Michael Roesselin:

All right. All right. People are filing in. Let me fix the chat. I am in a weird place today. I am in my wife's parents' house in Berkeley, California, visiting. That's why we're at nighttime. So it's not the middle of my night. I'm fixing the chat so that it works because they always make it not work. Okay. It should be fixed. If you guys could let me know that you can see and hear me. Kiran should be here any minutes. We have all your questions from last time.

Let me know where you're signing in from. Or you can switch the two in the chat so that if you want everyone to see it, some of you're set to host and panelists. So I'm the only one who sees it, so if you want everyone to see it, you've got to switch to everyone. If you haven't been here before. I'm Michael. I haven't introduced myself on a webinar in probably five years, but there might be someone new.

We're going to use the Q&A for more questions, but we do have about 45 questions from last time and I got a couple of email questions, so those have first dibs. We will do the best we can to get through all of them. Last webinar was awesome. I was quite blown away by all the stuff he shared, the presentation, which I didn't know we were getting. That was great. And then it was so loaded that we ran out of time and had to come back for more. So there he is. Butter. That is a strong statement shirt, my friend.

Kiran Krishnan:

I'm smooth like butter.

Michael Roesselin:

Oh, just got my two bottles today of SIV. Everyone's checking in the chat.

Kiran Krishnan:

Awesome.

Michael Roesselin:

Welcome back to our primetime slot. I am in America.

Kiran Krishnan:

Yeah, welcome to America. How does it feel?

Michael Roesselin:

I'm tired.

Kiran Krishnan:

Where are you? In the West Coast, right? Somewhere?

Michael Roesselin:

Yeah. Yeah. I'm in Berkeley. I'm at Mira's parents' house. Hold on, let me show you. This is Mira's childhood bed.

Kiran Krishnan:

Are you guys sleeping on top and bottom?

Michael Roesselin:

We are. And the baby's on the bottom-

Kiran Krishnan:

Nice.

Michael Roesselin:

... with her. Yeah, I've slept until 4:00 AM once and the other days I've been up around 3:00. So I'm feeling nice and zombie. We have not adjusted yet. We missed one connecting flight. Got stuck in London for 20 hours, which is super cool with a baby. So it turned into two full days of travel plus the circadian dysfunction, so it has been an adventure, but-

Kiran Krishnan:

Well, hopefully you'll be here for a little while.

Michael Roesselin:

Yeah, we're here almost two weeks. My folks are in town. They said to say hi, by the way.

Kiran Krishnan:

Oh. Yeah, tell them I said hello.

Michael Roesselin:

I will. All right.

Kiran Krishnan:

I'll turn my lights down a little bit. Give me one second.

Michael Roesselin:

Leslie, her parents came to Italy and saw the baby in September, but it's the first time my parents have seen him and Mira's grandmother, Elio's great-grandmother, is 95 and she lives here so we brought him to see her. Arnica for jet lag. Thank you. I have some for pain. And we did send out the recording and the transcript from part one, yes. Thank you Victoria. Well, thanks for all the welcome-backs.

If anybody's in the Bay Area, I'm teaching a full-day workshop on Saturday on completely unrelated topics to this, but I am teaching in Berkeley and people are coming from Chicago and Boston and San Diego and Orange County and Idaho to Berkeley for a workshop I am teaching on Saturday. So if you're in the area, come say hi. And we are here for part two that we accidentally made because we had so many questions and we didn't know we were getting a presentation last time. So thank you for that. That was awesome.

Kiran Krishnan:

You're welcome.

Michael Roesselin:

I'm sure you'll get other requests now to give that presentation.

Kiran Krishnan:

So, the first offer.

Michael Roesselin:

Yeah, so what I did is there were 55 questions in the chat that I copied down and then some of them are very similar so I kind of lumped them together and I apologize. I'm used to working with a giant monitor where I can have the Zoom open and another window open and read it. But now I'm on my laptop, so all right, what we're going to do, if you're all right with this format, I am going to ask you the questions from last time.

Then we have a couple of email questions and I told people if they have other ones, they can put them in the Q&A. These are going to be anything related to the skin, skin microbiome, leaky skin, all the crazy stuff we talked about last time. And then there's some product-specific questions. Everyone that ordered SIV, we're going to be sending you an email very soon with some questions we want you to answer, too, to get feedback about your progress and how things are working for you that they gave us that we're going to send out to you. It's just it got lost in my travel chaos so that will happen. And that's what we're going to do for the questions.

If somehow miraculously we get through all of the old questions and email questions and any new questions, then if there's any time left we can open it up for whatever questions. But I think we're going to be pretty full with these. So we are Q&A. All right. I'm just going to kick it off. We're not doing introductions today. This is Kiran. He's a microbiologist. Watch part one. You'll get it. Okay. "The skin or the lining of the mouth and the oral microbiome, is it similar to the skin microbiome or is that completely different?"

Kiran Krishnan:

It's interesting that the oral microbiome can in fact influence the skin microbiome to a certain degree, but the structures are quite a bit different. The oral microbiome is considered a mucosal biome because the inside of the oral cavity is considered a mucosal tissue. It's moist, it has a mucus layer on it. So those are slightly different types of microbes that reside there. Well, now, there are microbes that reside in both areas. So streptococcus, staphylococcus, for example. You'll find it on the skin, you'll find it in the mouth, you'll find it in the sinuses.

And in fact, if you have a lot of strep and staph and all that in your mouth, that can actually influence your skin microbiome in the region as well. Imagine every time you sneeze or you breathe out or cough, you're getting a lot of those oral microbes on the regions near your face and they can settle in there. So there are different regions. They have typically different microbiomes and the structures of the oral cavity and the skin are going to be different. But a dysfunctional oral microbiome can actually influence the skin to a certain degree as well.

Michael Roesselin:

Interesting. I'm not surprised there's a link as I'm learning there's no separation between any of the biomes really. "Can you speak to skin biome and HPV being able to live on the skin/ susceptibility to warts? Is there any evidence that there's any wart biome correlation that you know of or anything to do with HPV or warts?"

Kiran Krishnan:

Yeah, HPV is a opportunistic virus. One of the things that it does really well is remain latent. HPV does infect the epidermis, but it infects the lowest part of the epidermis. So there are these basal cells that are actually stem cells within the bottom part of the epidermis. That's actually what generates the epidermal cells. And so HPV makes its way down the layers of the epidermis to the bottom part of the epidermis and it infects those stem cells.

Now, like papilloma and other similar viruses like herpes simplex virus, it can remain latent in its host cell for a long period of time and then only express itself when certain conditions are right. And the warts are a certain serotype of HPV. Not all serotypes of HPV, which there are hundreds upon hundreds of different versions of HPV, not all of those produce warts. Only a certain number of them produce warts.

The ones that don't produce warts can just remain latent and you'll never know they're there. And everybody's been exposed to them and everybody carries them to a certain degree as well. And so they'll just remain in those cells. Now, the propensity to gain infection from HPV may be related to your skin microbiome because when a virus or bacteria or any other foreign microbe lays upon your skin, one of the roles of the microbes, both the transient and the resident microbes that are commensal, that are friendly to the area, is to defend the skin from those things that are coming in.

So if you've got a disrupted skin microbiome, you are more susceptible to opportunistic type infections like that. And not only do they produce antiviral compounds and fight against the virus, but then they can also alert the immune system to the presence of the virus. And if you have a really strong barrier structure, like a nice ceramide layer and so on, it makes it harder for that virus to get deeper into the skin, to the bottom part of the epidermis layer. So once it gets in, though, if you have the serotype that produces warts, it's going to produce warts from time to time. If you have the serotype that creates cancer, it's going to create cancer at some point, or, like most people have, it's one that doesn't do either. It just kind of sits there, remains dormant. It's a highly evolved virus.

