Emeran Mayer (00:00):

Welcome to the Mind Gut Conversation, your go-to podcast for exploring cutting edge ideas in optimal health and the fascinating science of mind, gut microbiome interactions. I'm your host, MRMI. Here we bring together thought leaders, groundbreaking researchers and innovative practitioners to share insights that can transform the way you understand your body, mind, and overall wellbeing. Whether you are a health enthusiast, a curious learner, or a professional in the field, this podcast is your gateway to unlocking the secrets of the mind gut connection. So settle in, open your mind and join us as we journey into the science and stories shaping the future of health. Hello, I am Dr. Amron Meyer and host of the Mind Gut Conversation podcast. Today's episode is a little bit different as I'll be answering questions from my members for our quarterly ask Me Anything session. These questions come from people who have signed up for my membership, and it's always one of my favorite formats because it gives me a chance to address real concerns and curiosities in a more personal way. Whether you are struggling with gut issues, exploring the connection between food and mood, or looking for practical ways to live healthier, you'll find insights here that can make a real difference. If you like the opportunity to submit your questions for the next A MA plus gain access to exclusive life events, in depth courses, and a supportive like-minded community, you can join us by going to www.emeranmayer.com/membership to learn more. And before we dive in, I want to introduce my son, Dylan, who will be reading your questions and joining future podcast episodes.

Dylan Mayer (02:00):

Hey everyone, my name's Dylan. You may have read some of my articles if you're a regular reader of our newsletter or maybe you already follow my Instagram page, Meyer Wellness. I've been running the operations of emeranmayer.com for the last couple of years and I'm excited to be joining today's AMA slash podcast episode. Some brief background about me as our listeners can imagine growing up with dad, you as my dad that got microbiome and health has been something I've been hearing about from early on. I've become very passionate about the topics we discuss here, particularly nutrition, exercise, and the role the gut plays in our health. So much so that I went on to get my master's in nutrition from Columbia in 2023. Shout out to the IHN. If you're specifically interested in exercise and nutrition, you can check out my Instagram Mayer Wellness and my upcoming venture mayernutrition.com. We have a lot of exciting things planned for 2025.

Emeran Mayer (03:00):

Great.

Dylan Mayer (03:01):

Alright, so we have a handful of questions and because there's some overlap with some similar topics, we've grouped a few of these questions together. So let's get into it. Alikea, I hope I'm pronouncing that right, asks, what's the link between the gut microbiome and ADHD? Does a child or adult with ADHD often have different or a specific type of gut microbiome? If so, what particularities or characteristics or even deficiencies in certain bacteria in the gut microbiome have you found in a child or adult with ADHD? What can help regulate it, especially natural or holistic ways or any treatments that you recommend? Thank you.

Emeran Mayer (03:45):

So I have to start my answer with a disclaimer. Neither myself nor my research group has done any studies on the relationship of ADHD and altered gut microbiome features. This has been, there's a few

studies published that show associations and as we always emphasize, associations to not imply causality. So if you see in an individual that has a diagnosis, a psychiatric diagnosis of A DHD, and you compare this group of individuals with people who don't have it, who are healthy, have no alterations in their attentional mechanisms, and you look at their microbiome, you will find differences. So the way they can be explained is always in two ways. One is children with A DHD are more likely to have anxiety, anxiety disorders or associated what we call comorbidities, psychological comorbidities. And as I always emphasize, whatever goes on in the brain has a mirror image in the gut and your microbes will know that if the brain generates increased anxiety, for example, it will talk to directly to the microbes change their, not just their habitat, so transit rates in different parts of the intestine, but also the microbes themselves.

(05:17):

So these stress mediators can get into the gut lumen and act on what we call beta adrenergic receptors on these microbes and change their behaviors. The alternative is always that gut microbes produce so-called neuroactive molecules sometimes, which are similar sometimes to neurotransmitters, and they can act either on vagal ens in the gut or they can get into the systemic circulation and travel through the brain, get through the blood brain barrier and directly modulate brain networks and circuits. So we don't know which of those two mechanisms plays a role. If I had to take a guess, I would probably favor the so-called top-down mechanism that mechanisms in the brain affect the gut and the gut microbial ecosystem. And so that opens up the question which is obviously most important for the patient or for the parents. Are there natural ways, holistic ways of treating this condition and treating not just psychological manifestations, but also normalize the gut microbiome?

