Introduction to microbiome-based clinical trials

And even a step further, what we're seeing in clinical trials that we're part of, because my father and I also run one of the largest clinical research organizations for the big pharma of the world doing microbiome-based clinical trials, we're starting to see that it can literally impact your ability for a drug to work for you based on the state of your microbiome, which is really amazing.

Because if you think about it, you're getting clinical trials. So what a lot of companies are saying is, When we're doing these clinical trials to prove that the drug works, we need to screen these people first to see what their microbiome's like.

Because if we have non-responders because of their dysbiosis or imbalance in the microbiome, it could actually give a false signal that a drug doesn't work.

This is Doctor Talks, real talk from real doctors on the issues that matter to you most. Hello, this is Dr. Ken Holtorf with another episode. Today, we have a wonderful guest, Afrin Ghannoum.

He's going to be talking about, is the microbiome the secret key to your health? Afrin, thank you for being on. And I just love your story and how you're just so passionate about the gut.

But a little bit about Afrin. He's co-founder of the first total microbiome company, Biome Health.

Guest background and Biome Health origins

That's BIO-HM Health, where he's commercialized consumer probiotics and microbiome testing kits that target the dual role that fungi and bacteria play in the digestive tract.

So we're definitely going to talk about that, that fungi is bad, right? So we'll hear more about that. He's co-founder of Biome Health and one of the world's leading minds in medical mycology.

His father and son, they launched Biome Health in 2016. to bring the Goodham science to consumers by creating products based on new understandings of the microbiome.

So they were really ahead of the curve. And we'll ask him more about that. But his dad, I think, is a full-time researcher. And then Afram is a biotechnology attorney.

Okay, that's got a rocket scientist has turned his biotechnology innovations into consumer products have sold more than 27,000 retail locations in the United States is also licensed technology to a global pharmaceutical company that has sold more than 1000, 1000 retail locations.

A little bit about biome health. It's the first total microbiome company, again, founded in 2016 by Afram and his father. And the mission is simple, to engineer elegant products and tests that address the total microbiome of both bacteria and fungi.

And I want to ask you about viruses too, allowing consumers to maintain complete digestive health. And we're finding, you know, it's really exponential, I think with the knowledge we're getting on the microbiome.

You know, it used to be, you know, at least gastroenterologists are now know what a probiotic is, right? But we're finding it's just so key, and the more we learn, the more we know we don't know, but the more we know it influences so many things.

How did you get interested in all this? Yeah. So my father, who's Dr. Mahmood Ganu, he's actually the scientist that named the mycobiome, which is the fungal community in our body.

And actually yesterday, he literally named the mycobiome. He did a clinical trial and he identified 101 native fungal organisms that live in our mouth.

And so there had never been a name for a native fungal community that lives in our oral cavity, our gut, even our lungs. all over our body. So he called it the myco, myco being the Latin for fungi and biome obviously.

Yeah. So he's, you know, to this day, he's an NIH funded researcher. He has the distinction of being the point 1% most cited, uh, scientists in, in the world over the last 10 years for his research.

Yeah. He has over 26,000 citations of his work and it's all around the role of bacteria and fungi in our body. So I got into this because he did a clinical trial in 2016 looking at the microbiome of Crohn's patients.

And what he was looking at was whether bacteria and fungi were working together in the gut. And that's just what he found was that. Bacteria, which we've all heard about and you know back to the activity of yogurt days we've always always heard about good bacteria, but my father having studied.

fungi all over the body thought, you know, I bet it's residing in the gut as well. And it might be working with bacteria. And that's what he found. He found that bacteria and fungi was creating what we call a biofilm, which a biofilm, a lot of people, you may have heard of it.

Obviously you're a physician, but a lot of your average people, they haven't heard that term. But the term that is synonymous with that, they have often heard about is plaque.

So dental plaque, for example, is the type of biofilm and So what the problem with biofilms is, is that underneath that matrix are nasty germs that are causing issues.

So in your mouth, the reason you want to get rid of that plaque is it's causing issues with your teeth, your gum health, same dynamics happening in the gut.

