



Dr. Jill Carnahan, MD - 00:00

Hey everybody. Welcome to Resiliency Radio, your go to podcast for the most cutting edge insights integrative and functional medicine. I'm your host, Dr. Jill and with each episode we dive into the heart of healing and personal transformation. Join me as we interview thought leaders, medical experts and interesting people of all sorts and backgrounds. As you know, I'm here along with you each week, learning and growing and hopefully bringing you trust transformative information. Today's guest is a dear friend and beautiful, brilliant expert in the world of hormones, menopause, functional medicine and today we're going to dive deep into estrogen and hormones and the microbiome. I think you're going to find tips and tricks and things that you had no idea were connected and hopefully help you on your way to living a better life and more optimally performing in the world.



Dr. Jill Carnahan, MD - 00:52

Before I do, I just want to remind you that you can find great products and curated services@doctor realhealth.com and today I wanted to be sure and just remind you of one of my very favorite products in the Dr. Joe Beauty line. This is called Advanced Retinol 5X with Bakuchiol. I don't know if you're like me, but here in the state of Colorado it is incredibly dry. Like really like here we are. Well, it's 39 right now, which is not too bad, but we've been as low as 12 in my office in the winter. And with that dryness I think our skin really takes a hit. And retinols have been powerful healers for the skin and fine lines and wrinkles for a very long time. There's nothing new about that.



Dr. Jill Carnahan, MD - 01:31

But this product I am loving because it really improves that appearance of fine lines and wrinkles and does not dry or peel the skin. It's so much more powerful and also more gentle. So be sure and check out the advanced retinol 5x with bakuchiol@drjillhealth.com it is one of our best sellers. I know you won't be disappointed and let me go ahead and introduce our guest. Dr. Christine Marin is not only a friend as I mentioned, but she is a powerhouse of a woman. She was just featured in a microbiome seminar and won an award and I'm just so proud to be her friend. So let me go ahead and give you an introduction. Dr. Christine Marin is a board certified family physician certified by the IFM Institute of Functional Medicine and Menopause Society.



Dr. Jill Carnahan, MD - 02:25

She blends the best of conventional and functional medicine to uncover and treat root causes of hormonal thyroid, gut, autoimmune and metabolic imbalances. Having personally navigated fertility challenge and perimenopause, Dr. Marin brings both clinical expertise and lived experience to her work. You will find her fun, delightful and full of knowledge on the microbiome. Let's get to the show. Dr. Christine, you are not only a world renowned functional medicine leader in so many areas, you've transformed yourself, your practice and just you're out in the world in this incredible way, but you are also a neighbor and a precious friend to me. So I always get excited because again, I know you in the world and I see you in the world and I'm your biggest fan.



Dr. Jill Carnahan, MD - 03:09

But I know you as a friend and we go on hikes and we have coffee and we talk about deep talk deep topics and things in gut and so I am just absolutely delighted to have you here on the podcast.



Dr. Christine Maren - 03:20

Oh, it's such an honor. One to be your friend, two to be your colleague. I've admired your work for literally ever.



Dr. Jill Carnahan, MD - 03:28

Oh, thank you. I mean same thing as mutual admiration society because I just see you transforming and growing and being in the world and winning awards and I could not be more proud of you as I'm like, that's my friend. So truly an honor today. I am so excited. We just had a little conversation before we got live here because there are a lot of people talking about menopause, about hormones, all really important. You and I agree very strongly. We can talk weave that in today. But something there are not a lot of talks out there that I think is equally important. Probably more important is the gut microbiome and how it's affected by hormones. And I know you've given several keynotes lately about that.



Dr. Jill Carnahan, MD - 04:06

Today we're going to dive deep and we're going to weave into all kinds of things, especially hopefully empowering all the women out there. If you're a husband listening, empowering your wife or partner or daughter or mother or whoever, whatever woman is in your life. But before we do, I love story and Christine, you've had such a journey. Do you want to tell just a little about how did you get into medicine and then how did you end up here?



Dr. Christine Maren - 04:27

Oh yeah. I have had such a journey and you have seen so much of it. Boy, I went into medicine, you know, I actually have a degree in business, which is wild. Did you know that?



Dr. Jill Carnahan, MD - 04:38

I had no idea.



Dr. Christine Maren - 04:39

But no surprise, my undergrad is in finance and that is not my passion. And I that became really apparent to me. I was like this is My friends were like, reading about the stock market because, you know, that time it was a newspaper and I was like immersed into exercise physiology and I was teaching group fitness and I was really into, like, health and wellness. Anyways, I pursued that passion. I had a deep sense of, like, really wanting to serve

others. And I went into. I switched to pre med. I finished as a business undergrad, but anyhow, so I went into medicine. But I really did it from this background of wanting to practice more holistically. When I was in college, I was diagnosed with PCOS because I had messed up periods and they gave me a birth control pill.



Dr. Christine Maren - 05:26

And even at the age of 18, I was like, this doesn't make any sense. Why would I take a birth control pill? Fast forward into this phase of my life where I'm applying for medical schools, and I really wanted to go into something more holistic. I even looked at becoming a naturopath or a chiropractor. So I became a doctor of osteopathic medicine. I pursued family medicine as my residency training just because it felt like the broadest sort of swath for, you know, getting the knowledge I needed. But literally from the beginning, I knew I wanted to do something more holistic. And then, you know, things collided. My personal health took a nose dive, probably related to pregnancies and the stress that puts on our body. And I started looking into functional medicine for my own health issues.



