Podcast Introduction and Guest Background

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But basically what happens is these microbes come together as a colony, they form this kind of sticky matrix that they can hide behind. It creates this community where they share resources, communicate, survive, it allows them to evade our immune systems and whatever is coming at them.

and they're very hard to penetrate through. They really create these fortresses. And so I think it's something that, like you said, is kind of a buzzword right now, but there's not a whole lot of people really diving into it in the clinical side of things.

I really think we need to be focusing on it more because, as you can imagine, when biofilm are present, it makes whatever condition that we're working on, infection, dysbiosis and balance, much harder to eradicate, to bring back into balance.

Symptoms are only part of the story. I'm Dr. Drew Kidder. And I am Dr Emily Hernandez. On the healing terrain we explore deeper systems influencing clinical outcomes from toxic burden and microbial imbalance to the foundational factors that drive resilience and long-term health.

Well, hello and welcome everyone. My name is Dr. Drew Kidder and I am super excited for this episode of the Healing Terrain podcast because I'm joined by my colleague, my friend, Dr Emily Hernandez.

So Dr, Emily, thank you for joining us. Yes, I'll be excited to be on this side of podcast this time. It will be fun. It's fun. So Dr. Emily, before we jump into this, you know, so we're going to be unpacking our topic is biofilms and why infections don't go away.

But before, we do take a minute to let our audience who may not know who you are, who, You've not had the pleasure of meeting, let them know a little bit about you and your background.

Yeah, absolutely. So I am a naturopathic doctor. I have been practicing for about 12 years now. And when I first started out, I joined a Lyme Literate Clinic.

My background for the first four years was treating chronic Lyne patients. They also often had a mold and other chronic conditions that they were dealing with, lots of GI health.

Then I shifted, started my own practice and I had that for six years, still seeing some Lymen patients but doing some more gut and fertility and hormones.

I also work for Biocide and Botanicals and then, you know, now Cellcore Biosciences as well. So I am the Director of Healthcare Practitioner Education and I do lots of educational trainings, resources, speaking, these types of things like podcasts.

I love doing that. And I see patients now in Connecticut at Fairfield Family Health. Lots of Lyme still. kind of a mix of kids and adults. That's great.

Well, thank you for sharing. So I love the perspective that you have still being in the trenches, right? You resonate with those practitioners that your able to help because it's what you see in clinical practice.

Let's talk about that. Lets talk clinical practices a little bit and share with me one of the buzzwords It seems like there are cycles within the integrative functional root cause foundational medicine world that we hear spoken more frequently over a period of time.

What Biofilms Are and Why They Matter

And one of those words is biofilm, right? And we here about bio film, but maybe for the audience who doesn't have a full understanding, kind of explain to everyone what exactly is Biofilm?

Yeah, yeah, great. So biofilm is a extracellular polymeric substance, the scientific side of things, but basically what it is is sticky matrix produced by microbes, often polymicrobial, so in nature, meaning that these communities can be bacteria, they can yeast, viruses, sometimes they're just single species and sometimes there's a mix of all of those involved.

But basically what happens is these microbes come together as a colony. They form this kind of sticky matrix that they can hide behind. It creates this community where they share resources, communicate, survive.

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And so I think it's something that, like you said, is kind of a buzzword right now, but there's not a whole lot of people really diving into it in the clinical side of things.

And I really think we need to be focusing on it more because, as you can imagine, when biofilm are present, it makes whatever condition that we're working on, you know, infection, dysbiosis and balance, much harder to eradicate, to bring back into balance.

So that segues perfectly, you know, as a practitioner, why do you feel like practitioners really should have a deeper understanding, regardless of whether they're dealing with chronic illness, persistent conditions, or maybe just sometimes those patients that they are not seeing the clinical improvement that You know, why do you think that practitioners need to understand biofilm in those patient populations?

Yeah, absolutely. I mean, biofilms are much more present than we think. They're seeing bio film part of most chronic infections, at least 80% of chronic infection have some sort of bio-film component.

And they can form very quickly. So you often see them forming in as little as two weeks from the onset of new infections. So whether someone's dealing with a chronic infection or not, there's probably some sort of biofilm involved, whether it's kind of, you know, chronic bio film communities that have been there for a long time or just the beginning stages.

And, so for example, an acute sinus infection or ear infection, there could be some beginning signs of biofilm. And as I mentioned before, they create this very resilient community that is very hard to penetrate through.

