Bone Health and Weight-Bearing Exercise

We need to have weight bearing exercise and resistance training. We need impact. We need muscle pulling on bone. When we have muscle pulling on bone, we got a mechanical signal.

It sends a chemical signal to tell the bones to become stronger. Walking is not enough. You have to have more. You want to have weight-bearing exercise where your body, your bones are working against gravity to keep you up.

Replacing a good healthy stress on your bones, walking, jogging, hiking, gardening, playing with the kids or the grandkids outside, yoga, Pilates, Tai Chi, those things are weight-bearing exercises.

You want to incorporate those into your plan. Hi, and welcome to the Lime Bites podcast, where we shine a light on the misunderstood science of Lyme and other vector borne diseases, as well as the truths that many still miss.

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

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 We share the facts that most people miss, we challenge outdated thinking, and we give both patients and practitioners the tools to heal smarter.

So let's get into it and change the way we heal Lyme. Hi, and welcome to another episode. I'm your host, Dr. Maria Hinchey. You know, most of us, when we're thinking about Lyme disease, don't think about it affecting the bones.

Podcast Introduction and Guest Background

We know that arthritis, so pain and inflammation of the joints is one of the most common symptoms of Lyme, but we don't actually think about it affecting bone health.

know, from the point of osteopenia and things like that. So obviously, if someone is tired and they're sedentary and they're not doing weight-bearing exercise, we can have a decrease in bone density.

But there's a lot of other sophisticated mechanisms that can go on that are inflammatory-driven and caused by immune system dysfunction and even inflammation of the gut like decreasing nutrient absorption that can lead to issues with bone health.

So we have a lot to talk about today and I'm excited to have with us the bone coach, Kevin Ellis. So welcome, Kevin. Tell our listeners more about yourself and how you became the go-to guy for bone health.

Mariah, thanks so much for having me. This is going to be a great conversation. And for me, it's usually not the younger male that you would think would talk about bone health.

It's usually somebody a little bit later in life. And when you think of your bones, you often think of your mother, your grandmother, or maybe somebody that you saw had a fracture or something like that, and how that significantly impacted the quality of their life later on.

But for me, my personal journey started with an osteoporosis diagnosis in my early thirties, largely due to celiac disease after I came out of the Marine Corps.

And for those who are not familiar, celiac disease, autoimmune condition, where when you ingest gluten, it damages the villi, these tiny little nutrient absorption centers, I like to call them your roots in your soil, damages

these villi, which are responsible for absorbing nutrients from the food you eat and shuttling those nutrients into the bloodstream where they can go other places in your body.

But when you have celiac disease, those roots can become damaged and blunted. And then they can't do their job. And my roots, the roots in my soil were damaged and blunted.

And I wasn't able to absorb nutrients, specifically calcium, which is the primary mineral constituent of your bones. And every single day, your body needs minerals and nutrients and calcium for nerve impulses, muscle contractions.

And if you aren't taking those nutrients in and you can't actually absorb those nutrients because of celiac disease or some gut health condition that we could talk about in a little bit.

Your body still needs the nutrients to execute its daily function. So where's it going to go? It's going to go to the bones. Your largest reserve of minerals that you have, and it's going to pull from there.

And that's exactly what happened to me. And I was subsequently diagnosed with osteoporosis. So that led me down this path of my father had passed away at a really young age when I was two months old from cancer.

And I was having this moment of, gosh, I'm just falling into sweat steps to an early grave. Like, what do I need to do to not be in that position and not be able to be there to be the father, mine didn't get the chance to be for me.

So I had a pretty strong impetus. So I started doing the reading, the research, making progress, improvement. And then I decided I wanted to help other people.

So I built out a coaching program, uh, developed a team around this. And now we've got, you know, a couple hundred thousand people in our community. Thousands of people have come through these stronger bones programs.

Uh, and that's, that's how I became the, the bone coach. And, uh, uh, we, we do all that stuff, the bone coach.com is the big place. We do all that. That's amazing.

Thank you so much for sharing your story with us. That's really impactful. That's definitely a great purpose, right? Yeah, no, it's important. I mean, this is when most people think of their bones, they just think of these static structures, right?

That hold us up, that carry us through life, that help us move forward. And they do that. They do a really good job of it. But they're also living tissue.