And so what my father discovered with Crohn's patients was that these bacterium fungi biofilms causing serious digestive issues for them. So when we, he publishes research, thousands of people across the world reached out to him.

and said a couple of things. One, I didn't even know there was fungi in my gut. How do I deal with that? Is there a product you suggest? And two, how do I get tested to see if it's an issue for me, right?

And we looked and we're like, it's kind of interesting. No one was talking about good fungi. So we created Biome, our probiotic, to actually target that pathogenic bacteria and fungi that had been causing issues with that biofilm.

So, and at the same time, we literally took his testing protocols that he did for his NIH clinical trials to actually sequence the gut.

Bacteria, fungi, and biofilms in the gut

And he rolled that out as a test. So to this day, every single, we've done thousands and thousands of tests all over the United States. Every single test is processed in his lab at Case Western School of Medicine.

Wow. Well, and like so many bacteria, harmful bacteria, they form biofilms that are so sophisticated and they have multiple organisms in them and channels to bring in nutrients and signaling pathways to like ward off.

And it's a big reason why these things are so resistant to antibiotics, right? That's a huge problem, the resistance factor. So that's one of the things my father's really specialized in looking at is how do you break down those

biofilms?

Because he's seen it a lot in hospital-borne infections like biofilms and catheters. So really, he spent maybe 20 years looking at how you break down the biofilms just in catheters.

Because that's, to your point, a big problem with antibiotic resistance. Yeah. And that's why you have to take out the catheter. You just, you can't give enough antibiotics or let's say you have a valve, you know, get seated in the valve.

It's just, they have to take it out. And that's like one thing, there's a peptide, LL37, which is antimicrobial, but at very low doses, even it gets into that biofilm and same with TB4 frag, it's small enough to get in there.

But, um, so what is the strategy to, to get in there and break up that biofilm? Yeah. So literally what we do is when you look at under a microscope, the bacteria and the fungi fuse together.

Right. And that becomes really difficult because it's, it's something called like, if you think of this being the bacteria and this being a fungi, what happens is the fungi release what are called like hyphae where they literally dock and connect with the bacteria and then they become interlocked.

So we surmise if we can break that, that lock should be able to shred them pretty easily. Cause that hyphae is the key that docking action. So we were able to do that.

That's like the glue. That's the best analogy for it. It's glue or it's like, you know, Velcro, the Velcro stickiness. Now they don't become a new organism, potentially, do they?

No. I know Dr. Fry in his work has found all these like half parasitic, half bacterial, you know, new species like in, you know, so-called chronic Lyme, which is often a lot of things, but I think so much starts in the gut, you know, or it kind of becomes a vicious cycle where, like, for instance, we're just mentioning, you know, you look at the studies of all this.

where, hey, thin people have this type of bacteria, obese people have this, so just give this, this probiotic will become thin, but it just kind of goes back, you know, obese people will just, that environment is conducive to the bad bacteria, right?

So you really nailed it because What we're just starting to realize now is it's a two way pathway right like an easy example is the gut brain access right like there's a lot of science where we said oh okay you know does your amount of stress actually change your microbiome but whether we started realizing wait a second.

it might be your microbiome adjusting your stress levels and your ability to react to stress. So that is fascinating. And even a step further, what we're seeing in clinical trials that we're part of, because my father and I also run one of the largest clinical research organizations for the big pharma of the world doing microbiome-based clinical trials, We're starting to see that it can literally impact your ability for a drug to work for you based on the state of your microbiome, which is really amazing because if you think about it, you're getting clinical trials.

So what a lot of companies are saying is you know, when we're doing these clinical trials to prove that the drug works, we need to screen these people first to see what their microbiome's like.

Cause if we have non-responders cause of their, you know, dysbiosis or imbalance in the microbiome, it could actually give a false signal that a drug doesn't work.

Right? Yeah. And it's not just absorption, right? Nope. It's actually how that drug literally affects on. Yeah. And a lot of people don't realize this, but there, are people that we call non-responders to drugs.

Like it doesn't matter. You know, some people like when you take, take a leave, right. We read the bottle. Oh, adult take two capsules should do the job.