(06:33):

So again, we don't have data on this, but in general, this ology simple answer to the questions that come up is what is a natural or holistic way? It's a combination of addressing the mind and the gut and its microbiome at the same time. What you can do at the gut level is a healthy diet and healthy is essentially what's healthy for your gut microbes in terms of their diversity and in terms of their richness, the number of organisms that are there and the difference of different communities existing in the gut. So if you eat a diet that's high in fiber, different types of fiber, I mean there are thousands of different fiber molecules in plants. Plants are masters of synthesizing those fiber molecules. So if you eat naturally, not just as a supplement one particular fiber or prebiotic, but as part of your diet, you will deliver a large variety of these fiber molecules to your microbes. And the second thing is a large variety of naturally fermented foods. If you do these things and there are studies that have shown this, you will increase diversity and richness and decrease an inflammatory potential of your gut microbiome.

Dylan Mayer (08:01):

What do you think about incorporating things like mindfulness, like doing both the brain approach and also gut approach? I think you mentioned doing both at the same time is key here as they mirror each other.

Emeran Mayer (08:13):

Yeah, absolutely. I mean, with our insights or recognition of the mind gut connection or the brain gut connection, it's becomes obvious that since we don't know which one plays the major role that you address both at the same time and what we do at the brain level. So I told you about the gut level and the diet, the microbiome friendly diet. At the brain level, we have a variety of techniques to decrease stress responsiveness, to focus contemplative techniques, do both with both a relaxing effect but also train the brain to focus and not get distracted by multiple simulator that reach it all the time. So it's only

a partial response to your question, but unfortunately that's where we stand with most human psychological disorders such as depression, anxiety. We have a lot of data on associations between the diagnosis, the psychiatric diagnosis, and the microbiome composition, but we don't really know. My simple answer is because brain gut interactions are a bidirectional communication system that goes on 24 7 that always both ends of the brain gut system are involved both in the pathology and the diagnosis, but also require a treatment that's directed at both at the same time.

Dylan Mayer (09:45):

That's really interesting. And I mean when I was a kid, so many people had a DHD, and I know diagnoses are going up as our lives get crazier and crazier. Which kind of leads me to the next question from Diana who asks, how do we teach our kids to listen to their gut?

Emeran Mayer (10:05):

In some ways there's an easy answer, and on the other hand, I could talk about this a lot because we often talk about your gut feelings, your intuition, that these are decisions that are, if you make them right, and I'll explain in a minute what this means. They give you the best personal advice in your life's decision. Now, if you don't learn it early on, if you bombarded and if you grow up, always listen to the experts, to the parents, to the teachers. Our education system basically does not have this as a goal to listen to your gut. It would be considered a distraction of focusing on the objective content of information.

(10:56):

But if you encourage children early on to listen to their gut whenever they have to make a decision or when they have a stomach ache or don't feel good and listen to your gut, what's going on, what bothers you, you can train this from early on. You really give your children a remarkable, valuable experience that they can use throughout their lives. Now if you ask somebody our intuitions, what's the success rate of an intuitive or gut-based decision? If you look at the whole population, people have pointed out it's not better than 50 50. So basically like a random chance. However, if you look at people that have trained their brain in listening to their gut every time they make an important decision or they experience symptoms, I think the success rate of these decisions is much, much better than 50%. I speak from personal experience, have done this throughout my life. I wasn't necessarily trained to do it, but for some reason developed that skill and I'm glad I have it and I've based all my major decisions in life on, on these gut feelings.

Dylan Mayer (12:22):

Yeah, it's especially hard I think now with different advertising and marketing on tv, especially kids shows. I remember when I was growing up, it was a lot of junk food being advertised and things like that, and kids think vegetables are gross. So it's really important to teach them a difference early on so they can distinguish what's good for them and what's just a crazy advertisement that makes it look delicious, but it's not actually good for them.

Emeran Mayer (12:50):

And then we have this issue of the social media. We're basically bombarded at least two, sometimes five, six hours on their iPhones. Being bombarded by information is getting shorter and shorter. So it's not really information that you can base your major life decision, whom you want to marry, what profession you want to choose. It's really a distraction of our natural abilities to use gut-based decisions.

Dylan Mayer (13:21):

This short form video almost like I feel like increases people's anxiety as well.

Emeran Mayer (13:26):

Yeah.

Dylan Mayer (13:27):

Okay, great. So the next one is from Jane. She says, thank you for answering our questions. I've been trying to improve my gut microbiome by eating more fiber and incorporating various fermented foods and yogurts into my diet. A friend told me about a popular book that recommended culturing yogurt for up to 30 hours to multiply the probiotics into the trillions, thus increasing the benefit to gut health. I made four batches of this yogurt gradually increasing the culturing time with each batch, and now I've been having what I think are severe histamine or tyramine reactions. I've started over trying to heal my gut for the past three weeks. I've eliminated all fermented foods and yogurts from my diet and as many high histamine foods as I can. I'm wondering how much damage I did to my microbiome doing this and how long it will take to rebuild it. And if that yogurt, and if you think that yogurt was what did it, any comments or suggestions for me? I'm not sure how long to wait until I start trying to reintroduce fermented food. Thank you.