Dr. Christine Maren - 06:12

You know, a lot of my story, like Hashimoto's hypothyroidism, hormone imbalance, mold toxicity, ibs, C, fungal stuff, Candida, like, it was a ride. Histamine issues. We'll talk about histamine issues later. So it was a ride, it was a journey. It really led me to this place over the last, you know, maybe four or five years where I got to this place where I was so hyper vigilant and just stressed. And what was driving me, I'm like, there is something missing here. Like, I'm doing everything and I'm not getting that far. I'm not getting the results I want. And it really came down to this, like, nervous system dysregulation and then exploring that piece and like, really unwrapping it. And, you know, it does a number on that is mold, right? I mean, I know, you know, that you taught me that.



Dr. Christine Maren - 07:00

And yeah, so, I mean, my journey really changed in the last, you know, four or five years. It really dove into menopause medicine as well, because I saw what a change it made in my patients and then even in myself. You know, in my perimenopausal years, I'm 45. And so, I mean, that's my journey in a nutshell. I land on the other side. I feel like I've really come full circle, but also feel so grateful to have all this experience behind me, which really helps me care for patients in a different way.



Dr. Jill Carnahan, MD - 07:29

It does and it shows. And I've just seen again, your transformation. And I remember the mold days for both of us, and we both had our own stories and water damage in the house, and we're like, freaking out. I'm freaking out for you. And all the stuff you went through, I really like. Even so starting with that story, because often people out there are stuck in this story of, oh my gosh, I have mold, and that's the end all be all and feel hopeless. And they feel like it's so overwhelming. And it is. But one thing that's so fascinating about your story is that's part of it. But hormones, cortisol, thyroid, and even. We'll talk about nervous system regulation as well, because even embodiment, which you and I are both so feel so strongly about empowering women is so powerful.



Dr. Jill Carnahan, MD - 08:13

And I've always said, like, even with mold, you have to start with the limbic system. No amount of mast cell issues or treating infections or toxic load is going to help if your limbic system is in fight or flight. And that was just a little of your story. And what I can see, as your friend in the world, is you are just so powerful out there as a woman that's leading the troops in this way of women empowerment. But it really starts with that, you know, who am I? How do I show up in the world? And then how do are my hormones imbalance? So maybe take us on that last little bit, because you've really transformed yourself, your life, your practice in an incredible way. And you were always incredible. Now you're even more incredible.



Dr. Jill Carnahan, MD - 08:50

But what's that journey been like in the last little bit of this real understanding of, wait a second, how do we really show up in our bodies? And that's part of the issue, right?



Dr. Christine Maren - 08:58

Yeah, exactly. So embodiment. So first of all, dissociation or disembodiment is this chronic coping mechanism? Well, I shouldn't say chronic. It is a coping mechanism that we have for a reason. And when it becomes this chronic sort of status quo for us, that is when women get into trouble. And I see so many women out in the world doing so much, working so hard, taking on so many different things, and really over performing in many aspects of their life. Right. They're often women who have a job, they're lawyers or doctors or CEOs or whatever they are. And they also have this other full time job at home being mothers. And obviously not all women struggling with chronic illness are mothers, but those who are have two full time jobs. It is hard work and we take on so much.



Dr. Christine Maren - 09:48

And I think a lot of this goes back to childhood conditioning. You know, we're taught as women, especially if you're born in the 1970s, 80s, 90s, like we grew up in this era of feeling like we can be anything, but we're still doing everything, we are still doing all of the things that happen at home and carrying all this mental load and all of that adds up. And eventually I think that women get into their 40s and get into this perimenopause timeframe. And perimenopause is really, I call it the unmasking effect. So the unmasking effect is just like we've ripped off the band aid, we've ripped off this buffer of hormones and so we just don't have that margin anymore. But it's not just about hormones. Like this timeframe is just.



Dr. Christine Maren - 10:31

It's not just about hormones, it's about thyroid dysfunction and autoimmune disease and really hugely the gut microbiome, which often gets neglected. So hormones are important, yes, but so is the gut microbiome and so is

the way you talk to yourself and the way you show up for yourself and the way you nurture yourself and the way you live in your body. So I think step one is really the decision to like show up for yourself and then reconnect. And that's part of the reason I dance. Like when I gave this keynote last weekend, I had everybody stand up and dance with me. So dancing and listening to music, that's like one way that we can attune to ourselves and like really connect in our body. So it's a good place to start. And not everybody loves to dance.



Dr. Christine Maren - 11:12

I think the best way to do it is just like with your eyes closed and nobody watching, not for performance, but really just to like get into your body and connect.



Dr. Jill Carnahan, MD - 11:19

Yes, love that. And dance is so powerful. And then some people out there might be go walk in nature or read a book or color or whatever, but dance is so all these things where we. And again, I had my own experience of dissociating due to trauma. And then in my 40s, very similarly like, whoa, I have been so out of body. And, you know, medicine teaches us to dissociate because it's so not meant for a whole embodied woman. It's like the exact opposite. Paternalistic, analytical. Nothing wrong with that. But there's not credit given to the intuitive. The sense of the compassion, the empathetic, the sharing our story with the patient, the crying with pa, like, the things we're actually taught to basically be. Shut down that empathy, shut down that intuition. Don't you dare trust intuition.



Dr. Jill Carnahan, MD - 12:04

So we have to unlearn that in our 30s, 40s, you know, and many women in the culture the same way. Now, one of the things we're going to get to the microbiome, guys. So promise, stay tuned. But before we do, this is so important, one thing I also heard for you is how do we really ask for what we need? And I think you and I have both been, like, high achievers in our family. We talked about this before. Highly responsible at a young age. And so we got piled upon because we could handle it. Right? And unlearning that and saying to a spouse, to a partner, to a friend, to a co worker, I need your help. I need you to show up to do this for me.