It's hard for our immune systems to get through, it's harder for antibiotics to even address them. In fact, we've seen antibiotic resistance go up in our country.

remember the exact amount, but there have been countless, from 2019 on, especially through COVID and everything, the amount of antibiotic resistance that we're seeing is increasing.

And so we need to have tools to get past these really well-versed and stubborn communities to get to the deep-rooted, you know, part of the infections.

And what often we'll see in clinical practice is that either people don't get better, they have these reoccurring infections, or they may start to temporarily feel better and then as they come off their protocols they start have symptoms again because these biofilm are patient and they're smart.

And so these bugs will often hide behind these matrices until the coast is clear. And then once we're stopping to treat them is when they start to proliferate again and become more systemic.

So I think that's where we are seeing it clinically. These patients that we've done protocols, they seem to kind of get some progress and then it just keeps coming back.

We could have a whole other topic of discussion on this, but you said the prevalence rate with resistant bacteria and resistant species, how much of that do you feel clinically is Is it because in many cases we're over-prescribing?

Are the bugs becoming just on their own more resistant? Or are we creating that resistance because oftentimes we are not utilizing strategies like we'll talk about.

The go-to is oftentimes, here's a prescription, right? Here's an antibiotic. It's not harmful. So, you know, do you feel like that's partly why we see the resistance?

I do. I do. I think it's a mix of both. The bugs are getting smarter and I you know, whatever the actual therapy, exactly the monotherapy that we're using.

Because the reality is, like I mentioned before, in these biofilms, they pass information to each other. And one of the things that they passed mostly are these resistant genes.

Why Biofilms Drive Persistent Infections

I was just reading an article and it was saying that a planktonic form, so like an individual form of a bacteria, its ability to kind of pass that information versus when it's in a biofilm is drastically different.

It's 700 times more effective at passing that genetic information in a biofilm community than it is as a standalone planktonic form. So they're very good at, you know, hey, buddy, this is what's working for me.

Like, watch out for that antibiotic or watch for the immune cell. So yeah, they're getting smart, but we also need to make sure that we're using multiple different mechanisms to address these, these different infections.

So you kind of addressed it, you know, did a great job at explaining what biofilms are, Why are biofilms created? And is it accurate to kind of think of bio films as kind like a fortress protecting infections?

Again, you said it can be bacteria and viruses and everything. Are they protecting themselves from our immune system? Yeah, in a lot of ways they are.

I mean, one thing I'll clarify is that not all biofilm is bad, right? Just like all microbes aren't bad. We just want them in the right balance. And when they start to become overgrown is when we start talking about it as dysbiosis.

Well, the same thing can be talked about as biofoam. we're looking at biofume overgrowth, that's the issue. and what microbes are making up those biofilms.

So we start to have more pathogenic, more opportunistic microbes making up these biofilm, then we're starting to biofilms that are not great. And the other thing about them, I should mention, is because the matrix itself is a sticky substance, you're seeing a lot of other toxins and things stuck as part of this biofill matrix.

So really anything floating by can kind of grab on, whether that's histamines, heavy metals, mycotoxins, even parasites, can be part The issue is not necessarily that all biofilm are bad.

It's that what are the actual microbes that are creating the bio film? Have they become overgrown? Are they opportunistic? And what other toxins and kind of inflammatory metabolites are part of that matrix?

Gotcha. So, you know, why can, because we've seen that somewhat resistance, right? Why can antibiotics and

herbs and antimicrobials sometimes, for lack of better terms, fail when biofilms aren't addressed?

Yeah. So biofilm are very smart, you know, the bugs inside as well, and they use multiple different mechanisms to protect themselves. First, it's an actual physical barrier, but then they have these kind of chemical messages, right?

They use quorum sensing, which is how bacteria communicate and congregate together as a colony. They have the ability to attach to different mucosal sites.

they actually can over time kind of grow and swell and burst and then they can translocate to different areas in the body so they have the ability to actually mobilize and it's much harder to treat something when it is all over the place versus just in one local area.

And they also have this thing called an efflux pump. Many microbes, particularly bacteria, have these little pumps found on their membrane that are responsible for pumping out whatever's threatening it.

And this is where we see a lot of the antibiotic-resistant genes. They kind of, you know, figure out this something that's harmful to us, let's tell all of our friends, and we're going to create this pump, if we it, it just pumps it right out.

So, you know, that's where we're seeing multiple different mechanisms of how these biofilm can protect themselves, which means we need to use different multiple, different mechanism of action to not only just burst open the biofilm, but to make sure that it's not going to just reform, That we are preventing that translocation, and that we preventing the cross communication between bacteria.

