



Dr. Jill

Your Functional Medicine Expert®
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[203: Resiliency Radio with Dr. Jill; Biological Dentistry: Your Mouth - The Missing Key to Wellness?](#)

Dr. Jill 00:00

Hey guys, I am so excited to announce that the movie that you've been waiting for, the documentary *Doctor/Patient*, is now available for rent or purchase at DoctorpatientMovie.com. Check out the trailer [here](#).

00:13

Dr. Jill: When I really knew something was wrong, was when I started having trouble walking up the stairs. I was supposed to be grateful and happy and healing and well and thriving, but I did not feel that way. I was so sick. Like always, I wanted to find an answer, and I had to figure it out. And I had to figure it out to save my own life. So I dove in.

00:38

James Maskell: Jill is the leading voice in biotoxin illness and chronic conditions that are driven by toxicity.

00:43

Bree Argetsinger: Oh my gosh, you're dealing with mold? You have to work with Dr. Jill Carnahan.

00:47

Patient 1: Dr. Jill is the first person that actually began to shed some light on the problem.

00:53

Dr. Jill: What I do is listen to the patient, and we together talk about what else is possible.

00:59

Patient 2: I don't know why I'm crying.

01:02

Patient 3: She saved my life.

01:06

Dr. Jill: The deepest lessons and most profound insights come in the suffering, come in the dark moments. Self-compassion is the healing transition that shifts something inside of us. It's actually the thing that we need most in order to heal.

01:26

Narrator: *Doctor/Patient*—available now at DoctorPatientMovie.com.

Dr. Jill 01:36

Welcome to *Resiliency Radio*, your go-to podcast for the most cutting-edge insights in integrative and functional medicine. I'm your host, Dr. Jill, and with each episode, we bring you to the heart of healing and personal transformation with cutting-edge renowned experts, thought leaders, and innovators who are at the forefront of medical research and practice, empowering you with knowledge and inspiration and aiding you on your journey to optimal health.

Dr. Jill 02:00

Hey guys, you've heard me talk about it, but it's out now, my patient movie called *Doctor/Patient*. It's at DoctorPatientMovie.com. If you've read my book, heard my story, or just been interested in the lives of those with chronic complex illness, you can now watch it, stream it, rent it, or gift it at DoctorPatientMovie.com. So check it out. Let me know what you think.

Dr. Jill 02:22

Today, I am so excited to introduce my guest, Dr. Corbin Popp. He's been providing world-class Swiss biological dentistry to the Denver community for over 10 years. In conjunction with his advanced clinical expertise, he exudes passion for helping his patients achieve systemic vitality. We both share that, and I'm so excited to dive in today. His supportive demeanor and positive energy elevates the patient experience, providing a comforting and transformative process. Prior to his dental

career, he was a professional ballet and Broadway dancer and continues to embody the act of excellence in performance with his dental team.

Welcome, Dr. Popp!

Dr. Corbin Popp 03:00

Thank you so much! It's great to be here.

Dr. Jill 03:02

Yes, it is great to have you. We were just commiserating about the ski season. We were trying to get away to ski, and this year I broke my wrist so it'll have to be next year. But soon, I will hopefully get outside and enjoy some of that as well.

Dr. Jill 03:16

I have always admired those of you in the dental field because I know that what I do isn't possible at all without someone like you. We know our topic today is how the mouth, the dentition, and all that you do are connected to whole-body health. So we're going to dive into that. But before we do, I always like to hear our guests' stories, a little bit about: How did you get into dentistry and then, especially biological dentistry?

Dr. Corbin Popp 03:40

Yes, okay, that's a good one. Okay, so I'll give you the cliff notes. I was pre-med. I grew up in Nebraska. My dad was actually a dentist in a small town, so that might be the quickest way to the end. Dad always said: "Dentistry is so great! Medicine might be tied so much with insurance" and things like that. So he put that little seed in my brain. But I really wasn't interested in dentistry. I was interested in chemistry. I was an organic chemist mostly and studied really hard with that. But I was pre-med.

Dr. Corbin Popp 04:22

Then I started to travel and I went to Australia. I started to see more things and I was starting to get passion elsewhere. I was so tired of physics, math, and science because that's where I lived. And then I was really looking to go to medical school. I decided to apply for a Fulbright to do some of the chemistry. Believe it or not, I needed one credit to graduate to get the Fulbright. I did a lot of things as a kid. I danced as well. My sister was a dancer. And I was a young kid at 12, even in some

competitions, partnering. I really liked partnering, but I didn't dance at all because, in Nebraska, you play football. I'm really glad I got the opportunity to do those sports. But here I am, a senior in college, applying for a Fulbright in Germany. I postponed going to medical school. I was like: "The Fulbright is great!" I had a lot of passion for it. So I took this one credit, a dance class. That was it. I was done. I didn't want to do anything else but dance. And basically, that's what happened. I started a 10-year professional dance career.