They're endocrine organs. They give us life. Your bones, they have bone marrow in them. Bone marrow is a soft spongy material that produces 95% of the blood cells in your body.

So if you need help with preventing bleeding or clotting, platelets are going to help with that. If you need help with carrying oxygen to the body's tissues, carrying carbon dioxide away from the tissues back to the lungs, red blood cells are going to help with that.

But if you need help with fighting infections, healing wounds, anything related to the immune system, that's where white blood cells come in.

How Lyme Affects Bone Density and Quality

The cells that break down bone are a form of white blood cell. So anything that is stimulating that immune system is speaking in the same language as these cells that break down bone.

So when we're having chronic digestive issues and 70% of our immune system is in our gut, we're speaking in the

same language as those cells that break down bone.

So very much living tissue that plays a role in many, many of the things that we do. Yeah. And so specifically with tick-borne diseases and Borrelia, the organism that causes Lyme disease, one of the primary things that this infection does is causes immune dysregulation and inflammation.

I would argue two of our bones biggest enemies. Are you ready to revolutionize your approach to diagnosing and healing complex chronic inflammatory illnesses in both adults and children?

The Lime Bites Symposium is your gateway to cutting-edge education, groundbreaking research, and innovative therapeutic solutions. Join us at Lime Bites Symposium.

at the Fort Lauderdale Marriott Pompano Beach Resort and Spa. Lion Bites is the premier functional medicine conference on complex, chronic, infection-driven inflammatory illnesses.

This year's meeting is jam-packed with leading industry experts discussing lung COVID, mycotoxin illness, PANS Pandas, as well as Lyme and other vector-borne diseases.

This conference will arm you with the knowledge, clinical pearls, and practical solutions that you can implement immediately into your practice Monday morning that will literally change your patients' lives and get them on their path to true healing.

So join us at Pompano Beach or virtually from anywhere. Register now at LymeBytes.com. That's L-Y-M-E-B-Y-T-E-S dot com. Yeah, no, absolutely. And there are some big connections between, well, if we're talking about Lyme and its connection to bone health and osteoporosis, there are some major connections I'm going to point out right now.

So the first one is that we know that Borrelia infection in humans is associated with an increase in rates of osteopenia and osteoporosis. And that's going to increase the risk of fracture.

So osteoporosis, it literally means porous bone. And that's a condition that's characterized by either not enough bone formation, excessive bone loss, which is happening here, or it's a combination of the two, right?

And osteoporosis, both your bone density and your bone quality are reduced. And that is going to increase your risk of fracture. So that's an important connection, at least starting out with Lyme.

There's another one where in a mouse model, we can see that if you were to infect the mouse with Lyme, and then you look at the bone, In the long bones, like the femur and the tibia, as well as the fifth lumbar, so the base of the spine, those got infected with Lyme disease and a few things happened.

Number one, it led to a decrease in bone mineral density in those areas. And number two, there was a really high level of inflammatory cytokines. And inflammatory cytokines are signaling molecules that promote inflammation.

So when these were high, it led to the suppression of osteoblasts being created and osteoblasts are the cells that build bone. So blast build. So led to the suppression of these cells, which build stronger, healthier new bone.

And that impacts not just bone density. It also impacts bone quality. So bone density is the actual mineral content of the bone. Bone quality is the structural integrity, the micro architecture, how the bone is organized.

Those two things combine to create bone strength. So both of those things are being affected in this picture. And then one of the other big connections is that we know that Lyme is a tissue organism, right?

So you get bit, goes through your skin, goes through your blood, hides in the soft tissues, including our joints, and it can break down the cartilage, right?

And that, that's that cushion with your joints, that's going to lead to arthritis too. So there are some major, major connections there, uh, between Lyme and bone health.

Yeah, so in addition to that as well, like so the inflammation, the immune dysregulation, there's also being sedentary, right? If you're in pain and your joints are inflamed, what would be the other ways in which Lyme would decrease the quality of the bone?

Another one would be nutrients, nutrient depletion. So we talked about in your gut, Right? If you have problems with absorbing nutrients, I always, I liken our gut to soil, right?

So we've got roots in our soil, those villi that we want to be able to be healthy and be able to absorb those nutrients, but you could have bad bugs in your soil.

