We drink kombucha and sleep in probiotic-infused face masks because it’s “healthy” for our gut and skin, but what does “good bacteria” really mean? We investigate.

by BRITTANY BURHOP FALLON
Beauty begins in the belly," is not only the motto of Aussie brand The Beauty Chef, but also a phrase becoming more and more popular with dermatologists looking to help patients with complex skin issues. The reason: "More than 59 trillion bacteria live in and on our bodies, and the majority of them are in the gut," says gastroenterologist Will Bulsiewicz, MD. "Only 15 years ago, we knew very little about the gut microbiome—the community of microorganisms inside our digestive tract—but a new laboratory technique in 2006 completely opened it up to us for study. What we’ve learned since is that our gut microbes aren’t just along for the ride; thriving off the food we eat, they’re central to our health, and we can’t live without them.”

Not only do they boost our immune system, but Dr. Richard Firshein, integrative medicine expert and founder of Firshein Center, says these microorganisms (predominantly bacteria, aka flora) also have great control over our metabolism and hormones, and even our mood. "Our brains are constantly communicating with our ‘second brain’ in our digestive tracts," he explains. "These are eating probiotic-rich foods, that doesn’t mean we should seek food, while messages from the brain may trigger ‘gut feelings’ in response to stress.”

**PROBIOTIC FIX**

To keep the good bacteria thriving and the bad bacteria at bay, we rely on a healthy diet and probiotics. "The word ‘probiotic’ means ‘for life, ‘” says New York dermatologist Dan Gallo, MD. "It’s just a phrase be-brewed in the States and means probiotics, benefits the gut, and is a phrase popular with dermatologists looking to help patients with complex skin issues. The reason: "More than 59 trillion bacteria live in and on our bodies, and the majority of them are in the gut," says gastroenterologist Will Bulsiewicz, MD. "Only 15 years ago, we knew very little about the gut microbiome—the community of microorganisms inside our digestive tract—but a new laboratory technique in 2006 completely opened it up to us for study. What we’ve learned since is that our gut microbes aren’t just along for the ride; thriving off the food we eat, they’re central to our health, and we can’t live without them.”

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**BACTERIA BASICS**

**GUT HEALTH**

**PREBIOTICS**

Dr. Bulsiewicz says that his patients to think of the gut as a garden; "Prebiotics are the fertilizer, and are almost exclusively found in food—predominantly plant fiber. They are the part of our food that has an effect on our microbiome. Benefiber is actually a prebiotic, and I like to mix it into my morning coffee—it doesn’t change the taste or texture, and improves gut health.” Other prebiotic foods include garlic, asparagus and dandelion greens.

These are living organisms in foods and supplements that help maintain good bacteria in the gut for a healthy, balanced microbiome. “Prebiotics act as the seeds in our gut garden,” says Dr. Bulsiewicz. “You can’t grow a seed without watering it and nurturing it with the right nutrients—in this case, prebiotics. When the two come together, there’s synergy that creates postbiotics, like short-chain fatty acids.”

Postbiotics are the byproducts created when probiotics and prebiotics combine. But, "you can’t just take a postbiotic supplement like Benefiber because it would get absorbed in the small intestine and never make it to the colon, where it needs to be to work," says Dr. Bulsiewicz. "The best way to get postbiotics is by eating a diversity of prebiotic-rich plants.”

**POSTBIOTICS**

In skin-care products, prebiotics are either live bacteria, bacteria that has been deactivated (killed), which is called a lysate. "Probiotics are types of ‘food’ that bacteria on the surface of the skin can use to do their job,” says Jeff Rosevar, founding scientist and head of product development for SKIN111, a prebiotic skin-care line. “For example, the microbiome produces fatty acids, which are then used by the skin to maintain barrier health. Emerging science suggests that by giving the right food to the right bacteria, one can support the overall microbiome.”

What they are

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HEALTH

**PREBIOTICS**

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In skin-care products, prebiotics are either live bacteria, bacteria that has been deactivated (killed), which is called a lysate, or the product of a bacteria, called a “ferment.” “Live bacteria are very challenging to formulate with in cosmetics, so it’s more common to use lysates and ferment, and there is scientific support to show that they both offer benefits to the skin,” says Rosevar.