Dr. Corbin Popp 05:33

Being a guy who can partner, I could do that, luckily. But it led me to places like the Sacramento Ballet, where I met my wife and then I moved to New York in the right place at the right time. I landed a Billy Joel musical and danced that for five years. So I had this right place, right time thing going on. I had so much passion for dance and movement, and I felt so sedentary before that in my senior year in college, just sitting there doing chemistry, math, and physics. So that happened.

Dr. Corbin Popp 06:07

My wife and I were dancing on a cruise line, doing a Twyla Tharp dance. Dancers might know that. We came back from this cruise line pregnant with twins. So that grounded us. And I was like: "I don't really want to go back to New York, not with kids." So I was like: "Well, dad always said, 'Dentistry is great!'" I used to wax crowns at the ballet in Sacramento, so I was like: "Dentistry—yeah, this is no problem! I could do this." I went back, luckily got into a place down in Arizona, and started to get into dentistry again, which is awesome!

Dr. Corbin Popp 06:42

I was happy to do that because I felt like I had a bit of control as well. I was always worried about what medicine looks like for most doctors now, which is so volumetric and insurance-based. I know you don't practice that way and neither do I. But dentistry can be that way too. I just felt it gave me a little bit more of an option. Biological dentistry, I did my residency in Colorado—surgical. I was interested in surgery at CU.

Dr. Corbin Popp 07:14

As a Nebraska kid in the mountains, I was like, "Okay, I'm going to go to the mountains," and I started to practice in gypsum. Well, it didn't take very long for me

to realize I'd never pay off my student loans. So I was driving down to Denver and Alamosa to work. I started to work at a biological dental office in Denver. My eyes were blown open because I went from a place of dentistry, which was public health mostly... That's in dental school. You do rotations of public health, so you see people that I would say are generally not taking great care of themselves—diet, I would say, number one.

Dr. Corbin Popp 07:55

So I go to this biological dental office. For one, they're fee for service, so they wanted good service and they would pay for it. It wasn't like a discount insurance plan. I got that right away, and I thought that was so awesome. But what I noticed is that these patients didn't have the same issues as the general population. I make a joke about it: "They walked in gluten-free." Many of them were. And they didn't have the gum issues. It was so rare that they had periodontal disease. These were patients who were often seeking a greater health journey because they were chronically ill.

Dr. Corbin Popp 08:38

This is when we started to see the Lyme [disease] come on. And now you're like, "Well, mold is right there with it." And then, mast cell [activation]. The things that you speak so much about, we're seeing in the biological dental world. And I think we have to be practicing one-on-one dentistry and giving time because, as you know in many of your podcasts, the patients have to be heard, which means they need time, which is so unusual for medical, for sure, but dental as well. A volumetric-type practice is what we're taught.

Dr. Corbin Popp 09:19

So that's, in a nutshell, how I got into biological dentistry. Right place at the right time for most of the things in my life, [which] I'm so thankful for. But I feel like I always strive to try to get to the next place. And I think it takes somebody like that to be able to treat the patients that we're seeing today, which—as you know and we'll talk about—takes a much more dynamic solution. It's not static; it's not simple. It's lovely when they are, but they're not always. And they're becoming more complicated. So I think the role of the biological dentist—I always say it's a comprehensive view. That's really what it is.

Dr. Jill 10:07

That's why, like I said, we work so well together. First of all, I love your story, because what I see are some of the characteristics that I see in the smartest and most influential kinds of people who are changing the landscape of dentistry and medicine. And that's that artistic, creative curiosity that led you to dance. Amazing! I had no idea of your background, but all those qualities are part of what makes you a phenomenal dentist because you're curious, you're creative, and you're thinking of solutions.

Dr. Jill 10:39

Honestly, for both you and me and anyone in our fields, we have to be incredibly creative and curious because there is nothing simple about what we do. I find all the time that some of my best treatment plans and ability to diagnose are almost from an inspirational, intuitive view because you take all that data. But that's a very creative place that is not taught in dental school or medicine. And I see how that could come together with your dance career, and I love that! It just makes me admire you all the more.

Dr. Corbin Popp 11:08

Thank you!

Dr. Jill 11:09

So, then you got into biological dentistry. Many of our listeners have chronic issues, [such as] autoimmunity, Lyme disease, co-infections, or other viral immune dysfunction. And I think more and more in our toxic world, that's part of it, right? There's this overload and then the weakened immune system. You and I understand the mouth is such a reservoir of so many things. But maybe you can go dentistry 101. And for the person out there who's like, "Yeah, I've done everything, but why would my mouth have anything to do with it?" maybe start with the basics: Why is this so critical to overall health and the cardiovascular system and all the systems in the body?

