Uncover Gut Health's Role In Weight Loss & Metabolism Transcript

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Introduction to the Microbiome

For this DrTalks I have a wonderful guest with us. This is Dr. Heather Hammerstedt, and she is going to be talking with us today about the microbiome and the role of that with weight, with our gut health.

We're going to talk a little bit about food addiction. Dr. Hammerstedt is, a whole list, meaning that she treats the whole person. She's an experienced er physician and now does a lot of lifestyle medicine.

Thank you so much for joining us. Yeah, thanks for having me. So let's first make sure everyone is on the same page with what the microbiome is. Can you explain what the microbiome home is and maybe what its role is in the body.

Yeah for sure. So the microbiome is a term that's you use to describe like all the microorganisms that naturally kind of reside in and on our bodies. So that's fungi, that's viruses.

It's a large amount of bacteria. They're basically like roommates that are symbiotically living with us. And in fact, the genes in our microbiome outnumber our own genetic material by a factor of 100 to 1.

So that's pretty amazing to think about. So these organisms that live in our bowel are called intestinal or gut microbiome or flora. And there are some that are helpful and others that are not.

So much so I like to call them friendly and unfriendly and, and but the unfriendly other people do call kind of pathogenic bacteria, and they are usually kept in a pretty steady balance.

But the epigenetics of our life, right. Diet, living conditions, disease medications can really modify them. And the bacteria and not just in our gut.

We do here today are going to be talking mostly about the gut microbiome. But these bacteria live everywhere. So skin, mouth, hair, our vagina, like all the places.

And so these are really important for us to think about, you know, outside of the context of this conversation about weight, obesity, food addiction, about how those bacteria are going to affect all of those things.

So why do our bodies allow for those potentially dangerous organisms to live in our body? I mean, really, it has been beneficial for most of us for the beginning of time, right?

What Happens When the Gut Microbiome Is Disrupted

And particularly when we're talking about the microbiome in our bowel, you know, for example, those bacteria, produce enzymes that allow us to break down and absorb nutrients from food.

The friendly ones produce chemicals that keep us safe from the potentially unfriendly ones. And the linkages between all of those, cells and are where the bacteria live kind of help things from transitioning through our bowel into the rest of our body.

And so, that's kind of a nutshell of, of, well, who's who's residing in us and on us. Yeah. So, what sort of things can happen when that microbiome gets unbalanced or gets off or gets disrupted?

What are the effects on that, particularly in the gut. Yeah. So that's called my microbial dysbiosis. So an imbalance of that microbiome when we're talking about the friendly and the unfriendly.

So the good guys are supposed to keep the bad ones in check. But if there is an alteration of that gut bacteria variation and dysfunction or even an elimination of the good bacteria in our gut, then it can really, affect how we can maintain our health or how we're getting into disease.

And the, I like to think of, again, kind of simplifying it friendly ones being anti-inflammatory, unfriendly ones being kind of pro-inflammatory. You can think of the things that that's going to do to not just our gut and our ability to digest, but also the enzymes that we create.

And we can talk a little bit more about even the gut brain axis and how the neurotransmitters that affect kind of mood, depression and anxiety can all be affected by that.

The theory is that the lifestyle choices that we make, or experiences that we can or cannot control perhaps, right? Food, stress, sleep, alcohol, tobacco, antibiotics, how you were born and what happened in the first year of your life that this alters the balance of good and bad bacteria?

And if the variety and content of that bacteria altered to be more inflammatory or more bad bacteria than or healthy ones, then you have, immune system issues, neural pathway issues, skin issues, cancer, heart disease, vascular disease, sleep, lung, fatty liver, diabetes, nutrition, metabolism, all of that.

And I think that we're learning more and more of the years go by like five years ago talking about the microbiome. People are like, what are you even talking about?

And now there's just so much research and all different, types of, you know, health care and specialists and research that, it's going to be really exciting to continue to learn what we can utilize our gut for or what we can be looking out for in terms of modifying, those epigenetics and our choices.

Yeah, it's I've been saying that probably maybe ten years now that like, it's so exciting. We're going to learn so much about it. But at the same time, it's incredibly complicated.

Right? There's I mean, how many different strains of bacteria that make up our microbiome, like thousands, millions like it's really complicated and millions.