Emeran Mayer (14:34):

In some ways, I mean, this kind of illustrates what happens to many people going from one extreme to another, which is never really a good thing. So becoming a hundred percent carnivore or becoming a vegan in general is not, you may do it for certain other than health reasons, but it's usually not the most health promoting path to take this

Dylan Mayer (15:03):

Elimination diets.

Emeran Mayer (15:04):

Yeah. So our guts and our microbes are built to handle or specialized to handling a large variety of food items. So I don’t know what this particular patient tried. It's not just eating more fiber quantitatively and more fermented foods are more yogurts. It's really, as I mentioned earlier, it's the variety of these components. I think generally in nature and in some traditional healing concepts. It's a large variety in very small doses that is used to influence the system that ultimately results in health. If you deviate from this past, then things can happen like what you have experienced. I personally have no, don't really know if there's any objective evidence that this culturing yogurt for 30 hours, if that makes a difference. Certainly you don't need to ingest trillions of microbes. You have trillions of microbes in your gut of a large variety of different species and strains.

(16:27):

So you don't have to add trillions of one particular bifidobacteria or lactobacillus to this community. It's almost like you're trying to overwhelm your natural balance, your natural ecosystem. It's kind of like if you look in the natural ecosystem with many different animal species, if you look at the rainforest, all the birds and animals and fish in the rivers, if you expose that ecosystem to an overwhelming amount of one or two species of a life form, you will free knockout or damage the health of this ecosystem. So what you did was definitely not a health promoting thing, but then switching over to stop this

completely and wondering now, should you start? Yes, you definitely should start. It might be you should start again, both with the various fermented foods, the kimchi, the kombucha, the sauerkraut, yogurt in reasonable amounts on a regular basis. Generally the recommendations now are at least 30 different types of vegetables per week been shown scientifically to have a beneficial effect on your gut microbial health production of anti-inflammatory short-chain fatty acids. So the advice is very simple. I hope it makes sense to you and I hope you will be able to get the health benefit from this. Taking a probiotic in addition to what you're doing with this healthy microbiome supporting diet is not essential. Some people benefit from it. It's more the probiotics. Supplements are most useful in people that cannot, for whatever reason, stay on this diet of naturally fermented foods and fiber rich diet.

Dylan Mayer (18:28):

That makes sense. Some other questions that were submitted. Does colonic hydrotherapy negatively impact the microbiome in our colon

Emeran Mayer (18:39):

High colonics? There's a long history, but this goes back in the 17th century in France, there was some royalty that did a colonic every day. It goes even back further in Ayurvedic medicine to do these high colonics with various things added to the fluid that's being instilled into the colon. I mean, one thing if you'd asked me this question before the whole microbiome science started, I would say it's quackery. It's not something that I would recommend to anybody. I kind of have changed my philosophy. If somebody has stuck around like in Ayurvedic medicine for thousands of years and people got benefit from it and now supported by the concepts of microbiome science that cleansing your colon, the distal, the second half, the end of your colon of bacteria in certain conditions may have a benefit. There's certainly not the science that you would like to have to support what I just said, but I think for me, tradition now, anything that sticks around for thousands of years I think must have a benefit.

(19:59):

We may not know the reason why, but my belief is none of our medications will be around for more than a few hundred years, maybe the antibiotics. But even that, those I think will be replaced by something else. Oh, and I should also mention, so when doing colonoscopies, we basically, we don't do high colons, but we ask the patient who is undergoing a colonoscopy to go through a colonic cleansing process. So when the gastroenterologist inserts the colonoscope, it's clean and you can see the mucosal details and any polyps or cancer and some patients after that, some patients with IBS or with digestive discomfort will actually get a subjective benefit from that. In others, it doesn't have any effect. So in the individual differences, maybe due to differences in the composition, the microbiome in the colon, I would say in general, I would answer the question that hydro colonics do not have a negative direct negative impact on the microbiome.

Dylan Mayer (21:09):

Great. The next question is, what is the best way to fix your gut after a night of drinking? There was a similar question asked, what's your opinion on red wine and the speculation about alcohol in the gut microbiome? I know we've wrote about this a couple of times in our newsletter, but what do you think?