Dr. Corbin Popp 11:46

Sure. I've thought of this many times. I'll try to break it down into simple things. So this is the most recent. For one, I will say, kind of disclaimer: This is the start of the gut [points to his mouth]. We talk about gut health. Huge importance. It is one.

Everything that gets down here usually comes through here as well, so the relationship there should be very obvious. Cleaning it up—I think the importance there is huge. However, there are probably going to be many people who, I say, you almost couldn't kill if you tried. They're very resilient. And then there are the people who are not. They're going to be more sensitive. I think we're seeing more of that in the younger generation.

Dr. Corbin Popp 12:38

I bought a practice recently. I've been an independent contractor. I've learned a lot of things. But now I'm learning business a little. I have some older patients. For some of them, this may not apply as much, but if you're looking for things that could be inflammatory, I take the Swiss approach. That's been mostly my training. They have a program called Biological Dentistry and Ceramic Implantology. It's out of Kreuzlingen, Switzerland. It's a really wonderful clinic. It's called the Swiss Biohealth Clinic.

Dr. Corbin Popp 13:11

When I really started to learn this, it was because I took a patient there who had this skin rash and was miserable with chronic fatigue, autoimmune issues, and mast cell [activation] for sure, looking back. She had all these orthodontics done and metal hardware in from orthognathic surgery, braces, some metal implants, and some root canals. In the biological Swiss model, they call them interference fields. Dr. Dietrich Klinghardt and Dr. Volz formed this clinic. He's pretty well known in your field.

Dr. Corbin Popp 13:56

The interference fields—basically, if we boil it down very, very, very simple—I'll quote Dr. Wall, one of my colleagues in Utah: "Anything metal or dead, get it out of the head." Those are going to be the main things that are inflammatory. We can break it down a bit more, but I like to think of interference fields, blockages, or inflammatory sources as triggers. And for some people, as you know, simple triggers can be gigantic and/or maybe prevent somebody on their health journey from getting better. And this can be the silent problem, I think, very often but a big part of it.

Dr. Corbin Popp 14:40

So what could those metal or dead [be]? Of course, decay is not good. That's a bacteria profile that you're swallowing. Decay is not great. Periodontal disease. Of course, this is general dentistry 101. Those are the two mechanical things that we looked at coming out of dental school. Certainly, now you can dive a little bit deeper and say: "Well, dead teeth." Teeth that have died are necrotic. They have no more blood flow. You form an abscess sometimes under the tooth, and every time you're biting down, you're going to get bacteria into the bloodstream. That certainly circles through your body. It's very problematic for prosthetic heart valves, etc. So the focal theory of infection is important. Root canals are dead. I would say maybe there are some people who can handle that and the body can wall it down, but many of us cannot. So a root canal is very critical. Those are also going to be interference fields.

Dr. Corbin Popp 15:41

Then you could dive even deeper—into the bone. There are pockets of bone—little fatty pockets—that have no blood supply, very often in previous extraction sites. That's been coined many terms, [from] cavitations to osteonecrosis. The new term is FDOJ. We could talk about that. There's quite a bit of research on it. But those can harbor toxicities as well, mostly because they're fatty content. Metal implants—mercury fillings, of course. And then I would say anything on top of dentistry that could be toxic, from fluoride to anesthetics—some things that we have to weigh out and have the ability to use.

Dr. Corbin Popp 16:25

I think you had a recent podcast that you summarized: You want to get the bad stuff out and the good stuff in. That is generally what biological dentistry has stemmed on—to get the junk out. Mainly that. In the newer ways of biological dentistry—and I think it's really important—to get the good stuff in also means you've got to rebuild.

Dr. Corbin Popp 16:54

I think that in the mouth, the big problems can be an energetic problem, a toxic problem, or a functional problem. And all [of this] can be debilitating. There are the meridian systems. All those teeth are basically nerve endings. They come from the ectoderm of the neural crest, so they're there for feedback to the brain. With a live tooth, you can feel eight microns of a difference—so the feedback. The morphology of all your teeth and how they come together: Ideally, the jaw is stable in the socket,

and all the teeth hit evenly. They all stimulate the meridians evenly. And then, [because of] the ramps on your front teeth, as you move the jaw around, the back teeth come apart so they don't clip into each other. This is called anterior guidance. There's a real way of restoring teeth, and if it's not right, it can be an interference, which can become a neurological issue, a neck issue. And that could be debilitating on its own. So it's not all about toxicology or interfering meridians; it's also about function. Posture—you had a recent podcast on that too. We know those things are so important. And for some people, it could be the difference in getting better.