So it is kind of more than just, hey, use a biofilm buster. We want to make sure that we're also addressing those different ways that they survive. Sure.

That is mind blowing to think of those efflux pumps that are a protective mechanism literally against what we think. Oh, let's prescribe an antibiotic.

Let's use an antimicrobial, some powerful herbs. But basically they have the ability to go, nope, don't want it. It's like it goes back to the whole germ theory versus terrain theory, right?

So I love this podcast because I mean, these bugs are so smart. We're really it's almost near impossible to think we're going to eradicate all the, you know, pathogenic or opportunistic type bugs.

They're there, right? This is why we need to focus on the terrain and make sure our systems are strong enough to handle and create a balance.

How Biofilms Resist Treatment

Because if we try to just kill, kill kill like we're going to chase our tails. We have to support the whole system. So I think keeping on your clinical hat or maybe putting your in clinical had on.

What are some of the clues to you as a clinician that biofilms may be involved, right? What do you thinking of with a patient that you're working on that?

You may go through. I know obviously. a big part of what you do is working on biofilms just because of your background and understanding. But to a general practitioner that, you know, we're talking to in this audience, what are some clues for them of maybe, hmm, maybe bio films are involved?

Yeah, this is a great question because the reality is we don't have any general tests yet, at least, that can test for biofilm. So you have to use your clinical reasoning to kind of have a sense of, are there biofilms?

Maybe there's some that are starting to form, should I be treating this? So first and foremost, as I mentioned, we're seeing it almost 80 to 100% in chronic infections.

If you're dealing with anyone with chronic infection, just assume there is bio film. But even with acute infections, right, you treat them and they maybe have a response, good or bad, and then like, or start to feel a little bit better, but then the symptoms kind of linger a bit.

That could be a sign. In lab work, a lot of times I'll see like cholesterol go up. And that's just, we have to remember cholesterol, yes, it has to do with the cardiovascular system.

But it also is a signal that there's inflammation in the body. Right? So- Projective mechanism, Raya? Right, exactly. It's supposed to go up when there's inflammation because we don't want those inflammatory mediators to affect our arteries.

We want to create that kind of pillow on them so that they're not getting damaged. So a lot of times I'll see in my patients cholesterol goes up. That's really common.

They may be really fatigued. they may have brain fog. Those are some really common ones, I would say. Sometimes it's just joint pain and gas bloating, the typical kind of, and you have to get more history and more symptoms to really put all the pieces together.

But really, I would say any chronic infection, yep. And if someone has done a treatment, felt better, and they come off the treatment and are starting to get symptoms again, that's a pretty clear sign that there's biofilm involved.

That's great. So in essence, what you're saying is just add it to your clinical thought process of, we know that you can look at symptoms as you expressed.

brain fog, fatigue, GI issues, right? Those can be a multitude of causes. But if you are not seeing the results with your conventional treatments that you normally would see that maybe biofilm is one of the leading causes to that symptomatology.

Or that they at least need to be addressed in order to get the deeper rooted infection and really help the body clear it. Okay, so let's talk about, I use that reference of the fortress, right?

Let's break into that fortress. So what are, once you as a clinician suspect biofilm, what is your strategy for safely addressing biofilm? This is a great question.

I'm happy you brought it up because the reality is if you try to just break open biofilm with patients as like your first step, your patients may get a little bit upset with you because they're most likely going to feel a bit worse before they feel better.

A die-off reaction, Herxheimer reaction kind of whatever you want to call it. But the realty is those biofil matrixes not only have the microbes, but they have all those other toxins that I talked about.

Histamines, heavy metals. Anything that's sticking to it? So when we're breaking open biofilm, we often increase that toxic burden for the patient temporarily.

So we have to educate our patients, like we want to go low and slow. We want do this in the right order because if we don't, you're going to feel worse until you feel better, right?

So what I typically do first is I do want to work on drainage and detoxification, something I know we're talking a lot about on this podcast, make sure that these pathways are open so that the body can actually have somewhere to move the toxins, right?

We want get them out. We don't want them just recirculating. I often use binders to help mop up and kind of grab onto those toxins as we are kind opening up the floodgates.

Someone described it once to me like, we want to have the police outside the jail cells as we open up the cell cells

so that we can kind of manage who's coming out and make sure they're not going on a free-for-all.

So that's what the binders do. They do a very good job of that.

