

Love Your Gut | June 4, 2024 | 4- 7 pm

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test test.

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>> Welcome.

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Wow.

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That is loud.

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Okay.

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First, I will ask people to come join us.

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I know some people are grabbing food.

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There are lots of seats on the side here, seats in the middle and benches over here if you would like to join us there.

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Yeah.

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Great.

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I think everyone is sitting down.

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What a beautiful evening.

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Thank you all for joining us.

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Thought it was going to be pouring rain.

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It is gorgeous out.

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Welcome and thank you all for coming to join us for this even's event and for those online, good morning, good afternoon or good evening and thank you for joining us.

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I'm Debra, I manage public programs at Discovery Center.

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I have short brown hair, wearing GLASs and I am standing in front of Love your Gut, understand The Microbiome Connection microbiome food.

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The them with gratitude and recognize that this land continues to be their home.

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this becomes meaningful when combined with relationships and we strife to do that here at Discovery Center with our programs and exhibition with partners and including other partners, as voices and speakers, as well.

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I want to thank incredible partners who many of you have tasted some of the foods.

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All of our partners, if you have not visited their table yet, end of discussion, there will be time to try the food and drinks.

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We have InFerment Studio, OHSUN Banchan Deli and Cafe and Gold Coast Ghal KitchenKitchen, she had an emergency in the kitchen.

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I recommend you visit her.

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Has anyone been to the restaurant in Capitol Hill.

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I am excited to try it.

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Thanks to our Yassal Sundman ASL

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>> David Tepper: Interp RETers and support team supporting virtually and in person this evening.

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there are so many other people to thank.

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A lot of people helped bring this program together.

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Jess connecting us with incredible partners this evening.

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Tony's program is inspired, current exhibition.

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Better way to go toilets in future of sanitation.

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We are excited about this exhibition.

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Bring friends and families, we have incredible camps for youth this summer.

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If you have kids or know people with kids come back and sign up for those available online.

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You will see incredible innovation, compelling stories, art installation and hopefully call to action to create safe sanitation services for all.

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Our speaker tonight are discussing humicrobiome, and Gates Foundation initiative for fermented food.

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We'll put this up at the end, there is mennee.

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Those online share your thoughts on what you do to support your own gut health.

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We'll send results in follow-up e-mail.

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Keep adding thoughts to that.

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Okay.

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For speakers tonight, join me on stage, excited to have Anne-Marie Gloster as nutrition expert, a faculty member at University of Washington and nutrition and health program and specializes in culinary nutrition science.

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I was like, what is that?

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I want to go to school again.

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Cullener art, food science and nutrition.

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Working in clinical diets and food system, management consulting and makes her classes engaging and practical.

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If you have not seen it yet, maybe in the back there, holdup incredible, she will share it later.

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Grab one of these.

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It shows some examples of how you can help with your gut health and she'll explain the chart.

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She copied that and made it for you like you are her student.

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She teaches Fermentation ScienceScience.

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And Vanessa Ridaura.

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Senior with Bill and Melinda Gates Foundation.

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Washington university, and National Institute of allergy and infectious diseasesdiseases.

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At Gates Foundation, developeddeveloped microbiome intervention to improve pregnancy outcomes.

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That is a mouthful and I'm excited have both of you in conversation know tonight.

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Excited to hear more about the work, some is new to us that work here.

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We're excited and thank you both.

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>> Yeah.

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Thank you.

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[Applause]

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>> Thank you everyone for being here.

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>> Yes, I'm not used to sitting down and talking, this will be interesting near for me.

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I'll be moderating tonight and peppering in conversation more or less.

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I am totally fascinated by your research and the work that you're doing with the foundation.

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Why don't we start there with like basically explaining what is the gut microbiome and why is it important?

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>> The gut microbiome, I want to start by saying microbiome is a word that encompasses all bacteria, that are in association with living bodies, so we have a gut microbiome and we have a skin microbiome and oral microbiome and animals have their own microbiomes, as well.

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It is not unique to humans.

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It is not unique to the gut.

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The piece that is interesting from the gut is that the bacteria and fungus that live there can actually help us digest our foods.