Gut Health, Nutrient Absorption, and Bone Loss

You could have good bugs in the wrong place in your soil. You could have small intestinal bacterial overgrowth or some other connection there. The gut is a soft tissue, so lime can be affecting this as well.

And the important nutrients that we may not actually be getting in to support our bones, calcium, we talked about how that's the primary mineral constituent of your bones.

Vitamin D, which we know is really, really important for not just your overall immune function, your overall health, but also your bone health specifically.

It helps increase the intestinal absorption of calcium and plays a lot of other roles in our body. Vitamin K2. which is also important for our bones, that can be affected.

Vitamin K2 helps activate osteocalcin and matrix GLA protein and that's making sure that the calcium goes to the bones to help build stronger, healthier bones and not to the soft tissues like the kidneys and the arteries where we don't want calcium to go.

And then another nutrient that could be depleted is magnesium. Most of us know and have heard magnesium is incredibly important. It's used for many, many things inside our body.

And it's something that most people are deficient in and they need more of. Especially if you have some kind of chronic health condition or infection that you're working to overcome, magnesium is really important.

Well, as you start to intake more calcium or more vitamin D, your need for magnesium also increases there too. And another important connection between magnesium and the health of anything, or at least rebuilding things in our body is you need magnesium to do that.

So for example, when you take in protein and you break it down into its smallest form, amino acids, those amino acids get absorbed and they come into your body.

And in order to be rebuilt into anything, your muscles, your bones, your tissues, whatever, you have to have magnesium to do that. So we have to be aware that there is a mineral and nutrient picture here that we also want to pay attention to.

So to recap for our listeners, we need to have magnesium, we need to have vitamin D, we need to have vitamin K to be able to adequately absorb the calcium and then direct it into the bone.

And then also, I think the higher your protein intake, the more minerals you need to buffer the acidity of the protein. And then on top of that, like if we don't have adequate hydrochloric acid, or we have hypochlorhydria, low stomach acid, it's actually really hard to absorb our minerals, specifically calcium.

So that can be an issue too. Do you want to talk a little bit more about that and how that can impact bone health? I'm so glad you brought that up. This is a major, major thing that I see with a lot of people.

They think they have too much stomach acid because they're having some acid reflux or some heartburn or something like that. And they think that it's because they have too much stomach acid.

So they go to their doctor and their doctor gives them an antacid, a proton pump inhibitor or an H2 receptor antagonist drug. So these would be like omeprazole, nexium, renitidine, Zantac, and These medications, number one, the majority of the time when people think they have too much stomach acid, it's actually they have too little.

Okay. But once they have, once they go to their doctor, their doctor is going to recommend one of these drugs to reduce the production of or increase the suppression of your stomach acid.

The reason that's a problem is exactly what you just said. You need stomach acid to properly break down and extract nutrients from your food, like amino acids, the building blocks of protein.

Your bones are 50% protein by volume. They need amino acids, calcium, magnesium, iron, B12. If you do not have adequate stomach acid, your body and your bones will be starved of these nutrients.

So really, really important to make sure you have good stomach acid production. Absolutely. And then what about the microbiome? Because that plays an important role as well, right?

Not only in the immune system and our body's ability to deal with inflammation, but also with bone health. Are you suffering from Lyme disease or another complex chronic illness and aren't sure who to trust when it comes to herbal supplements?

Hi. I'm Dr. Mariah Hinchey, founder of Lyme Core Botanicals. As a naturopathic physician specializing in complex, chronic, infection-driven illnesses like Lyme disease, I needed herbal medicine I could truly trust.

That's why I formulated Lyme Core Botanicals. where our herbal tinctures are handcrafted in small batches right here in Connecticut. We use the whole herb, Never Isolates, to preserve the full spectrum of medicinal compounds.

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

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

Learn more at Lyme Core Botanicals. That's L-Y-M-E-C-O-R-E dot com. As I was, let's even go back to what I was talking about where it's soil and roots and you could have, you want to have healthy soil and healthy garden environment, right?

If you have certain infections or you have parasites or bad bugs in your soil, or maybe you have, maybe they are good bugs. but they're just in the wrong place.

Small intestinal bacterial overgrowth, small intestinal fungal overgrowth. You need to be able to know so that you can address those. So getting a good gut health test, a good functional gut health test can be really, really helpful.

