPs all by itself is already inflammatory. But when it binds to galectin three, you get that double whammy. So you're going to have an upregulation of neutrophil production and resulting inflammatory cytokine cascades.

This is going to then lead to leaky gut endotoxin translocation. The toxins come systemic. It's going to cause systemic inflammation detox overload increase symptoms.

Also oxidative stress cell damage organ damage etc.. So modified citrus pectin actually can bind to the LPs as well as to galectin three. Okay, I'm going to show you some studies that show that it actually decreases two of the primary inflammatory cytokines interleukin six and interleukin one beta, which is obviously an integral part here of the Horkheimer reaction.

And, you know, if we've been taking it all along and working to heal the gut, we're going to have less permeability in the gut and therefore less endotoxin translocation.

So, you know, I'm not one of those doctors that likes to start and stop protocols. I really, really don't. And I used to be one of those doctors that said, you know what?

If you can push through it, push through, and I still don't think we should be stopping, so to speak, I think we should be doing everything in our power to mitigate or herkes, though, because we actually are causing real inflammation and doing real damage.

It's not just like, oh, for some reason symptoms are getting worse. It's like, no, the patient is becoming inflamed and toxic and acidic, and we need to intervene and deal with those three things to help to resolve the herkes so that we don't make the patient worse.

And by the way, all of these things, when a Herkimer is happening, it's actually making the body more hospitable to the infection. So it's helping that infection not only to survive but to thrive.

Okay. So these two stat or this one study here showed that modified citrus pectin reduces pro-inflammatory cytokines. So this is what I was just referencing.

So we can see a significant reduction in interleukin one beta as well as LP as in the modified citrus categories. Versus the control. Same with interleukin six.

So a decrease in both interleukin one beta and interleukin six using modified citrus pectin. There is another study that showed that modified citrus pectin, binds with heavy metals.

Again, mercury, arsenic, lead and cadmium. And it doesn't disturb the minerals, which is so important. So it's a

binder. But I consider it to be a weak binder.

And I see that in a good way. So these metals become trapped in the fiber and then they get eliminated. So here is, another study that was, done on children, and it was showing, the ability for, for serum levels of, of lead to go down in response to the use of modified citrus PAC ten.

So there were some, seven children. They all had blood levels greater than 20 UGS per DL. There was no prior ki lation or detoxification for three months leading up to the study.

They were given 15g of PAC to salt orally and three divided doses per day for one month. After that one month period, there was a decrease in serum blood levels of lead and there was a dramatic increase in the urine lead levels, an increase of 132%.

As far as how much was being excreted in the urine as far as how much the blood serum levels went down. It went down on average 161%. So pretty significant.

And you can see here, in the graph for each patient before and after. So if you can't read it, the green is before the red is after treatment. And it shows for patient one patient to patient three patient for extra okay.

So then there's another study showing the effects of PAC to Sol on urinary excretion of toxic metals. So this had eight healthy subjects. Again they were given 15g of modified citrus pectin or pac de sol divided into three doses over five days.

And on day six they were given 20g. They did a 24 hour urine sample, and they collected them on day zero 1 in 6. And so you can see here, that there was a dramatic decrease in the blood levels of lead.

So again, a decrease of 161% and an increase in the urine of 132%. So this is the same study just now showing you the different metals. So there was another study showing the difference between using modified citrus pectin alone.

And then also in conjunction with alginate to remove heavy metals. So this was a clinical report of five case studies and PAC to Sol professional modified citrus pectin was used alone or in combination with alginate for three, six, 9 or 12 months.

What they found was that it helped to progress civile remove lead and or mercury, as measured by sequential urine challenge testing. There was an overall improvement in symptoms and an enhanced response to therapies that they were doing at the same time.

And this was contributed to the reduction of the toxic heavy metal load in one patient who was a 64 year old woman who had toxic metal exposure, she did the Pac de Sol metal detox for two months and decreased her lead level from highly toxic to an undetectable level, and also decreased her mercury by 83%.

And I will tell you, for me and my comfortability, especially when I'm working with someone who is so sick and has so many different things going on in their body, the last thing I want to do is to be ripping heavy metals out of the cells and chelating someone faster than necessary.