That's completely generic advice. You absorb in process of drug completely different to how I do. Right. So what's interesting is the microbiome and other facets of our body, but the microbiome and importantly, we're starting to see that the state of your microbiome could actually impact your body's ability to process medication.

You know what I mean? Like that's very fascinating. And so we're seeing it's got a tie to pain. There are studies showing that like, if you have an imbalance microbiome, you can experience knee pain more seriously.

It has a tied, obviously we talked about stress, even oral health. And you know, for women, it can be an issue with things like you know, vaginal health, like a lot of women will see when they take a antibiotic that they'll get a yeast infection.

Well, the reason being, you're getting rid of the complete bacterial community that controls and keeps the fungi in check and vice versa, right? So it's really amazing how much the microbiome is tied to.

And there's so many microbiome, right? You have skin, you have between like basically every tissue, every area. And you literally have, there's a vaginal microbiome, oral microbiome, lung microbiome, eye microbiome, gut microbiome, and each of these.

And the way you need to think about the microbiome is it's basically a community of organisms, right? And people think microbiome means bacteria, but bacteria is only one resident of that community.

Microbiome effects on drugs, stress, and health

You have bacteria. That's where our first start, you know. Exactly. So they're probably the most science, it is fair to say, it's been around bacteria's role, but that's actually self-fulfilling a little bit because if you look at the NIH research, the most funded research is around bacteria.

So we obviously know the most about that, but fungi is starting to get more attention. You mentioned viruses, the virus, that is now starting to get some interest.

But the problem is the state of our medicine, the way I talk about microbiome, it's like what we knew about cancer research in the sixties, right? Like we knew this is something we need to understand it, but we are decades away from it.

It's so complex. Now you add the viruses, even then the fungi, it's like, exponentially you know so even even our sensitivity in detecting viruses in the microbiome reliably is still not there you know what i mean whereas bacteria and fungi it's much more established that obviously will improve exponentially over time but because of that our understandings still can be a little limited, you know?

It was amazing. I was reading a study on a bacteriophage. The bacteriophage is basically a virus against a bacteria, and it would be turned on when the butyrate producing bacteria, which is good.

We like those bacteria, but when it got to a certain level, it would turn on and kill that cell. So there's like not too much. So it's obviously evolved with us for millions of years, you know?

And I was like, wow. And so really so much is epigenetic, right? So the gut will change your genes. And let's say you have an Alzheimer's gene, ApoE4, but you can turn it on or you can turn it off.

And, you know, basically I think our genetics are about 20% and our epigenetics like 80%. So it, like the gut is, you know, I think I remember like, you know, I don't know, 20 years ago or more, it's like all the, Foofy doctors, you know work look at the gut and now everyone's kind of catching up.

Well, my dad always talks about he went to a candida symposium in in actually in la when he was at ucla and it was around uh, like the candida I'm gonna mess it up, but basically like the candida crisis and the guy was presenting my dad.

I remember he told me like a lot of his colleagues were like, this guy's out, out there. You know what I mean? Like just now you're seeing it. It's obviously, you know, something that, but, but that's the way medicine goes, right?

Like if you're a trailblazer or you get the arrows, like the, H. pylori guy got run out of town and turned out he was right. So you can't be too far ahead, you know?

The key is staying where the science is showing you. But there are some, the good thing about microbiome, there are some very basic things that if you keep in mind, you can make big differences.

So one of the things a lot of people ask is, well, what impacts your microbiome, right? And there really are a number of factors that can't change everything, but you can change a lot.

So number one, we've been talking about a little bit, is your genetics right so like you know the analogy I always use is everybody knows that you know cousin that hasn't been to the dentist in 10 years and never has a cavity right but then we also know that you know person that goes you know every six months on the dot and they constantly need dental work right it's just their genetics right like the way they're Or kids, like employees' kids, they've got cavities everywhere, you know?

Right, right. And they could just be genetically predisposed to that. So same in the microbiome. You may just be genetically predisposed to having a weaker, imbalanced microbiome.