So you can look at the markers. See, do you have some kind of gut infection that needs to be addressed, that needs to have some protocol developed around it?

And you work with whoever you're working with. whether it's your functional provider or, you know, Dr. Mariah or whoever, you're figuring out what it is at the root of all that so you can actually address it.

Yeah, that's a great point.

Testing Bone Turnover and Identifying Root Causes

Definitely finding a provider that knows what tests to order because there's just so many different things out there and a lot of them, you know, I have a lot of patients, they're like, oh, you know, I had my stool checked and it's like, you know, they had an O&P and it's like, whoa, that.

That's not what we're talking about. You need something that's evaluating your full digestive abilities and analysis, the microbiome, looking to see if there's an overgrowth of opportunistic bacteria or fungi.

And do you have enough of the various strains of healthy probiotics? You know, much less parasites and things like that. That's kind of like the tip of the iceberg when it comes to, you know, doing like a stool test.

So that's a really good point. Yeah. And I would say too, I would say too, if you go to your conventional physicians, it's, they're not trained in the functional tests, right?

I have actually taken in the past long time ago, I have taken functional tests in and they, they poo-pooed on the actual tests. Like it wasn't actually a valid or legitimate thing, but we know when you get more into the naturopathic functional side and you can do some of these tests, there is some valuable data that can come from them.

So yeah, definitely worth exploring. There definitely is. And just how you started this whole discussion here, your issues with your bones came from your gut.

And it's funny because we keep coming back to the gut. And even with all of these tick-borne diseases, they affect the gut. And a lot of people don't realize that.

And it's like if your gut isn't functioning properly, It doesn't matter what supplement you're taking. It doesn't matter what herb you're taking. It doesn't matter what you're doing because you're not going to be able to absorb and utilize it.

And you have increased toxicity, right? Which is going to cause a whole host of other things because you're basically leaking your toxins back in through your gut, which is supposed to be able to get them out of the body.

You know, I was taught in school, like, you know, if you don't know what to do, treat the gut. And I have to say the longer and longer and longer I've been in practice, the more that has rang true.

So what do you suggest people with, because the majority of our listeners have some sort of tick-borne disease or have a loved one who does or suspect that they do, you know, in addition to treating the infections, which is the obvious piece and maybe even focusing on regaining gut health and things like that.

How do you suggest that people look at bettering their bone health when they have these infections? Well, I break it down into a couple different big steps.

The first step that I break it down into is identify. Identify and address root cause issues of bone loss and we can look at different markers to see the state of your bones even before or after or in between bone density scan.

So a bone density scan is a test that you go and get that'll actually tell you your bone mineral density and it'll help you understand if you have osteopenia or osteoporosis, right?

So you get this test. But that only gives you one data point. It usually only gives you your bone density. There are other tests you can look at to understand your bone quality, the structural integrity of the bone.

There's one technology called TBS, trabecular bone score. This is like an add-on software to the bone density scan. If you're going to get a bone density scan, call the facility ahead of time and ask them, hey, do you have this

technology?

and they could do it at the same time as your scan. There's also something called REMS, more prevalent in Europe right now, not surprising, trying to make its way into the US, but it is an ultrasound technology that tells you your bone density, your bone quality, and gives you a five-year predictor of fracture.

That's another tool that you could use to really start to understand the picture of what your bones look like, the total picture. And then there are diagnostic or lab marker tests that you can look at, which are called bone turnover markers.

And these tests can help you understand the activity level of cells that are breaking up and building, uh, breaking down and building up your bone. So the most sensitive marker for bone resorption or breakdown is serum CTX or CT lo peptide test.

This test looks at the activity level of cells that are breaking down bone. And if that activity level is elevated or really high, so in somebody that has Lyme or some other condition, if you look at that, I would bet there's probably some elevation in that, in those markers.

We want to see that coming down. You can see improvements in these numbers in three to six month periods, right? So you would only get a bone density scan every one or two years.

But if you're looking at these bone turnover markers, you can look at them every three to six months. So that is, those can be like leading indicators that you're moving in the right direction.

And then if you're looking at bone resorption or breakdown, you also want to look at the other side of the picture and look at bone formation. What does that look like?

So we have the most sensitive marker for bone formation. That is P1NP, pro-collagen type 1 N-terminal pro-peptide. That is the most sensitive marker for bone formation.