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They can break down ingredients of food you normally are not able to break down and help us with immune system and maintain integrity of the gut.

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They are really, really important for not only how you take in food and metabolism, immune system and how your body can really interpret signals from the environment.

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That is the very beginning and we're talking trillions of microbes in your gut, in particular.

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>> So many and they are important and different at different stages of life.

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In the foundation, for example, we have a great program that we're investing in, trying to introduce probiotics as Debra mentioned for really, really small babies that are maybe born preterm, low birth weight and what ends up happening, their guts are not mature enough.

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Their microbiome is not mature enough and they are missing some species that can help them get more nutrients from breast milk.

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By providing those back, you can start kick starting process of microbial assembly and help them train their immune system.

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This is really important for babies around the world.

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>> Yeah, that reminds me, I was chief clinical dietician in Chapel Hill.

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We had a breast milk bank where people could bank their milk for other women to allow those babies to have them if they could not breast feed themselves.

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It was important to introduce nutrients coming from milk that formula does not necessarily have.

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There is cases where we have to rely on formula all the time and around the globe.

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When we start thinking about the gut, what is, the terms prebiotic and probiotics come around all the time.

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Do you want to explain that a little bit?

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>> Yeah, definitely.

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So when you think about probiotics, that is referring traditionally when you hear that term commercially, refers to bacteria and those are the microorganisms that can potentially be part of your gut and given to you as a supplement and prebiotics are foods bacteria can use to ferment and foods you can eat in order to support certain bacteria in your gut.

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In some cases, you can eat combination of both, that is called symbiotic.

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They give you right bacteria with preferred food supplement and can take over and colonize your gut.

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>> Absolutely, so that actually is one reason why I have this chart that I gave you all.

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The one that is this side, I laminated these because I love tech, I love low tech.

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So in my kitchens, I have a lot of different things on the inside of my kitchen cabinets and covering my refrigerator.

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As dietician, we used to say eat five fruits and vegetables per day and it is tedious to think about that.

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Newest trend is think about eating 30 plants per week.

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With laminated sheet, I have on the fridge and my husband and I compete to see who can eat the most plants in a week.

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I use red dry erase marker and he uses blue and does one side and I do the other.

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But any know plant counts as prebiotic, whether it be, I put cinnamon this morning on a sweet potato I was eating for breakfast.

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Oh, I get a plant, cinnamon is bark.

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Competing and keeping track of that is more fun than thinking about, I have to eat five a day, do five a day.

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You know --

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>> I love you say that, I think that is some research has shown diversity of foods, eating ton of colors and fruits and vegetables is what is feeding bacteria in your gut.

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Like I don't love to refer, call beneficial bacteria in your gut.

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There is also bad bacteria, like food poisoning and you don't want that bacteria.

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If you have right good bacteria in your gut and support them, fruits, vegetables, fibers can help protect you against pathogens.

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>> Variety is the key thing.

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What I love here is all of the great vendors we have down here that are giving you samples of all sorts of fermented food.

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Fermented food is made with beneficial bacteria and/or events and then they are in combination with plants that are actually being fermented.

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When you eat a fermented food, you get both bacteria and event your microbiome likes and the food they want to eat when it gets into the gut.

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So it is super beneficial and I did not add a list of fermented food on the list.

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You can ferment almost anything.

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Actually I just taught a CLAS class on can bas and one asked can you ferment cannibus.

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You can add to a fermented product.

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>> I love you said that, fermented foods are symbiotic.

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More and more data from the foundation and others showing that fermented foods, even more than just fiber can really support a healthy gut and us in global north because of way we eat, a lot of processed foods, more carbs than we should, we actually have decreased diversity so different types of microorganisms that live in our gut and research from Stanford University and universities in Pakistan have shown that eating fermented food can increase diversity of bacteria in your gut more than fruit

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It can be supported measure.

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you can take your own gut health into your own hands and really make a difference.

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We were talking earlier, we have lots of stories, both of us about things we eat.

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What made you want to get into the gut microbiome as your research focus?

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>> You know, I thought that it was really incredible.