What's interesting about viruses is the ones that kill their hosts are the worst kind of viruses in the realm of viruses, meaning that they're the least evolved. Even the ones that make you sick are least evolved because the whole point of a virus is its ability to come in, take over cellular machinery of the host, but not damage the host because it needs the host for survival. So papillomavirus and herpes simplex virus, Epstein-Barr, cytomegalovirus, a lot of these viruses are highly evolved in that they can live within the host and not actually damage or kill the host for the most part and don't cause any symptomology in many people. The skin microbiome-

Michael Roesselin:

Because if it kills me, it dies, too, then.

Kiran Krishnan:

Exactly. And it needs another host with close proximity to transfer to. So I would say if you already have HPV, improving the skin microbiome may reduce its expression to a certain degree, but I don't think you can get rid of it. But if you don't have HPV, and we're all constantly exposed to HPV anyway, it's probably better to have a healthier skin microbiome to prevent deep penetration of that papillomavirus.

Michael Roesselin:

All right. "Do you have any knowledge related to red light therapy in the skin microbiome, or infrared?"

Kiran Krishnan:

Yeah, this is interesting. I couldn't think of a study that has directly shown here's what red light therapy, how it impacts the skin microbiome. So you have to connect some dots. We know that red light therapy can reduce inflammation, can reduce sebum production, can-

Michael Roesselin:

Sebum is the oil from the skin?

Kiran Krishnan:

Yeah, it's the oil and produced by a sebaceous gland, which is a gland that's dotted out throughout your skin. You have much higher amounts on your face, head and neck than the rest of the dry areas of your body of course. That maintains moisture, and that's an important part of it. It also creates an anaerobic environment in some of the regions of your body. But red light therapy with its ability to reduce inflammation on the skin, stimulate collagen production and the few of the other benefits, it's not unreasonable to think that it would be beneficial to the skin microbiome in terms of expanding diversity, at least on the body and those sites.

Now, on the face, it could actually help with improved circulation and all that. You can get more immune cells, more blood and all that flow to the regions that are now potentially cut off to blood flow because of overproduction of sebum, because of clogging of the pores, because too much dirt's getting in, too much inflammation. So it may help in that regard, but I am not familiar with any studies that show a direct correlation. Red light therapy is just good for your skin. I don't see any reason why it would harm your skin microbiome. So I think keep using it if you're using it.

Michael Roesselin:

I'm in this group on Facebook. I'm actually going to be interviewing the guy who runs it in a couple of educational pages on red light therapy soon. And the research there, and it's a total side subject, but the research behind red light and near infrared is rather remarkable. If there was pills that did what red light therapy did, the drug companies would be all over that one.

Kiran Krishnan:

Yeah. Who is the guy?

Michael Roesselin:

Well, his name is Bart who writes the content for him and then I don't know. I'll bring it up while we're doing this and I'll let you know. Alex, red light. I don't know. Alex. His name's Alex.

Kiran Krishnan:

It's not Robbie?

Michael Roesselin:

Alex Fergus, F-E-R-G-U-S. Alex Fergus. He has a YouTube channel, he has websites, he's got tons of content out there and they're not affiliated with any of the companies. They do product reviews and post studies and whatever. But the research and studies behind red light therapy are very, very convincing on a whole bunch of levels. And it's so cool, too, that our body responds to light. We talked about that last time because the microbes use probably photons or light or something to communicate. "Are skin microbes mostly aerobic?" I know you talked about how some areas have more anaerobic microbes because there's smooshed folds or more oil or something, right?

Kiran Krishnan:

Yeah, that's exactly right. Areas that are high moisture areas where you have a lot of sweat glands, you have a lot of hair follicles, sweat glands, hair follicles, sebum, sebum, sebocytes, those areas can house anaerobic bacteria. So that's mostly areas like your armpits, groin, scalp, face, neck. You'll have a predominance of anaerobic bacteria in many of these areas, but most of the rest of the body is predominantly aerobic bacteria because there's not a lot of anaerobic environments in the rest of the body.

Michael Roesselin:

Speaking of moisture and wet places, how does skin microbes survive bathing or saunas?

Kiran Krishnan:

Yeah. So every time you bathe, every time you go swimming, every time you do a sauna and you sweat, it's less in a sauna than bathing or showering or swimming, you will kill microbes on the skin, but you'll kill typically less than a log. So less than a log means you're probably killing down the numbers by 40, 50%. And it may sound like a lot, but with microbes that's not much because they grow by binary fission, which is logarithmic growth.

So you take a shower and let's say you excessively soap, which you shouldn't do, but let's say you excessively soap and you're using all kinds of crazy shower gels and all that, you're probably going to knock the volume of bacteria down or microbes down in general by about 50%. And then you come out, you towel dry, and then you put on moisturizer hopefully, and by the time you go along your day over the next eight, nine hours, most of those microbes will come back.

So it's okay to do that, but let's say you showered again seven, eight hours later, then you're knocking down those microbes again. And if you do that too much or if you use too harsh of a soap or astringent or things with antimicrobial properties on your skin, you're going to maintain a low diversity, low volume of microbes that can be problematic. One of the first things you'll notice is drying out of the skin and dullness of the skin.

When we wash our skin too much and it gets dried out, it's not necessarily because the washing is somehow sucking out moisture. It's because you're dramatically reducing the amount and concentration of microbes on the skin, which then the microbes are the ones that are playing an important role in regenerating the ceramide layer and regenerating the skin tissue so that you can generate new tissue, maintain moisture and so on. So you do want to be careful of too much bathing, too much showering and all that.

My little hack is, number one, I love showers. Standing under warm water is not going to reduce your microbes by that much. When I soap, I do soap lightly and I soap and I soap relatively quickly. But the hack is when I'm not traveling, I'm home quite a bit. And when I'm home, I don't shower every day necessarily. Sometimes I'll go two or three days without showering because it actually feels better for my skin and it allows your skin microbiome to build up a little bit. You build up some of the oils and some of the immune modulation takes place and all that, and you don't disrupt that by jumping in the shower and soaping up too much.

Michael Roesselin:

Okay, that makes sense.

Kiran Krishnan:

Another reason why you shouldn't bathe babies every day either.

Michael Roesselin:

Yeah, we've reduced our soaping of the baby since the last webinar. Mira was a little hesitant at first, but he's doing just fine and she does put moisturizer on him, so he gets just a water bath most of the nights because. He likes it before bed. It seems to calm him down.

Kiran Krishnan:

It's soothing. Yeah.

Michael Roesselin:

"Any studies on the skin biome related to collagen synthesis or the skin microbiome related to collagen?" I thought you talked about this or mentioned it.

Kiran Krishnan:

Yeah. In fact, the cells in your skin that are responsible for the formation of collagen and laying down collagen are cells called fibroblast cells. Fibroblast, and anywhere in the body, when you hear the word blast associated with a cell, it's actually a cell that builds something. So it's kind of counterintuitive because it's called a blast cell. Like osteoblastic cells are cells that actually build bone. Osteoplastic cells are the cells that break down bone.

So fibroblast are cells that build the fibers, the collagen fibers. Now, what's super interesting is there are really good studies that show that certain commensal microbes on the skin stimulate fibroblast activity. Now, they do it in many contexts. They do it in the context of wound healing. They do it in the context of turning over and maintenance of the skin. They also do it in the context of recovery from inflammation in the skin.

And the microbes play an important role in secreting composites that stimulate this fibroblast. So some of those microbes are like staph epidermidis. It's been known since they started looking at skin microbiome and its association with health that staph epidermidis is a really healthy, beneficial microbe to have on your skin versus staph aureus. Staph aureus is a pathogenic one. In fact, you can have the worst version of staph aureus called MRSA, which is methicillin-resistant staph aureus. That's the one that cause all kinds of infections and can kill people.