Dr. Jill (pre-recording) 18:17

Hey, everybody. I just stopped by to let you know that my new book, *Unexpected: Finding Resilience through Functional Medicine, Science, and Faith*, is now available for order wherever you purchase books. In this book, I share my own journey of overcoming a life-threatening illness and the tools, tips, tricks, hope, and resilience I found along the way. This book includes practical advice for things like cancer and Crohn's disease and other autoimmune conditions, infections like Lyme or Epstein-Barr, and mold- and biotoxin-related illnesses. What I really hope is that as you read this book, you find transformational wisdom for health and healing. If you want to get your own copy, stop by ReadUnexpected.com. There, you can also collect your free bonuses. So grab your copy today and begin your own transformational journey through functional medicine and finding resilience.

Dr. Jill 19:15

I love that! [I have] so many thoughts as you talk. And I always love to share. You'll get a kick out of this, my personal experience, because I went to the Swiss Mountain Clinic. Some of them trained with the doctors that you worked with. They do some of that biological Swiss dentistry as well. And I remember being there and the doctor looked; I had two root canals on these two second to last molars. And those meridians correlate with breast, colon, and pancreas, if I remember right. I remember looking at the chart and I was like, "Holy cow, that's my history!" I had breast cancer at 25. I had Crohn's at 26. And I have pancreatic insufficiency. Like, 'Bingo!' When I heard that, I was like: "I don't have to believe in the meridians." I do, but I don't even have to believe in that. "That was literally my medical history."

Dr. Jill 20:02

In the next six months, I got them both pulled. I got ceramic implants. Within seven days at that time, I was struggling with psoriasis. I don't have it anymore. That was just one outward manifestation of the skin with this whole toxic axis and this dead necrotic tissue. And like you said, I don't believe that every single person has to have root canals removed. But many people who have immune issues can't tolerate the dripping of the bacteria, as you described so well. I was one of those because I was [dealing with] immune deficiency, post-cancer, and all that. All that to say, I had that work done. Within seven days, my psoriasis cleared up and never came back.

Dr. Jill 20:36

I was already a believer, but if I hadn't believed the power of biological dentistry and getting those root canals and seeing the meridians in real life—it's the exact same teeth, the same meridian. In my practice as a doctor, I don't know what to do with the mouth except send them to people like you. But what I often do is, when we're stuck, when there are some complexities, or when there is something that's mysterious, I'm like, "We're not getting there." I'm like, "You have to go see Dr. Popp" or someone like you. And so often you'll send me these amazing reports and you'll find necrotic tissue or cavitations. Especially in the complex chronic people with infections, I did some biopsies of the root canals and they were full of everything from protozoa to Lyme spirochetes to fungus, you name it. You've seen those.

Dr. Corbin Popp 21:26

Yes. I'd say 100% of the time, if you're going to test a root canal, even if the root canal looks really, really healthy from a general dentistry standpoint—again, maybe some people are okay with that; this is the challenge—every time we take out a root canal and we send it for PCR analysis, it will always have a laundry list of anaerobic, nasty bacteria. It's not a question if it's there. It's the same with cavitation. They're there. It's really a question of: Is it holding you back? And many times it is. But it very often takes a little bit of faith. Or, you had a sign, which is fascinating. Meridians do this all the time. They indicate to us... Or you can even [do a] muscle test. And people need that.

Dr. Corbin Popp 22:23

I tell my patients this all the time, "Hey, I need Jill Carnahan," to get them prepared to be able to do things. They have to be on board with their team and their team has to believe in what we're doing and I have to believe in what we're doing. When

we do that, it's great. If I have a patient on the fence about doing something like removing a root canal, unless it's obviously infected, that's a lot easier to decide. But they need to know and believe that this is the right thing to do because that's when great outcomes happen. So we're never trying to pressure people, but I do find it's a challenge in dentistry. My younger colleagues, who are learning biological dentistry, are learning about cavitations and root canals. And they're seeing these wonderful, like you, miraculous changes. Not every time. So that's where it's a dance.

Dr. Jill 23:23

And I'm on that other side in the same way because I know the power. I often tell my story, like I said publicly. I wanted to make sure and share that because, for me, it was so profound. I always like to talk about the toxic load bucket, and this is a perfect example because if you have a small capacity like I did for glutathione detoxification and some of those genetics that make it a little bit harder for me to get rid of toxic chemicals or infections, then every single thing that's added and that layers into that bucket, all of a sudden the water is spilling over the top. So getting out that old root canal for some of my patients could be the thing that gives them margin back. And again, it's neat to always be able to send them and trust that you can help because I can't do that. I always feel like the remediators in the mold world and the dentists like you are the two kinds of extensions to what I do and that I could not do successfully what I do without you. So thank you for being that.