Clinical Signs Biofilms May Be Involved

I start all my patients off with some sort of binder before I add anything that is biofilm busting. And then I'll often kind of get a good history and have a sense of like, how good are they at detoxification and drainage?

And I often will add, you know, some liver support, make sure they're pooping and peeing, I make Sure they are sweating, that type of thing. Because the last thing I want to do is break open biofilm and their bodies aren't ready to handle it.

It's kind of like what we oftentimes talk to people. I love hearing that you say, obviously, facilitate drainage pathways, but have a binder on board, right?

And sometimes it's similar to the discussions we have around the parasite topic, why do you include a binder with a parasite protocol? It is because of what they may release.

So as you said, You know, you may be looking at a biofilm that is more bacterial or viral in nature, but it's because they also are sticky with heavy metals and other environmental toxins that when you're disrupting that, You're releasing those.

So I think that's a double-edged sword, right? Like we have to open them up to get to what's inside so we can really clear, But we to do so cautiously and in the right way, in right order.

That makes a really big difference. Yeah. So obviously a great tool in your tool belt, right? You have incredible, you know, history, background and experience with Biosidin.

Talk to us a little bit about how you integrate Biotidine into your biofilm protocols. Yeah, yeah. I mean, I am biased, obviously, but I have been using them clinically for the 12 years I've been in practice with amazing success.

So I can speak really well clinically to how they work. And I love that first, you know, biocide, and it's a broad spectrum. It's blend of 18 different herbs and essential oils.

so it has the ability to address multiple different types of microbes, bacteria and yeast and viruses. That has some antiparasitic herbs in there too.

It's immune modulatory, so it helps to bring balance to the immune system, which is excellent. But it also is very good at breaking down and preventing reformation of biofilm.

It is probably one of the key things that it does. And as I mentioned before, it works on multiple different mechanisms. So I always think of kind of five mechanisms of action that they can do, these herbs, and that's what's nice about it, right?

There's so many different herbs in it that all these mechanisms are working simultaneously to create this synergistic effect. So some of the herbs have been studied to inhibit quorum sensing, how the bacteria communicate, like a military strategy.

If we can prevent them from communicating, we prevent from congregating together as a colony. Some of herbs will inhibit that initial attachment phase to the mucosal lining, so they can't establish residence.

So many herbs actually inhibit the swarming motility. Once they burst open, they cannot travel anywhere so we keep them localized. many of the herbs are antimicrobial.

And then we actually have a handful of herbs in biocidin and actually a few in olivirax that are the efflux pump inhibitors. They actually inhibit that pump I was talking to you about to prevent that bug from being able to just, you know, pump out the herb that's are anti-microbials in nature.

You know, I very rarely have to add additional biofilm busting to my protocols. And what's nice about it is that I know it's also going to be antimicrobial and have the immune modulatory effects.

Safe Biofilm Disruption and Drainage Support

So I'm doing so much in one product. It helps to reduce the kind of supplement fatigue that often many people have. But every once in a while, you know, if I need to, I'll add like olivirax is another one of our antimicrobial products and it does have some biofilm support too.

Sometimes we get some really stubborn infections and you do need layer things and rotate through. Sure. Yeah. So you touched on, like, sometimes taking things low and slow, right, and mitigating some of those Herxheimer reactions.

Again, maybe to people that don't really have a full understanding of what that may mean. Are there some clues and cues to you as a clinician that maybe you're moving too quickly in disrupting biofilm?

And in that case, what do you do? What do recommend to the audience of, hey, perhaps if you are experiencing, your patient is experiencing these types of symptoms, you may want to do this.

Yeah, great question. A Herxheimer or a die-off reaction can look different for every person, but generally speaking, what I see is the person takes something that's killing, something anti-microbial, and within a few hours to a day or so, they will have a heightening of symptoms.

It's typically their symptoms that they already feel that are heightened. So if they're bloated, their bloating gets worse. If they've got headaches, the headache gets worst.

Sometimes there's some additional symptoms like malaise, fevers, chills, things like that. They can just last a few hours or they can last few days, but they typically do start to come down after a couple of days as well.

Um, so it can be a little bit confusing for patients cause their first question is, Oh my gosh, am I having a reaction to this herbal formula? You know, most of the time it's a, it some sort of die off reaction.

And basically what it means is that there is more toxin or toxic burden on the body than the can handle at that particular time, right? It's not releasing and getting rid and draining them out of a body as quickly as they're building up.

So first and foremost, I like people to slow down on their antimicrobial. As I mentioned before, I always start people on a binder first, so that's normally in place, but I often will have them increase their binder.