Emeran Mayer (21:28):

Well, in some ways there's a simple answer. Again, the growing consensus is that any amount of alcohol is not good for our health. I personally, even though there's a lot of the authorities are promoting this concept, I don't totally agree with it because if you travel in Mediterranean countries, the wine with the

meal, the dinner is definitely such an essential, becomes such an essential feature of the Mediterranean diet that I would not recommend for millions of people to stop doing that. But he asked the question, what happens after a night of drinking? Well, that's definitely something you should not do, even though very popular among students and also some adults. So first of all, you should not spend the night drinking heavily

Dylan Mayer (22:21):

And they're probably not drinking red wine. They're drinking hard alcohol or

Emeran Mayer (22:24):

Yeah, they're drinking red alcohol. So I would say for a hangover, I mean there is actually some synthetic, and I forgot the name of it now, a synthetic microbe that you can take, I guess that did not require FDA approval, which is specifically marketed for hangovers. I would go the simpler way and a more traditional way and say sticking with a fermented diet for a day with a lot of liquids might do the same thing. The last question of this complex red wine. So red wine was for a while promoted as a way of ingesting healthy or health promoting polyphenols. But then after was shown in mouse experiments that this had a beneficial effect. It was calculated that if humans want to have a health promoting effect, they would have to drink enormous amounts of wine, which obviously completely neutralize any health benefits. So I think red wine, as I said before, as part of a Mediterranean lifestyle, and this is in very moderate amounts, like a glass of red wine with your meal, I think has beneficial effects because it facilitates social interactions and has some calming effect, which you may not want to rely on in the evening because it has also been shown alcohol

Dylan Mayer (23:56):

Affects your sleep.

Emeran Mayer (23:57):

Yeah, misses up your sleep. So I personally, again, I always end my answers with my personal recommendations. I do love a glass of wine in the evening with dinner, but I would base your own lifestyle based on my recommendation.

Dylan Mayer (24:18):

That makes sense. Yeah. So no heavy drinking and if you want a glass of red wine dinner with friends or family is fine,

Emeran Mayer (24:26):

But don't do it for the health benefits.

Dylan Mayer (24:28):

Yeah, don't do it

Emeran Mayer (24:29):

For social interaction and

Dylan Mayer (24:31):

All right. Next question is, with all the recent discussions on ultra processed foods, do you think protein powder falls into this category of ultra processed?

Emeran Mayer (24:43):

Well, I would say there's a lot of discussion about the validity of this ultra processed food concept. The main ingredients in ultra processed foods is really sugar and chemicals that are being added. I would say yes, there are certain protein powders where they add non-nutritive sweeteners or sugar to make it tastier. If that's the case, it turns into an ultra-processed food and you wouldn't want to stay away from it. But there are products of protein powder, either from plant based sources or from whey proteins that do not fall into this. It's the same thing with yogurt, for example. You can have an ultra-processed yogurt with colors and emulsifiers and sugar or sweeteners, but you can also have a health promoting yogurt, which is still processed because you've gone from milk to yogurt to a certain step in processing, but it's not a ultra processed food. So I think the same thing applies to protein powders. You should always look at the ingredients other than the protein that's in your favorite type of protein.

Dylan Mayer (26:00):

So avoid the ones with added sugars and colors, dyes, emulsifiers, things like that.

Emeran Mayer (26:05):

And that's the general guideline I think, for our food in general. Now, the unfortunate thing many of these compounds are if they have not identified by the FDA as dangerous to your health, they're often not listed. So you may be buying something that has some of these chemicals. I mean, the sugar I think has to be listed, but some of the other chemicals may not be listed because they're not recognized. And then there's a whole range of those. I mean, the chemicals that we are ingesting with our food is enormous, and I always feel, I'm always in awe of human biology of our body, of the resilience against all these chemicals because most people don't get sick from them.

Dylan Mayer (26:52):

So the next question should be a popular one. What are your thoughts on gluten?

Emeran Mayer (26:58):

Yeah, so gluten definitely if you have celiac disease, you know, have to stay away from it. And the good thing about the whole gluten-free food industry that has emerged in a multi-billion dollar industry is that it's become very easy for people with celiac disease and autoimmune disease to find products almost everywhere. They travel, certainly anywhere in the United States. So that's the good thing. I think the hype about the non CLIA gluten sensitivity is way exaggerated through social media, dieticians, books, the whole thing was really started with the book Grain Brain, and it is unresolved. I always mention the example patients that I've seen at UCLA and they told the story that they could not tolerate any gluten containing products while studying. Then they took a semester of abroad like in Florence or somewhere in southern France, and from day one, they could tolerate pizza, pasta, bread in large amounts without having any symptoms whatsoever.