But we always have this balance between staph aureus and staph epidermidis. And what we want is a higher level of staph epidermidis because that's one of those key microbes that enhances fibroblast production, sorry, fibroblast activation so that it can then produce collagen for you. That's one of the issues with taking all the collagen supplements. Sure, it might help. You're putting in amino acids into your system, but there's still mechanisms at play that have to function in order for that dietary collagen to turn into collagen in your skin. No different than things like in the gut lining, like why just taking glutamine is not going to heal the lining of your gut. You still need the microbes in there to be doing the work for you. They're the mechanics of the system.

We know, for example, with the SIV serum, in a couple of the subjects we tested, in the top five microbes on some of the body sites that we tested, staph epidermidis wasn't even in the top five, which is not a good thing, especially in one of the subjects had kind of aged-looking skin already at a relatively young age. We had showed her before and afters in the PowerPoint last time.

And what we saw is that there was no staph epidermidis picked up even within the top five microbes. And then after, I think it was two or three weeks with SIV, we saw a lot of those symptoms alleviate more uniformity to the skin, which is another indication of skin turnover and increased collagen function and thickness to the skin. And then we saw when we retested the microbiome that now epidermidis was like number four on her skin. So it was a nice correlation between now the appearance of staph epidermidis and then the improved appearance of the skin as well.

Michael Roesselin:

Okay, that makes sense. And I'm still stuck on fibroblasts. I'm going to date myself here. On the flight I played Asteroid and... Salute.

Kiran Krishnan:

Thank you.

Michael Roesselin:

That's God bless you over there, salute. When Elio sneezes, we all yell salute and he thinks that's hilarious. Baby sneezing is one of the most entertaining things that there is. It's like a full-body ordeal. I got to play Asteroids. And when you said fibroblasts, I was thinking of... If anybody out there has never heard of Asteroids, you're probably younger than me. So this relates to collagen. "Sun overexposure, early in life, collagen loss, wrinkles, arms and legs quite wrinkled, skin is thin even though no longer overexposed, from previous sun. Is that beyond help or is it possible to bring life back to that?"

Kiran Krishnan:

Did they mention their age?

Michael Roesselin:

I think she's probably 50s. I know this person, so I'm not sure how old she is, but I think probably 50s.

Kiran Krishnan:

50s, okay. No, I don't think it's too late to make improvements on the skin. Certainly, if the skin is thinned out, if it looks dull, meaning it's not turning over effectively. If there's lots of fine lines and wrinkles, which means clearly that there is a loss of collagen and elastin function, and if it tends to be dry, that means there's a loss of ceramides and the ceramide layer, there are things you can do to improve it. So SIV may help because a key component to skin maintaining youthfulness is having the right microbiome on the skin.

So increasing things like propionibacterium, increasing things like staph, those types of microbes will improve the condition of the skin even after all the years of sun damage. Keep in mind that skin, like the lining of the gut and all that, are these areas that are designed to turn over and repair. It's not like you busted it up early on in life and then now you're stuck with it. It can turn over, it continuously grows and it continuously regenerates itself. You just have to put it in the right condition.

So I would consider looking at on the outside and then on the inside you can add in things like prebiotics. Microbiome Labs has a MegaPre. There is the production of acetate from taking prebiotics can improve conditions on the skin from the inside and then taking phytoceramides. Phytoceramides are that fatty layer on the skin that I mentioned that is really important for maintaining moisture and maintaining the useful glow of the skin, if you will, and being able to get an increase in ceramides into the skin can be achieved through taking phytoceramides on the inside, so if you just google phytoceramides.

I use a product that I have here. If you're in the US there's this product called Source, which is skin glow, and it's loaded with phytoceramides. It's a company that I know that I've met with and advise and so on. And so they put the phytoceramides, a really solid dose, in a hard piece chocolate like this, and they sell this at Sephora and of course on their website and so on. But the phytoceramides become important as well.

So that combination of things, the prebiotic, the phytoceramides, and the SIV on the outside could be really dynamic in improving the skin. If you're in your 50s, it's certainly not too late. If you're in your 60s, it's still not too late. If it's 70, 80, then it may be harder to make a significant change, but you can always improve your skin. The degree of improvement will be dictated by the age.

Michael Roesselin:

Skin-improving chocolates. I bet they are printing money.

Kiran Krishnan:

They're doing well. Yeah.

Michael Roesselin:

It is not a tough sell to a lot of people. I can eat chocolate and it's good for my skin. This is a good deal. I'll have to look that up. There's so many things I try to snag really fast while we're here and bring them back because it's impossible to get things over there. They must think we're insane. My suitcases when I go back are just filled with random things and products and supplements and tinctures. I have a whole suitcase just for that.

Kiran Krishnan:

From the Wild West?

Michael Roesselin:

Yeah. "So something like skin peeling and other aesthetic treatments probably very damaging to the skin by causing an immune reaction. Probably not good for what we're trying to do."

Kiran Krishnan:

And I understand that in aesthetic practice, they do skin peels, they do chemical peels and other versions of the peels. The idea behind the peels has been to remove that very top layer of dead skin, but then some of the peels go a little bit deeper and that's why you get the redness. The top layer of the dead skin can also be removed by exfoliation, just scrubbing, which can be fine. But I think peels you have to be careful of because it can disrupt the microbiome of the skin quite dramatically, which means that when the microbiome grows back, it could grow back in a more erratic fashion, which could then cause more problems to the skin.

I'm not saying don't do it, I'm just saying be cautious and certainly don't do it very often. Not that I've seen a study on this. I can't quote a study that says, "Here's how skin peels affect the skin microbiome." But just intuitively and just using my knowledge of science and what's happening in the world or what's happening on your biology, my guess is that it would disrupt the skin microbiome quite dramatically. But some people swear by it. I know people, I think my sister gets regular peels. Well, when I say regular it's like maybe once a year. But I've seen it a few times where I see her and she looks very different. I'm like, "What happened to your face?" She's like, "Oh, I got a peel," and I'm like, "Oh, God. Okay." It's like coming out of a cocoon or something.

Michael Roesselin:

I know you mentioned skin cancer last time. In short, because we do have a lot of questions, so we can't go long on this one because it's probably a long answer. "How does the skin microbiome relate to skin cancer?" I believe this was discussed a little, but I was unclear. Is there any research on this?

Kiran Krishnan:

It's very light. So here's the light connection, and we don't want to make any sort of claims that anything will help with cancer, but-

Michael Roesselin:

Disclaimer, disclaimer.

Kiran Krishnan:

No. With skin cancer, for example, the most common skin cancer is melanoma, of course, and that's a cancer of the melanocytes, which are the cells that produce melanin, the pigment in your skin. Of course, those cells get a lot of damage from UV radiation. So it's the job of the melanocytes to produce this compound that absorbs a lot of the radiation from the sun. And so they take the brunt of the hit. And if you get a lot of UV radiation and you have certain predispositions, that UV radiation can create immortal cells and then eventually create cancer.

Now, two of the things that we know that drive a risk of cancer are inflammation and oxidative damage and oxidative stress. And melanocytes go through a lot of inflammation, will go through a lot of oxidative stress. Now, there's data that shows that a healthy skin microbiome reduces the oxidative stress on melanocytes and also can reduce inflammation in the melanocytes. So, through that connection, there can be some beneficial effect there by having a healthier skin microbiome. But I can't say that there's been any studies that directly impact it, too.

Cancer is in general kind of a trifecta of genetic susceptibility and risk, environmental issues, and then to some degree biology as well, like your biology in terms of how your cells and all that function and risk factors that are determined by your lifestyle and biology. So if we can impact the biology in some way by making it healthier, maybe that'll help. I certainly keep that in the back of my mind when I'm out in the sun doing things that I know are impactful in a negative way, but we can't say for sure.