These are the metabolites, or byproducts of living organisms: “the enymes, organic acids, polyacids, peptides, etc. that further enhance [the healthy barrier],” says Dr. Bow. According to the FDA, 90 percent of cosmetic products that have “probiotic” labels actually contain postbiotics, but are marketed “probioe,” similarly to the way “natural” and “organic” have been overused in skin care.

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SKIN CARE

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It is scientifically established that gut health has a strong impact on skin health. If the good and bad bacteria aren’t balanced in your gut, then conditions can result,” says gastroenterologist and founder of TULA Skincare, Roshini Rajapaksa, MD. “I was inspired to research the topical benefits of probiotics after noticing how much better my patients’ skin looked once their health had improved with oral probiotic treatments.”

What Dr. Rajapaksa learned is that our skin has its own microbiome, which acts as its first layer of defense from climate changes, pollution, sweat and other assaults. “The skin microbiome is amazing, adaptive and resilient when it’s healthy, but fragile when it’s not,” says Rosevear. “Everyone has a unique skin microbiome because it is the result of everything an individual’s skin has been exposed to over the course of their lifetime.”

Dr. Bowe explores this further in her book, The Beauty of Dirty Skin: “We know about ‘leaky gut,’ but there’s also ‘leaky skin,’ which is the compromise of our skin’s natural barrier due to an unbalanced skin microbiome,” she says. “Our obsession with antibacterial soaps and high-pH cleansers often strip our skin of its healthy bacteria, which is a major contributor to unbalanced skin.”

In 2016, the FDA banned the use of triclosan in antibacterial cleansers often strip our skin of its healthy bacteria, which is a major contributor to unbalanced skin. “For example, certain preservatives at low concentrations can kill live bacteria, which is why it is difficult to formulate skin-care products with them,” she says. “However, this science is very new, and experts are just learning how each ingredient affects the microbiome. For example, certain preservatives at low concentrations might only create a very transient dip in certain strains, and people with healthy skin might be able to recover within minutes or hours of exposure,” Dr. Bowe explains. “These are all questions companies are researching right now—Dove is conducting tests to ensure its cleansers don’t induce negative changes in our microbiome over time. Mother Dirt is using a live, ‘peacekeeper’ strain of bacteria to restore essential bacteria that have been removed by modern hygiene. It’s not enough to be clean these days, brands also want to be ‘biome-friendly.’”

**BEAUTY BIOME**

Hence, the surge in probiotic and prebiotic products, which have anti-inflammatory effects on the skin effects on the scalp are also being studied. This makes them a great option for those with acne, rosacea, psoriasis, dry skin and/or eczema—“when used topically, [aciclovir strain of] phadnathus has been proven to decrease the number and size of acne lesions, as well as redness, and may also help with rosacea flares,” Dr. Bowe says. But, it’s important to know that topical probiotics aren’t a magic bullet for eliminating inflammatory conditions. “The challenge with this category of skin care is that many consumers are focused on immediate results,” says Rosevear. “They need to shift their mindset to think about the long-term benefits of an anti-inflammatory regimen.”

Some interesting tools are also emerging that may allow probiotic and prebiotic skin-care products to become more personalized and effective. “A handful of companies are researching the ability to test an individual’s gut and skin flora,” says Dr. Bowe, comparing the technology to that of genetic testing companies like 23andMe. “For example, ProdermIQ can analyze the bacteria that exist on your skin after a single swab. The hope is to use this data to develop customized, efficacious skin-care lines.”

**COLD FACTS**

Will products that contain probiotics “die” if they aren’t refrigerated? Rosevear explains that probiotics can kill live bacteria, which is why it is difficult to formulate skin-care products with them. “However, with mini skin-care refrigerators becoming deskside staples, this could soon change.” To circumvent this issue, Dr. Rajapaksa says many companies, including her own TULA Skincare, have found a way to ‘extract the beneficial metabolites—postbiotics—from probiotic bacteria, isolating the specific actives that are effective on the skin. This ensures our products remain both shelf-stable and effective without the need to refrigerate,” she says.