So I love this study. I think it shows the power of using a weak key later, and a weak binder over a reasonable amount of time to get very effective results without running the risk of exposing our vital organs to all of these heavy metals.

When we do, you know some more of the invasive, like IV calcium EDTA or DMs, say type of qui lation. And I'm not knocking anybody out there that does it that way.

I'm not. I'm just saying with the amount of things that a lot of these complex chronic illness patients are dealing with, sometimes slow and steady is a better way to go.

And when you can get all of the side benefits with something like modified citrus pectin, why not? All right, so the research shows that it's more than just a binder.

Hopefully you guys have caught on to this by now. And I apologize for my voice. I've been doing way too much talking lately. But research shows that again, it limits the Herkimer reactions.

It helps to stabilize the mast cell. It regulates inflammatory signals again, reduces, TGF beta, CRP, interleukin six, interleukin eight, tumor necrosis factor alpha, and all of the other inflammatory cytokines.

It breaks up biofilms and then it mops up the metals and the toxic byproducts that come out of it. It can block mycotoxins. And the biomarker MMP nine that you see in both mycotoxins illness as well as Lyme and other tick borne diseases.

It stops those collagen ACS from degrading the collagen and feeding the bacteria it defends the blood brain barrier. It helps to heal the gut. It supports optimal cell organ and tissue repair as well as function, and it binds and eliminates a broad range of micro, bio and environmental toxins.

And it really has a synergistic effect and enhances the efficacy of other approaches. So this is a packed assault. Modified citrus pectin has over 85 studies, six patents and 30 years of clinical success.

So that is it. Thank you guys so much for joining me tonight. If anybody has any questions I would be happy to answer them. You can just pop them in the chat or the Q&A.

I mean, hold for a moment, please. All right. Okay. So, Tara, is intradermal skin testing still the gold standard in identifying which foods are lowering our immune system and causing leaky gut from hidden food allergies.

So I'm, you know, I'm going to answer your question in part, since it looks to be a three part question. So for me, no, in the conventional allergy world, yes, I look at IGA as I look at IGS, I look at IgG for some time, and I will look at IGI when I think it's warranted.

So that is what I prefer to do. I do not like Ross testing, I, I don't I think all of that is pretty analogous to doing like an IG level in the blood.

When you look at an IG, it is a delayed onset hypersensitivity reaction. From an immunologic standpoint, that is the reaction that it is classified as.

And if you're doing, you know, the skin testing, you're not really going to catch that and you're definitely not going to see IGA, which, relates to mucous membrane.

Okay. Question number two. Does Clacton three work well as allergy desensitization for stopping the storm or do both? The avoidance of food allergy and the fact in three product need to be used?

Yes, they both need to be used. So remember I would look at this in the same way that I would look at healing the gut. Right. So you have the four hours.

The first hour is like you have to remove the offending agent.

Research on MCP, Detox, and Heavy Metals

So you're never going to stop that immune response, that antibody production to the food, whether it's IgG, IGA or IGI, if you are perpetually putting that food in the body and exposing the immune system.

So you would need to stop eating the food, which would let the antibody levels fall over time. While you're working to heal the gut. Okay. How are genetic snips like methylation or sulfur pathway impairments playing a role in individualized treatment understanding? So obviously you have to know, you know, the genetic snips per patient.

And you have to also like not only know that, but you have to know their micronutrient status. And like if they're even getting the co-factors that they need to run their methylation cycles and their sulfur pathways and any pathway for that matter, you know, so you could do a quick Google search and look up like cytochrome P450 phase one of the liver's detoxification pathways, and look at all of the nutrients that are needed there.

And then do the same thing for the conjugation pathways or phase two. And you really want to make sure that they're coordinated. So for me, the best way to do this is a white blood cell or intracellular micronutrient panel.

You don't have to guess. You know what you're deficient in what you have enough of meaning. What are you getting enough of from your food and supplements?

And then you got to focus on what you're missing. So I hope that is thorough enough. And, thank you, Tara. Good luck. Is there a way to test score locked in three. Yes.