Yeah. So millions of different types. Right. And so like incredibly complex. And so we have started to figure out some strains that are important in some that are not as good, but it's really, really a complex matter.

And so I do think it's something that's going to evolve so much, over time.

Microbiome, Metabolism, and Weight

But you're so right that like, we finally giving it a lot of the attention that it deserves in terms of its impact on health in so many different ways, these microorganisms have evolved with us.

They are part of our biology, right? They're essential to our healthy living. And so, just like we need to take care of other parts of our body, our skin, our gut health, we need to take care of the microbiome that, like, makes up that as well, right?

Like it's it's all part of our, our body, part of our health. When we talk about, the relationship between the microbiome and like, metabolic health, do you have any other specific information about that interaction in terms of, you know, blood sugar or weight or how does it impact some of those things?

Yeah, I mean, I think that there's a fair amount of information these days about, probiotics being particularly helpful. In terms of weight management, I think that's something that we're still learning about.

I think the most important thing for. And we can I think I'll talk a little bit more about this when we kind of get into more of a food addiction and skill power, that we need to kind of overcome some of that, in terms of the

microbiome.

But I think it's important to realize that the gut microbes are our are indeed, as I said earlier, kind of creating the ability for you to absorb and digest and break down your food.

And so particularly the gut microbes, the, the, the anti-inflammatory, kind of more friendly ones, they actually make short chain fatty acids, from our food by digestion in the fiber, which works to control our appetite, reduce the reward from food, and form kind of a blood brain barrier.

And then also, of course, we know that a lot of the reasons why we eat is not necessarily because we're truly hungry. It's often it's like, an ability to buffer some emotions that you're unable to deal with otherwise.

And some people choose food to do that. And so the neurotransmitters like serotonin, which is the happy chemical that controls kind of our body clock, primarily made in the gut as well, and that the effects are in the brain on the receptors probably work on fear and anxiety.

So I think when we're talking about the gut microbiome, particularly around why people eat and how it can change the way that you are absorbing and rewarding yourself is pretty astounding.

Okay. I definitely want to get back to that, but I do want to, share one thing too that came to mind, which is when we, medically treat weight through bariatric surgery, for example.

One of the things that we have learned about bariatric surgery is that, the gut microbiome changes afterwards. And if we compare the gut microbiome of someone who has obesity and someone who's naturally lean, we see that there's a difference in that pattern of, the gut microbiome.

And we also see that, when someone gets a bariatric surgery, the pattern of their microbiome changes and it looks more like a lean person's microbiome.

We also see that with metformin, which we'll use for, you know, diabetes, prediabetes. And sometimes we just use that in obesity medicine as a treatment option.

And I don't know if we know that about our GLP one receptor agonist yet. How about our injectable meds.

The Gut-Brain Axis and Immune Function

But I wouldn't be surprised, based on all the gut symptoms that they cause if they also have some shift in the microbiome. So it is interesting to think that, you know, the different makeup we have affects our appetite, affects how we digest food, absorb nutrients and has a pretty big impact on weight.

Okay. So I do want to get back though to what you were talking about between, this hormonal gut brain access. Tell us more about that. So, during our formation in utero, our brain and spinal cord are formed from a structure called the neural tube, which are physicians who are watching, will remember.

And some cells located at that dorsal portion of the neural tube are called neural crest cells. And the brain and form the brain. And the spinal cord kind of forms, that central nervous system that the neural crest cells migrate in the neural tube, to several structures in the body, one of which is our gut kind of enteric nervous system and which is a large number of neurons, the same type of cells that are in our brain, and then glial cells, which are another nervous system.

So and these are located all along the GI tract, there may be this 500 million neurons in the gut and only one like 100 billion in your brain, which is really interesting to think about.

And all of them are communicating with each other. And so this kind of it is this system is able to control the functions of our GI tract independently from our brain.

And so, you know, we say like, I know this in my gut or I can feel it in my gut, like it really is sort of like a second brain. It's really interesting.

You know, we have the vagus nerve that connects your gut to the brain and can send signals in both directions. And so we've seen, studies on the vagus nerve connecting physical and emotional stress to IBS and Crohn's in a bilateral direction.