Dr. Jill Carnahan, MD - 12:41

At least for me was a really hard language to learn because I thought I had to do it all myself. I see your eyes, like, opening. So tell me a little bit now. I'm right there with you, sister.



Dr. Christine Maren - 12:49

Yeah, I know.



Dr. Jill Carnahan, MD - 12:50

Learn that.



Dr. Christine Maren - 12:51

Absolutely.



Dr. Jill Carnahan, MD - 12:51

Ask for our needs, because part of us growing, we can't do it all. Yeah, we can't ask for help, right? Yeah, but there's a shame about that. How do we actually shift that?



Dr. Christine Maren - 13:01

I mean, I think the number one thing is just looking at it, right? When we shine light on things like that, we start to understand them a little bit better and they start to dissipate. And so I think it's really shining the light on it and understanding how are you over compensating or over performing or over functioning in whatever relationship that is. And then hopefully you have a partner that you can have that, you know, conversation with and ask for help. Hey, it makes me uncomfortable to ask for what I need. I'm gonna do it. But it's not easy. Like, my husband has been through this whole conversation. It's not easy for me. This does not come naturally. What comes naturally to me is just dropping everything and doing everything for everyone all the time. So it's a practice, right?



Dr. Christine Maren - 13:41

Like, and I think part of it is this doing it and then thanking ourselves and giving ourselves this positive feedback. And encouragement. So we do it more. And until it starts to become more habitual, just like anything else we do. Right. When we start working out or start following a new diet or whatever it is. I mean, I think it's just those little habits and we pick a habit, make a concerted effort to change it, be gentle with ourselves when we don't, and reinforce it in a good way when we do.



Dr. Jill Carnahan, MD - 14:08

Yeah. You know, it just brings to mind one of my favorite authors all time. I'm sure you love her as well, Liz Gilbert.



Dr. Christine Maren - 14:15

She's just totally self abandonment. Right.



Dr. Jill Carnahan, MD - 14:18

Love her. And she's been out and about on podcast ever because the book is out. Right. So I'm sure you've heard we shared some.



Dr. Christine Maren - 14:23

Yep.



Dr. Jill Carnahan, MD - 14:24

I really love. She talks about love and sex addiction. And while that's an extreme case, I can very much resonate with the core principle of that, which is what we're talking about as women. They use the term lava, which is we're wanting love, acceptance, validation and admiration. And that lava. Often we sacrifice ourselves to get love, to get acceptance. We don't want to make waves, we don't want to ask for what we need. And I really have loved how she's brought. And she's so brutally honest. I love her for that. I mean, she is just such a hero because she goes out there and talks about this addiction and no one's talking about that. And. And the thing that maybe not of all of us are that kind of an addict, but maybe it's work, maybe it's an.



Dr. Jill Carnahan, MD - 15:03


I really more and more believe that we all have some way to cope with our inadequacies, our shame, our guilt. And most of the times we could name it as an addiction. It might be work, it might be food, it might be shopping. And a lot of these things are kind of socially acceptable. Like you and I, successful in work. Right. But did we have a partial addiction to that validation from. Who knows? But I just think it's. I love talking about it. Love hear. Liz talked about I love you and I conversation. Because the more times we just say, hey, it's normal to find your worth somewhere outside of yourself, but what if you go back and really try to find that within yourself and then you don't need that lava.




Dr. Christine Maren - 15:37

Right, Exactly. Yeah. And I think one thing she said was stop self abandonment. I'm not going to self abandon


anymore. And so just making decisions from that place, like going to dinner with this group of people, is that going to abandon me and my needs and what. What Christine Needs, yes or no. I mean, I think that's a good place to start. And just this lack of really showing up for yourself and. And selflessness. One of my favorite quotes as of late is selflessness. People who are selfless lose their sense of self, and yet in our culture, it's praised actually to be a woman who is selfless.

 Dr. Jill Carnahan, MD - 16:17


Yeah.

 Dr. Christine Maren - 16:17


Yet I think everybody who's been through this work would agree, once you actually show up on the other side and show up for yourself more, you show up for everybody. El else better anyways, not showing up best as a selfless human.

 Dr. Jill Carnahan, MD - 16:31


That's the secret. Right. Because at least for my cultured, conservative, Midwestern background, it was, oh, my gosh, you need to be. You don't be selfish. Right. The other opposite of that. And the truth is, they're not opposites, because when you do show up for yourself, you can actually give more to those people who need you in their life.

 Dr. Christine Maren - 16:47

Yeah.

 Dr. Jill Carnahan, MD - 16:48

Okay, so this is so good, and we can weave this back in, but let's shift to our real topic at hand. Although I think that empowerment and not abandoning yourself is such a foundation to everything else. We're going to say the gut microbiome. Now, many people may have not heard that there is a direct relationship to your hormones in the gut microbiome. Tell us more about this.

 Dr. Christine Maren - 17:08

Oh, it's so fascinating. And this is where I think it's amazing that people are talking about hrt. And the gut microbiome, like you mentioned, is so important for the safety and the efficacy of the hrt. So if you're going to do hormone replacement, look at your gut. So. So this is really interesting research that has actually just come out since around 2018, 2019. That's when we first started seeing menopause pop into the literature when we talk about gut microbiome. And so we see this distinct shift in menopause, where women experience a decrease in diversity of the gut microbiome. So diversity is a really good thing. And women have a lot more diversity than men in the premenopausal time frame. But after age 4, 40, it plateaus and we start to see decreasing diversity.