So you look at those and you want to see bone resorption coming down, bone formation coming up, the ratio between the two improving three to six month periods.

You want to see that happen. Uh, so those are some ways of, those are like starting points for anybody. If you've got Lyme or you've got something else, you want to understand the state of your bones.

That's where you start. And if that, if that activity level is elevated, that bone resorption is high. Now we've got to figure out what's the root cause of that.

and address that. Let me interrupt you just real quick. Are these specialty tests that need to be done at an alternative lab or are these tests that can be ordered through a conventional laboratory?

Great question. They can be done through conventional. Sometimes a GP will order them, a general practitioner will order them. But sometimes they won't.

If they don't understand the interpretation of the test, bones have a little bit of nuance to them. So they might try to refer you out to an endocrinologist or rheumatologist.

Sometimes the endocrinologist will order them. Sometimes they won't. If they won't, we teach people how to go outside and get those tests ordered. You can go to functional practitioners, get those tests ordered.

So there are ways to get the answers in a cost-effective way too. So Kevin, jump right back into what you were saying. So that's the first part. Identify, figure out what are the root causes of bone loss, address those things.

Sometimes it's not just Lyme or other infections that you have. It could be something else too. So figure out what

that is and address that. At the same time, you can be focusing on the second step that I like people to focus on, which is nourishing the body.

And so you don't have to do one and then do the other. You can do some of these things together at the same time. So nourishing the body, that would be taking in the right nutrients, taking in the right amounts of those nutrients.

We talked about some of those nutrients earlier, making sure you're actually absorbing those nutrients and making sure those nutrients are making it to the cell level.

Nourishing Bones With Key Nutrients

That's part of, that's all part of what I would call nourishing the body and the bones. And we talked about some of the important ones, calcium, magnesium, vitamin D, vitamin K2.

I would say vitamin C is another really important one for not just your immune health, but also your bone health too. If you remember, I said that your bones are 50% protein by volume.

Well that, that protein is, it's a collagen protein matrix structure that has minerals kind of laced into it. Vitamin C stimulates pro-collagen. It enhances collagen synthesis and it stimulates something called alkaline phosphatase activity, which is a marker for bone building cell formation, which is pretty cool.

That is vitamin C is great. If we don't have enough, especially long-term, that's going to increase our risk of fracture too. So vitamin C really, really important to make sure you have incorporated into your plan.

And then we talked about nutrient absorption already. If you have chronic digestive issues, bloating, belching, burping, gas, constipation, diarrhea, IBS, loose stools, there's a good chance something's going on with absorption, right?

That has to be addressed. So let's figure out what that is and address it. I talked about celiac disease for me specifically. The only reason I even knew to get a bone density scan was not because of the medical doctors that I had met with at the time.

It was actually a physician's assistant who, who like kind of just in passing by, it was like, Hey, you have celiac disease. Has anybody done a bone density scan on you before?

Me, I'm just thinking I'm a tough Marine. You know, my bones are fine. Like I don't, and it didn't even register. And I was like, yeah, I'll do the test.

And we went and we did the test and it came back that I had osteoporosis and And now I didn't get a formal plan though. I didn't even get a phone call.

Actually. I got a letter in the mail that said you have osteoporosis go on a gluten free diet. That was the extent of my plan. And it's like. That is woefully inadequate.

So I would say one of the first things you have to do is figure out if you have celiac disease too, or Crohn's or ulcerative colitis. For celiac disease, the tests that you want to look at are minimum TTG IgA test, total serum IgA, and look at the IgG and IgA antibodies.

You can also ask for a complete celiac profile. That's one way. And that's going to help you understand if some of those markers for celiac disease are elevated.

And if you need to go get what's called an upper endoscopy where they put a scope down and they take a little sample of the villi, the roots, they take a little sample to see if they're blunted.

And if they are, they'll confirm and they'll say you got celiac disease. Solution for that is a 100% strict gluten-free diet. No cheating ever again, but you get to eat just like our ancestors ate, which is great.

I don't feel bad at all for eating the way that somebody with celiac disease does. So making sure you understand that. And then the last part, let's move now to the third most important phase of this, which is build.

We got to build that bone strength up. So you can figure out the root cause. You can stop losing bone. That's the first step. Can't start going up and improving if you're still going down and losing.