Dr. Corbin Popp 24:15

That's a great term, too. A lot of what I do is remediation dentistry. The other half is the rejuvenation part—to be able to rebuild teeth. You don't want to just take teeth out. That was a very old way. I don't say very old. This is not that old, I'd say. Hal Huggins was kind of one of the founders. But we didn't have great implants. We were putting titanium back in. It's worth saying that more people have titanium allergies. Either it's the titanium dioxide particles or it's also energetic. EMF waves [may] perhaps affect it. There are many things. It's still the most widely used implant and still very successful. But now we're starting to see where it's not.

Dr. Jill 25:04

I have zirconium, and they're doing really well.

Dr. Corbin Popp 25:06

Yes. A lot of people say, "Zirconium is a metal." Yes, it is a transition metal, but zirconium oxide, a metal oxide, is a nonmetal. It is a ceramic, and that's what you have. Those are fully oxidized so they don't typically have that energy block. Also, they heal without the inflammatory markers. We know that if you place a metal implant, for instance, your TNF- α comes [inaudible]. And you don't see that with the ceramic implants. The result is that the tissue loves it. It's pink, it's happy, and it grows around it. It's not the same with the titanium predecessor, though. Side note.

Dr. Jill 25:53

This is important because people are asking all the time. They want to ask their dentist, and there are some dentists that won't even consider [it]. I'd love for you to clarify, but from what I've heard, we've had longer years of experience with titanium [implants] and how they stay in the bone long term. So some dentists might sway towards that because they have more experience. Is it harder to put in a zirconium versus titanium [implant]? Are there more things to think about? Is that part of it?

Dr. Corbin Popp 26:17

The type of implants I use, I feel they're very, very easy to use. Actually, ceramic was before titanium, but the material wasn't as great. It was quite brittle, which gave it a bad name for so long.

Dr. Jill 26:36

You need something that has just a tiny bit of give, right?

Dr. Corbin Popp 26:38

Yes. Titanium has that. It has a little bit of flexibility. But now, if you look at them right next to each other, they are just as strong but different a little bit. So you have to be a little bit more concerned about overheating the bone. I think, from a dental perspective, it's definitely doable. It's just changing the old dogma and realizing what the new is. Marco Godola was CEO of Straumann, which is a very large implant company. They're all moving towards ceramic because they know. They know by the way the tissue works with it. If you look at any dental magazine, you'll see peri-implantitis is one of the biggest topics. It's almost all around metal because metal attracts bacteria. If you look at tissue around metal, if the metal gets exposed, you can't clean it well, and then it's an inflammatory problem.

Dr. Corbin Popp 27:38

So, what would I tell your patients? I think it's hard for dentists to consider removing metal implants and replacing them with nonmetal, although it's not that hard to do. There are risks with everything you do. As long as everybody's on board and we understand the risks, it's not a hard thing to do. In some cases, it's much more challenging if there's not much bone. But that's challenging, no matter what. And if the implant is already exposed, it's just a slow death if it's a metal implant. There's the MELISA test. Do you use the MELISA test at all?

Dr. Jill 28:14

That's what I was just going to ask you about because I used to use this all the time. I don't know where to go right now, but I used to test people for implants. Tell people about that, because that's really important.

Dr. Corbin Popp 28:25

The MELISA test is done, I believe, in Germany. There are a couple of other companies in Germany that are great.

Dr. Jill 28:31

There was one in the US and maybe that's why I stopped doing it.

Dr. Corbin Popp 28:33

There was. There was. And recently, I did send out for a MELISA test and they said they couldn't do it for the US at the moment. But they gave [me] another number. I believe maybe that started back up. It's basically a sensitivity test for a couple of different titanium dioxides and even zirconia as well. It can give you a sense.

Dr. Corbin Popp 28:56

My mother, for instance, had Sjogren's [syndrome]-like symptoms—very, very dry mouth and eyes—and she used to get migraines really, really bad. She had a metal implant and a lot of mercury fillings. A good biological dentist should be able to remove those mercury fillings, by the way, safely, which looks like a hazmat room. And it should. We removed all that with my mother and then removed that titanium implant. It was very easy to replace with a nonmetal one. And lo and behold, I don't know if she has problems with migraines much anymore, and the Sjogren's [syndrome] symptoms did improve. This is what we see in biological dentistry. This is what biological dentists love about what they do. You see, "Wow!" these changes. And it's so different than what we were taught. It'd be taboo to remove something

like a metal implant. But not if somebody is ill. So my mother did that MELISA test and it did come up. She was reactive to titanium. Well, that makes it easy. Then that whole belief thing is, "I know this is the right thing to do."