Dr. Christine Maren - 17:55

And along with that decreasing diversity, we have increased dysbiosis or increased gut infections, increased intestinal permeability, what's known as leaky gut. We also have an increase in things like autoimmune disease. So looking at the way that estrogen shapes the microbiome is just, it's fascinating. And, you know, testosterone, thyroid hormones, progesterone play a role and so does cortisol. And just to bring it back in, so does the way you talk to yourself, right? These psychological kind of messages you have going on in your head, like thoughts create feelings go outward into your body and influence even our gut microbiome.



Dr. Jill Carnahan, MD - 18:33

Hey guys, just taking a quick moment to remind you that my documentary doctor Patient is available now on Amazon prime or streaming on YouTube and Tubi for free. You can also pay for it on Vimeo. Again, if you go to doctor patient movie.com it has been a really lifelong joy and ability to share this documentary and story of several patients who've overcome complex chronic disease and my own journey with you in this format. So go to doctor patientmovie.com check that out. Share it with your friends and family. And now back to the episode. So profound. And again, I love that a couple things you said I think are so key. Diversity is king. And we talk about diversity. And at least for me, for I've been in the gut world for 20 years, right, teaching on this stuff. And I talk about diversity.



Dr. Jill Carnahan, MD - 19:19

And immediately clinicians will assume, oh, give them a 10 strain probiotic. And the truth is, probiotics especially, you know, even just 10 strains, could actually be creating monoculture versus diversity. True diversity is going to come from the milieu, which you can talk about the estrogen there, but also our diet and our fiber. So what happens to a woman when she hits 35 or 40 and the estrogen starts to change? What, what's undergoing the microbiome?



Dr. Christine Maren - 19:45

So the microbiome begins to look more like a male. So if there's a great study that's looking at 2300 women, and it's actually relating it to higher cardiometabolic risk. And so we see these microbiome changes which convey more cardiac risk and more metabolic risks, which is part of the reason we see more Type 2 diabetes and weight gain and menopause? So we can connect all of these things to lots of different downstream effects because as we know, and we've known, you know, forever in functional medicine, like the gut has so many downstream effects, but with loss of estrogen. So as we enter perimenopause, pretty much universally, women experience a decrease in progesterone. And then some women have low estrogen, this isn't talked about as much. But women who are in perimenopause, some do have low estrogen overall.



Dr. Christine Maren - 20:29

While what's talked about more is this very chaotic spike in estrogen. And when estrogen's not balanced with progesterone, we have hyperestrogenism or this estrogen dominance type picture. But in either case, there is a downward trend in estrogen and that has a huge influence on the diversity and the species in our gut microbiome. And so we end up with this less diverse gut microbiome. We're more prone to infection. Our gut microbiome looks more like a male's. It puts us in a worse place for cardiometabolic issues and weight gain. It gives us the nidus, potentially for autoimmune disease, because we know that starts with intestinal permeability. And then we have this worsening of, like ibs. Symptoms really flare for a lot of women in perimenopause and menopause. So does IBD or inflammatory bowel disease can get a lot worse in that timeframe.



Dr. Christine Maren - 21:14

So all sorts of kinds of things that are sort of simmering underneath. That's why I say the unmasking effect, like all these little things that have been simmering often become a lot worse and clinically really significant in this timeframe. And I think a lot of it is. Well, I know a lot of it is due not just to hormones but to gut microbiome and then this downstream effect on the immune system. So there's actually this study called the microgenderome. So the microgenderome was first introduced in the medical literature in 2013. Sort of became more mainstream around like 2017, but relatively new. And really it's just bringing in this concept that gut microbiome, hormones and immune system are all connected and bidirectional, like they all influence each other and they're not isolated systems.



Dr. Jill Carnahan, MD - 22:02

Makes so much sense because as I've talked about gut brain connection, we're always talking about that bi directional pathway from hormones, neurotransmitters to gut and vice versa. And you're saying that. And interestingly, as you're speaking, there's two things that came to mind that I've never thought of before that I think relate to exactly what you're saying. Number one, you alluded to it, but we have this curve where women's heart risk of heart attack and stroke are very flat until menopause, and it spikes up above that of men. We've always thought, okay, maybe that's the endothelial dysfunction of the blood vessels and the change in lipids at menopause. But what if I think what you're saying is, could it be way more related to the gut microbiome changes? And I think that is absolutely true.



Dr. Jill Carnahan, MD - 22:40

And then second, I've Always quoted with celiac disease because people think it's a childhood disease. And the average age of diagnosis of a true celiac is 55 years old. Shocking. That's right in the heart of menopause. And that's an autoimmune disease that's related to the gut. And as you say that, I'm like, oh, bingo. I never thought about that as being related, but I guarantee if we'd really look at it, there's some relation to the average age being right in the heart of what you're talking about.

Dr. Christine Maren - 23:04



Yeah, I mean, we know that women who go through menopause and women who have babies postpartum, like we have this huge spike in autoimmune disease. And so it's these huge hormonal fluctuations and whatever's happening with our immune system. Right.



Dr. Jill Carnahan, MD - 23:20

Yeah.



Dr. Christine Maren - 23:20

And whatever's going on with our gut microbiome. And they're all connected.



Dr. Jill Carnahan, MD - 23:24

Yes. Yes. Okay, so where do we start? So say we have a 40 year old woman who's just starting to have symptoms. She's still having cycles and she's like, doc, my gut is a mess. I have way worse IBS symptoms. I'm awake at night and not able to fall asleep. My brain's kind of foggy, I'm not tolerating foods all of a sudden. So whatever kinds of things that they would come in with. Would you start with the gut? What would you do for this?