But even if that is the case, there's a number of factors you can control. So for example, the massive one is diet, right? Is what? Sorry, you kind of…

It is diet. Yeah. I hate that. I want to take a pill. I know. Well, you know, we always, we always joke like, listen, cause we get people all the time.

They take our tests. They, you know, what product should I take? And I listen probiotics. We have. first-in-class probiotics, but they are dietary supplements.

They should be a supplement to what you're doing with your diet. It's interesting. Yeah, look at the name. Yeah, because all you're going to do is, you know, it doesn't help you and frankly, it doesn't help us.

If you think you're going to take our product and you're like, oh, it didn't work. No, no, no, no. This is nothing's going to work if you're not taking a holistic view.

Like we have a lot of people that take our microbiome test, our biome gut report, and you know, these tests are not cheap, right? So you think if someone's taking a test, it's because they've done everything else they can.

And they're sort of like looking for a last answer. And what we see is, cause they fill out a questionnaire, is 50 or 60% of people who take our tests, they eat fast food at least once a week, right?

So, you know, there's some very basic things that people can do without ever getting to what I'd say more like aggressive or exotic things. improve. It's not some secret herb from the Amazon.

It's not some amazing one-size-fits-all product. It's, are you mindful about the way you eat? And it's not rocket science. My dad wrote a best-selling book called Total Gut Balance, and he walked through it, and a lot of it boils down to mostly plant-based diet, lean meats, fishes, very good pre-biotype fruits and vegetables, things like sweet potatoes.

Why? Because it keeps your system moving and you can really adjust and optimize your microbiota. But even if you're taking care of your diet, when people come to us and say, I eat well and they do, Genetically, I don't have an issue, but I really have bad digestive issues.

We say, are you stressed? How do you sleep? And what they are totally overlooking is lifestyle as a factor of

microbiome loss. and stress can really impact.

Stress is a killer. They think it lowers the immune system, but it actually modulates it, causes inflammation, weight gain, insulin resistance, you age faster, just everything.

Yeah, so what's funny is we deal with some, you know, UFC athletes, Olympic athletes, bodybuilders, and they'll have the same issue. And they're eating well, obviously, they're doing everything they can with their exercise.

But what they don't realize is they're stressing their body in different ways. They're over exercising. Right. And so we're seeing more and more of that where just, you know, super athletes, they over exercise or do all these marathons.

All of a sudden they just crash. Strain on their body. You know, so it's. Those are three huge factors that, you know, things like alcohol can cause issues.

So. What I always tell people is like, listen, you need to be a little bit self-aware and understand what are the things that you can do to optimize your microbiome, right?

Now, in terms of eating well, what I've read is that our variety of foods is just from evolutionarily, what we eat is just so narrow. And then you've got the foods are so depleted of nutrients as their pesticides and phosphate and other stuff in there.

So even if you eat great, is it still good enough, you know? Yeah, so to me, it's the 80-20 rule. For the vast majority of people, they don't really have to start worrying about that till they've improved a lot in their diet, right?

Diet, lifestyle, and microbiome balance

So those things, like when you're eating mostly plant-based, when you're eating lean meats and you're still seeing issues, that's when, okay, well, maybe you can be much more mindful about like organic sources, like nutrient density, the way you're cooking and preparing the foods.

But for a lot of people, what we've seen is That's not even the issue yet. And I'll give you another example where it's the boring answer, but it's boring because usually it's all about moderation.

And I'll give you a very specific example. Moderation's for the other guy. Yeah, not me. So I'll give you an example of that. We had a cohort of women that took our gut test, complained of very bad digestive issues.

And when we looked in their data, we saw they had an elevated amount of something called zygomycota, which is a very aggressive fungi. My dad would typically only see it in immunocompromised patients like HIV patients, cancer patients.

So at first my dad thought, you know, maybe these are undiagnosed, you know, cancer or something like that. But there was enough of them that we thought that that's unlikely.

And these were all like young, vibrant women, right? Like look out of a yoga catalog, right? And when we dove a little deeper into the data, what we found was almost universally, they were entirely cutting out carbohydrates and dairy.