Dr. Jill 30:05

Yes. We'd get those probably 15 years ago. I'll have to check back to see if we can get it because that always helped me with patients. Or it could be a hip implant or a dental implant. And these have [inaudible] for hips, legs, or knees or whatever, or the teeth. But we'll have to get that. That's really important.

Dr. Corbin Popp 30:26

I might have something for you. I ran something not long ago for Dr. Prusmack, who has Resilience Code because he does a lot of the orthopedic stuff too. Those are great tests. And we should be aware of those, so I'm going to find one for you.

Dr. Jill 30:38

I would love that because my patients are always asking.

And I didn't mention it, but I also had two cavitations in the wisdom teeth. And what I was going to continue to say to your points is that every time I've had any work done that is pretty significant and more invasive, my health has gone to a new level. And I want to be here promoting what you do out there as your biggest advocate because I know personally that I would not be where I am... People all the time are like, "Have you recovered from mold illness?" And I actually had Lyme disease, mold illness, and all of these things—Crohn's and cancer. I'm free of all those things. And part of it, I would say 30%, might be the dental work that I've had done because my immune system is one of those that does not deal well with little infections.

Dr. Jill 31:24

And in my mind—you mentioned your mother with Sjogren's [syndrome], me with psoriasis—these kinds of autoimmune processes, we can look at the gut or the mouth in a similar way. We know the gut-immune interface is where those bacterial antigens crossover, like LPS, into the bloodstream. That is the start. That is ground zero for autoimmunity. It makes perfect sense that the teeth would be the same because there's no liver there. There's no barrier. It goes straight to the bloodstream. So I just want to emphasize to people listening that this is a really big

deal if you have autoimmunity, you have chronic inflammation, and you've done all the other right things. You really should see a biological dentist because this is such a core piece of that toxic load or infectious burden.

Dr. Jill 32:05

So let's talk about cavitations. If someone comes in and says, "I want you to check me over and see if there's anything going on," what kind of exam [would you use]? What kinds of things are you going to look for? Would you do a cone CT? Give us a little protocol of what someone would see when they see you.

Dr. Corbin Popp 32:23

Yes, cavitation, the silent infection. Johann Lechner is a dentist and a professor, I think, at the university in Munich and he does do research on cavitations. Cavitations have been around for a long time. You can have them in your long bones in your hips. Let's just call it a fatty pocket—a dead fatty pocket. There's no blood supply. They did get changed to NICO, which was a name for neuralgia-inducing cavitational osteonecrosis. And now the new term is FDOJ, fatty degenerative osteolysis of the jawbone. It doesn't matter; we can call it a fatty pocket. They usually form in low blood flow areas. [It is] super common [in the] third molars.

Dr. Corbin Popp 33:15

There have been many theories of why somebody left the ligament when they took a third molar out. Most surgeons would know the ligament comes out with it for third molars if they're impacted. I think—and this is maybe my Swiss background—it has a lot to do with the lack of nutrients when we're often removing wisdom teeth because we're maybe in our 20s, probably not eating very well. We're growing, so we're nutrient deficient. Do we rest? Probably not.

Dr. Jill 33:44

Yes. [inaudible] the '90s or something, right?

Dr. Corbin Popp 33:47

Exactly. So that'd be more of what I would put for the etiology of why they form. Of course, it's a low blood flow area. So, if it's a low blood flow area and it doesn't have a good blood supply, it can become a bit more fatty. And that's when I get concerned for our toxic patients, because fat is a great place for glyphosate, heavy

metals, mold, aflatoxin, Lyme, and tons of bacteria. All have been found in those sites. And Dr. Lechner has some good published research on that.

Dr. Corbin Popp 34:22

Okay. How do you diagnose? Tough because, as a surgeon—we live in America, we do have a dental board, and we have to stand up to what we do—I would diagnose a cavitation based on a biopsy. The unfortunate thing is that they are almost always an osteonecrosis or a cavitation. So when I do cavitation surgery, we usually almost always do a biopsy. I tell my patients: "I'm going to do a biopsy of this. I'm almost certain it's always going to be a cavitation." So it's not for me a question of if patients have them; they do, probably over 95% of the time. The question is, truly, is it a problem for them? Are they toxic? That's a harder question to answer.

Dr. Corbin Popp 35:15

I can look at an X-ray and just see low-density areas back here and I suspect that it's going to be a fatty pocket. Most of the time, like I said, it is. But the diagnosis is a microscopic analysis if it's a dead bone pocket. The hard part is, is it toxic? And that's where I think it really takes an integrative approach. I need the Jill Carnahans—"Something's holding this patient back." Do you proactively just go ahead and treat all four? That's what the Swiss do with every single patient. It's a very safe procedure if it's done correctly.