Michael Roesselin:

Okay, that makes sense. There's a few questions I'm going to try to do my best to smoosh together is... How do I say this? So you talked about the skin anatomy a little bit last time because it's a much thicker, more how the gut barrier is one cell thick, and the skin it layers and there's this subcutaneous and it's a much thicker, bigger, more solid barrier surface than the gut. This can be very scientific everyone.

Does stuff that affects the inside of that skin layer, so things like movement, exercise, massage, things that are known to impact the fascia and the blood flow and everything that's going on, say, here's the skin, everything that affects everything down here? Let me see, does skin biome communicate directly through the surface into the subcutaneously? Does the stuff that happens underneath impact the biome or the things that are happening on the top of the skin? And I know that I'm butchering this, but I'm mixing together about four questions that are asking things about does the deeper therapies have an effect on the surface appearance and the biome of the skin? Does that make sense?

Kiran Krishnan:

Yeah, yeah, totally. So things like yoga, massage, and so on.

Michael Roesselin:

Yeah, lymphatic things like-

Kiran Krishnan:

Lymphatic drainage and all that. Yeah, so generally you could think about it this way. Anything that would reduce inflammation at the dermal layer of the skin. So you have the epidermis, which is a thick outer layer that has multiple cell layers on the epidermis, and then below the epidermis is a dermis layer. So anything that impacts inflammation or circulation at the dermis or even below the dermis layer in the circulation itself can have a positive effect or negative effect, depending on how it's impacting that layer, on the skin microbiome itself.

Now, in part, it's because of inflammation. So if you reduce inflammation in the dermis, you can change positively the microbiome on the skin. Inflammation in the dermis is going to translate to some degree to inflammation in the epidermis, and inflammation in the epidermis can create dysbiosis in the skin. There's also the function of your immune cells. You've got dendritic cells and T-cells, which tend to be the main players in the skin, but you've got these dendritic cells that'll come through the dermis and reach tentacles up through the dermis in the epidermis to sample what's happening and produce antimicrobials and things like that.

Now, if you have less activated dendritic cells, less irritated dendritic cells, less activated by pathogens and inflammation and all that stuff, then you're going to have less impact of the dendritic cells in the epidermal layer, which could improve the skin microbiome. So I can't say that there's any studies that show that massage, yoga, warm baths, things like that impact the skin microbiome in a positive or negative way. But just thinking about it logically, if you reduce inflammation, you improve circulation, you improve lymphatic drainage in the dermal layer or the subdermis layer, you will likely improve the microbiota at the epidermal layer.

It's all connected. And yes, there is crosstalk between the microbes in the top part of the epidermis layer and the immune system and other components within the dermis layer. And there's two-way crosstalk between them, so I think so. I think things like massage and lymphatic drainage and all that can be very beneficial to the skin.

Michael Roesselin:

And they feel good.

Kiran Krishnan:

And they feel good. So the other thing about the feel good is the other part of that is touch. If you have someone working on you and they're massaging you, there is a component of diversification of the skin microbiome because you're in physical contact with somebody else, assuming that their skin microbiome is okay and somewhat healthy. So that's one aspect of it. But the second aspect of it is the reduction of stress. So if those practices reduce stress, that'll dramatically reduce inflammation, which will then reduce the alteration or the compromised immune responses that can affect the microbiome both in the skin and the gut and everywhere else in the body.

Michael Roesselin:

Okay. Double win. That one's covered. That one's covered. I'm going to wait. Do you have a hard stop on the hour? What's your time thing?

Kiran Krishnan:

I don't. I can go a little longer than the hour.

Michael Roesselin:

Okay. All right. Because I'm going to hold the SIV-specific questions. I'm going to chunk it like we used to do with gut questions and MegaSpore questions. "Connection between skin biome and reduced acne scarring or other long-term scarring. Does the skin biome affect either healing of scarring or the development of scars or even long-term scarring?" I don't know. You showed some before and after photos last time, and not that your before and after photos are the definitive of what the skin biome is related to, but is it possible, one, to heal those things, and two, does the biome play a role?

Kiran Krishnan:

Yeah, the skin microbiome does play a role in wound healing and reduction of scarring and so on. This goes back to the conversation we had about fibroblast and collagen. Wound healing occurs in a couple of different steps. If you get damage to the skin, whether it's through a cut or an inflammatory lesion like a pimple that pops, that's all damage to the skin. So the first thing that occurs is inflammation. Now, the reason why inflammation occurs, it's this twofold to it. Number one is to quarantine the area. Now that the barrier is broken, we don't want things to be able to get in and spread throughout the body. So your body quarantines that area by recruiting immune cells to that region and quarantining it off.

Now, the other thing is the immune cells are there to protect anything that does come in so it can fight off the stuff that may enter in, whether it's toxins, viruses, bacteria, and so on. So inflammation becomes important, but the skin microbiome studies show that one of the other things that occurs very quickly is that certain microbes on your skin migrate to the edge of the wound, to the very, very, very edge of the wound, the very last cell that makes up the edge before the actual opening in the wound.

So microbes actually move there, they migrate to that edge, and when they get to the edge, part of what they do is stimulate the activation of fibroblasts like we talked about. So your cells can start laying down collagen and other fibers to rebuild a matrix, and then they also stimulate the release of something called matrix metalloproteinases. These are enzymes that remodel the tissue. So the way the repair occurs, it's like much like the repair on your wall.

If you have a hole in your wall, you're going to Spackle it. So you're going to throw Spackle on there to close it, and then you're going to use a scraper to make it more uniform so you don't have a lump of Spackle there. It becomes a uniform flat surface, but it still doesn't look like the rest of the wall. So now you have to sand it. And when you sand it starts to look more like the rest of the wall, but then you need to paint it so it also looks like the wall.

So the Spackling is like the production and the expression of collagen and elastin fibers, but mostly collagen. So that becomes kind of the Spackling. Then the enzymes, the matrix metalloproteinases come in and do something called tissue remodeling to remodel that Spackled rough looking area to look like the rest of the skin. Both of those steps require, and maybe not require, but are encouraged dramatically by the presence of healthy microbes on your skin.

If you have unhealthy microbes on your skin, a few risks may occur if you get damage to the skin. Number one, now you have more high risk microbes that can enter into the blood supply. So you've got a bunch of staph aureus on your skin and there's a break in the skin right there, that staph aureus can enter into your blood supply and potentially cause a systemic infection. If you have a lot of staph epidermidis, it won't do that. In fact, it'll assist in the remodeling of the skin. So that's one thing is that if you have a healthy microbiome, you reduce the propensity of unwanted pathogens entering that break.

Number two, you may reduce the time and the success of both the Spackling and the remodeling part of it, so the remodeling part of it doesn't work well, then you'll end up scarred. Now, the other thing is that if the inflammation lasts too long in the region, so the skin repair is not occurring fast enough, if the expression of collagen and then the matrix metalloproteinases to remodel the tissue, if all that stuff isn't happening fast enough, inflammation will remain there for a longer period of time.

The longer that inflammation remains, and if more inflammation is stoked by the presence of dysfunctional microbes in that area, what may happen is keloid formation may happen. That's your body going, this is really dangerous. I'm going to form this big crazy blob of stuff to block it out. So you might get a keloid or you might get what looks like a giant wart or scar forming in the area as a protective measure because a normal functionality of repairing that barrier was not working well. So you may actually increase keloid formation

scarring by having a dysfunctional microbiome on the skin. So I think the data seems pretty clear that having a good healthy commensal microbiome on the skin will assist in clearing of the skin and reducing scarring.

Michael Roesselin:

Okay, we did an interview on this many, many years ago. "Proteolytic enzymes related to skin health, skin biome, in any way?"

Kiran Krishnan:

Okay, if you take proteolytic enzymes systemically, meaning if you ingest them, that can be beneficial for your skin microbiome because they're known to reduce inflammation.

Michael Roesselin:

Inflammation, okay.