Dr. Christine Maren - 23:47

You know, I, I sort of, I start with both, I start with hormones and I start with gut and I start with testing. Right. The first thing that I think gets missed so often is what is, what's the underlying gut infection like? There's often some underlying gut infection and potentially not always. Right. Like maybe we just have loss of keystone species and we need to rebuild the gut microbiome and. But the fact is like, they're both, they're all connected. And so certainly starting with hormones is not a wrong place to start. But the way that you metabolize those hormones is going to be influenced by your gut microbiome and vice versa. So it's just not something to ignore. So what I would do clinically, number one, is let's get some tests done. Right.



Dr. Christine Maren - 24:25

Let's maybe a sibo breath test, an organic acid test, a stool test, figure out what we're dealing with. And if we're dealing with some underlying gut infection, like overgrowth of candida or overgrowth of bacterial species. Often

we are, because if they're in that timeframe and their gut microbiome is more narrow. There's something there, right? There's always like something there. And then we look at hormones and understand, like, what is her hormonal pattern? Is she that woman in perimenopause who's got these big estrogen spikes and low progesterone? She's the one who has this really heavy painful periods, like she's having chaotic estrogen and low progesterone. Or maybe she's someone who has really scant periods and they're just. She's kind of feels flat overall. And I'm trying to think, like, low digestive enzyme function could go hand in hand with that, like, low estrogen picture.



Dr. Christine Maren - 25:11

And so she might benefit in perimenopause from not just progesterone replacement, but estrogen replacement. And then, you know, of course, in our view, we're also looking at testosterone and thyroid hormones and autoimmune disease and what else is going on. But I really believe, I wish every woman could get really comprehensive testing done. But for those who can't, you know, you, we work on the hormone piece and then you work on the gut microbiome piece. And if nothing else, you start with good diet incorporating a lot more fiber. One of the other patterns I see in women who go through perimenopause is they gain five or ten pounds or maybe more, and they're really frustrated.



Dr. Christine Maren - 25:48

And so often they put themselves on a low carb diet and they might see a little bit of benefit initially, but long term, they're on this very low fiber diet and that often backfires because it becomes high fat inherently. If you're low carb, you're going to be high fat. And most of the time I'm looking at patients and their macros. They're like way more high fat than they think. But those high fat foods can really disrupt gut function as well. It's hard on the gallbladder. It can increase intestinal permeability, contribute to metabolic endotoxemia, which perpetuates inflammation and autoimmune disease. And so I work on that foundational piece, bringing in more fiber, bringing more complex carbs. A lot of times now everybody's individual.



Dr. Christine Maren - 26:26

Of course, like some people with type 2 diabetes might not tolerate that, but most of my patients actually do better as we bring in more complex carbs, a little bit less fat, high protein, I, you know, took for granted there, that was a given. But like high protein because you really want to support muscle growth. So work on the diet piece and the find foundational, you know, lifestyle pieces. But ultimately if like the gut is function persists, getting some testing done can be really helpful.



Dr. Jill Carnahan, MD - 26:53

So well said and I'm smiling so big because I think you and I agree so much and a lot of the hype out there, carnivore, even certain paleo keto for sure. Every diet may have a place short term, all those even including carnivore, for some people, very short term. It's not the wrong thing. However, one of the things I think that has gone crazy on social media is some of these extreme diets. And you alluded to it, but I want to just make the point when you're restricting especially the core thing that has really been found in all successful blue zone

Mediterranean diets is fiber and protein, of course, but we're missing the boat on that. And so say for example you have sibo, your doctor says low fodmap diet for six months. That is starving the microbiome. Right. So it's temporary.



Dr. Jill Carnahan, MD - 27:36

And I really love and I've seen you out there on social media and other places talking about let's get some healthy carbs back because people are so afraid of that. Do you want to talk just a little bit about that? Because I think that is absolutely essential in these fibers in our diet from plant based foods. And I'm, I eat meat. But plants have to be a primarily source in your diet. You have to get some and you have to get good carbs.



Dr. Christine Maren - 27:58

Yeah, I mean good carbs. And people always ask what are the good carbs? And I'm like, fruit, just have a piece of fruit. Like we don't need to be scared of a whole apple. And I'm talking whole oats, not oat milk, whole apple, not apple juice. But eat the whole fruit. If you tolerate gluten free organic oats, eat oats. You could have basmati rice, less fiber there. Potatoes have a little bit more fiber, especially if the skin is on. But fruits are really a great source of not only fiber but also polyphenols. And polyphenols especially from like pomegranate and berries. And some of those brightly colored fruits are a great source of food for your microbiome. So all of those are critical to having a healthy gut microbiome. And I see as people start to incorporate like they have this permission.



Dr. Christine Maren - 28:42

Okay, I'm going to go for more carbs. Everybody's really scared of blood sugar and I agree blood sugar regulation is critical. However it backfires. Like if we're really low carb for a lot of people, they get into this place where they have that metabolic endotoxemia increases inflammation, increases blood sugar. They also send signals for thyroid dysfunction. So your thyroid conversion between T4 and T3 is better when we add in some complex carbohydrates. Gut function is better because we have more fiber. Your gallbladder's less stressed because you're not trying to like, manage all of this fat in the diet. And it just digestion gets a lot better. People will report better energy throughout the day as well. Like, I have so many patients who are like, I started eating fruit and my energy is really good again. And I'm like, that's all it took.



Dr. Christine Maren - 29:28

Now was that some sort of secondary effect on thyroid function? Maybe. I don't know. I think it's all of the above. And yes, blood sugar regulation is really critical, but I don't like actually what I'm seeing in my patient population. And I will say most of my patients don't have type 2 diabetes.



Dr. Jill Carnahan, MD - 29:45

Yeah.



Dr. Christine Maren - 29:46

But, you know, they're health oriented women and most of them have better blood sugar when we start to incorporate more complex carbs and less fat.