We have the neurotransmitters like we talked about, functioning are created in the gut that functioning on those Gaba receptors in our brain for fear and anxiety, and then also stress and anxiety can actually reduce the production of bile acids in your gut that help you digest dietary fats and can even alter those, transcriptions of their genes.

And so this, this, brain, gut, connection is really, really strong. We have, you know, anxiety, depression, Ostrom, autism spectrum disorders that are kind of well established at this point to functional GI disruptions.

And we also know that, like irritable bowel syndrome, irritable bowel disease often have psychological comorbidities with them. And I don't think that that's an accident.

And I think the most that we can do is physicians is to like stop saying, oh, well, it's you know, it's a that's clearly from stress and anxiety. Well, yes.

But that's like a real like physiological thing that is causing medical disease. And I think we don't do a great job at that in medicine. And I think we could do better in terms of talking to patients about that kind of thing.

You know, this concept of the effect of stress has come up, pretty commonly in this summit, the relationship between stress and, and health in general.

And so I think what I'm hearing you say is, you know, while stress can be an external thing, a lot of it is actually very physiologic and it's bidirectional, right?

So when our gut health is not in a good place, that is also impacting our mental health, our brain health and stress. Yeah. And our immune system, I mean, I think that's a very real thing too.

You know, our, our large and our small bowel play a huge role in the immune system. They have those lymphoid tissues, those patches that we all looked at under the microscope when we were in medical school, and the small bowel and the colon patches in that large bowel.

And they have T-cells, B-cells, dendritic cells, those are all cells that are like really vital for our immune function. And guess who stimulates those?

Like all the friendly bacteria in our gut so they can increase the production of antibodies, which help keep those pathogenic. The unfriendly bacteria in check.

It helps us kind of. It helps our body tolerate the friendly bacteria, helps the bodies tolerate their own cells. Because if we don't, then you start getting into a whole spectrum of autoimmune disorders where our bodies kind of attack our own cells.

So it's it's anti-inflammatory, but it's also can be pro immune. And this is, you know, one of the reasons why, when those, dysbiosis happen, those imbalances happen.

You can see it present in a lot of different ways. You know, you're making me think that we a lot of times in medicine, things are separated out, right?

We have cardiologists, we have immunologists, we have gastroenterologist. Right. Who do the gut health? We have neurologists, we have psychiatrist. We have people who separate out different parts of the body, with a few

exceptions, family doctors, we kind of do everything and try to bring it together.

Emergency room physicians also. Right. You have to do all of it. Right? And as you call yourself a whole list, right? Instead of just focusing on one part of the body, joints or, skin or something like that, like when we start looking at the body and how it all interacts together, we realize that they are all connected, right?

Like you can't just focus on one body part and expect to have the health results that you're looking for. They're all so interconnected. So I think so much of what you just explained, just from this little discussion on the gut, shows how complicated our body, interactions are.

Food Addiction and Ultra-Processed Foods

Yeah. There is a reason I named my company, as I did a whole list. Right. It's, it is a play off of that word, you know, hospitalist, gastroenterologist.

And really, it's like talking about how we can take care of the whole body. And I do think you're right. Family medicine emergency medicine are, are uniquely framed to be able to take care of every, you know, every part of us.

And I think, it's a really important those two specialties are really important as kind of the basis of our health care system in terms of, holding everyone together, so to speak.

I feel like we're like the little center parts of the wheel holding everybody's hands, you know? Yeah, that's true. And as a result, we also see how when things are not looked at holistically, like when they're we just treat different parts of things, how, you know, things get missed or people don't get, you know, the underlying cause is sort of addressed of why, why they have so many health conditions and how we can treat them all, often with a few underlying principles as opposed to treating all these different parts.

I love that. So tell me more. You mentioned earlier that food addiction and sort of our relationship with food can be affected by our gut health. Can you explain that a little bit more?

Yeah. So I think, I think the idea of food addiction is really interesting. I think it is sort of like like everything there's a spectrum of severity of this, right?

From someone who chooses to emotionally eat, to someone who is truly buffering or addicted to food. And I think, we have seen that the spectrum of this idea of food addiction, from brain imaging and other studies on the effects of compulsive overeating, really, has an effect on the pleasure centers in our brains.

So there's been experiments in animals and humans, and that show that, for some people, the same reward and pleasure centers of the brain that are triggered by, like, cocaine and heroin are also activated by food, especially what we call highly palatable foods, which are generally alter ultra processed food.