(28:06):

So the question is, well, there's two questions. One is the foods in the us, they contain a lot of gluten, also contain a lot of other chemicals that are being added for a variety of reasons. So that's one possibility. If you go gluten-free in the us, you also avoid exposure to a lot of chemicals other than

gluten. The second thing is that the amounts of gluten, even though that's unlikely, my personal experience when we go to Italy, we consume a lot of bread, a lot of pasta, but I don't do this coming back to the us what many of these food items are so limited to the minimum,

Dylan Mayer (28:46):

Like a part of the experience of going to Europe.

Emeran Mayer (28:50):

And so there's a lot of anxiety and there's a lot of negative conditioning. I've seen another person experience on a flight once back from a meeting in Barcelona sitting next to a couple, and they had bought these delicious sandwiches in Barcelona and then they opened up their bag and they took these sandwiches apart and eliminated any trace of bread from the sandwich and just ate what was inside. And I could just tell from the intensity of that effort, there's a lot of anxiety. They were so afraid of being exposed to any bread in this sandwich that they went through this kind of ridiculous procedure really. So I would say there's a lot of conditioned fear and food related fears that play into this gluten sensitivity, and obviously if you avoid the gluten, this is something then you attenuate your anxiety. But I wouldn't give the final answer on this. I think there's still multiple reasons for that. This has happened in the US and it's not the case in many European countries, which may have to do with food production, with I personally think the most likely thing, addition of chemicals to our food here.

Dylan Mayer (30:11):

When the crops are growing, you think or added to the product itself after processing

Emeran Mayer (30:17):

Both, both also genetic selection of the plants of wheat, and there's a tremendous difference between the US types of strains that have been developed and Italy, for example. So yeah, this goes all the way to the components to which you have to do is how it's grown.

Dylan Mayer (30:40):

It's like monoculture with just one strain of wheat versus there's bulgar wheat.

Emeran Mayer (30:46):

Yeah, exactly.

(30:48):

Our gut does so much more than just food. It's a central hub for our overall health. It influences metabolism, immunity, and even brain function. The better we take care of it, the better we feel. A healthy diet with a variety of fiber containing and fermented foods is the best way to nourish and optimize your gut microbiome. Let's be honest, life gets busy and maintaining the perfect diet isn't always realistic. That's where a high quality symbiotic can help. I've always been skeptical of probiotics due in part to the fact that most don't survive the harsh journey through digestion, but seeds, DS oh one daily symbiotic is different. It's capsule and capsule technology is designed to protect beneficial bacteria and deliver them to where they're actually needed, the end of the small intestine and the colon. What makes DSO one stand out isn't just its design, but the science behind it.

(31:49):

It's formulated with 24 studied strains and a prebiotic that feeds these strains, helping support gut barrier integrity, microbiome diversity and digestive health. Given a significant inter-individual differences of the gut microbial composition at the strain level, taking a large number of different strains assures that it provides benefits for everybody regardless of the unique microbial ecosystem. Gut health is a long-term investment. It starts with food, movement and lifestyle, but a scientifically backed symbiotic like DS O one can be a valuable tool. If you're thinking about adding one to your routine, make sure it's one that's actually proven to work. You'd like to try it. Seed is offering a 25% off your first month with code me 25. As always, through your own research, your gut deserves the best.

Dylan Mayer (32:45):

Okay, so the next question is, how does the carnivore diet affect the gut microbiome? So essentially only eating animal products?

Emeran Mayer (32:53):

Yeah, so the answer to this is easy. I would say humans, if you go through history, and if you look at the last remnants of our hunter gatherer ancestors, as you still find in the rainforest of South America and in East Africa, they're not carnivores. They do eat meat. What I personally have seen and studied and experienced in South America, the meat comes from different sources, a lot of birds, a lot of fish, a very small amount from all the wild animals that are running around in the jungle, which could easily be hunted. But for some reason, these people have lived there for thousands of years, have developed a symbiotic lifestyle with their environment, which basically leads them to get the majority of their food from plant-based sources. So tubers, berries, fruits, which make up a big component, bananas, plates. So I would say the microbes are incredibly adaptable.