Then the second step is nourish. You got to get the nutrients, the building blocks there, make them available, be able to absorb them. And then the third step Is now it's time to build.

Now we got to get the stimulus that the bones need to become stronger. Because even if you take all the right nutrients and you're actually absorbing them, if you don't provide the stimulus, the bones can't become stronger.

So we need to have weight bearing exercise. And resistance training, we need impact. We need muscle pulling on bone. Okay. So when we have muscle pulling on bone, we got a mechanical signal.

It sends a chemical signal to tell the bones to become stronger. Okay. And most of the people are only told, Hey, go for a walk, do some walking. That's, that's good enough.

It's not walking is not enough. You have to have more. So you want to have weight bearing exercise where your body, your bones are working against gravity to keep you up, right?

There are things you're doing on your feet. They're placing a good, healthy stress on your bones. Walking, jogging, hiking, gardening, playing with the kids or the grandkids outside, yoga, Pilates, Tai Chi, Qigong.

All of those things are weight-bearing exercises. You want to incorporate those into your plan. And notice they're not all formal exercise. They can still be fun things that you're doing.

You want to be aware of non-weight-bearing exercise, which are things that you're doing where you're not placing good, healthy stress on the bones. And this could be a situation where somebody who has arthritis, because those joints have been degraded a little bit, they are maybe swimming in the pool as their only form of exercise.

And they get out of the pool and they're like, gosh, I got my exercise in. That's all I need to do. I'm good to go. It's great. If you enjoy doing that, do it, right?

If it brings you joy, makes you feel good, reduces your stress, keep doing it. But do not count that as your only form of exercise. You have to bring in resistance training and muscle strengthening exercise.

You have to have good, healthy stress. And that's where you bring in the, whether it's the barbells, the dumbbells, the machines at the gym or the I really like variable resistance bands too.

Building Bone Strength With Exercise

Some of the best exercises that you can incorporate for a bone building plan would be squats. This next one sounds intimidating, but it doesn't have to be.

Deadlifts. If you've never done those before, Don't go look at videos and say, oh my gosh, I see this person deadlift in a ton of weight. I can't do that.

You don't have to start there, right? You start when you have somebody look at your body mechanics, help you get the right form with lower weight, slowly progress your way up to where you're actually providing the stimulus and the right rep range.

Five to 10 repetitions is great. To where you can actually provide the stimulus your bones need to become stronger. And then another favorite is overhead presses.

So those are some great exercises that you can incorporate. And again, you don't have to start really heavy. I would highly suggest you don't. I would start with good form.

Look at your body mechanics and slowly progress your way up. I think a lot of people think that they have to go out and start running or jogging. And I want your opinion on this because I have patients that come in that are jogging, even though they have Lyme disease or another tick-borne disease that's affecting their joints and eating their collagen and breaking down their cartilage.

And so I'm always telling people like, look, pounding on inflamed joints, in my opinion, is not a good idea. And so I think it's really important that people hear that they can do things like squats and deadlifts and overhead presses, you know, or they can be doing things to push their own body weight around, you know what I mean?

If they can't tolerate holding other weights and that is, you know, that is still weight-bearing exercise. And in my opinion, it's better than going out and trying to run or jog, which can then actually be depleting and increase cortisol levels, right?

And cause adrenal stress and all of this other stuff that can actually further their immune dysfunction. So I just think it's really important for the listeners to hear, you know, and I do want your opinion.

I mean, what do you think about doing sort of like pounding exercises on inflamed joints. Good idea? Bad idea? Yeah, I mean, if you've got inflammation and there's clear and obvious pain too, that's not something you want to be doing.

How can we put together an exercise plan that helps you provide the stimulus but doesn't aggravate the pain? Sometimes pain prevents people from doing exercise altogether, which is not what we want.

but it can also compromise your body mechanics and put you at greater risk of injury. So if you have inflamed joints and you have pain when you're doing these activities, work with somebody.

Figure out what's going to work for you where you can still get some exercise, still feel good, still provide the stimulus your muscles and your bones need, because that just becomes more important as you get older and as you age.

So you want to be more preventative now. Let me talk specifically about running, especially long distances too. Bone responds to different stressors that are placed upon it.