Why? Because they've been told that carbs are not good for you, dairy's not good for you, right? Yeah, they're probably trying to get rid of all, with the trying to get rid of the yeast.

Yeah, and they're growing the yeast. They're building these because dairy and carbs in moderation are actually very good prebiotic, probiotic foods. So they're modulating your gut and keeping everything in check.

So when they remove those, all of a sudden this zygomycota, which is sort of harboring under control, had a

chance to spiral out of control. And guess what happened?

They introduced a little bit of dairy, introduced a little bit of carbohydrates back. Those issues went away. Wow, that could be like too diligent, too good.

Yeah. So it's an addiction maybe like, you know, any, you know, yeah. So I, I heard a woman say this and it made a lot of sense to me is don't let wellness get in the way of your wellness, right?

Because it's a, it's very easy. And I sympathize with a lot of people because, you know, you can read five different health books and get 50 different approaches.

Oh yeah. Yeah. Very hard to know the diet of the month. This is, you know, We went with the food pyramids flipped upside down, you know. Yeah. Right. And I think for a lot of people, you know, I would keep it to some very basic tenants, which will make a big difference for a lot of people.

Now, if you're still dealing with issues, that's where come talk to us. Come, you know, maybe you do get your microbiome tested. Maybe you do try one of our products.

But before that, a few things that people can do is one really look at look at your diet because that's for a lot of people an area the other is start to be thoughtful about the type of especially over-the-counter medications that you're taking just as as a everyday thing you know so listen sometimes you need medication like there's a medical issue you need to take it but for a lot of people i used to be one of these people years ago i would just take an am acid and and I didn't realize I was absolutely destroying my acid levels, my body's ability to produce acid, which is very important.

People think acid is a bad thing. Acid is what keeps us safe from things like E. coli. Like you need good acid. All right. So you're diving deep into peptides and longevity on this podcast and we're right there with you.

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It's time to elevate your journey, starting now. There's a reason that we make it. Yeah. The only stuff to protect the stomach, which one's BPZ 157, but is that, you know, why would you want to go all this effort to make it if it was bad food?

Yeah. So the problem is your body goes into overdrive when, like for me, I was eating things like pizza late at night, a lot of it, and my body would just go into overdrive and acid production.

So I would, use Zantech or something and it would bring it back under control. And then I sort of had this moment like, wait a second, maybe I just need to be more thoughtful about how I'm eating and it controls the acid and that way I'm not adjusting it.

So it's things like that where a little bit more mindfulness and being thoughtful because we'll have people they'll often meet me and they'll say, I bet you're anti And I said, no, I'm like the opposite, right?

Because sometimes, you know what? You have an infection, you need to take an antibiotic, but you don't need an antibiotic for anything. Right. And that's sort of like, we were probably coming out of that pendulum where it used to be.

Oh yeah. Well, people would, you have to give an antibiotic with people that have some or else they're really mad and they're never come back to you if you didn't give them the antibiotic, you know?

Yeah. What do they do for me? You know? And what, what type of microbiome do you see in people like a proton pump inhibitors or something long-term? Yeah, so you'll see people that have very high levels of Candida.

You'll see, you know, very high inflammation marker organisms. You'll see, you know, just a lot of reports of digestive issues. And again, it builds on itself because a lot of times it's like the ultimate tough part of this is when people don't feel well, they often don't eat well.

because they want some comfort. They often don't exercise. Yeah. Or if you don't sleep, it's like you're hungry and you know. Yeah. And so, you know, and then the other thing that we'll see is people that are genuinely, they've been trying to do the right things and they'll say, I'm just so frustrated because I was trying to eat plant-based and I was trying to introduce, and it just, I felt bloated all the time.

It just must not work for me. And what they don't realize is your body after so long, I'm not eating like, quote unquote, proper foods. It's not, it no longer has the enzymes built up to properly process, you know, leafy green vegetables and really plant-based type diet.

So your body is just like overwhelmed trying to process it. If you cook the vegetables, does that eliminate the enzymes? Well, That's a great question.