So I, I always like to think of like the little, like, men in the gray hair and their white coats, like creating food products that are going to want you to buy more of them because you are eating more of them.

And there is a very specific there's a whole like science to this, right? Of of how they create these food products and those highly palatable food products are foods that are generally rich in sugar, fat and salt because those are the ones that trigger the feel good brain chemicals like dopamine.

And once you experience pleasure associated with increasing your dopamine transmission, as you know from anything else that brings you pleasure, you want to do it again, again and again.

And so giving up some of those foods can't often be as difficult as it may be for an addict to give up alcohol and drugs. And so I think the important thing to think about food addiction is, like with any addiction, it's doing the same thing over and over again, even though the effects are bringing you, the effects on you are deleterious and, not

being able to overcome that.

Want to keep making that same decision even though it's, affecting you poorly and some of that with highly palatable food products is that they really can override your other senses of like, fullness and satisfaction.

So people keep eating even though they're not hungry. You can become preoccupied with it, just like you do with, like, gambling or like online shopping or anything else that like trigger sex, anything that triggers that in, in terms pleasure so they can lose control over that.

And it really is, you know, that dopamine, I think, particularly in association with obesity, there have been studies that shown that as your BMI increases, your dopamine decreases, and as your BMI decreases, your dopamine increases.

And so what that means is that are you happier at a leaner weight and that, that it is it could be a very controversial topic. We can talk about body positivity all day long.

But some of these studies have shown that. So with low depression. Oh sorry. With low dopamine you have more depression, anxiety and the need to fill the dopamine with more highly, highly palatable reward foods which are again refined, ultra processed fat, sugary salt.

And those foods are gone. You want to fill it back up. And so it is like kind of a never ending cycle that I think, you really need to, we as physicians and our kind of our, I think what we need to be doing is educating the public that like that.

These are a real, true cycle that you need to concentrate on both. Not just what you're eating, but why you're eating it. So that you can hit both ends of this very, like chronic metabolic issue, which is obesity, that has, you know, tolerance and withdrawal that goes with that.

So as I'm always talking to our lifestyle medicine and our weight coaching clients, our adipose tissue is a hormonally active organ and it's connected to that gut brain axis.

And so it's not a willpower problem. This is a problem that our society has created in order to market us things. And our bodies have become growing that adipose organ bigger and bigger because of that.

And so it's not a willpower problem. It's a skill power problem problem really. And so, as you do in your line of work, I think the more that we educate our communities about that, I think the more people will start to understand the choices that they're making and how that epigenetics is playing into not just what their body looks like, but how their health future looks in terms of all the things we've talked about dementia, depression, anxiety, cancer, you know, all those things.

Diabetes, of course. Yeah. It's interesting what you said about mood and its relationship with all of this and that. Perhaps there's evidence that people who have more adipose tissue, who have obesity actually have less dopamine, have more depression, I would say clinically.

Certainly a very large amount of the patients I work with come in with some mood disorder, with some depression. And especially as I've used some of the more powerful medications, are injectable medications.

The change in people's mood has been one of the more dramatic things, and I don't think we have it all fully explained. Right. Like, what is the role of gut microbiome?

What is the role of changing the diet on this? What is the role of decreasing inflammation? Right. When you decrease, that adipose tissue and you don't have these leaky, adipose cells that are leaking all these cytokines and other inflammatory markers anymore, like, does that help mood?

But definitely very interrelated. And at the end of the day, a lot of the same underlying things we do, which is to

help people lose weight and eat a cleaner diet, are all going to have those positive effects, even if we don't quite understand all the biology or even if it's very complicated biology that is, leading to to that, so what's the relationship between those sort of ultra processed foods?

Fiber, Whole Foods, and Feeding the Microbiome

You describe the stuff made by the food scientists, the stuff that you and I couldn't make at home even if we tried. Right. That's kind of how I think of ultra processed food.

Like I couldn't make an Oreo taste like an Oreo even if I tried, right? Like, I, I like that it's just a conglomeration of of chemicals and such ultra processed ingredients.

It's not something you can make in your house. Right? So that's kind of how I like to think of something that's truly ultra processed. Like, I couldn't make this even if I tried, right?