(34:00):

If you switch to a pure carnivore diet, you will select your microbiome to organisms that can handle the increased amounts of bile and down products of proteins, but it's not the healthy way of doing it. I think to have a component of meat in your diet is pretty a good thing because again, it increases the diversity. The more different types of foods you offer, your gut microbials ecosystem, the more specialists the microbiome has to add to their population. They're specialized on processing metabolites from the amino acids and all the other plant-based sources. So I would say a pure carnivore diet, which

Dylan Mayer (34:46):

Is again, an elimination diet essentially,

Emeran Mayer (34:50):

And this is not how our bodies and our guts and our microbes are designed for. It's a design. I think we have to really recognize we're optimally designed for survival and resilience and resistance against disease and infections and going to one of these elimination diets. I mean, the keto diet is traditional keto diet falls kind of in this category. These are not diets that are consistent with that natural design principle.

Dylan Mayer (35:23):

I'm just curious for myself asking you this because I've seen a lot on social media of people switching to or having gut issues or autoimmune issues and switching to a carnivore diet and then saying all their

issues went away and they have no bloating, no gas, anything like that. Is that just because you're essentially starving a lot of your bacteria or,

Emeran Mayer (35:48):

Yeah, I mean there's definitely an easy answer to this, particularly these symptoms of bloating, distension gas. So the microbial metabolism generates gas as a normal function. This gas is transported through the gut. Lots of studies, researchers in Barcelona have studied this in great detail. So we have mechanisms in the gut that get rid of any excess gas, but there's still a production. If you gut is more sensitive to small distension from microbial generated gas, then you will get the symptoms of bloating and distension. It's not worth the negative long-term health consequences on your cardiovascular health, for example, to completely eliminate the food for the microbes, which are the plant-based foods, reducing the amounts of legumes and other gas producing vegetables. I mean, reducing that amount to your personal sweet spot is the way to do it, not eliminating it completely.

Dylan Mayer (36:51):

Yeah, everyone's different. Find your individual diet that kind of works best for you.

Emeran Mayer (36:56):

Yeah, yeah.

Dylan Mayer (36:57):

Okay. So the next question's kind of related about gas and bloating. So why are my symptoms specifically gas and bloating worse during the fall season in spring and summer? I don't have them.

Emeran Mayer (37:12):

Yeah, I don't have a good answer for this. The only thing I can say is seasonality is something. So rhythms in general, our bodies and brains are built to respond to changes in rhythm that they unite is the most important one. The seasonal one is probably the second most important. I think this has been less studied in terms of the seasons, but if you look at, again, coming back to the Mediterranean diet, there's a clearly seasonal pattern that the cultural tradition has sort of developed these special diets for the different seasons. Now, I don't know if that's one way to dealing with if you fall into this category that you have more symptoms during fall than during spring and summer may also have to do with your activities, outdoor activities. My general answer is yeah, the seasonality and the seasonal rhythms are definitely something important. Cultures like the Mediterranean culture, all the countries around the Mediterranean have learned to listen to these seasons and have adopted their diets according to the seasons.

Dylan Mayer (38:26):

Yeah. I wonder if it's a combination of environmental factors like different allergens and even changes in diet, maybe less fresh produce in the fall and winter or a shift in food choices as the weather cools off, increase in alcohol consumption maybe.

Emeran Mayer (38:44):

Yeah, there's many things that change with this. Living in California, we've kind of eliminated the seasonality in the markets. Everything is always available 12 months of the year in the same amounts, and the cost may change, but it's always available, but that's not the way it is in the rest of the world.

Dylan Mayer (39:07):

I wonder if that's a good thing or a bad thing for our health.

Emeran Mayer (39:11):

I personally would tend to think it's not a good thing. I think to go through these rhythms. I mean both, it is a nice thing. I really enjoyed going through these rhythms throughout the year and looking forward to the next season. But from all that we know, it's definitely not health promoting if it has really negative effects, I couldn't say, but it's not a health promoting thing to stick with the same food throughout the year.

Dylan Mayer (39:42):

Yeah, I agree. Next question is, what is the relationship between the gut and neurodegenerative diseases?

Emeran Mayer (39:53):

Yeah, we've often addressed this in our newsletter and in podcasts. There is clearly, and I'm going to give a simple answer, short answer to this because we could spend a whole hour just talking about this. There's definitely a connection between what goes on in the gut and this process of neurodegeneration, like in Parkinson's disease or in Alzheimer's disease or premature cognitive decline. There's definitely a connection. And this low-grade immune activation inflammation in our bodies seems to be the mediating factor. So an unhealthy gut microbiome, an inflammatory diet will lead to a low grade engagement of the gut-based immune system, which then spreads throughout the body and in somebody who has a genetic predisposition, always exposed to other chemicals in the environment, like for example, in the Central Valley in California with all the pesticides epidemic of Parkinson's disease. So it's this combination between the gut microbes diet and neurodegenerative diseases. And since the gut microbes response both to the diet and to all the chemicals that we ingest, this is definitely something, and we'll see, in my opinion, we'll see breakthrough results in terms of the neurodegenerative diseases and their relationship to gut microbial alterations and hopefully to novel therapies targeted at the gut microbiome.