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I got into it in grad school, I did my PhD in microbiome trying to understand how gut microbiome can impact fat deposition, how people that gain a lot of weight actually have a different bacteria and I thought it was incredible to see that animals that were born without bacteria, if we gave them the bacteria of obese individual versus a lean individual, they have differential weight gain.

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Even eating the same amount of food.

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That was mind blowing to me.

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It meant bacteria in your gut can modulate systemic metabolism and goes yep what happens in the gut and since then, I've been in the field for a little bit and we've learned bacteria in your gut can modulate cognition and in babies, development and inin -- we are starting to learn foundation

through investments, mom's microbiome can impact placental development and mom can impact through what she eats on baby's development and set them up for success later in life.

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>> That is fascinating.

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There is, you go along the exhibit down the way and see different kind of stool samples and Is was sharing with her earlier.

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I remember first week in dietdietetics intern, I came home and said nobody is talking about what they eat, everybody is telling me what their POOP looks like.

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I'm comfortable talking about POOP and most dieticians might be.

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It is fascinating.

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I teach undergraduates and one trick I tell them, oftentimes, we like to POOP where we feel most comfortable.

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If you travel and like you wait all the way until you get home two days later and everything goes, that is very common.

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I was telling myun stereos, one thing that is a great constipation reliever is molasses cookies.

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Molasses is carbohydrate that goes to large intestine and draws water to the gut and will loosen your stool.

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I've learned so much about impact of eating and what happens on the back end.

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>> It is so interesting, like I'm mom of two.

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They're still little, I thought it was interesting how obsessed new moms are with their baby's stool.

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It can tell you so much about what is happening with their immune system and this is something that we've known for years.

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Centuries.

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There is evidence of Chinese emperors, hundreds of years ago doing fecal microbial transplants to feel better.

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Even without understanding bacteria, they were already knowing there was something about fecal samples that could make you feel different.

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>> Yeah, we were talking earlier about there is a new Netflix documentary about gut health.

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I teach on food documentaries and I'm skeptical that somebody is trying to push an agenda or marketing.

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This is really well done and I really, they had a woman in that video, where she is actually taking her boyfriend's POOP and then her brother's POOP and putting in capsules and consuming it to fix her own gut health.

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Don't do that.

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They say don't do that in the video.

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We want to emphasize, don't do that.

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What experiences have you had like with global stories around the work of the foundation and different aspects of studying the gut microbiome?

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>> It's interesting because the gut microbiome, it is something that not only tells you a lot about your health, also about your culture.

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And where you are and what access to food you have.

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And what we've learned from a lotted of research across different cultures is that the species help bacteria and fungus in the gut of people are different and depending where they are, even if you

think there is bacteria similar in infants, it has adapted to what population of individuals eat. Again, this is message to us that really eating healthy food says, eating things that will feed not only your body, but also bacteria and gut microbiome in your body can actually make a huge difference in

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So really, you have the power in what you put in your mouth everyday to lead healthier, happier lives.

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>> Absolutely.

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In relation to that, there is work being done at North Carolina State University, my almmater.

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They have a lab doing DNA analysis on all of the samples of sourdough starter from all over the globe and they are seeing patterns of different bacteria and event from around different regions.

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It is truly fascinating.

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>> That is something I love about fermented foods.

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I think 2021 Gates Foundation released grand challenges, we provide smaller grants around the globe for certain topics and topic was fermented foods.

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We were interesting to understand if fermented food can impact inflammation in pregnant pregnancy and people from India, Pakistan, BangaloreBangalore, SENGal prepared food different, fermentation was different.

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The vegetables were different.

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What we did see, is that regardless of what food were, there was a sign that in fact decrease inflammation in pregnant women and pregnant women that were undernurrished or had dysfunction, basically a ton -- live with a lot of pathogens, fermented food can alleviate that.

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Different amounts, keep that in mind.

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Variability on fermented food can impact the effect they have.

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>> Absolutely, I understand all of the numerous challenges that go along with doing nutritional research in general.

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But I'll bet there is interesting and unique challenges to studying the gut microbiome.

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>> Yeah, it is very hard.

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I think that particularly because the bacteria and your gut are so responsive to what you eat.