What is the relationship between some of those ultra processed foods? And that gut brain health? Well, I mean, I think if you're if we aren't feeding our gut bacteria the nutrients they need to stay healthy, the, the friendly ones, then it seems that they can directly and indirectly mess with our energy metabolism expenditure and in turn, mess with what we like, choose, or are forced to put into us to feed them through changes in our neuropeptides.

As we were talking about, but I think that, some of this comes down to the topic of cravings. Right? So digestion begins in the brain. The very like thought, memory, sights, smell, food, trigger cravings.

And I think there are a few types of cravings, in my opinion, kind of body hungry, which is like you're actually hungry for something that you're missing.

And this doesn't this is like, often the case we're actually eating. Right, because our body mostly knows how to create its own energy from what we've stored.

And we're not starving. Right. But so there is sometimes just body hunger. There's mind hunger, which is emotional needs stress. And these are kind of the trickiest because that's where that addiction, comes in. And then there's like a situational hunger, right.

Memories that are brought on by like sights and smells like I'm like every time there's a football game on, I think I need chips because I always, like, sat with my dad and watched football right in nature.

So I think what we have to understand is like to be able to analyze, like what it is that I'm actually feeling, and then what it is that I need to, like, feed my body. And so, I think that, some of these are just sort of skills.

And so in order to change the way that we are feeding ourselves, if we understand what our brain and our gut is doing, understanding that a whole food like it was born or it was grown, decision to eat something is going to be the simplest thing for our gut to be able to take in and to maintain healthy nutrients and to feed the rest of our body and make the neurotransmitters that we need.

And so learning how to, like, receive the sensations from your gut and and adipose tissue to your brain, delaying action, thinking about like why it is that you're making that is what your body wants you to do.

In order to choose to eliminate added sugars, processed grains, flours, oils, and eating instead sort of a, a rainbow of nutrients. So a rainbow of whole vegetables and fruits on that plate and then adding in some whole grains.

And I think those are the things that you're friendly anti-inflammatory, pro immune get bacteria want and they thrive off of. And so you're not just feeding yourself, you're feeding the, you know, millions of bacteria that are helping you thrive.

And again, that's with real food and not food products. So what how can we create those foods that are satisfying,

provide long term health? It's food.

It's real food. You may need help to do that if that's something. If you're used to eating out of boxes and cans and, and products, but there are lots of people that can help you figure that out.

The two of us being two of those people to really work on when to eat, why to eat, and what types of food to create to get that balanced real fat, protein and unprocessed carbohydrates that keep you full longer and keep you thriving.

Yeah, I love what you said about eating the rainbow. There used to be this like marketing campaign for fruits and vegetables that was like five a day the color way.

And that really stuck with me. Like, you know, five a day, right? Like you should have five a day and different colors. So that was like an easy checklist, you know, be like a look at my plate.

Okay. Did I get, you know, am I getting close to my five, you know, fruits and vegetables and like, am I getting a mixture of colors. So I think that eating it.

Is it is it's a great it's a visual memory. Like I'm a visual learner. Right. And so for me to like look and see something purple, something green, something red, something yellow, even if I don't understand what all those vitamins and nutrients are that are different in them, I can tell that they are different and the more variety of those, kind of natural, so to speak, however loaded that word is.

But we kind of like natural whole food, macro nutrients or micronutrients are really going to, get you the, the most of what you need. Yeah. And I, I like, you know, using terms like just getting a mixture in.

Right. I use that for my kids. Like we need a mixture of food. Right. Like instead of thinking of things as good or bad or natural, like, let's get a good mixture, let's get a good balance of things in, the other language.

And you kind of said this as well as like talking about feeding that microbiome, you know, like it needs that fiber. It needs all the nutrients that are in those plants.

And so we have to like, feed our little bacteria buddies in there. Yeah, absolutely. So there's a couple of things, like just very specifically in terms of building skill around this is, first of all, realizing that, our adult brains make 700 new neurons a day.

And so you have the opportunity to build lots of new neural pathways. You just have to exercise those new pathways, like you would exercise the muscle of your bicep that you want it to be bigger.

And so doing this consistently, it gets easier and easier. So the first thing is, as we were saying, diversity of fruits and vegetables. The number one way to do this, I would say that I am thankful for some of the movements in the language around dietary choices recently that has gotten people away from saying I'm a vegetarian.