Dr. Jill Carnahan, MD - 29:57

Just, I love this because again, I don't think there's enough people talking about it. And I could not agree more. Number one, if you have adrenal dysfunction, you're going down adrenals too blood sugar. So you fast too long and you crash. And then you have the opposite Hamanji effect where the blood sugar goes spiking high because you dropped and your cortisol went up and then blood sugar going up and you release. So there's actually all these mechanisms that, yeah, body thinks it's in starvation or you're fasting more than your liver and your adrenals can handle. It totally backfires.



Dr. Christine Maren - 30:23

Yeah, I mean, I think your body loves you. Like your body is here to protect you. We have to just understand, like, if your body's thinking you're in stress and survival mode or seeing that resources are low, carbs are some sort of safety signal, you know, on our nervous system. And eating more regular meals, like, I don't. Intermittent fasting has a place, you know, sometimes, but I think it's overused. And for me in particular, one of the first things I did was, like, start eating food, which sounds so simple. But I was not eating regular meals. I was overworking. I was not taking time to, like, sit down and eat. I mean, I have three kids and I have a practice. Like, it was the last thing on my priority list.



Dr. Christine Maren - 31:03

And so it was really, like reprioritizing three meals a day, which I get.



Dr. Jill Carnahan, MD - 31:09

That's like loving yourself. Right? Like, it's the most simple way to sit down and give yourself time. Otherwise we're inhaling.



Dr. Christine Maren - 31:15

Yeah.



Dr. Jill Carnahan, MD - 31:15

Like, not time. But then that's like a, that's a degradation. That's like not.



Dr. Christine Maren - 31:19

Yes, it's nourishment. It's. And I'm not gonna say, like, this is one of those patterns that I still struggle with. I'm like, oh, yeah, I gotta eat, I gotta slow down. I eat my food, you know, but really nourishing your body. And I, you know, this comes back to those really significantly restrictive diets. Food should also be about joy and pleasure. Right. Like, I think one of the things I've been thinking about a lot lately is stress management, which feels stressful. What if we rephrase it and instead we're like, what do you do for fun? How do you have more joy and pleasure and laughter in your life? And I think food brings that in and community and being able to go out with your friends or your partner or whatever and enjoy dinner. Like, part of that.



Dr. Christine Maren - 32:02

The goal with my patients is better oral tolerance. But like you said, there's a time and place where we have to do a, you know, a short term restrictive diet sometimes. And I'm still gluten free, but I have like really gotten more flexible about the things in my life that I eat, which sounds so simple, but it can get really complicated.



Dr. Jill Carnahan, MD - 32:23

I can agree more. And again, those of us who are rule followers, which I've always been right, make a rule, you follow it forever, and then all of a sudden you're in this little tiny box of these rules. Rules are really unkind to yourself. And again, I'm like you. I'm gluten free, I'm dairy free. I'm, you know, I ate super clean, but I've expanded a little bit and I think really kind to myself and my gut microbiome. So we've kind of talked about gut microbiome, we talked about the hormone connection. And this is all key. And I really like the way you've. You look at patients with both of them kind of same time, making sure the gut's healthy. Short chain fatty acids. Let's bring that in a little bit. You guys are the powerhouses, getting more and more research and information.



Dr. Jill Carnahan, MD - 33:00

And that's where fiber comes in. Do you want to talk just a little bit? Are there change that we know about

hormonally with short Chain fatty acids.



Dr. Christine Maren - 33:06

Yeah, yeah. Along with that lower diversity, we see less short chain fatty acids and, you know, less butyrate. And those actually convey some risk for colon cancer or I should say protection against colon cancer when we have better levels of butyrate. So, yeah, short term fatty acids, short chain fatty acids, for sure, yeah. Play a role.



Dr. Jill Carnahan, MD - 33:26

Good. And again, that's where the fiber comes in, because the fiber ferments in our colon and creates those. And years ago, I helped Dr. Mark Houston write the chapter in the cardiology tech books on the gut. Right. And it was all the data on the heart. Gut connection was all about these short chain fatty. I was like, that's what the heart of the matter was. Interestingly, I just saw a study come across my desk like this week and it was on long distance athletes. So the triathletes, the ironman, the ones who really, really train, not your average, even average runner. So very specific population. They had a 15% risk of adenocarcinoma of the colon. And it was all aggressive. Almost 100 of the cases were aggressive. That shocked me. And yet.



Dr. Jill Carnahan, MD - 34:06

And I want to just take a little tiny offshoot because I've seen in my practice when I have elite athletes, and we're both near Boulder, which has a lot of athletes, so we see some of them when someone's in the midst of an intense training, I almost won't treat their gut. It's almost like a, nope, we can't do that now because I see that blood flow being peripherally. And there's more permeability, actually evidence based. But what about exercise on the gut? And again, the study was kind of shocking because it's this extreme athlete population that had a really high risk of colon cancer. I think that's preliminary. We'll see. That's just an interesting tidbit, but what do you do with athletes? Do you have any concerns about permeability with too much exercise or not enough?



Dr. Christine Maren - 34:44

Yeah, for sure. That has been on my radar for a while. Exercise is so good for your gut. Microbiome first of all, like walking and lifting weights and doing regular person exercise.




Dr. Jill Carnahan, MD - 34:54

Yes, exactly.




Dr. Christine Maren - 34:54

Great on your gut. But this also the extreme athletes. I'm married to one. Right. So Dan is a semi professional cyclist.

 Dr. Jill Carnahan, MD - 35:03


Wow.