Kiran Krishnan:

Anytime you reduce inflammation, it's good for your skin. This is why curcumin, turmeric is good for your skin. It reduces inflammation. Now, if you put proteolytic enzymes on the outside of your skin, that will likely burn your skin because they'll kill you.

Michael Roesselin:

Because when you first introduced me to the people that make Fibrenza, which we still retail in our shop, which is an awesome proteolytic enzyme blend, and we were talking about each enzyme in there, and there was one that I think you said would literally eat your skin if it was outside the capsule, and I think it was Seaprose, is that correct?

Kiran Krishnan:

Yeah. Seaprose, yeah. Yep, good stuff.

Michael Roesselin:

What a memory on this guy on no sleep. Sometimes I surprise myself. So there's a couple more in the thing from last time that are related to... I think that's good. The rest of the questions are from last time are going to be product related, product, product, serum. Okay. No, that's product. Temperature, skin microbiome, universal basic aspects of chlorinated versus distilled. We did talk about that last time. He did talk about chlorinated water and how that negatively impacts the skin. If you didn't watch, it's posted as anonymous, so I can't name the person, but everything in your question was talked about in part one.

This is something that always bothered me intuitively. Is petroleum in skincare toxic to the microbiome? And my guess, this is how much I've been listening the last two times, is that petroleum is oil, and if you put it on, it can cause a barrier on the outside so that there's no oxygen that gets to the microbes and this would be bad. Maybe I'm making that up or I'm wrong, but that's how my head sees it.

Kiran Krishnan:

Especially if you put it on in dry areas, so on your arms and your body and your legs and so on, these aerobic areas of your skin, it can cause disruption because, like Michael said, it creates this barrier that can create an anaerobic environment. That may change the skin microbiome. It may create anaerobic areas where

anaerobic areas are not supposed to be. So, by that regard, it can damage your skin microbiome. I don't think it's an antimicrobial. I don't think it'll kill the vector like you would think an antimicrobial will, but I do think that if you are creating an anaerobic environment in an aerobic part of your skin, you could cause a disruption to that biome.

Michael Roesselin:

Okay, hold on. Jeffrey asked a question about pool and chlorine. We did talk about that pretty extensively in part one so I reference you to part one of the last webinar, and I'm going to send that link with the link to the replay of this. It was also in emails for this, but we'll get it to you. But we talked about chlorine quite a bit. "Some skin microbes are aerobic, some are anaerobic." Someone asked, "Our skin microbes..." Or, "Are these skin microbes, using these products."

All right. If you guys are putting questions in the chat, can you put them in the Q&A because things get lost in the chat to me. Thanks, Sue. We enjoy having you here, too. You've been here a long time, like at a lot of our webinars. Please put the questions in the Q&A. I will try to get to them. So let's go back over here. Actually, I'm going to hit up this email that I got today that had a short list of questions in it that I'm going to try to do. "How do you take samples of the skin microbiome and dysbiosis levels? Did you talk about how that was done in part one? If yes, we don't have to answer it right now. If no, then can you give a quick synopsis of how that actually works?"

Kiran Krishnan:

Yeah, yeah. There's really only two ways. You just do a swab. It's literally just a swab of the skin with a Q-tip-like device, sterile device of course. And then you put it in a buffering agent, you send it in. The other way is using Biore strips to actually pull sebum out, and then you actually sample the sebum. That tells you what the anaerobic environment looks like on your skin. Those are both the two different ways that we sample the skin microbiome, Biore strips and swabbing.

Michael Roesselin:

Okay. "Do you have any data on people over 80 before and after pictures? I'm 82." This is the email. This is all from Judith.

Kiran Krishnan:

Over 80, not that I'm aware. We have a 400-

Michael Roesselin:

Okay. You're the first one.

Kiran Krishnan:

Yeah, yeah. And we have a 400-subject trial going on, essentially. There may be people in their 80s in that trial, but yeah, if you want to be the first one, one of the first 80-something-year-olds, let us know. We'd love to have you.

Michael Roesselin:

Scars, you talked about. Yeah, so let us know and we'll track your progress. You talked about some dietary stuff last time and other things that are skin supportive, didn't you? I don't know if we talked about that.

Kiran Krishnan:

It wasn't a slide.

Michael Roesselin:

Yeah, yeah, yeah, yeah, yeah. Okay. You mentioned last time, and we got a few of these questions, so this is going to knock out about five of our questions, you mentioned that right now there's just the SIV serum that's for the face, which actually I have one here. It's in the bathroom right there. I've been using it for a few days because it was here waiting for us. It's just the facial serum. So it's a small thing; it's for the face.

And you mentioned last time that if somebody wanted to use it on larger areas that you put a little mixed with a lotion or an oil that you're using on the rest of the body, and that there are plans to produce more SIV products that are for larger surfaces or different purposes or something eventually like a whole line, but right now there's just a serum and we got a number of questions regarding what would make the best carrier for it, or what kind of lotion or what to look for or what not to use or what should it be mixed with if there is a should? And I have that question in about six different variations.

Kiran Krishnan:

Yeah, that's assuming you want to put it on your body, right?

Michael Roesselin:

Yeah, yeah, yeah, like for larger surface areas, because if I wanted to put that stuff on my whole body, it would be the whole thing of it. Plus it's probably overkill.

Kiran Krishnan:

It is, yeah. For example, there are a couple of spots on my body where I use it directly. In between my shoulder blades I tend to get... I think part of it is because I can't reach back there so well to get lotion on. And so I think over time it gets dry and a little bit irritated. So then I put the SIV directly on there and not through the lotion, but to the rest of my body. I just mix it in with the lotion that I've found that agrees with my system. So there's no don'ts when it comes to lotion. If you have a lotion that agrees with your skin and you've been happy with it, absolutely, just add it to that. It'll get on the skin and it'll still work the same way.

Michael Roesselin:

Okay. So if somebody's using a high quality lotion, organic or nice lotion, there's not stuff in any lotions that kills the microbes in the SIV.

Kiran Krishnan:

No.

Michael Roesselin:

No, spores are like tardigrades.

Kiran Krishnan:

Yes.

Michael Roesselin:

Yes. I've always wanted to reference a tardigrade in a webinar. That was the first time. If anybody has any questions, put them up.

Kiran Krishnan:

Those are some coolest things ever.

Michael Roesselin:

Look it up. They live on asteroids, which is pretty hardcore.

Kiran Krishnan:

They have a lot of little legs and little teeth.

Michael Roesselin:

Yeah, and little spinny mouth things. And there is no more hostile environment that I could imagine than an asteroid and they are there. "Have you ever heard of anti-aging Dream Cream, Dr. Joel Fuhrman?" I don't know of that at all, so I can't comment on that.

Kiran Krishnan:

I'm not familiar, no.

Michael Roesselin:

Okay. "Thank you, Kiran and Michael, for making cutting-edge, reliable information, which is beneficial to my health. Thank you for being here." Julia, she said she's been here for years and been following Kiran and bought many products for the gut that have been helpful.

Kiran Krishnan:

That's good.

Michael Roesselin:

All right, let's get over here. Man, when I get reduced from my giant screen to my laptop, I feel so helpless using one small thing and I can't-

Kiran Krishnan:

Move stuff around?

Michael Roesselin:

Yeah. I have to close one to open another one, and then it's not good. For ADD brain, I need to have all the windows in one view. All right, let's go. "Grandson with eczema at four months, used steroids. Now 14 months, has topical steroid withdrawal, we think. He's on Mega IgG 2000 and Megaspore. Any suggestions beyond that to help the skin heal?" I would guess that the SIV would be helpful. I don't know the, what's the word, the mechanisms of steroid withdrawal in the skin so I don't know what's happening there.