So when we're younger and we're building within the first 18 years of our life, 90% of our bone mass is put on. It's great when our kids and our grandkids, so listen up if you've got kids and grandkids too.

It's great if they're out playing sports, running around, doing gymnastics, moving their bodies and their bones in these short, sharp, dynamic movements, multi-directional, right?

Those different impacts, providing different stimulus on the bones, that helps build better quality, stronger, healthier bone from a young age. So if we get people doing these things the right way from a young age, We could add an extra 10, 20, 30 years on to their life if we do this the right way when they're younger.

So that's why we want kids to be, not be sedentary. But as we get older too, a lot of people, they only do running as their only form of exercise. That's not good either.

Think about that. When you're running, you're running in, remember I said, when you're younger, moving in short, sharp, dynamic, multi-directional movements.

When you're running, same pit, pat, pit, pat, pit, pat for long, long distances. That's going to be hard on your joints. And it's also not going to be an effective stimulus for your bones.

You're only working your lower half. Think about where a lot of people fracture to their wrists, their forearms. What kind of stimulus is being provided for anyone when they're walking or jogging or running?

up here in their upper half. None. None. So we have to be incorporating that resistance training and muscle strengthening exercise. Yeah. Great. I'm glad we brought that up because that's an important one.

So are there adjunctive therapies that you would recommend? Like, you know, we've talked about in this summit, like PEMF, red light therapy, hyperbaric oxygen.

I mean, are there Are there any of these modalities out there that can actually help to improve bone health or increase bone density? Great question. Yeah.

So PEMF could be something that's used. Most, most of the time I see people, they don't, they don't even have the foundational stuff down before they start branching into the complementary or additional technologies.

But yeah, once you get the foundational stuff down, then you can start adding in other things. PEMF can be helpful. Rebounding, you know, again, It just depends on the person's situation.

If they have vertebral fractures, right? Or they have, they have, it's really painful. If you start to do something that's painful, discontinue, right?

Listen to your body. Listen to your body. Don't just, don't just push, keep pushing, but red light therapy. You know, I have a red light therapy device right there.

I have another one. right here, right? So it's helpful.

Adjunct Therapies and Nutrient Testing

The studies on bone are not, you know, they're not really strong for bone specifically, but if you think about it, it's helping with mitochondrial function and a variety of different other things.

There are probably some other benefits that come with that too, relating to our bone health also. Yeah, there are, I think sauna, I know there's not like clear data on sauna and bone health specifically.

So I know I get, I get a lot of questions about that. People are concerned about sweating out minerals and electrolytes and nutrients. If you are doing any kind of sauna, you have to be replacing those electrolytes and those nutrients.

You have to be doing that because those are minerals too. So again, your bones need, need minerals. I'm really interested in things like heat shock proteins and maybe the impact that that would have on our bones too.

So I'm interested to see where the research goes with that, but there's nothing at least that I've seen so far that's really definitive on the impact of that.

Yeah, I would say those are, and stem cells and peptides potentially could be helpful too. So those are different things you could discuss with different practitioners, but I would say get the foundation in first and then we can branch into other complementary technologies.

I meant to ask you earlier, so speaking of nutrients and nutrient testing, because I have a lot of patients who come in and they're like, oh, you know, my chem panel shows that my calcium levels are absolutely fine.

And I want your opinion on using like a test like a white blood cell analysis that's going to look at intercellular levels

versus you know, like our body strives very, very hard and there's such like a minute range that calcium, you know, is going to go out in your serum because you would be at risk for having a heart attack or something.

So what do you recommend to get levels of nutrients like calcium, magnesium, the 25-OHD3 or cholecalciferol through, you know, a conventional lab? Conventional lab is pretty reliable.

But getting like the K2, the magnesium, the calcium, like on an intercellular level, what's your favorite way of looking at that? And is that something that you look at with your clients?

Yeah. So the first thing we typically try to do is if somebody's coming to us, we're trying to get them to do as much as they can. If they're trying to get it covered by insurance, we're going to try to help them get as many of the things they possibly can cover by insurance.

But there are other You can always go do a lot of functional testing, right? To get other things. So we can recommend gut health testing. GI map is one.

Genova GI effects is another test. The Dutch hormone, hormone test is another one. micronutrient panels can be helpful. Yeah, looking at those different levels can be really beneficial.