You can literally order galectin three through quest. If no and citrus allergy is present, can MCP be taken? So I would say if you have an anaphylactic citrus allergy note if you have an IgG or an IgG A, I think that the benefit outweighs the risk.

And I'm sure this question is going to come up somewhere. But same thing with mast cell activation. So you know, citrus is known to increase mast cell activation.

It's a histamine. You know, citrus is a histamine containing food. However I treat patients I have this one poor gentleman. What he came to see me. He had had Tito hives for seven years.

He was on about no joke, 4 to 5 different over-the-counter and prescription antihistamines. He still had hives every single day of his life, had two toe.

Turned out he had underlying tick borne disease. And, you know, I've been working with him for just about three years now. He finally just stopped taking his protocol.

But like, he also doesn't get hives anymore at all. And he takes one monolithic caste pill a day and a half of a xyzzy all on at night, every other day.

And we are we're still weaning. We've been weaning very, very slowly. But he's doing great and he's symptom free. So sorry, I totally digressed there.

When treating long by more than 30 years, what is the dose and time frame we can plan to take MCP, so I recommend taking it for the duration of the treatment.

The dose is going to be 15 grams divided into three doses. So that's five three times a day. Every time I've tried MCP, I've gotten terrible stomach cramps.

Is this different or are there samples available? Kathy, I don't know. You would have to reach out to eco and Eugenics and ask them. I would recommend starting with a very small dose.

So I would start with like an eighth of a teaspoon and take that three times a day, and then a fourth of a teaspoon maybe five days later, and then work up to a half and then three quarters and then one and see if, if that helps.

Steve, how do I dose kids half the dose. So about 2.5g three times a day. Does MCP help with mold toxins? Yes it does. Is packed to sol. See your suggested form of modified citrus pectin.

So I use g3, pac to sol C by lime core. That is what I specifically use with all of my patients. But I also own lime core. Full disclosure. How much practice Sol should we be taking?

I think that's supposed to say if we have high mold levels and lime, is there a recommended dosage? Yes, 15g

divided into three doses. So five, three times a day.

You can test, sparkle, act in three through quest, and you can test through MMP nine on a cytokine panel. What if you already pretty much detoxed? Would it still help with inflammation, Lyme and co-infections. Yes.

So, Deborah, I would also say if you still have Lyme and you still have inflammation, you probably still have some level of leaky gut and you're still going to have toxins coming back in.

This is the only analogy I can think of. It's not like, you know, you go to college and you get your degree and you're done. Like you can't just be detoxed.

I mean, yes, I believe you've gone through detox and whatnot, but we are breathing, eating, drinking, slathering toxins all over our body. Well, I don't as much as I can humanly control, but most people are.

And so you would have to legit live in a bubble and not breathe and not have any organisms living inside of you to not be exposed to toxins and generating toxins every single day.

Sorry, I didn't mean to, like, go off on a tangent, but you still need to detox. Now to answer your question, yes, it's going to decrease interleukin six as well as interleukin one beta.

And it is going to, help with all of the things that we went through. So breaking down the biofilms, which is important when you're dealing with Lyme and co-infections binding the heavy metals and toxins that come out of that binding, the LPs that are going to come from these dying bacteria when you kill them, helping to protect your collagen and pull fibrosis out.

So, I mean, there's so many other things that modified citrus pectin is doing besides just helping you to detox. If people still have amalgams, can they safely use pack to salt?

Yes, but I strongly suggest you have them removed by somebody who knows what they're doing and make sure that you're doing, an amalgam removal detox protocol.

Thank you. Sabrina, I'm glad that I've motivated you to get back on your practice hall. Just reading your comments here. What herbs or therapy do I recommend for babies?

Yeah. All right. So I would say specifically and again like this is so this is just for information only I'm not your doctor. I'm not telling you how to treat your baby easier.

But I think a very good core protocol for bit easier would be crypto lapis cedar, acute owl cornea, sweet Annie, Japanese knotweed and Chinese skullcap.

Along with, you guessed it, G3. Unpacked us all, five grams three times a day. So I think I answered your question. I recommend tinctures because the gut is typically inflamed.

It has impaired digestion and absorption. Tinctures are liquid. They've already had their constituents pulled out. They're easier to absorb if you're going to use a tincture for all of the herbs that I just said, it's a fourth of a teaspoon three times a day of each herb.