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If you want to compare your gut microbiome with mine, you have no idea what we eat in a day, it will look different and we will not know why.

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Having food diary and understanding what people eat and how that relates to what their bacteria look like is really important.

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Other thing is rely on new technologies.

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I think that what really opened the door to studying gut microbiome and microbiome in general was the ability to sequence DNA.

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Before that, we were relying on methods like culturing and it was really hard, there are a lot of species in the gut that cannot be cultured.

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With sequences we can explore the previously unexplorable and we have other technologies like proteomics and sequence proteins bacteria produce and we have metabolomics, what compounds they are producing and we can start telling a story about what is happening in your gut and start identifying patterns associated with health and disease.

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>> That is fascinating.

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I have a question I have always heard and never been able to verify with a real scientist.

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>> Let's see.

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>> I understand that your gut actually, your entire digestive process starts with the mouth and ends with the anus.

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In your mouth, you have a lot of enzymes that start digestion, body breaking down carbs and other things and there are certain bacteria that live in your mouth that bacteria when they eat carbs, I like to tell my students it is KRAS, they pea acid and fart out gas.

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They can remember that easily.

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Acids give you dental carries.

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I had heard basically if you know somebody that has never had a cavity in their lifetime, usually because microbiome in their mouth contains beneficial bacteria that then don't produce as much acid and if you can get somebody like that to spit in your newborn baby's mouth.

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Again, does not sound like a good idea, you would set up proper microbiome in the mouth.

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>> I will say that I have not an expert on oral microbiome.

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What I can tell you, oral microbiome plays role in other health and disease.

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For example, there is data suggests that bad oral health and specifically like oral changes in microbiome, as seen in preterm birth, is something unexpected.

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At that point, we don't know if that is cause or effect.

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It is not really clear right now, but I'm not sure about spitting into baby's mouth.

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>> I wouldn't recommend it.

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Just luckily my kid ended up with a decent mouth.

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So I want to have enough time to get odddience questions in, I wanted to lastly ask you, how do you navigate adding in fermented food and healthy food for your gut?

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>> I think great way to do it, I didn't know about 30 foods, that is exactly what we do daily.

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In my house, with the kids, we have half your plate needs to be fruits, vegetables or grain.

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One protein and sometimes we skip carbs.

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I think that introduces us to variety.

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They are not at least with kids, not required to eat everything on their plate, they are exposed to everything on their plate, start healthy habits, big variety of food you are exposed to.

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My husband loves kimchi and I love kimchi it is around in our home.

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Fermented food, making them at home is beneficial, you get a lot of bacteria that is producing those good acids that are partly responsible for having beneficial health impact and also will start acting as probiotics to support other healthy bacteria in your gut while getting pasteurized fermented food may not have same effect.

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You may get asid, you may not get probiotic piece of it.

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>> Absolutely, we were talking about, I come from hurricane country in North Carolina and having fermented food is wonderful, they are sustainable.

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Once you have a fermented food, you can keep growing it and it does not require electricity and you know, you can keep producing it, whereArizona soon as electricity goes out, everything in your freezer must be barbecued.

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>> We visited villages in Pakistan.

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I don't think it is easy for us to imagine, you have to drive in a car for three hours and drive another hour to get to the village and surprisingly they do have a lot of culture with fruits and vegetables.

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When seasons change, that food actually goes to waste and they don't have access to those foods.

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They don't have electricity or refrigeration or fermentation and preservation of food in other ways is a great way to improve access to food for some target geographies and populations.

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>> Fantastic.

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I'm trying to make sure my job is to stay on time.

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We are at that point, I'd like to open it up.

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We have a mic at the back.

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If somebody has a question.

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>> We have a question from online.

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>> Excellent.

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>> Are probiotic supplements helpful?

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Somebody read many don't make it past STOM STOM acid to be beneficial.

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>> Existing commercial probiotics have been derived from traditional fermentation of food like yogurt and beer and so some of those, even if they did make it past the stomach, they are encapsulated, they are not really going to have an effect, long-lasting effect.

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They will not colonize your gut and become part of bioelectric.

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May have transitional effect.