Food test, food sensitivity testing, those are some other ones. Red blood cell magnesium is, that's another one. So even if somebody goes to their doctor and they get a comprehensive metabolic panel, the CMP, and that has their, their blood calcium levels in it.

That can actually be kind of telling for another condition that is associated with bone loss, which is hyperparathyroidism. So if somebody has elevated calcium levels, even if you're going to your conventional doctor and you see this on your regular blood tests, your calcium levels are persistently above 10, that could be an indicator that you have a parathyroid tumor.

typically benign, but you would go then confirm with PTH tests, parathyroid hormone tests, and also a vitamin D level. And that's going to really tell the picture if you have a parathyroid tumor.

So that's actually another cause of bone loss that you can spot in your blood work, even if you're just going to your conventional physician. So that's a big one.

Persistently above 10, look at your lab work, go back and look at it over the years. That's something you want to investigate. Then go get your PTH and your vitamin D done at the same time with your calcium levels.

It's a really good tip. Thank you. So Kevin, before we end our interview, what would you say are your top three pieces of advice for listeners, specifically those that have Lyme or a tick-borne disease regarding their bone health?

A couple of other ones that we didn't talk about, but are, are really important for your general health or any time that you're trying to heal from infections or chronic disease or anything like that is prioritizing stress and sleep.

I think are very, very important. If you've got high stress on an ongoing basis, your bones are going to be affected and depleted. If you're not sleeping, if you're not prioritizing your sleep and it's really poor quality sleep, that's going to affect your bone quality.

That's pretty well documented. Okay. So those two things specifically, reduce your stress. And I don't mean just, you know, taking a sigh every now and again.

Cultivate a good healthy practice of meditation. I personally do eight minutes of breath work every single morning, which that was kind of the next step.

It took me a while to get to that, but meditation is something that can be done at any time of day.

Stress, Sleep, and Final Advice

And you can just. Take a deep breath in through your nose, long, slow exhale through pursed lips. Even just doing that a couple times can really, really help reduce that stress response and put you in what I would call the green zone.

The rest digest, relax kind of state. So that's, that's really, really helpful to do. And then your sleep. Just basic sleep hygiene stuff. As you get closer in the evening, don't be playing on your devices.

Even if you have the dimmers on these iPhones here. and you put it on the orange setting and you slide it down, even looking at that is still communicating daylight to your super chiasmatic nucleus inside your brain.

Your primary circadian pacemaker is saying, hey, it's time to be awake and time to be active. You don't want that. within an hour, two hours, three hours of going to bed, right?

So how can we start to, to slow that down at night and really set the stage for the environment, be dark, be cool and really get some restful sleep. So those are some other big ones and just be patient with yourself.

Be kind to yourself. It's, it can be really challenging when you have a chronic health condition and you try a whole lot of different things and just hope that they, they're going to help or they're going to work.

And they don't always work. Not all of them do. So you have to develop patience. And I always tell people, approach things with curiosity instead of expectation.

And if you do that, your disappointment will disappear. So approach it with curiosity instead of expectation, your disappointment will disappear. And just, just be kind to yourself.

You'll get there. That's really great advice. Thank you. Why don't you tell our listeners how they can contact you or get helped by you if they would like to do so.

Well, you can always find me at bonecoach.com. That's the best place to find me bonecoach.com. We've got a lot of free resources there, uh, to help support stronger bones.

We also have stronger bones programs that you can apply for there too. Uh, and just again, bonecoach.com is the best place, but we also have a podcast, which I should have you Dr.

Mariah on. Uh, we've got a podcast, a bone coach podcast, and then you can find us on places like Instagram and Facebook too. Okay, wonderful. Anything you'd like to share before we conclude?

Anything else? I'm just, I appreciate the opportunity to share this. It's an important topic and we got, we got to preserve and strengthen the structure that's going to carry us to an active future.

And we got to help, we got to become the shepherd for our kids and our grandkids too, so they can live strong and healthy lives. Absolutely. Thank you once again for joining us and thank you everyone for listening.

I hope that you have found this information helpful and it helps you on your journey to healing Lyme. Thank you. We'll see you next time. If this episode gave you an answer, brought you new insight, or made you think differently, subscribe to the Lyme Bytes podcast and share with someone who's ready to take control of their healing journey.

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