Dr. Jill 35:56

That's what I noticed when I was there—everybody got it. They get parasite treatment and they get dental work.

Dr. Corbin Popp 36:03

Yes. I wish I could do that for every patient too, but there are time and money limitations for patients. And it may not always be needed. It's great if you could do it. I usually use those sites to harvest bone from because I'm biological. If I have to do a bone graft, I love it if I can take the patient's bone. We always use their blood, and we always use ozone and lasers. The outer bone is healthy, so when you maybe cut a window into the cavitation, you can take the window and certainly clean it, grind that up, and use it as the patient's bone. Fantastic!

Dr. Jill 36:42

So you're basically opening it up and scraping out that pocket so it's clear. And do you put ozone before you close it up to make sure it's sterile?

Dr. Corbin Popp 36:51

Yes. In our process, we would make an incision. You just pull the tissue back and you make a little window. For the lowers, for instance, you make a little window in the bone that you can peel back. And then you use an ultrasonic device. You go in and you clean out. Usually, what you see is not blood. It's very often just fat yellow. It's just fat and/or oily blood. So you go in and you use instruments.

Dr. Corbin Popp 37:18

You really need a three-dimensional X-ray. That would probably be the most common way to "diagnose a cavitation." I don't call that a diagnosis. The biopsy is a diagnosis. But you suspect they're there. And you know where the nerve is and where the sinus is. You need to know those structures, because then when you go to clean them out, you're not going to get into an area where you're going to have a risk of nerve impairment or sinus perforation.

Dr. Corbin Popp 37:46

I'd say most of the time, cavitations take about 20 to 30 minutes a piece. But you could spend a lot of time disinfecting it. Once you clean it all out and ultrasonic it out, you can take a laser. It's like a dishwasher and it bubbles all around. Then you could clean it out a little more. You're looking for good blood flow. So once the oily stuff stops, you can take your ozone gas and put it in there for a minute at 20 gamma. You clean it out a little bit more and you look at it. Then you take all of their blood platelets that you've spun down and you've made little membranes, and you pack those in there. You can put an antibiotic on it. That's a Swiss technique. I think that does help as well. Metronide is all, usually.

Dr. Corbin Popp 38:31

We always run an IV of vitamin C. Very often, depending on the patients, I'll often run an IV of an antibiotic as well, because you're stirring stuff up. But I don't think it's necessary. Vitamin C, sodium ascorbate of 25 grams—absolutely, all day long. And these patients do great. You clean that up. All you've got to do is close that back up with all their platelets in there. And usually, the tissue closes right back up

together. Suture it all up, and it's no problem. You do sometimes get postoperative swelling. It's usually not at all like your wisdom teeth, though.

Dr. Jill 39:04

Yes. I can vouch for that. I had both wisdom teeth—which I looked like a huge chipmunk—and the cavitation on the bottom. Compared to all this other stuff I've had done, it was quite easy and painless. Exactly the procedure you mentioned. I love that you went through that for people because, for a lot of my patients, that may be a starting point if they're not sure about the root canal. Say they have two root canals. First of all, say it's a chronically ill patient with lots of autoimmune, inflammation.

Dr. Corbin Popp 39:32

I'm glad you said that. Good.

Dr. Jill 39:35

So we have this chronically ill [patient]—not a healthy 17-year-old. On top of that, I've done all my work and I'm like: "Huh, Dr. Popp, I think there might be something here. Can you take a look?" And say they have evidence of at least the bottom cavitations and they have two root canals. Where would you start? What would you suggest? Would you do it all at once? Any suggestions on how you'd approach that?

Dr. Corbin Popp 39:56

Awesome questions! For one, they usually present with a panoramic, a flatter image. The three-dimensional one is fantastic too. So first, very basic, I step back [and consider], "What could be inflammatory?" Anything metal or dead. So first you look and say: "Okay, are you seeing Jill Carnahan? Are you seeing your naturopath or your integrative doctor?"—because you said it's a chronic patient. Now, because I'm learning from you, what about their limbic system and their vagal? That might need to be dealt with first because I have patients who don't always respond well, even if you turn the light on.

Dr. Corbin Popp 40:34

So those are the patients [for whom we say]: "Okay, we've got to make sure they've got coverage." They've got the medical part. I ask the questions. I spend a lot of time doing it, but I need help. "We'll get you at least checked out. What's your vitamin D

level?"—because I don't want to get into bone unless it's above 70. I don't want to do it because the research shows an implant has a 300% greater risk of failure if you have low vitamin D.