Yes, you can mix them all together. Yes, you can mix them with your three, I call it a lime or raita and you can break it down 15 minutes before breakfast, lunch, dinner is my typical sort of like way that I do things.

Is there any reason to avoid modified citrus pectin in a one year old with dysbiosis, contributing to autistic presentation? Not that I know of. You know, you can call eco new Organics and you can ask them, but not that I know of.

I think the youngest I have used it in was like an 18 month old. So, you know, kind of same ballpark. Are there any

negative side effects of pack to salt, and are there any published studies on its effectiveness on healing wine?

You know, I don't know if there are actual studies on limes specifically. I know there's over 8000 studies in general. I would say that's a question for eco and, the only negative effects I see is that, you know, I would say and probably 10% roughly.

And I'm just ballpark this number of my patients, they do have like GI effects. So some people it causes loose stools, some people it causes cramping and bloating.

But honestly you're going to have loose stools when you're having a hard time or reaction. And when you're killing off pathogens because your body is trying to detox and it's trying to get them out.

So, you know, I don't know how much of it is actually the pack to salt and how much of it is actually dealing with the same reaction. But for the most part, usually the GI symptoms get better.

If we reduce the dose of pack to salt. All right, I missed part of the talk. So if I covered this please skip it. Does it bind mycotoxins proper? For example is is there any data on MCP binding or toxins?

So I don't know about the specific mycotoxins themselves. I know that this is in the literature somewhere, but off the top of my head I do not remember which Mikoto toxin specifically that it binds to.

Can you take this product with antifungal medication? Yes, I've been on the make while protocol. Can I use modified citrus pectin with this or should I stop it?

I'm so sorry, anonymous attendee I have no idea what the make while protocol is. Sorry. Is this safe for stage four and low stage three? Kidney disease?

I don't know the answer to that question.

Q&A on Dosing, Safety, and Clinical Use

I apologize again, I would contact eco and ask them, okay, I'm a chronic Lyme patient with the a Bartonella co-infections and mold toxicity. I've been treating all of the for said with antibiotics, antifungals, herbs, anti biofilm enzymes, etc.

apparently. So I have a lot of inflammation about how long in using pack to source. Should I expect to see some improvement in my inflammation? I would say.

I would say. If you were to look like in the blood, probably 2 to 3 weeks, but for you to actually feel the significant change, probably more like a month.

And I would use it with Japanese knotweed, skull, Chinese skullcap, and ashwagandha. If those three herbs are not contraindicated with anything else that you're taking.

Okay, can this MCP product help bind oral toxins and infections from root canal but still infected teeth? In the mouth? So I think what you're asking is like, can you swish with it and would it work in the mouth?

I'm going to guess at this. I'm going to make an educated guess and say no. But maybe now I would say, though, that it is going to get absorbed and it's going to work systemically.

So I would imagine that it could be effective, to some point. But I definitely don't know for sure the answer to this question. Sorry. Do I recommend MCP for long Covid?

Absolutely I don't. My local doctor isn't as Lyme literate as you are. Do you see patients by Talmud? I do, yeah. Is it mandatory to have a physician when be getting practice?

So no, it's a dietary supplement. It doesn't have really a lot of contraindications. You know, if you're on any life saving medications, I would. Absolutely.

Run it by your physician who is prescribing them. But it's a pretty safe thing to take. Now, that being said, any supplement that you are going to start taking you 100% should discuss with your health care practitioner.

You should have someone looking at you, knowing about you, what's going on, what you're taking, and taking all of that into consideration. Every time I've tried MCP, even a micro dose, I had a sudden onset of nasal inflammation, making it hard to breathe through the nose.

To me, this suggested an allergy. Is there a way to mitigate that? Not that I know of. And if that's your reaction and it's a sudden onset, I definitely wouldn't take it.

Does MCP Biden your meds? No. Doesn't Biden meds. Doesn't mind bind nutrients. Does pack dissolve affect mercury filling? It's not going to like make it unstable, if that's what you mean by the question.