I've never been asked that usually the less process, the better. But with that being said, usually what we find is if people stick through for a couple of weeks, it all sorts itself out because your body does your body's very, very, very adaptive and very able to rebuild.

you know, but a lot of times people after a few days just feel bloaty. They don't feel comfortable and they stop. They're like, it must not be, you know, that's only making me feel worse.

You know, sometimes it's like you got, you got to give your body a minute to process. It's like you hear people who go through caffeine withdrawal. It's like two weeks are miserable, but then, you know, they feel amazing.

Right. They actually have a lot of energy because They were just so tight end with caffeine. And with the fungi, I know we're at a limited time. What are maybe some three things that people will be very surprised about fungus in the gut?

Great question. So one of the things that would be very surprising is that fungi is about, if you look at fungi under microscope, it's about 10x bigger than bacteria, right?

So there's a lot. The amount? Physically. So the amount, there's actually more bacteria, but for every one fungi is about the size of 10 bacteria.

Fungus in the gut and prebiotics vs probiotics

So, so it's an enormous player in the gut. The other is that you hear about boogeyman of the fungi world by Canada, right? Canada, if you, oh, you know, do you, do you want to have Canada?

Most people would say, no, no, no. We actually, for the vast majority of people, Canada is actually a normal part of your ecosystem in your gut. But. When it's at the normal levels, it can eat in digestion, nutrient absorption.

The problem with Candida is when it overgrows, then you can have some serious issues, leaky gut, you know, Candida, actual infection, candidiasis. So, so people don't realize though, that when they're, they're kept in place, they actually have a great role to play.

The other thing that people don't realize is that it's not about growing or getting rid of any one organism, it's about maintaining total balance in your gut.

Because the analogy I always use is it's like a shark. You wouldn't want to be in a pool with a shark, but if we

remove all the sharks from the ocean, there's going to be big consequences because they play a role in the ecosystem.

It's the exact same in the gut. What we see is when we were trying to remove things, other organisms start spinning out of control. It's that they all have a role.

Because I know a lot of doctors, and I'm guilty of this too, is putting people on just antifungals because thinking that let's get rid of all the fungi in there, right?

But it sounds like that's a wrong maneuver. Yeah, it depends. We'll have people like my, you know, we just had some functional medicine physicians talking to my dad about this, is when you're looking at you know, what is the right antifungal, you know, treatment?

Is it nystatin, diflucan? You know, like there's so many that we find that fungi is still not really understood in the medical community. So it's been sort of a scorched earth approach to like, just get rid of it.

And that's not necessarily the best approach. And like the infectious disease doctors think it's not a problem unless you have, you know, no immunity and if it's a problem, it'd be all in your blood and you'd be dead, you know?

So don't bother with it, you know? So it's funny because what we find is that's a classic, well, it's only really an issue if you're immunocompromised.

That typically what people think I mean when I say that is if it's something serious, like HIV, like cancer, like, you know, just a severe respiratory infection.

Yeah, you're now immunocompromised, but there are many other ways you can be immunocompromised. You mentioned one of them, when you're stressed, you're immunocompromised, you get a little bit of a cold, all of a sudden you're immunocompromised.

And so what happens, the elderly are generally immunocompromised. Age, any chronic infection, immunity, toxins, pesticides, inflammation. Exactly. So what happens is it is generally true that a lot of these organisms are not going to cause you an issue if you're not immunocompromised.

The problem is if your system gets knocked out of whack, you haven't gotten a lot of sleep, something's off, that's where you can be presented with a problem.

So the way you need to look up about your microbiome, it's very much like oral care, is that it's an ongoing dynamic maintenance. Because think about it.

If you get a cut on your skin, if you clean it, you put it in bandage, you could pretty much isolate it. It's not going to be sterile, but you can keep it pretty undisturbed.

If you have a cut in your mouth, You have liquid going in there, you have food, you have saliva production, you have all sorts of things impacting that cut potentially.

It's very difficult. Same with your gut. You're getting food, you're getting all sorts of bodily fluids coming through. It's a very dynamic area where it isn't as easy to keep isolated.