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With yogurt, while bacteria pass through, you detect them, you stop eating O.J. Simpson, no more bacteria.

00:37:04.000 --> 00:37:19.000

There are novel intervention being designed where they are basically probiotics because they are designed for a specific KAEGSZ where you have something bad going in your microbiome and you can now use them and these are bacteria that come from the gut and are well adapted to take over the gut instead of bacteria originally designed to ferment yogurt or milk.

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De Depending in your gut health, what you are taking, what bacteria that is and is it designed to colonize your gut, in many cases, may not need a probiotic.

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Probiotics available in the market may not make a difference for you and maybe eating variety of fruits and vegetables are better.

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In infant probiotics, designed with idea of babies in mind and there is bacteria present in some probes and that absent in high-risk infants and babies underweight, born preterm or low birth weight, there is makeses sense to give this bacteria back and you take over environment or it is taking over the environment it is supposed to live in, depends on what bacteria there is.

00:38:08.000 --> 00:38:12.000

>> I have one.

00:38:12.000 --> 00:38:14.000

Oh, does your environment affect your microbiome?

00:38:14.000 --> 00:38:16.000

For example, having a pet?

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>> 100%.

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A great article from I think it was like 2019 or 2018, where this investigator Rob Knight, the whole family, including the pet, it turned out the pets shared gut bacteria with the family.

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So you can basically place the pet based on the pet biome to where they belonged.

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Environmental factors impact it, as well.

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There is some investment going on in the foundation looking at exposure to different air pollutants and different food that can impact your gut microbiome.

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>> This may be two-part question.

00:39:32.000 --> 00:39:41.000

Does the quality of the ingredients that go into making probiotics make a difference as to level of effect they will have when you compare industrial-grown foods to home-grown foods or organic or whatever?

00:39:41.000 --> 00:39:46.000

>> So the quality of the probiotic or ingredients going into probes.

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Probiotics, talking about bacteria you take in case of commercial provider are mostly bacteria.

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Yes, there are probiotics and probiotics.

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Companies produce probiotics that are high quality and that includes ingredients and way probiotics are produced.

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They say bacteria and nothing else is in here and that is the case and there are companies that cannot guarantee that and won't say that.

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In terms of food, organic versus nonorganic will not impact quality of fiber there.

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That is probably a question you have varied million times.

00:40:21.000 --> 00:40:41.000

>> Yeah.

00:40:41.000 --> 00:40:47.000

The organic versus industrial is not going to change the actual nutrients, you will not get exposed to pesticides or antibiotics that are in food not desirable.

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It will not affect the way the bacteria gut interact with that particular food.

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And of course, if it has antibiotics, that will impact not only diversity of bacteria, you can start creating resistance in your microbiome.

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If you have an infection and need an antibiotic and you have resistance to that antibiotic, that antibiotic will not work for that infection.

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We have to be care FRL about antibiotic use and make sure we are not perpeuate gene trans fer.

00:41:28.000 --> 00:41:29.000

>> Okay, another question from online asking, what percentage of our meals should be fermented foods, what would you recommend?

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>> I don't know.

00:41:31.000 --> 00:41:43.000

Do you have an answer?

00:41:43.000 --> 00:42:12.000

>> I don't think I have a percentage necessarily, I would say trying to get a variety of fermented food and one fermented food per day, I try, I don't always hit this myself.

00:42:12.000 --> 00:42:19.000

If there is any place I can throw a spoonful of yogurt instead of sour cream on a baked potato or having a variety of fermented foods in the house, whether refrigerated like we like to buy pickles from, we have a pickle maker with the island and they are fermented, not pasteurized like a jar pickle that you get.

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They are refrigerated, refrigeration slows down fermentation process.

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Having variety of something you can eat everydayeveryday, it does not have to be fermented foods.

00:42:46.000 --> 00:42:51.000

>> There is small study from 2022, I think, from investigator Justin Sandberg, he compared, basically did a clinical trial and had an arm where people did not take fermented food and ERM FOOed food, asked people to take 10 fermented foods a week.

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He saw impact beneficial impact, maybe that is good starting point.

00:42:53.000 --> 00:43:06.000

>> Yeah.