I'll have then double up on the dose for a day or two and kind of stay at whatever dose they were on of the biocidin, wait till they kind come back to their baseline, and then they can slowly try to increase the biosidine again.

Generally speaking, the Herxheimer reaction is happening as they're trying to slowly increase there dose. Okay. every once in a while people will be at the max dose and they'll say I'm doing really well and out of nowhere I had like a flare and what we've kind of figured out oftentimes is that they've hit a biofilm pocket and so that's why I also like to tell people it takes time to kind hit that whole deep slew of bio-film and overgrowth so I like to work with people for at least three, sometimes three to six months before I have them come off of a protocol like this because it, you know, most people, it just didn't happen overnight.

This imbalance and the growth. It's going to take some time to get everything back into balance. Okay. So you touched on, and I know we don't have time to totally unpack it, but we're going to have some other great podcast

interviews talking about the topic of drainage.

But you referenced the importance of meeting, making sure that you're opening drainage pathways, that your using binders. Talk just briefly about drainage, right?

Just like super 30,000 foot view of, of. Yeah, drainage is your body's ability to release, right? So things like our bowels, our urine, or sweating. But even like the lymph has a lot to do with our ability, to kind of mobilize and get these toxins out.

Where people often think about detoxification the same way, but it's slightly different. Detoxification, we are mobilizing toxins.

Using Biocidin in Biofilm Protocols

Drainages, we're just getting them out. We're kind of opening up pathways. I always like to describe it as it's the body's ability to move them at its own speed.

Or not asking it to push or do anything more than it already can do. But we have to make sure those general kind windows, doorways are opened. Otherwise, if they're not, those toxins get recirculated.

And that's when people don't feel well. Yeah. Great. Okay. So hard to believe we're almost out of time, but I want people to have really good concrete takeaways, you know, from this more than they hopefully already already do on this amazing topic of biofilm.

If there is one thing that you would want every practitioner to understand about bio film and take away, what would that be? I would probably say that it's present in most people's kind of what they're dealing with and that there's a big question like, well, do we poke a sleeping bear?

And I think the reality is because this biofilm, even if people aren't having specific symptoms, Because the biofilm does harbor a lot of toxins, at some point it can lead to symptoms and more chronic issues.

So I think it is helpful, especially if you suspect a high prevalence of biofilms, to work on it low and slow. It's just something that you're doing in the background.

Doesn't have to be all at once. Take your time when you are doing it, but I they should be addressed. Awesome. Okay, so I always love to give because a lot of times practitioners and their patients, one of the biggest things that we can do is give any patient who's struggling hope, right?

Yeah. So what's one the of biggest hope takeaways for a practitioner to disseminate to their patient, who may be struggling, and as you said, have been struggling this for awhile within the biofilm topic?

I think just understanding that symptoms are a way that our body is communicating. It doesn't mean things are good or bad or not working or working even.

But I need to understand that even if we have negative symptoms, there are messages that are body's trying to do something. has the ability to get us back to balance and it's always what it is trying to do.

It's trying always to keep us safe. We just have to listen to it, we have remove the obstacles to allow it to what its meant to to. So I think just trying not to hold on too much to, oh I've tried this before and I didn't feel well and that's like a negative thing.

That's not always a thing, it means your body has ability listen and to react.

Herxheimer Reactions and Patient Takeaways

You just give it the right tools so it can respond in a more positive way for you. And trust, I've heard you say this so many times, right? And I agree wholeheartedly, just trust the process, the body is designed to heal.

It's designed heal when we remove what shouldn't be there. And oftentimes it's more of that removal than it adding anything. So allowing the to body to go through those natural processes is where we oftentimes simplicity is best.

No matter how complex your healing journey is or your patients are, it really gets back to the basics and the foundation. And just kind of peeling back the layers one at a time.

Well, Dr. Emily, this has been an absolute pleasure to have you on. I look forward to doing a lot more of these. You and I have the pleasure of doing lots of webinars together, but it's super cool to you have on this side of a podcast.

So look for a little bit more. And for those of you who tuning into the Healing Terrain podcast, Make sure that you are, you know, following this on a regular basis because you're going to get these incredible tidbits like today and each one of them is building on one another.

So we thank all of you for joining us and thank you, Dr. Emily. Thanks for having me. Take care. Thanks for listening to The Healing Terrain. If this episode challenged the way you think about health and healing, please follow, share and leave a review.

It helps more practitioners and curious listeners discover the conversations shaping the future of foundational medicine.