So that's why I just need to continuously think of oral maintenance, like gut maintenance, where it's just about ongoing. And just a quick question about oral microbiome.

You know, people like want gum health and mouth washes every night. What's your thought? You know, you're killing probably all the good bacteria. So the good thing is your oral microbiome, actually your gut microbiome too, will really quickly repopulate.

It's very difficult to basically completely sterilize. Like that's just, like when you, when you see things like kills 99.9% of germs, those are done in lab tests, right?

It's, it's very biofilms. Yeah. Correct. Right. So typically it's really difficult to do that. Now that, with that being said, I still don't think it makes sense to just nonstop use, use mouthwash.

Like we actually own a mouthwash company. Like I say that like in, in part of it is just understanding that not all germs are bad. Right. It's about controlling overgrowth of germs and controlling.

when you become immunocompromised, are you controlling that germ load, is what we call it. Sometimes I'll be very aggressive in this terrible microbiome and just give them multiple antibiotics, antifungals, and then for a very short period of time, but then give tons of probiotics.

My thought is knock the bad ones down because the good ones won't be able to survive because they're getting out-competed. whatever it's theory, and then just flatten with probiotics.

Well the other thing though that we are big advocates of are prebiotics, right? So prebiotics, the way I explain it is if your gut is a garden, And probiotics are the seeds for like just growing an awesome garden.

Prebiotics are dietary fiber, which is literally like putting amazing topsoil in their gut. So that garden can really grow. Right. And that's really not that much of an analogy because literally that dietary fiber sits in your gut.

It's very hard for our bodies to process. And it starts to ferment and probiotics are literally using it as food and actually lowers the pH. So it makes it a much more hospitable environment for your probiotics.

So, you know, after somebody takes an antibiotic, we'll often say like probiotics are obviously great, but just get that top soil back in there, the prebiotics to start rebuilding the fauna.

Cause I've seen some studies on like the AK, um, ectino, so like with neurodegenerative diseases, but I don't think you can get it as a probiotic. But if you give the prebiotic, it seems to allow it to flourish.

Yeah, because your gut already has good bacteria and good fungi in it. It's just the amount of fostering it. And yeah, you can supplement it with probiotics, but like just encouraging the growth of what's in there is a giant jumpstart.

So do you recommend Prebiotics, even over probiotics. So we, we recommend using them in tandem. That way you're sort of, again, like laying the, laying the foundation and then feeding the garden and really kind of giving a boost to what's already going there.

But, you know, I think if all you were doing, like, like one of our most popular product is actually a Supergreens product. So it combines probiotics, prebiotics, enzymes, Supergreens.

reason people love it is what was the name of that again? A biome super greens. So people love that because they're getting all, all in one fell scoop is what I, you know, I joke.

Yeah. Cause people get capsule fatigue, you know? Yeah. A lot of people, you know, and even, you know, it's great for, I have a six and four year old, I'll just mix it into their yogurt.

They don't even notice. Right. It like, because kids, even like you said, like I'm not a big capsule person. I'd rather mix something in a powder. it's just easier, you know, and otherwise you're taking like, you know, five, six different capsules that gets old pretty quick.

Yeah. Five or six, like, it's like 80. Cause it's, you know, you find a new stuff and I got to take that and you're like, Oh my gosh. And you're nauseous and all that.

So your difference between your other products. Yeah, so our number one seller is the biome super greens, just because it's got all in one product. We also have a biome super reds, which is 14 different super red products, things like beets, sweet potatoes, pomegranate, very high antioxidant ingredients that you get more in reds, like berries.

Now, is it the antioxidant properties that's good for the gut, or is it also something else that they're a great prebiotic? So we also have prebiotics in there, functional mushrooms, probiotics.

And so that's the super reds and the super greens. And then we do have more heavy duty probiotics, which are 30 billion CFUs combines the good bacteria, the good fungi, even digestive enzymes.

So, you know, we just have also a microbiome test called the biome gut report. And that's where people were like, listen, I've tried a million things.

I'm not sure what I need to be optimizing. So they take that test to at home, at home tests, like 23andMe and they get their results and then what people love is they actually get actionable recommendations.