00:43:06.000 --> 00:43:11.000

>> I have a question about when we were pregnant, we were always told not to eat unpasteurized cheeses and does that start with babies in the womb.

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In Europe, you are able to eat all of these unpasteurized cheeses.

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Is that developing more resistance?

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If we were to eat more unpasteurized cheeses, would that create a healthier gut and does that have an effect from birth in the womb to later on in life, a difference between you someone in Europe versus here?

00:43:44.000 --> 00:44:04.000

>> I am not an MD, so this is not clinical advice.

00:44:04.000 --> 00:44:11.000

But the reason to not eat unpasteurized cheese during pregnancy is for risk of having pathogens like *Listeria* and having pathogens and consuming pathogens can increase risk for adverse pregnancy outcomes.

00:44:11.000 --> 00:44:20.000

It is a risk that you can take, that is why they say don't consume unpasteurized cheeses.

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Not every cheese you consume will have *Listeria*, risk of having *Listeria* outweighs benefit.

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As a cheese maker myself and having studied cheese making extensively and knowing U.S. food system, one main reason we do that, food manufacturers do not want to get sued.

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Anywhere you can put a seatbelt safety measure in, we want people to do that.

00:44:47.000 --> 00:44:56.000

Avoiding that pasteurized cheese for pregnant women is smart.

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The rule here in the United States is that you can't sell unpasteurized cheese unless it has been aged for 60 days.

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If a cheese is going to be bad and I have been in a room sitting where you are where researchers and people teaching the cheese class broke into unpasteurized cheese that had gone bad and within five seconds, you could smell it.

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Your human body would not let you eat bad unpasteurized cheese.

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If somebody sells you bad cheese, there is risk that would not develop and you would not be able to go absolutely not.

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But it is not worth the risk.

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So I think that is the biggest important thing.

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You know, we all take risks.

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I eat raw oysters occasionally, I mean, you know, we do make those choices sometimes.

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There are other ways and during pregnancy you can improve your gut microbiome as a mom.

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It does not have to be exposure to pasteurized cheese.

00:46:02.000 --> 00:46:03.000

Eat variety of fruits and vegetables, that will feed your gut microbiome and have potentially more impact than just eating the cheese.

00:46:03.000 --> 00:46:13.000

>> Yeah.

00:46:13.000 --> 00:46:23.000

I am a big fan of unpasteurized, I'm not going to lie.

00:46:23.000 --> 00:46:24.000

>> Yeah.

00:46:24.000 --> 00:46:32.000

Yeah.

00:46:32.000 --> 00:46:41.000

It is kind of like thinking about botulism, you know botulism scores are in soils.

00:46:41.000 --> 00:46:49.000

We are exposed to them, infants under age of one have not been exposed and there are more risks.

00:46:49.000 --> 00:46:51.000

That is why we don't give honey to infants under one, they have not built up TOLLerances.

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It is all balance.

00:46:53.000 --> 00:46:55.000

There you go, you have a microphone.

00:46:55.000 --> 00:47:18.000

>> Hi, great discussion.

00:47:18.000 --> 00:47:35.000

My question is about you guys speak to the state of the art regarding I ges measurements about -- so I think we now know as world in general that wide variety of fruits and vegetables and so on.

00:47:35.000 --> 00:47:59.000

Measurement of results is AULSZ very macro, you have less inflammation, less this, these are not at all specific and if you are looking at this as tool to attack major disease, then you need to be more specific than that.

00:47:59.000 --> 00:48:04.000

Where are we with and it looks like way to measure it, do this relatively slow monitoring of analyzing your POOP, which next time -- monitoring systems, is there sort of MRI or something that you can eat a thing or do a thing or stop eating a thing and see what the result is?

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Is this something that is just in the middle of?

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Really long question.

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>> No, I think that there are investigators trying to develop other types of toilets that basically you would produce your sample and it would do the equivalent of really gross sequences analysis, not gross as in disgusting, as in big picture, giving instead of what species, it gives you which filtera, it is not clear how informative having that is from day-to-day.

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There are studies scientists collect samples daily for a year and there is variation.

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It is hard to understand for you specifically what that variation is.