Kiran Krishnan:

Normally what happens with steroids is it thins the skin. That's the effect. Now, part of why it thins the skin is likely because it changes the microbiome on the skin where you use it frequently. Skin turnover, increase in collagen, elastin fibers, the production of the fatty acid layer in the skin, all of those things are dependent on a healthy set of microbes on the skin. So most of those things get compromised when you use steroids long-term on the skin.

So my guess is SIV would certainly help him and be beneficial to his skin. What else can you do? I would say, similar to what we talked about with the lady that had sun-damaged skin, kind of similar issue of trying to rejuvenate the skin, both from the inside and outside. I would look at prebiotics, I would look at phytoceramides, and then using the SIV on the outside. You should be able to alleviate that over a course of time because it's not a withdrawal the way you think of a chemical dependency withdrawal, it's more that it's thinned the skin and the skin's not turning over so it looks thin and red and irritated.

Michael Roesselin:

Okay. "Why not just put Megaspore paste on the skin?" For those who don't know or weren't at part one. Kiran is involved with SIV Biome Balancing Serum, which contains some bacillus spores, which are the same wonderful creatures that live inside of Megaspore. And so somebody asked, "Why not just put Megaspore paste on the skin?"

Kiran Krishnan:

Yeah, we were doing that for a while. I was doing that.

Michael Roesselin:

Of course you were.

Kiran Krishnan:

That was one of the first things we wanted to do.

Michael Roesselin:

Put the spores on. It was like the answer was, "Rubbed dirt on it."

Kiran Krishnan:

Totally, just put like Windex in that one movie, My Big Fat Greek Wedding. Just put Windex on it. And we were doing that early, early on. We had made a formulation once with some shea butter, I remember, with Megaspore. And it can work. The thing is that the reason why SIV only has the subtilis and the coagulants is because the other strains don't seem to do much in terms of function on the skin. So the clausii, the licheniformis, and the indicus don't really have function on the skin, so they're not needed when you're looking at skin function. You do need a good and a higher proportion of subtilis and coagulants.

The other aspect of it is the delivery system I think is important, as well, because ideally what you want to do is get the spores a little bit past that very top layer of epidermal skin. And when you formulate it with the fatty acids that have been formulated in SIV, you're actually pulling it down a little bit deeper into the skin and you don't have any of the stuff that doesn't need to be there like the other strains and you've got all of what should be there with the subtilis and the coagulants.

So it's a better way. If for some reason you're somewhere that you can't get SIV and you're getting skin issue, you can absolutely just try to put Megaspore on it and it may provide some benefit. But if you're trying to use it on a regular basis and you're trying to improve your skin, I would go with the one design for the skin.

Michael Roesselin:

Okay. Yeah, I figured it was the synergistic things because there's a lot more in it than just the spores. Fungal treatments, white spots, strange, suspected fungal things. There's a number of questions about this. I know you guys don't have studies yet. You just had the small sampling and then you're doing the wider one right now but I don't remember anything last time that you talked about specifically. I know you've talked about how the spores react to fungal overgrowth and things in the gut, but I don't know how that would be as a topical situation.

Kiran Krishnan:

I think the spores would absolutely compete with fungal overgrowth on the skin surface. So I think if you have fungal overgrowth, or you suspect that it is, it's worth using it. The spores in general are good at targeting fungus almost everywhere, in the body, on inanimate objects and so on. So there's no harm in trying it. I would guess if I had a fungal overgrowth, I'd put the SIV on it. Now, we do have some empirical feedback from people with things like athlete's foot and the benefits from that. We don't have a study, but we've got good rationale and good empirical feedback.

Michael Roesselin:

Dandruff in the skin biome. That was not talked about last time, I don't think.

Kiran Krishnan:

No.

Michael Roesselin:

Dandruff and then also, this is for me, my beard gets super itchy if I don't wash it, which goes against what you said before. But I found one face soap that actually works for me. And then if I don't wash it at least once, sometimes twice a day and put some... I'm trying the SIV on it now after the washing, it gets really itchy and it's obnoxious and it almost makes me not want a beard but I haven't shaved in 12 years, so that would be a disaster. But I'm guessing there's relation there between... It's the similar problem. So what's the biome situation when it comes to scalp and itchy and flaky things?

Kiran Krishnan:

With the hair, so dandruff and itch, flakiness and all of that, is more often than not an effect of a fungus called Malassezia, so the fungal overgrowth, which is present on the skin. Malassezia is normally on people's skin, but at low levels. Think of the cousin of Candida in the gut. It's there, it's typically at low levels, but if something disrupts the biome of the skin with the bacteria that normally compete with it, it can overgrow. Now, one of the things it does when it overgrows, which is really interesting, is it metabolizes the oils that your sebaceous gland produces and that your skin produces, and it makes these noxious byproducts from it and that's what actually causes the dryness and the flaking and the itching.

So if you're feeling all this itching on your beard or on your scalp, it's because you likely have an overgrowth of Malassezia that's metabolizing the oils, producing a noxious byproduct that is causing the itching and irritation

of the skin. And then in the case of dandruff, your scalp obviously flakes and you see the white flakes. So can the SIV help with that? I really do think it can. We don't have a study on it, but it's super-

Michael Roesselin:

Knowing you, you will.

Kiran Krishnan:

We will. I mean, dandruff is a very interesting area and it's not great, the shampoos and things that people have as option to use to reduce dandruff. And you should be able to, in a really short amount of time, flip it back, because it's an ecological problem on your skin. It's a normal organism that's there, that's just now overgrown. So bringing it back under control shouldn't be too hard. So I would absolutely use that on my scalp and use it on my chin if I had itchiness and dandruff and so on. Because you want to compete against the Malassezia, you want to reduce its numbers.

When the Malassezia numbers go down to very low levels, it doesn't cause any problems at all. Now, here's the other aside is that this new evidence that increased growth of Malassezia is actually independent risk for Alzheimer's as well because this fungus that's very close to your other orifices, like your nose and all that, can end up in your nose, in your airways, cross the blood-brain barrier and end up driving inflammation in your brain as well.

Michael Roesselin:

Okay. Wow. All right.

Kiran Krishnan:

So from itchy beards to damaged brains.

Michael Roesselin:

Well, maybe that makes sense to why I have to write everything down so much. I lost the... See, this is my problem. I lost the window. Okay, I found it. A lot of questions already answered because, "Is it only used for the face?" Or "Can it be used on psoriasis?" And "How can I use it around the body?" So, mixing it with other things. I don't know if you guys even know this, but what's the goal as far as other products or what are you wanting to produce or when might it happen? Or there's a lot of questions around what would be next or what other products are you looking at making or whatever, because I really think you guys could have a whole... from a shampoo to a body lotion to who knows? Even a deodorant I bet would be really effective. So, is there any plans?

Kiran Krishnan:

Yeah, I would say the most immediate plans would be to create other delivery systems that can give you larger area coverage with the same biome balancing serum. That would be a top priority. Then beyond that, it'll be potentially the use of specific post-biotics that we know impact certain mechanisms in the skin, like cellular turnover, increase protease function so you can get rid of the dead and dying cells, increase expression of collagen or microbes that specifically do that as well. All of it about balancing and protecting the skin biome.

One of the things I want to do is do something related to sun exposure because the interesting thing about sun exposure is that when you get exposed to UV radiation and you come out of the sun, for the next almost 24 hours, you still have UV radiation on your skin and it's still driving dysfunction in the skin.

Michael Roesselin:

Wow.

Kiran Krishnan:

Right? Yeah. Your skin absorbs it and it remains in there creating free radicals. And you can measure this for the next 12 to 24 hours depending on the individual. And so being able to dramatically reduce the formation of free radicals from the UV radiation that continues to be present once you even get out of the sun is a really interesting area for me because that's really where a lot of the damage occurs. Yes, we know when we're under direct sun, we're getting damage from the skin, but keep in mind, burns, sunburns, don't occur immediately.