 Dr. Christine Maren - 35:03


Yeah, that is so on the radar. And it's actually on the radar with a lot of high level athletes. Now this element of like how much leaky gut is there? Because that's going to create this downstream effect with inflammation. And here's one that I really love is like anabolic state versus catabolic state. So I heard Kiran, the creator of Megaspore, he spoke over last weekend and talked about anabolic state versus catabolic state. And so in anabolic state, we're building and regenerating, in a catabolic state, we're breaking down. And he used the example of joint pain and musculoskeletal issues really as a surrogate marker for aging. And how when we're in this more anabolic state, that's the goal. But when we have things like leaky gut and inflammation, that pushes us more toward a catabolic breakdown state. And so it's like estradiol, what's that do?

 Dr. Christine Maren - 35:48

It puts us into more of anabolic state. Testosterone, more anabolic, leaky gut, inflammation, more catabolic. And so we can think of it like in terms of that sort of balance. And so I think with athletes, with high level athletes that comes into play, obviously they want to be in anabolic place. So it's really important for them to mitigate inflammation. One of the things Dan's coach actually tells him to do is eat a ton of rice. And I thought that was really interesting because I'm like, oh, they're onto it. Because gluten eating a ton of pasta is going to cause leaky gut. They wanted him to eat 6 cups of rice a day because he's riding his bike for eight hours. You know, like intense kind of stuff.

 Dr. Christine Maren - 36:22

And so I just thought that was really interesting though, like that really high level athletes, they're onto it. Right?

 Dr. Jill Carnahan, MD - 36:28

But yeah, that's the sort of, that's a pretty. And just we started on short gene fatty acids, but what people maybe

don't know is that creates that mucosal barrier, which is what's lost with a lot of athletes. So if you're giving those good back to the complex carbs. Right. They need, especially when you're working out, you need some of that because that gives that mucosal barrier some integrity. And that mucosal barrier not only houses the diversity species, but it protects you from ulceration and leaky gut and all those things.



Dr. Christine Maren - 36:55

Yeah, absolutely. And just back to menopause, like that's one of the other changes that we see in menopause. So gut microbiome, our mucosal layer decreases, which of course goes into this leaky gut.



Dr. Jill Carnahan, MD - 37:09

Yeah. Wow. So important for women to know. And again, not many people are talking about this. So practically speaking, you're going to balance the hormones, check the thyroid, all of these Things. Things really. Well, what would you do and say, I mean, dysbiosis, all those things we might treat specifically depending on what we find. But in general with probiotics and kind of basics, maybe glutamine, maybe bovine immune. What kinds of things do you really like as kind of core pieces for the menopausal women in her gut?



Dr. Christine Maren - 37:36

I mean, I personally like a spore based probiotic. As, you know, a lot of the traditional probiotics can trigger other issues. Right. And histamine is a really big one as well. So the more bacteria that we can get in our gut that's favorable, the more can kind of quiet some of that histamine response. That's super relevant for the perimenopausal woman. She's like itchy skin and hives and stuffy nose and allergies and food sensitivities and all this kind of stuff. So I use a lot of spore based probiotics. I use a serum based bovine immune globulin. I'll use some prokinetics sometimes kind of depending on the patient, like ginger and dgl, licorice and artichoke leaf. But it, you know, it, like it really depends on the patient and what's popping up. Micronutrient deficiencies are always, you know, part of the puzzle as well.



Dr. Christine Maren - 38:25

And those influence intestinal permeability and our mucosal barrier. So often, you know, vitamin A and Zinc and Omega 3s potentially, things like that.



Dr. Jill Carnahan, MD - 38:36

That's super comprehensive. That's perfect because I knew people are thinking, okay, what do I start on if I'm out there? What do you think is the biggest myth that has been dispelled as this information is? Because this is really brand new information. You're on the.



Dr. Christine Maren - 38:49

Yeah.



Dr. Jill Carnahan, MD - 38:49

What is the. Or maybe for you, what's the biggest surprise that you've seen in the literature around?



Dr. Christine Maren - 38:54

I mean, for me it was that estradiol plays a role intestinal permeability and tight junctions, like not only does it shape the gut microbiome, but it plays a role with the tight junctions. Like, that's fascinating. You know, it's mind blowing. And I think, you know, the piece we didn't talk about that's really important is we've talked about the ways that hormones influence the microbiome, but what about the way that the microbiome influences hormones? And I think this is the piece that's really important. If you're on hrt, we want to make sure you're metabolizing it. Well, and metabolizing it safely. And so there's these different phases of estrogen metabolism goes through your liver and through methylation, and we're using, you know, magnesium and B vitamins, but phase three goes through the gut.



Dr. Christine Maren - 39:40

And so the subset of the microbiome that is in charge of regulating estrogen levels is called the estrobolome. And so for years, the 2011, were introduced to the concept of the estrobolome. And the estrobolome is the subset of bacteria that makes beta glucuronidase to either like turn on the switch or turn off the switch. So we can either get rid of estrogen or save it. And the surprising piece that came up in some of my literature review and preparing for this lecture I gave was like, what if? And I believe this to be true. That mechanism is really just there to protect us because at times of low estrogen states, like menopause, we want to hang on to more estrogen. And so we have this like, switch, right?



Dr. Christine Maren - 40:22

We have the switch where we're like, hey, let's hang on to more estrogen or times where we are maybe premenopausal and we have plenty of estrogen on board, we flip the switch, we get rid of estrogen. And so it helps us like, balance it.



Dr. Jill Carnahan, MD - 40:34

It.