Dylan Mayer (41:24):

Great. So someone asked, how do I figure out if my symptoms are gut related, hormone related, or insulin related?

Emeran Mayer (41:32):

Yeah, that is a difficult question. Most likely, I would say if you don't have a disease that points towards one of these possibilities like inflammatory bowel disease, clearly a gut related disease hormone related is I would say obesity falls into this menopause falls into this insulin diabetes. If you have one of these diseases that relate to these mechanisms, obviously your physician during your routine exam will have picked this up already. So you don't have to do the detective work if you don't have a disease. If you're completely healthy and you have symptoms, I would say get a medical checkup. If it's normal, you have

symptoms such as bloating, digestion, abdominal discomfort, any of any sort. I would point towards the gut as the most likely mechanism.

Dylan Mayer (42:24):

So this next questions, you may have touched on it a little bit in a previous one, but can too much fiber cause gas and bloating?

Emeran Mayer (42:32):

Yeah, absolutely. Two risk factors. One is if you have a sensitive gut that is more sensitive to distention, definitely if you eat too much fiber, the gas produced by the microbes breaking down the fiber into chain fatty acids and gas will give you symptoms of loading. So with fiber, my recommendation is always the most important thing is the variety. I mentioned that number earlier, the magic number, 30 different types of vegetables and fruits per week, which will give you a complete set of fiber molecules, and you will have to titrate it yourself. If you know have a sensitive gut, you will not push fiber intake to more than the recommended. I think it's 40 grams per day. On the other hand, if you don't have a sensitive gut, the higher you can push it, the better. I think it's

Dylan Mayer (43:30):

Finding that personal individualized diet

Emeran Mayer (43:34):

And our ancestors, there's estimates that they consume up to a hundred grams of fiber a day, which our guts and our microbes would not be able to handle well today.

Dylan Mayer (43:47):

It seems also just really difficult to get to a number like that without supplementing it very difficult. Okay. Just a few more questions left. Somebody says, please talk about intestinal methanogen overgrowth or IMO. I've tried everything to get rid of it for five years and nothing works.

Emeran Mayer (44:09):

Yeah. So I imagine when this individual has tried everything, which included probably several sessions of antibiotics, which is the recommended therapy by people that think that sibo, the small intestinal bacterial overgrowth, is a disease that needs to be treated with an antibiotic. And it very much like many patients that come to see me after they've gone through repeated courses of antibiotics and elimination diets, the symptoms got better for a while and then came back. So what is this? So everybody now is familiar with this term sibo, small intestinal bacterial overgrowth. Intestinal methanogen overgrowth is characterized by the overproduction of methane. The gas, which is produced by a specific group of organisms called methanogens, the most common symptoms of that entity. And the diagnosis is made by breast test, just like with sibo, most typical symptoms of bloating and constipation, but can also cause other kinds of abdominal discomfort or even loose stools, very common symptoms which often are part of irritable bowel syndrome. So if you have these symptoms and you have a positive methanogen test, it's not guaranteed that these methanogens actually are the cause of these symptoms may have IBS as well, or a variant of IBS. So I would say same recommendation. As we said earlier, a personalized diet, which titrates the amount of vegetables and the type of vegetables to your personal comfort, which is typically done by a food diary, and then eliminating certain things that consistently causes your

symptoms, definitely a much more prudent approach than going through repeated courses of antibiotics like rifaximin.

Dylan Mayer (46:07):

Yeah, it's frustrating how the pharmaceutical industry has kind of just pushed this rather than making simple lifestyle changes, finding a diet that works for you or,

Emeran Mayer (46:17):

Yeah.

Dylan Mayer (46:19):

Okay. Next question is, can you speak on estrogen recycling in the gut?

Emeran Mayer (46:25):

Yeah. This is also a topic we could spend a whole hour on. I find it absolutely fascinating. It's been known for a long time in publications 50, 60 years ago, but it's never really been pursuit. The real effort part of this may been maybe that women's health for a long time did not get the same attention and the same amounts of research funding as male diseases and everything was focused the clinical trials on male participants. So the most intriguing things is that the microbes amongst all these other functions that they have, they are specialists in modifying the estrogen molecules that are excreted into our intestine through the bile. So this is the normal mechanism of our bodies to get rid of estrogen or keep estrogen at a steady state level. It's being produced by the ovaries, by the brain, and the excretion and the production is always I balance, except what happens during menopause is that there is a sudden decrease in the production.

