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## **Common GI Problems & Solutions:**

### **Repairing the Skin Microbiome - SIV Serum (BONUS)**

#### **Video Transcript:**

I do want to touch on leaky skin and chronic disease. And the reason I want to touch on that is because we've talked about the microbiome, the entire GI tract, immune system and all that. And the reason for modulating all those and understanding all those is to reduce the risk of chronic conditions, because dysfunction in every part of the GI tract can lead to chronic condition issues. We're now coming to understand that dysbiosis on the skin can also lead to this issue of leaky skin, like leaky gut. And leaky skin is an independent risk factor for chronic disease. So aged leaky skin, so aged skin is a skin that has lost its barrier function, and aging of the skin occurs as a result of dysbiosis on the microbial ecosystem on the skin. So the microbiome of the skin becomes dysbiotic. The skin then starts to age and dismantle and lose its youthfulness and its barrier function. And then that leads to leakiness in the skin and leakiness in the skin can lead to chronic low grade inflammation and thereby becoming a risk for chronic disease.

So these are all the things that are major disruptors to skin microbiome; age, gender, of course, environmental pollutants or climates, the use of cosmetics, over sterilization, using antimicrobial soaps and so on. Hormones have an effect. Diet has an effect. Diets that are high in inflammatory foods seem to have an effect on the skin microbiome as well. Dysfunctional immune issues like loss of oral tolerance, lifestyle

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issues, not sleeping right, too much stress, all of the things we've talked about and dysfunctional gut health, all of those things can lead to the disruption of the skin microbiome, which then leads to a dismantling of the structure of the skin. And then the skin loses its barrier function and becomes leaky.

So these are the tenants of leaky skin. You've got the microbial community that's sitting on the host cell, and then the host cell is constantly communicating with the immune system that is circulating around. Now, the microbial community, if it becomes altered, can create toxins that damage the host cell. That host cell then recruits the immune cells to that area of the skin. And when the immune cells come to that area, they're going to bombard that area with inflammation like the innate immune system always does. And when it does that, it's damaging the host cell as well. This is how you can end up with patches and ulcers and lesions and all that from autoimmune skin conditions. It's your immune system coming in and damaging all of those areas. You can also get inflammatory skin conditions like acne as a result of it.

So the microbial community is working with the host cell that's working with the immune system. And then the microbial community also has a direct link to the immune system, thereby recruiting the immune system even when the host cell is not damaged. And if it recruits the immune system enough, it can create enough of an inflammatory response that it starts to break down the collagen fibers, the elastin fibers. It can start to break down the ceramide layer so your skin becomes dry. Lots of fine lines and wrinkles, hyperpigmentation because the melanocytes are overly active and becoming senescent. So those are all conditions that lead to leakiness in the skin and thereby a big issue with chronic disease.

There was a scientific revelation called a Baltimore Longitudinal Study of Aging. This is one of the first studies that looked at aging from a longitudinal perspective. What that means is that they took individuals 50 years ago who were in their youth, in their prime. They were in their late 20s to low 30s and then they followed each individual on their own for the next 50 plus years to collate the decisions, the experiences, all of those things that the individual was exposed to, and then the development of chronic

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disease and the pathways or the pathologies of understanding the cause of these chronic diseases in this aging population. And so one of the things that they came to conclusion of is that weathered or unhealthy skin is emerging as a major risk factor for almost every single age-related disease from Parkinson's to type 2 diabetes. You would never think that your skin is an independent risk factor for type 2 diabetes or cardiovascular disease or neurodegenerative conditions like Parkinson's and dementia and so on. But as it turns out, it is because weathered and unhealthy skin loses its barrier function, becoming leaky skin.

So as it turns out, our skin is one of the best predictors of the development of bone density issues, neurodegenerative issues and cardiovascular issues. So all aging-related conditions that are being driven by a dysbiotic skin microbiome that is now dismantling the physical structures of the skin. To us, it looks like age spots, fine lines, wrinkles, dryness, thinning of the skin and so on. But what's actually happening is the barrier function of the skin is dismantling. Things are leaking through the skin, including bacterial toxins, making its way into circulation and creating this chronic low-grade inflammation. So keeping in mind the health of the skin and the health of the skin microbiome is also critically important. Aged skin drives chronic disease. None of us want aged skin, we don't like how it looks, but know that aged skin is an independent risk factor for chronic disease as well.

So just to give you an illustration of how dysbiosis on the skin can lead to all of these conditions, you will be able to see here, for example, when your skin is dysbiotic, you get pathogen overgrowth. Those pathogens like Staph aureus produce a lot of toxins on the surface of the skin. That recruits the immune system to that area, and it causes the immune system to react in an inflammatory manner to those toxins. This leads to individuals having red, sensitive or irritated skin because the immune system is damaging that part of the skin. You've got dysbiosis on your skin microbiome, which means you don't have enough microbes producing protease enzymes, which means that the top layer, the stratum corneum, the top most layer of dead cells on your skin isn't getting broken down and recycled and removed. And so your skin tends to look

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dull and thin because you've got a layer of dead skin that's not being rejuvenated and removed.

Ceramides, the lipid barrier that maintains moisture in the skin and keeps toxins from running through the skin, those ceramide structures can get broken down if you have the wrong microbes eliciting an immunological response on the skin. So then you can get dry and irritated skin from that. And then finally, fungal and yeast overgrowth, which is a reduction in collagen, which can lead to a reduction in collagen and elastin fibers. So then you can have a thin skin with wrinkles and fine lines and so on. And a lot of that is because of the yeast and fungal overgrowth, because there are missing microbes that break down fatty acids or oils from your skin to release fatty acids to reduce the pH of the skin. So we have to keep the skin in mind. I cannot emphasize this enough.

And then finally, it makes the skin more susceptible to damage from things like UV radiation and so on. So that leads to senescence, which is the formation of zombie cells and the formation of hyperpigments and so on. So this is a big problem. We use the [spore-based biome balancing serum](#). We've got tons of case studies and research on this showing that using the spores on the surface of the skin in this serum format can rebalance the skin microbiome and reverse some of those age-related things that we see, the fine lines, wrinkles, hyperpigmentation, and so on. So this is something that can be very, very beneficial for a lot of people in terms of balancing the skin microbiome.