Dr. Christine Maren - 40:35

And in a state of poor health or dysbiosis, when our gut's not working well, when that strobilone potential isn't there anymore, that's when we start to have problems. That's when that switch isn't really working for us anymore. And so that, like checks and balances that we have built into our very intelligent body is broken. And so we have to fix the switch and get that balance back. So I just thought that was a really interesting perspective because as we know, like things like our body is intelligent, sometimes we make more sex hormone binding globulin and we do it for a reason. It's not like we're just trying to decrease the shbg. We're asking why is it like that, right? And so I think beta glucuronidase and really looking at like calcium D glucarate as a supplement, like, it's all in that same category.



Dr. Jill Carnahan, MD - 41:21

I love that. And I love that because that goes all full circle back to our mold days. And one thing I found fascinating was a glucuronidation, which is the pathway you're describing in our liver, is involved with detox of every single mold. Some molds are different for other things. But that glucuronidation pathway is also absolutely crucial for every mold and many other toxins too.



Dr. Christine Maren - 41:42

Yeah, literally. I remember a podcast I listened to with you when I was, I don't know, just starting out really. I think this would have been like 2016, 2017. And you talked about the way, maybe 2018, you talked about the way that. That women who are exposed to mold tend to have disruption in estrogen and have, like, too low of estrogen levels. And then how men tend to get more like high estrogen and gynecomastia and, you know, signals of high estrogen levels.



Dr. Jill Carnahan, MD - 42:11

Yeah, it's crazy because there's a whole thing where like, they're hormonal, but they're also toxic exposed and then their gut just so it's this full circle. Like, you have to really think about everything. Well, it's just amazing as far as you being a leader out there. And also this topic is. Is like I said over and over again, today is so relevant and people need to know about it. One last question. Kind of personal, is just like for a stress relief and managing being embodied. What are some of. Let's say, what's your top three? I don't love the word biohacks, but tricks, biohacks, patterns, habits, things that you incorporate into daily practice that have helped you stay healthy, stay in tune, and stay embodied.



Dr. Christine Maren - 42:48

Well, dance is one of them. I mean, one of the first things I asked myself in this journey was like, what do I do for fun?



Dr. Jill Carnahan, MD - 42:55

Yeah.



Dr. Christine Maren - 42:56

And that was a hard one for me to answer. I was like, what for fun? I don't know. So I started dancing. And I love dance. I think it's a wonderful way to get in your body and move and music and dance has always been a part of my life, but I sort of forgot about it for a while. So I'm going to say music and dance as one category. Number two would be meditation. I mean, I get it. A lot of people are like, I don't want to meditate. Even if you sit quiet with yourself for five or 10 minutes. Right. It can be amazing. I think for meditation has been really transformational and really like envisioning who do you want to be? Who do you want to be? Who's that next version of you? What does she feel like?



Dr. Christine Maren - 43:35

What's it feel like to be healthy and whole and happy and successful? What are your dreams like? What does it feel like to be her? And so meditation would be a big one. And the third, I think, is a gratitude Practice, right? That brings more of what you want into your life and less of what you don't want. Here's a really good story. I have a lot going on at my house. My husband and I are both physicians. As I mentioned, he is also a professional athlete. We have three kids. Like, there's a lot, right? And I came to a point, I was talking to one of my closest friends and I don't know, complaining is like a little harsh of a term, but, you know, talking about all the ways I didn't like what was happening at home.



Dr. Christine Maren - 44:14

And she said, okay, why don't you focus instead on what you do want? What do you want it to look like? And so I started instead to talk about what I do want. And exactly what I want is somebody who's going to come to my house and she's going to help me and help me with all the laundry that happens with all three of our kids and help me with getting all those Amazon packages off the front stoop and unpacking all that stuff and unpacking all the groceries and all of the things that I was running around like a chicken with my head cut off, like, so much, right? So I named exactly who she was and what she was like. And I put an ad. Not really an ad.



Dr. Christine Maren - 44:47

I put a thing on Facebook and I said, this is what I'm looking for. And a lot of people were triggered by that. Like, this is ridiculous. Like, let me know when you find her. Which was fine. It didn't really bother me. Anyways, she's here. She's here right now. She's making chicken soup. I can smell it. She's a freaking angel. Life giving and really has allowed me to show up for myself, to get in the habit of going to the gym to go meditate, to really decide, like, okay, how do I show up for myself in the way I want? Like, what do I want here? But really the point is, ask for what you do want. Focus on what you want more of, not what you want less of. Focus on what you want more of.



Dr. Jill Carnahan, MD - 45:23

I love that we're ending here because that is giving permission for everyone else out there. And we've had this talk. Not everybody has the exact same resources, but you can always find something in some way, whether it's asking for help from a spouse or hiring someone to do certain things. And it's so important because then you get to show up as your very best self. And I find the same way if I don't have my quiet meditation time in the morning. I am not. I'm. I fall apart easy if I do. I'm like, I'm resilient and strong and I can handle whatever comes my way. So thank you for sharing and I hope people out there listening will continue to just seek out for themselves what that looks like. As always, thank you for being a beautiful friend and a leader in this world.



Dr. Jill Carnahan, MD - 46:05

And thank you for your incredible information today day.



Dr. Christine Maren - 46:08

Thank you so much. I'm honored.



Dr. Jill Carnahan, MD - 46:09

Hey guys, hope you enjoyed that great episode with Dr. Christine Marin, who's a neighbor and friend and brilliant, functional doctor as always. If you are just new to the show, hit the subscribe button on YouTube. Join the over 670,000 subscribers we currently have on YouTube. If you're on itunes, Stitcher, Spotify, or anywhere you listen to podcasts, please leave us a review that always helps us reach more people and you can always comment or give me suggestions. I'm always interested to know who's out there sharing brilliant information with the world and needs to have a platform to disseminate that. I love sharing people's knowledge with the world and I will see you again next week on another episode of Resiliency Radio. Until then, bye.