So it tells them, these are the foods you need to avoid.

Biome Health products, testing, and closing remarks

These are the foods you need to eat, you know, based on their, yeah, based on their microbiome and their, the questionnaire they fill out, they get lifestyle recommendations and they actually have the option to talk to one of our nutritionists and walk through all that.

And can you, when you look at someone's test results, I imagine you can probably tell their lifestyle, their level of health, what they eat, like, you know, Like, let me guess.

You can see a lot of, of, especially when you're looking at their questionnaire that, you know, this is a very high stress person that needs to get that under control.

Otherwise the other things are really not going to make a difference. You know, and sometimes, you know, we're all busy. We're all living our own lives.

Sometimes you need someone to objectively look at what you're doing and say, listen, here's what you need to concentrate on. Okay. You know, so. So yeah, so you know, for us, the science is critical.

It's it's still to this day of my father's NIH funded he'll you know he jokes like he'll he'll die in his lab because he just loves it and you know, for us, it was important to sort of bring that science out of, you know, ivory tower of his lab.

Yeah. Yeah. What are some of the fungi you have in as a probiotic, like saccharomyces, it's saccharomyces bariatae. So we have our own strain and which makes a difference, right?

Yep. No, a hundred percent. So, and we went through and did what's called grass analysis, which means we've confirmed it's generally regarded as safe.

That's not a given, you know, it just like any probiotics strain. If you are just using any strain, it could have antibiotic resistance. It can have some other issues.

So we have to have the FDA is cracking down on that. Yeah. So we went through that process for every one of our strains. Cause you know, for us, it's very important to know, you know, even down to doing the DNA genotyping of the strain.

Right. So again, we, there, we just brought on the former global head of nutrition from, you know, recommend Kaiser. We have a new clinical director of science who came from, you know, one of the biggest probiotic

ingredient companies.

So everything we're doing is really based in with this past mustard and my father's NIH lab, you know, And it's impressive. That's impressive. And all the publications and I mean, that's where it is because yeah, one strain may be very different than another, right?

But most people look at the label, it's got the same thing, but not necessarily so. Well, and I sincerely say this, whether you look at biome or not, few pieces of advice when people are looking at probiotics or any dietary supplements, where is it made?

That's very important. Is it made in the United States? Why do I say that? It doesn't mean you can't get a good product that's not made in the US, but it's a lot easier to trace quality if it's in the US, right?

FDA audited facilities. The next is what is the product doing to make sure the strains are alive when they get into your stomach, right? So for example, Our bottles are heat resistant plastic.

That's important because heat can kill organisms, right? We also coat our probiotics so that they're protected from the acid as it's going into your stomach.

So always take a look and see like, what is the product doing to make sure these are alive when they get into your cut? And because I worry about like the refrigerated ones, because yeah, they're refrigerated when you go to the health food store, but what about the truck and all that?

And do you use spore-based or? We don't have spore-based. There are some nice spore-based options, but again, ours was formulated based on what strains we found had the best activity against biofilms.

And that's how we formulate it. Biofilms are finding is the problem, you know? Yeah. Yeah. So that's nice. And where can people find your product? Best place is our site biomehealth.com B as in boy, I O H M health.com.

And, you know, they can check it out and we're biome health on all the social media channels and they can always, you know, feel free to reach out to me and I'm always happy to answer questions.

And that's nice. And you got the testing as well. Yep. Yep. And it's all off of our site. That's great. That's great. Hey, our time, I know we got a kind of hard, hard stop.

I would cover it a lot. I think this was really great. Yeah, no, I really appreciate, you know, I appreciate everything you're doing and I appreciate you allowing me to share a little bit more on the microbiome.

Yeah. And new information, you know, about fungi. We've always told, hey, fungi is bad, right? You don't find your guy. What do you say makes sense? Well, it's, it's going to be an exciting few years coming up in the microbiome.

Sounds wonderful. Hey, thank you so much for taking the time. It's been great and have a great weekend. All right. You too. Take care. All right. Thanks a lot.

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