Aam a vegan to being like I'm plant based or plant forward which I think gives people a lot more flexibility in terms of like making those right choices but like not like this is who I am.

So I think that if you can flip and get like 80 to 90% fruits and vegetables and grains as like your predominant plate, then you're going to be well on your way of making a huge difference to the average.

U. S intake is like 20% of their food is fruits and vegetables. And one of the main reasons why we do this is because of fiber. So you mentioned fiber, I mentioned it and talking about how the gut helps us break it, break it down into those short chain fatty acids. But, it's the fiber is primarily a reason why I think plants are better recommendation.

And so dietary recommendations, generally is like 25 to 35g per day. The average American gets about half of that,

and only 5% of us get the recommended amount.

So, lifestyle medicine evidence really shows that we probably need more than that, like 45g a day. And that's a lot. And you can only really do that by having a predominantly plant filled plate.

So whole grains, whole fruits, vegetables, legumes, supplementation can be helpful, but it's not nearly as effective as letting your body break that down on its own.

So as I always say to my homeless clients, again, if it was grown, eat it. That comes in a box. Don't eat it. Yeah. There's also probably a connection of natural fiber and the amount of inflammation in the gut and body.

So there is there was a study that showed that the more fiber that someone ate, the lower chance of metabolic syndrome, inflammation and obesity, and that it's a connection of the lack of fiber.

So more fatty foods, animal products, refined sugars and grains, to just the opposite, more metabolic syndrome, more inflammation, more obesity. So if you can increase I think this was the, American College of Epidemiology handful of years ago, released an article that showed that increasing your fiber by just ten grams a day caused a 10% reduction in all cause mortality, which is death for any reason.

So that is like pretty bananas to me. So if you don't want to think about, like, all of, like, how much am I getting of this and that if you're not a counter, I'm not really a counter, but, just thinking ten grams a day more is.

That's doable, right? If you're at five grams a day and you go to 15, that is going to make a huge difference. If you're 25 and you're going to go to 35, that's a huge difference.

And so any little small progress, you don't have to be perfect. Kind of gets you where you need to go. And. That's that might, you know, depending on the food, that might just be like one serving of a fruit, vegetable, bean, something like that.

It's not like, you know, to get ten grams is really just, you know, depending on the food about a serving of whatever that plant is. Yeah, totally. Fermented foods as well really help.

So yogurt, kombucha, kimchi, sauerkraut, all that your body makes, those short chain fatty acids and other needed digestive enzymes from, again, from fermenting the fiber itself that that gut bacteria does that for you.

So if you can feed the gut bacteria with those, you're going to get more results. If you're feeding it already fermented, they have less work to do in a way that I think of.

And then, I think really with any change, again, I'm all about progress, not perfection. I'd rather someone be consistent and small changes and stay consistent, because it really is when it comes to any long term behavior change.

I think that that's true. But particularly when we're talking about the gut microbiome, consistency is key.

Probiotics, Consistency, and Practical Takeaways

It can really only takes three days to change to dysbiosis or back to balance, which is like both awesome and awful at the same time because it means you can get off kilter super fast with lifestyle changes, but you can also start to recover fast.

So I think consistency, consistency, consistency. I love it. That's super helpful information. Any oh, I you know, one thing I know people are wondering is what about the role of, probiotic supplements.

So you talked about the role of probiotic foods, foods that naturally have bacteria in them. So, you know, our our kimchi, our sauerkraut, our can be our yogurts.

The things you mentioned before. What about the role of like probiotic supplements. So I think they're helpful. I think in terms of what we're I think I am not a probiotic expert.

I will put that out there. But I do, think that I think of the foods that we have been talking about as prebiotics. So feeding the nutrition to the gut, the friendly gut bacteria to help them thrive, and avoiding the foods that are going to make our unhelpful, unfriendly gut survive, that those are prebiotics.

And that's everything that we've just talked about. Probiotics are literally just like giving capsules of bacteria the good, ostensibly good bacteria back to your gut.

And so I think it's important to maintain your life with a prebiotic mentality in terms of the food that you're fueling yourself with. And then when you get into dysbiosis, I think the use of probiotics is helpful.