But it can affect it in a good way. By helping you to detox all of that mercury that is off gassing every time you chew from the amalgam fillings. You know, so I think it would be helpful, if Galactic three is not high in my blood, then there is no need for MCP.

Well, I guess it would be. What does that mean? So conventional ranges aren't necessarily what we're looking at. So, you know, just looking at a lab and having it come back within range, does that mean that it's not elevated beyond where we want it?

But I guess theoretically if your galactic three is low, then I would say galectin three is not driving the inflammatory cytokine cascade per se inside of your body.

It doesn't mean that it would it be helpful for you to bind the LPs to help to heal your gut, to bind heavy metals, to break down, biofilms? Right. So and think about this.

If your galectin three is all sort of bound up in biofilms and you don't have free floating galectin three, it's not going to show in your blood. So I guess, like my point is like just because it's not showing high in your bloodstream, does it mean that you haven't made biofilms out of it?

And that's a bit of an educated guess for me, just knowing how it works inside of the body. But there are still other benefits that aren't specifically from galectin three modulation.

Is this a product that is recommended long term for preventative health? Does the dose change? So yes, this has been studied and numerous different facets of anti aging.

Because of its helpfulness with decreasing inflammation. We all know inflammation is what leads to chronic disease and aging. As well as the breakdown of collagen.

So, personally I use it preventatively, for anti-aging reasons as well as to protect my brain and protect my gut, because even though I do the best job that I can to stop myself and my family from being exposed to toxins, like I said a few minutes ago, we're being bombarded.

You know, we're being bombarded in ways that we don't even know. So I try to be preventative. I take a scoop twice a day, roughly, on days that I don't get that second scoop and I pretty much always get at least one.

And there are some days where I get three. It just depends. Yes, you can take it long term. You don't need to take a break. And no, I don't think you should pull set.

I do not think that packed a sore C would be a problem with metal parts from, knee replacements. Yes. Modified citrus pectin would be effective for Bartonella.

One of the major inflammatory cytokines, with Bartonella is interleukin eight. And as you saw in this presentation, you know, just from the sheer fact that, modified citrus pectin helps to decrease, interleukin eight from an upstream perspective.

It would be helpful for that. Also, Bartonella drives MMP nine, the collagen Ace. So we know that the modified citrus pectin decreases that. So again just for that cytokine piece it would be helpful.

Bartonella also lives in biofilms by the way. I Nicki I do not think that dividing the modified citrus pectin into two servings a day is less effective than three times.

I have a lot of patients that tell me they cannot do it three times a day, and so I would rather see them get the full 15g. So what is that? Break down to seven and a half in the morning and seven and a half to seven and a half at night, versus just getting five in the morning and five at night.

So no, I do not think it's less effective. And sometimes I do do that. I think I'm seeing some of the same questions here. Yes, I recommend modified citrus for long Covid.

I don't know where the alginate came from in that study. It could have been from spirulina. I don't know. You can look up this study. The references is on the bottom of the slides.

Judy, you can make an appointment by calling my medical practice called Tao. It's in Hebrew in Connecticut. And the phone number is (860) 228-1287. Thank you.

All right. So that looks to be everything under the Q and A. Holy moly. There's 55 questions under the chat. What time is it. Okay. Let me go to the top.

Oh, good. Some of these are just where you guys are from. And some of these are repeats. So. To to do. Oh, God. These are mostly the same question. So I think that I have answered all of these and oh, in the chat, in case you guys didn't see, there are direct links to, Econo Organics and it looks like there is a 20% off code as well, which is amazing.

Thank you. And you're welcome for all of you guys typing in. Thank you. I'm glad you're here. And I think okay. Modified citrus pectin label from eco eugenics capsules list that it's dairy free, but not gluten free.

I cannot imagine how or why it would not be gluten free, but I would double check. It better not be gluten free. I mean, it better not have gluten in it.

I'm. I'm almost positive it's gluten free. All right. So thank you again, guys. Thanks for being here. I really hope that you found this information helpful.

And for all of you patients that jumped on tonight, I sincerely hope that this helped you with your journey. Healing Lyme. I wish you the best. And for any practitioners out there, thank you so much for being so diligent and learning as much as you can to help your patients.

Thank you all by.