So if you go in the sun and you're in the sun for too long, you come out, you might be able to tell that it's red and sensitive, but you don't actually feel the sunburn until 8, 10, 12 hours later and the skin is actually burning further through that period. So one of the things that you can do to actually reduce the negative impact of the sun, I do this with my kids for example, is when they come out of the sun, I actually put a cool cloth or towel on them a few times, just to cool the skin down, reduce that irradiation that's happening on the skin. So I want to create something that reduces that free-radical damage that's ongoing once you even leave the sun. So it's like a post-sun recovery.

Michael Roesselin:

That's pretty cool. I've never seen a product like that, so I would be definitely interested. I get more sun now than I used to for more of the year. "Would you need to get off anti-acne skin products/meds and Accutane before using..." I'm not a doctor and can't give medical advice, but personally I would strongly consider getting off Accutane regardless of what you're going to do with any sort of serum. But we've just had a lot of people in our community have some really nasty side effects from Accutane. But is there interactions or problems there?

Kiran Krishnan:

No, you can absolutely stay on them. There's no issue there.

Michael Roesselin:

"I've been using SIV for a week. I really shake it up, but there seems to be blobs when you look at the bottom of the container, like maybe the probiotics aren't integrating into the squalene," is that the right word, "or something? Is that normal?"

Kiran Krishnan:

Yeah, it happens in a percentage of tubes. It doesn't happen in all of them, but in a percentage of tubes they do settle in and in part it may be how you store it. If you store it straight up and down in your region, and depending on the moisture and things like that in the region, it can drive it a little bit more. So in that case, maybe store it on its side if you can. But shake it up as much as you can. Even if you see the darkening sediment on the bottom, you're still getting lots of microbes when the serum comes out. So it's still fine. It's still working the way it's supposed to.

But, if you can, continue to shake it up as much as you can with the cap on, of course, and then store it on its side, if that happens a lot for you. I've probably had nine tubes myself, and I think I've seen it on one of mine, and we've heard it from some people that it does happen in some tubes, but I think there's a geographic component to it as well.

Michael Roesselin:

Oh, okay. Interesting. There's a few questions about the hair and the scalp and, "What is alopecia?" I saw you on a different webinar or a different thing, and you talked about the hair or hair growth or something. I was reading through questions for part of when you were talking about the dandruff, so I don't know if you mentioned application, maybe mixing it with... I didn't-

Kiran Krishnan:

No. So talking about addressing hair. I wouldn't guess that it would have much impact on regular androgen-based male-pattern baldness.

Michael Roesselin:

Hair loss.

Kiran Krishnan:

Yeah, regular hair loss. But if it's alopecia areata, which is an autoimmune type of response, we have seen really positive responses. We've had half a dozen or more cases of people using it over the last 8, 10 months for alopecia areata in particular, and it does seem to help dramatically. We have some before and afters. We didn't put it in this particular deck, but we have some before and afters on those that are actually quite compelling. So if you have alopecia areata, I would absolutely use it right on there.

Michael Roesselin:

Yeah, email us. We might be able to get those pictures for you.

Kiran Krishnan:

Yeah. Regular male-pattern baldness, I don't think it would impact that.

Michael Roesselin:

Yeah, okay. Oh yeah, we had some questions. Hold on. We had an issue with our website this week when we were trying to make a coupon for you guys. We wanted to, whenever we do something like this, give you guys a deal for coming on the webinar. So we put all the products on this page right there that I just put in the chat. Those are all probiotics and the SIV and the SIV bundle with the Serene Skin and everything is marked down 10%. Our website broke and we couldn't make a coupon and it was causing some sort of catastrophic tech error when we tried to create a coupon.

So Marianne, about five minutes before this started, did a rush job and changed the prices on all of those products. So you don't need a coupon, you can just go there and everything is 10% off. So if you're interested in trying SIV or the bundle with Serene Skin, which is the probiotic, or any of the probiotics that are in our shop, everything is right there in that link. Everyone give a high five to Marianne. That was very fast and good. I had some questions on that so I wanted to... I always forget that. It's so funny, so many webinars the thing is like, "Get them to the pitch and then pitch them the things," and half the time I forget to even post the link to the products that we're talking about.

Kiran Krishnan:

Perfect.

Michael Roesselin:

I'm not a very good salesperson. "I just started using SIV. Is it possible that a skin might get worse before it gets better or have some sort of reaction to a new thing?"

Kiran Krishnan:

Yeah, we've seen that in a very small percentage of people. In fact, someone had very recently just texted me about it. There's this concept on the skin called purging and some people will undergo, and it's similar to kind of the Hertzheimer reaction that people get in the gut, a die-off response, if you will. So we found one of the people I was working with who has acne on the skin, and she's a mom of three, she put it on the first two days, it looked to her like she had more redness and more acne, and she was like, "Oh no, what's happening? Is my skin rejecting this?"

And I said, "No. You could stick with it and if it's hormonal acne, then maybe there's a cycle issue going on, but if it's not, then just stick with it for a couple more days and see what happens." And then, sure enough, by the fourth or fifth day, it all dramatically reduced and now she's super happy and I think she just ordered a couple more for it. So there is a small percentage of people that may go through a purge like that, but it normally should last no more than a couple of days.

Michael Roesselin:

Okay. We did have a couple-

Kiran Krishnan:

Sorry, I want to make sure that people understand. It shouldn't cause irritation on the skin. It shouldn't cause like, "Oh, it's itchy," so if that's the case, then maybe there's some component of it that your skin is sensitive to and it's irritating the skin. The purge would be where it looks like more redness or more tiny little lesions that show up and then it goes away after a couple of days and then your skin will look actually even better than it started.

Michael Roesselin:

Okay, that makes sense. I have a couple questions about Serene Skin, which is the probiotic that you've formulated with Microbiome Labs. "There's a lot of vitamin K in it. Why?" And then the second question is, we've talked a ton about how changing the biome and the environment on the skin on the outside affects the whole health of the skin, but obviously taking the probiotic, the Serene Skin with the vitamin K and the spores doesn't work in that manner. So why the specific spore strains that are in that with the K and why is the K there?

Kiran Krishnan:

Yeah. Serene Skin was developed predominantly for acne. That was the two main trials we did. And the K is there to reduce the hyperpigmentation that may occur for some people when the lesion goes away. Some people who have a high propensity for hyperpigmentation, if they have a lot of acne lesions and then the lesions go away, they're left with dark spots. And so we have some empirical data showing that vitamin K can dramatically reduce hyperpigmentation at higher doses and over, I think like a 12-week period. And so we put the vitamin K in there for those individuals that would hyper-pigment on the skin as their lesions go away.

Why those specific strains? The main thing is that, A, we wanted to stop inflammation, leaky gut. That's why the subtilis, indicus, coagulants and clausii are there. But number two, we wanted to increase carotenoids in

the skin. That's through the indicus. And then we wanted to increase the production of short-chain fatty acids, and that's the other spores that are in the formulation.

Because we wanted to get more acetate to areas like the skin on the face, because acetate has an anti-inflammatory effect peripheral to the gut, so in all other areas away from the gut. We wanted to increase acetate production as well, so we're basically providing tools to the bottom layers of the skin that are really good for the overall skin functionality. And it pairs really well if you have inflammatory conditions on the skin and especially severe acne or any of that, that combination of Serene Skin, which works quite well.

Michael Roesselin:

Yeah, we've got it in a bundle on that link and everything is manually 10 percented. Judith is going to contact us. She wants to do before and afters for your study as over 80. So you'll now have your first one.

Kiran Krishnan:

Awesome.

Michael Roesselin:

Somebody asked, and it was a good question, and I got to go pretty soon. I know we're over. I know Kiran will just answer questions for infinity, but I'm not going to take advantage of that. Where is it? It was something like you talked in the part one that people have different makeups of their skin, and you talked about this a little in part one, but the ingredients in SIV, how is it that different skin types and different types of people... I don't don't know how to say what they're trying to ask.