(47:40):

So what we know today is that most of the estrogen that's being excreted through the vial will leave our bodies throughout a stool. They're being excreted. A variable fraction is modified by microbes in the end of the small intestine. So they're reabsorbable. These microbes have a special enzyme that is able to do this, and certain microbes are specialized in doing this. So depending on your composition of microbes, and this is particularly important for women going into menopause based on your population of microbes and how specialized they are to recycle these estrogen molecules that have been excreted through the bile, you will have a different level of your blood estrogen, which is obviously in menopause, a very important goal that we, and it was hormone replacement therapy to help this by taking estrogens, but the body has its own mechanism of doing this with the help of the microbes. So a very important topic, I think you will get a lot of attention in the future in the next few years. Our group at UCLA is doing a lot of research in this area as well.

Dylan Mayer (48:55):

Interesting. Okay. So this last one is asking, if you had to pick your top three foods to consume every day that would have the most impact on your gut health, what would they be? And if you had to pick the number one thing to omit daily to help your gut health, what would it be?

Emeran Mayer (49:14):

Yeah, so I answered the second part of this question first, eliminating ultra processed foods and specifically eliminating or greatly reducing the sugar intake is definitely the number one thing that I would recommend to everybody.

Dylan Mayer (49:29):

This added sugar intake, right?

Emeran Mayer (49:32):

Yeah. I mean, so not added the spoon of sugar yet to your espresso or your cappuccino. It's the sugar that's hidden like the high fructose corn syrup that's almost ubiquitous in all our food. From ketchup to salad dressings to sauces. Almost all the ultra-processed foods contain this high fructose corn syrup, a significant amount of sugar intake that a lot of people don't even know that they're consuming sugar. But also the way we're condition, we condition our children, our infants, to have a preference for sweet things is another way that for the rest of their life, any good experience and events like birthdays or celebrations are always associated with an excessive amounts of sugar and intake. This is the case also in some other cultures and countries, but I always notice is if you come back from Europe, we've eaten cakes and sweets, and then you have your first sweet thing in the us, it's a lot sweeter. The same with yogurts, same with just about any food item, any sweet food item. So the amount of sugar, the excess amount of sugar that we're consuming is definitely been identified. One of our last podcasts with Dr. Lu from University of San Francisco, we talked a whole hour about this.

Dylan Mayer (51:03):

You guys can check that out in the playlist here.

Emeran Mayer (51:06):

So if I had to pick my top three foods to consume every day, that would've the most impact on gut health. I would not necessarily say food, but food groups, I would say what we said earlier, fruits and vegetables, variety of them and natural fermented foods could be, depending on your taste preference, could be sauerkraut mixed into many different dishes. Could be kombucha, could be kimchi. So I would say the top two food groups would definitely be the fiber and polyphenol containing foods, vegetables, and fruits. And for second category, the fermented foods. What would I pick as the third food item?

Dylan Mayer (51:48):

I'll tell you mine.

Emeran Mayer (51:50):

Yeah, let me think about this. And this may sound paradoxical, I have to say I do have a sweet tooth, even though I've weed myself off almost completely for adding or avoiding sugar. But the very small amount of something sweet and delicious, which you can get with your fruit, but also the small piece of chocolate is definitely something that I would say, not for the health, but for the pleasure of it,

Dylan Mayer (52:16):

Right? Yeah, for anyone who's curious, mine are sauerkraut, which we mix into our salads. Greek yogurt, which is just a great protein boost, but also the probiotic benefit of it, and just lots of fruit, lots of

berries, blueberries, strawberries. Those are all my favorites, which I think are all great for you. Alright, so that's all the questions.

Emeran Mayer (52:38):

Yeah. I hope some of these answers were helpful to the people that brought up these questions. I do want to remind the listeners that we are hosting these A events on a regular basis, and we encourage you to submit your questions. The more these questions we get, the more people benefit from it. I hope you'll follow some of the advice and nurture your gut microbiome and your own health. And I would like to thank Dylan for joining us today, which hopefully will not be the last time. I think Dylan brings a different perspective to many food and diet and lifestyle related questions because heavily into the physical activities, the sports, the high performance. So I hope join us in the future for some of these events and contribute his personal experience and his knowledge about this. And please give us feedback. If you like this format today, then we'll continue this in the future. Thank you so much.

Dylan Mayer (53:40):

Thanks everybody.