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Only way to really figure it out, population level and in the case of target that the foundation is trying to get to, precision medicine is not an option, that would be excessively lyexcessively expensive to be able to transalate.

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To get implemented, you have to ensure, ideal to have 28-day course of probiotics for less than \$1.

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if you go by that and you're Amazon, even cheap ones that are high quality, they are about 20, 28, 30 dollars, that is outside scope of what we can do.

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Personalized medicine is a little far away for us.

00:50:24.000 --> 00:50:30.000

>> Immersed currently in artificial intelligence and teaching and learning and I think that is some things I'm reading about, where we're going with some great aspects of artificial intelligence is going to be able to do some of that work and collect that data and really move health forward.

00:50:30.000 --> 00:50:46.000

[inaudible] --

00:50:46.000 --> 00:50:48.000

>> We don't know, I think there are circulating compounds or metaBOlytes that can tell you what is happening in the gut microbiome, still trying to understand the extent of that.

00:50:48.000 --> 00:50:55.000

>> I have a question.

00:50:55.000 --> 00:50:58.000

During the pandemic, there was monitoring of sewers to get general population data.

00:50:58.000 --> 00:51:09.000

Curious is there anything like that general population for microbiome or other bacteria?

00:51:09.000 --> 00:51:21.000

>> Yeah, interestingly, a lot of investigators that developdeveloped those techniques are people studying gut microbiome for a long time.

00:51:21.000 --> 00:51:32.000

They have actually used a lot and continued it on and used expertise to learn what is happening from the gut microbiome in general.

00:51:32.000 --> 00:51:34.000

They will come out soon from investigator Rob Knight, who is in the program that is trying to explore a little bit of that.

00:51:34.000 --> 00:51:36.000
yeah, I had that same thought.

00:51:36.000 --> 00:51:48.000
>> We have time for one more question.

00:51:48.000 --> 00:51:52.000
>> I know there are a lot of hands up and questions online, we'll do an e-mail at the end and handout, we'll e-mail to people.

00:51:52.000 --> 00:51:55.000
One more question and give time to visit our partners, as well.

00:51:55.000 --> 00:51:56.000
Close doors at 7 o'clock.

00:51:56.000 --> 00:51:57.000
Hold on.

00:51:57.000 --> 00:52:01.000
One more.

00:52:01.000 --> 00:52:09.000
>> I feel bad taking last question, it is a very simple one.

00:52:09.000 --> 00:52:13.000
Thank you for this presentation, it's been wonderful and thanks to oddaudience, you made me think.

00:52:13.000 --> 00:52:21.000
You touched on it, could you speak to a few items.

00:52:21.000 --> 00:52:27.000
One GLI pHate, and alcohol on the gut microbiome.

00:52:27.000 --> 00:52:28.000
>> Wow.

00:52:28.000 --> 00:52:30.000
That is what?

00:52:30.000 --> 00:52:32.000
>> Yeah.

00:52:32.000 --> 00:52:33.000
Right.

00:52:33.000 --> 00:52:34.000

Right.

00:52:34.000 --> 00:52:38.000

Right.

00:52:38.000 --> 00:52:43.000

I'm not an MD and we were talking earlier.

00:52:43.000 --> 00:52:46.000

I don't think I can fully answer that question hard and fast.

00:52:46.000 --> 00:52:49.000

So I'm not going to.

00:52:49.000 --> 00:52:55.000

>> I feel same way.

00:52:55.000 --> 00:53:00.000

I don't know how much research in terms of gut microbiome on raw milk there is.

00:53:00.000 --> 00:53:05.000

Definitely there are complications on microbiome at home.

00:53:05.000 --> 00:53:10.000

What was the first one?

00:53:10.000 --> 00:53:18.000

I think publication on it a couple years ago, not so much research I feel comfortable.

00:53:18.000 --> 00:53:37.000

>> I have not read that research either, I am sorry that is -- yeah, I don't want to go beyond my scope.

00:53:37.000 --> 00:53:44.000

I want to mention, other side of the handout I gave you graphic recipe for salad building and I again, like to keep things like this inside my kitchen cabinet taped to the door of my cabinet.