Dr. Corbin Popp 41:06

Biological dentistry is not rushed. So step back and plan. Now, there are always emergencies. I get it. So for patients who might have a root canal and cavitations, get a very comprehensive exam. And then you start to say: "Make sure you get your vitamin D checked and work with a practitioner to get your regenerative capacity up." We can start right away by removing metal and taking away any decay. Get your gums healthy. Get that regenerative capacity up before we take any knife and do any surgery.

Dr. Corbin Popp 41:41

And then I would say for sure, for any root canals, if you want to follow the principles and you're chronically ill—if you have inflammatory disease, cancer, anything, anything at all serious that you're definitely committed to cleaning up—I'd say: Do it all and do it all at once because there's so much time it takes to heal. And it's not that big a deal to be sedated and to go and just remove the root canals. Metals out and everything; I would remove the root canals first and then I would do the cavitations. And then I would place the non-metal implants, usually on the same day. And that's for the purpose of grafting and trying to—

Dr. Jill 42:23

Oh, you could use the bone you just took from the cavitation.

Dr. Corbin Popp 42:25

You use the cavitation bone, absolutely. And then you're also trying to preserve as much bone and tissue as possible. If the implant can be placed, it gives support. Zirconia and tissue do well together, so it's a great way to preserve the ridge. Sometimes we can't always place the implant, so we graft. And we hopefully graft with their bone and their blood. You can use donor [material], and some people don't want to. But we try to do whatever is going to at least give the best outcome.

Dr. Corbin Popp 42:53

If they can get through that, they heal wonderfully. And I've taken patients to Switzerland, where we did two-day surgeries. Unbelievably, with the vitamin C IV drips every day, they do great. And I've seen many patients, just [by doing] cavitations or even one root canal, who are definitely a step further in their health journey. And that's heaven for us.

Dr. Jill 43:23

It is. Like I said, once again, I can't do what I do without you. Probably 100% of them need assessment as far as the chronically complex [patients], and then 80% of them need some sort of [dental treatment]. And I really like that you're doing it all together. I had mine in bits and pieces and I did okay, but it would have been better just to have the whole shebang done. I had three root canals, two cavitations, and two implants. It took over 18 months, at least, to get it all done.

Dr. Corbin Popp 43:55

And for you, you don't have that time. We tell people that a lot too. It's planned. If you had a surgery, I want you to take at least four days off for a smaller surgery. Just ground yourself. First regenerative capacity up—

Dr. Jill 44:13

Oh yes, I went back to work the next day too.

Dr. Corbin Popp 44:17

Yes, that's tough. If you did three of those surgeries, then you're into six weeks, and that's tough for people.

Dr. Jill 44:25

Yes, I love hearing that. This is so awesome and informational. And I'm just so grateful that you're out there doing that. In our last few minutes here, what do you see coming up? So much is changing in medicine and dentistry. First of all, I just want to acknowledge that all the stuff you do—alongside the ozone, the PRP, and the vitamin C—I feel is crucial to your success and so important. If I give peptides to help with the healing, surgery, or dental, I'll be on my end. But I love that you're doing that. But what else? Is there anything on the horizon that you've been hearing about or thinking about incorporating that you think is the next thing in biological dentistry?

Dr. Corbin Popp 45:03

The stuff I've been interested in lately: We draw so much blood. We do so much PRF and the growth factors that you can do, so we do a lot of injections. We've done a lot more regenerative facial aesthetics that are all biofillers. You can take your blood; you can heat it. You can make it a gel and put more growth factors into it from your blood—only your blood. And you can inject it, do fillers, and then [use] microneedles. I know the vampire facial. But it's definitely going to another level. And I think that with lasers combined with it, people love it. And we love it.

Dr. Corbin Popp 45:46

I believe that in the future, hygienists are going to want to do more facial aesthetics. So you do your hygiene care and your skincare together. Exosomes would be one of the things I think we're going to see more of. And it's exciting. The regenerative part—100%. Bone grafting and bone building are challenging. So there are some new ways and some new regenerative materials [coming] from the patients themselves. That's exciting to me for sure.

Dr. Jill 46:21

Oh, I couldn't agree more. We'll have to have a whole other conversation on that. On the ski slopes, how about that?

Dr. Corbin Popp 46:25

I'd love that! Let's do it. Okay, you got it.

Dr. Jill 46:29

Dr. Popp, thank you for your expertise. Thank you for sharing your wisdom. I know the patients appreciate it. And thank you for being here in our community and serving with what you do. It's a pleasure and an honor to partner with you.

Dr. Corbin Popp 46:40

Thank you! I love the relationship, and I'm so glad to be working with you more. So thank you for having me!

Dr. Jill 46:48

You're welcome!