So for example, a course of antibiotics might put you back six months in terms of your gut microbiome. And so when I put people on antibiotics, which is every day, every night, I should say, since I'm a night, I'm a doctor, every night I put someone on antibiotics and I always tell them, you need to go take 12 weeks of probiotics.

And these are the types of foods you need to be eating. Now the question is, how useful are those probiotics? I think it's with any supplement. It is unclear what is in anything.

So things need to be they don't they they aren't regulated. There are you know, they don't go through the FDA. There is a company called USP that does do some certification and testing of supplements.

So I'd always recommend someone try to get that stamp of approval on any supplement that you're using. But the answer is is I'm just going to send you to the grocery store or the health food store and tell you to buy probiotics.

But like, what did that company decide which was the right good bacteria to be giving back to you? And so I think, any studies on this would have to be pretty rigorous, which of course, we know nobody's going to put money into something like that.

To try to figure out what the best course is, which is why I think it's most important that you control what you can control, which is the food that you're giving yourself as a prebiotic to give those gut bacteria the best option, the best opportunity they have to thrive so that you can also thrive.

Whereas probiotics may be a good kind of band aid in a like concrete despotic situation like antibiotic use. Because if you think of antibiotics like they're, they're killing what's causing your ear infection, but they're also indiscriminately sort of killing off other bacteria.

So I think concentrating on fermented foods, high fiber foods, polyphenol rich foods, tryptophan rich foods, omega three fats, those are those probiotics that are really going to help us in the probiotics are sort of like an emergency in my opinion.

Yeah, yeah. They're like a layer on top because like we've talked about in the beginning of this, chat, was that the microbiome is incredibly complex.

So we're not really quite there with knowing exactly which one to replace for any individual person. It's probably really complicated, right. And so there are situations like when you've had a recent, you know, illness and maybe your gut was really upset by that.

You've been on antibiotics, where we do have some evidence that the common ones that are available are helpful, but we just still know, there's people working on it, but we still really don't have quite, like, laser focused, probiotic choices for people to take a supplement.

So I always tell people it's really reasonable to, to try them for a few months. And if you're seeing the results you're looking for from them, great, stay on it.

And if you're not seeing results, may be time to try another one. Because again, there's so many available and it's there's not a lot of studies that say which one's the best one.

And probably it's going to come down to like, which one is the best for you as a person. Because it's, it's so incredibly complicated. That gut microbiome.

Well, I think with everything with health and especially around food and obesity and metabolic syndromes, is that we do have to accept some amount of experimentation because we all are different, our epigenetics are different, our genetics are different.

Our life experiences are different, our neurotransmitters are different, our gut looks different. And sometimes you have to try something for a little while and then pivot.

And, that those pivots shouldn't be huge because then we don't know what it was that actually made the change. But I think, again, small steps, small progress is consistency is key.

Well, before we wrap up here, anything that we didn't cover that you'd like to emphasize. I mean, I think, you know, I could talk for hours on why you're eating, and I think this was a good kind of, scientific based, approach to some of that.

But I do think that there are three things that we need to concentrate on when it comes to, our lifestyle and behavior change with food. And that is what I'm eating, which we've just talked about.

It's why I'm eating and it's when I should be eating, and those things are all going to look different for all of us. And again, may need some kind of coaching or guidance in terms of like what that looks like and what options are for each of us.

But I think it's really key that you really do kind of dig into those three portions for yourself. And particularly the why. So understanding that your neurotransmitters in your gut are part of that, understanding that your ability to manage your stress and your anxiety and your emotions, and how you may have been taught to, buffer those things throughout your life, from family or from society.

I think that those are things that we do need to take into, into effect when we make changes. In Dr. Hammerstedt that if someone wants to check out a whole list or find more resources for me, where can they find you?

Yeah, we're at, wholisthealth.com That's W H O L I S T H E A L T H.com where we have all of our services there. You can also find me personally on Facebook.

We also have podcasts called the Curate Your Health podcast, where I do interviews like this with all sorts of people from health care, medicine, wellness industries.

Because I love to learn and I love to educate, along the way through those conversations. That's anywhere you listen to podcasts. And there's also a, Facebook group called Curate Your Health, where we do all sorts of trainings and learnings around kind of how to be your own cognitive behavioral therapist when it comes to, making food decisions, movement decisions, mindfulness decisions.

Well, thank you so much.