00:53:44.000 --> 00:54:02.000

If you take one food from each column, you can build infinite number of incredible salads.

00:54:02.000 --> 00:54:12.000

I like it so you can have an idea thinking about different salad add-ins, I'm under house renovation right now and without a kitchen, I'm buying bagged salad, not my PREFERENCE.

00:54:12.000 --> 00:54:15.000

I take that and add to it, canned beans or frozen corn, extra vegetables and peppers, etcetera and build it out.

00:54:15.000 --> 00:54:24.000

I try to, I might go, what am I missing?

00:54:24.000 --> 00:54:36.000

What would make this great in dried cranberries or nuts, walnuts, add that and try to build from that.

00:54:36.000 --> 00:54:37.000

I want you to have a graphic recipe and encourage you to eat more plant material and then also whether you want to track it or not is the other side of that.

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>> Thank you for that.

00:54:38.000 --> 00:54:39.000

That is wonderful.

00:54:39.000 --> 00:54:44.000

>> Yeah.

00:54:44.000 --> 00:54:45.000

I'm a teacher, I like handouts.

00:54:45.000 --> 00:54:48.000

>> All right.

00:54:48.000 --> 00:54:51.000

Thank you so much.

00:54:51.000 --> 00:54:53.000

Round of applause for amazing conversation.

00:54:53.000 --> 00:54:54.000

>> Thank you, everyone.

00:54:54.000 --> 00:54:55.000

>> Yeah.

00:54:55.000 --> 00:54:56.000

[Applause]

00:54:56.000 --> 00:55:07.000

[Applause]

00:55:07.000 --> 00:55:15.000

>> Before everyone gets up, we do have a couple slides just upcoming programs, we do light programs during summer here.

00:55:15.000 --> 00:55:26.000

Trivia night, so you might get answers from tonight's program, come back.

00:55:26.000 --> 00:55:27.000

Follow us at Discover Gates, I forgot to ask, how many people first time you have been to Discovery Center?

00:55:27.000 --> 00:55:29.000

About half.

00:55:29.000 --> 00:55:32.000

How about if you have --

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did I say haven't?

00:55:33.000 --> 00:55:34.000

Mixed up.

00:55:34.000 --> 00:55:36.000

Haven't been?

00:55:36.000 --> 00:55:37.000

Okay, have?

00:55:37.000 --> 00:55:38.000

Okay.

00:55:38.000 --> 00:55:39.000

Less than half.

00:55:39.000 --> 00:55:41.000

Great.

00:55:41.000 --> 00:55:59.000

Well, welcome, glad you found us.

00:55:59.000 --> 00:56:00.000

We love to get feedback on our programs, we have you can scan this on your phone, very quick survey, takes like one minute, love your feedback and a couple colleagues with printed survey, if you rather do by hand, fill that out, we'd love that.

00:56:00.000 --> 00:56:04.000

I think that's it.

00:56:04.000 --> 00:56:11.000

>> We were going back to the mentee.

00:56:11.000 --> 00:56:16.000

>> Yes, back to the mentee, give people a second to get the QR code and we'll go back.

00:56:16.000 --> 00:56:21.000

We'll see the mentimeter results to everyone that is registered.

00:56:21.000 --> 00:56:27.000

If you did not register, we will get you registered.

00:56:27.000 --> 00:56:28.000

I think everyone did, but -- couple more.

00:56:28.000 --> 00:56:32.000

>> Okay.

00:56:32.000 --> 00:56:33.000

I think mentimeter.

00:56:33.000 --> 00:56:34.000

Awesome.

00:56:34.000 --> 00:56:36.000

>> Great.

00:56:36.000 --> 00:56:38.000

>> Some hidden by QR code.

00:56:38.000 --> 00:56:49.000

Usually starts to scroll.

00:56:49.000 --> 00:56:52.000

Feel free to add to this, go to mentimeter.com, use 6334, if you have never done it before, it is fun.

00:56:52.000 --> 00:56:53.000

We have a list of ideas for people.

00:56:53.000 --> 00:56:54.000

Thank you again.

00:56:54.000 --> 00:57:03.000

[Applause]