Kiran Krishnan:

You're saying the forum said that?

Michael Roesselin:

Yeah, yeah, yeah, yeah, yeah.

Kiran Krishnan:

So this applies to an individual and then also inter individuals or intra individuals. So even for you, a given individual, you've got different microbes on your face than you do, let's say, on your legs or your arms, and yet SIV can improve your skin microbiome on both regions. So then the question is always, well, how does it do that even though they're different microbes in these different regions?" It does that because of the quorum sensing aspect that we talked about last time. Quorum sensing is the ability of microbes to read other microbial signatures, chemical signatures, and then they can communicate with other resident microbes with molecules that can help the resident microbes. They can use the space that they garner to recruit the immune system to that area to defend against opportunistic growth and so on. And some of the spores can produce antimicrobials, antivirals and all that themselves.

And so they have a number of mechanisms to adjust what the microbiome looks like on different parts of the body. Now, how would they have that knowledge? Well, we've been interacting with spores on our skin since the dawn of man. These are ubiquitous in the environment, and so it's very normal to get dust and things like that settling on your skin, which contains a lot of bacillus endospores. The differences between individuals on the skin are actually less than you see the differences between individuals in the gut.

Michael and I could have less than 50% similarity in terms of types of species that we have in our gut microbiome, but our skin is probably going to be much closer together because the diversity of the skin microbiome is just not as high as it is on the gut. And certain geographic regions of the skin typically host very similar microbes. A lot of that is because most of us will pick up our skin microbes from our environment. And even though we were all born of a unique mother and got a unique inoculum from mom, later on through most of your life, you're interacting with the outside. And most of us have interacted with a very similar outside so we get very similar microbe exposure on the skin.

Michael Roesselin:

Okay. I'll do one or two more. Yes, the transcript will be available, but not tomorrow. It takes some time. So the recording will go out tomorrow morning, but the transcript will probably be on whatever day is the day after tomorrow. And I honestly don't know what day it is, so I can't tell you what that is. I'm at that point. I have some questions about hypochlorous, which is HOCL used for cleaning, and it's used for wound care and sanitation and all of that. We actually use it in our house. I have a generator for it, and I have a bottle on a counter and I use it to clean stuff. And then structured hydrogen water, which I also drink hydrogen water. I don't know if you know about either of those things, but there's a bunch of questions about them so I'm just throwing it out there. And related to the skin.

Kiran Krishnan:

Yeah. If it's an antimicrobial, it's an antimicrobial, it's probably going to kill microbes on the skin so you do want to be careful of that. You don't want to kill too many microbes on the skin because it can turn around and become more dysfunctional after the antimicrobial is gone and these microbes regrow. So just in general with the skin, what you want to do is just as much as you can reduce the exposure to things that are true antimicrobials, whether it's in your personal care products or overuse of hand sanitizers and things like that. With the hydrogen water, I mean, I think obviously most people drink the hydrogen water. No one's really bathing in it. It's probably too expensive for that, but if you did, I don't know if that would benefit or harm the skin microbiome. It doesn't seem like it would do anything negative to the skin microbiome.

Michael Roesselin:

Okay. And I know there's more questions. I have a couple more in the email, but I have to go, it's been 80 minutes. I think what's going to happen is that we're going to have to periodically do skin webinars because there's so much. I honestly, Mira joked about it after our last webinar when there was like 250 people on in the middle of the day during the week, and we got a zillion questions, and then our audience bought all the SIV that existed, and you guys went in back order and we couldn't get anymore. I was kind of stunned by that because we've never done anything specifically on the skin before.

I had no idea what a much-wanted topic, and Mira said that I vastly underestimated the interest in skin from middle-aged women who make up most of our audience, and I'm out of touch and I don't know anything about my audience. And I was like, "Oh, I guess that's the evidence." But there's been so much interest in not just the SIV serum, which is great, and we're excited to be retailing it, but this topic of skin biome and leaky skin and skin aging. And I guess maybe this is just me being a dude, that I had no idea that it was such an immensely lightning rod topic.

And so we have tons of questions and tons of interest. So I'm looking into when I get back, because right now life is chaos while we're traveling, but when I get back, we're going to start trying to create some more skin-related content. There's more questions, and these questions are popping up faster than we're answering them so I think we just need to do occasional skin webinars. And you just switched from being the gut microbiome guy to the skin guy.

Kiran Krishnan:

Totally.

Michael Roesselin:

So now you're the skin guy, and I'll reach out. We'll give you a little bit longer break than from two weeks or whatever the last one was till now. But I think we just need to do these occasional skin discussions because there's so much interest here and there's so many different aspects of it that can be talked about and questions that can be asked about, and so many different conditions and so many different factors. It seems like an infinite rabbit hole of the topic, almost as much as the gut, which makes sense because it's the second-largest surface area that there is.

Kiran Krishnan:

And the research is coming out hot and fast, which is great. The skin microbiome was slower to start in terms of the studies that were initiated, but the research is now really hot, and people, like you said, are really, really in tune with what's happening with the skin microbiome and skin health in general. Skin health has a dual effect because it has a cosmetic benefit because we all want to look nice. We all want to look more youthful and so on. But then at the same time, it has a health benefit as well, if you do it the right way, of course. So yeah, I'm very excited to migrate from being the gut microbiome, the skin microbiome guy. I'm just going to migrate from biome to biome.

Michael Roesselin:

Yeah. And do you know Dr. Mark Burhenne? He's a dentist. He's askthedentist on Instagram. If you don't, I would highly recommend checking him out. He produces excellent, excellent functional dentistry content, and he just is releasing, I interviewed him for the Beyond Functional Medicine series that nobody here knows about yet, but will be airing in March that I'm hosting for Health Means. He just is releasing a mouth microbiome-focused toothpaste.

Kiran Krishnan:

Oh, awesome. Good. We need that badly.

Michael Roesselin:

I should probably put you in touch with him, or I'll send you a link. He sent me a link today to the product. It launches on December 15th.

Kiran Krishnan:

Oh, fantastic.

Michael Roesselin:

Yeah, yeah, yeah. And he works with the people at, is it Bristle?

Kiran Krishnan:

Bristle, yeah.

Michael Roesselin:

[inaudible 01:24:13] mouth biome testing, and he said that's really good. His name's Mark Burhenne. He's askthedentist on Instagram, if you're on Instagram. He produces excellent content. Took me two years to track him down to get an interview, and we're recording it tomorrow so I'm pretty excited. He lives around here. He's in Santa Rosa, I think.

Kiran Krishnan:

Cool. I love that oral microbiome. It's a huge-

Michael Roesselin:

Yeah, yeah, yeah. I want to get more mouth. My goals for 2024 are to get more skin focus on the site, more mouth focus, oral focus because there's so much there that's been ignored for a long time that contributes to tons of systemic... There's autoimmune links, heart disease links, all kinds of things to gum health and oral microbiome. And then I've gone down the rabbit hole of the whole circadian and light and quantum and all of that aspect.

And I interviewed another awesome person for that event, named Carrie Bennett, who teaches that stuff. And so we want to get the whole light circadian health things, which are cool because they're free. It's doing stuff with light and circadian and charging things in the body. And it's cool because on the quorum sensing level of weird, and I dig that. So, Kathy, the sale's only for two days so jump on that link. Hi, Narmina, I will go. Have a wonderful evening. Thanks, Judy. Thanks, everyone. Thanks, Kiran.

Kiran Krishnan:

Thank you, everybody.

Michael Roesselin:

This was awesome. We will do a new year, new skin chat fairly soon. You're now the skin guy. So thanks, Kiran.

Kiran Krishnan:

Parts of it. Thank you, everyone. Bye-bye.

Michael Roesselin:

Bye, everyone.