

# *CULTURE*



# *CLUB*

They fight disease! They clear up skin! They might even make you happier! A lot has been promised about probiotics, but how much do we know about these tiny bugs? By Ramona Emerson



MELLISSA FISHER



Drink up: Unpasteurized kombucha is loaded with probiotics.

**They say you should listen to your gut, but the truth is that you don't have much of a choice.** There are ten times more bacterial cells in our body than human cells—and the vast majority live in our gastrointestinal tract.

When they're in our bodies, we call them bacteria; when they're in a pill, they're probiotics. And they're everywhere. Yogurt boasts probiotic counts; gas stations sell kombucha; Whole Foods has an entire department

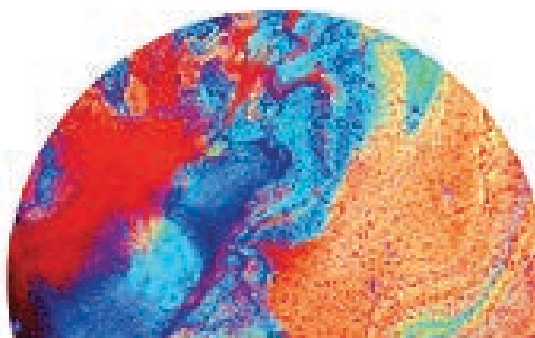
devoted to replenishing your good bacteria. They've even found their way into skin care. According to doctors, these benevolent bacteria are critical to our health. They make vitamins, produce enzymes that help with digestion, and help protect against the bad bacteria that can cause infection. Other claims—that they help with weight loss, prevent allergies, and make us happier (it's a real claim!)—are not yet proven.

Welcome to what is known as your microbiota. No matter how healthy you are, if you live in a clean society, you probably have a less diverse one, according to Lisa Ganjhu, a gastroenterologist at New York University Langone Medical Center. Ingesting probiotics may be one way to help restore our microbiota to its natural state, or what might have been its natural state before desk jobs and “Yes, bacteria can cause disease, but the more important recognize that they are in large measure responsible for,” says Lawrence J. Brandt, a gastroenterologist and former head of the department of gastroenterology at Montefiore Health System in New York City. With a little expert guidance, your trillions of bacterial tenants will be on your way to health faster than you can spell *Lactobacillus acidophilus*.

## KOM-WHAT-CHA?

Kombucha may be trendy, but it's hardly new. In fact, the fermented tea has been touted as a health elixir dating back to ancient China. That stuff you see floating in it is material built by the bacteria and yeast (sort of like their living quarters). They eat the sugar, caffeine, and tannic acid in the tea, creating a vinegary, lightly effervescent probiotic cocktail. Devotees say it's a cure for everything from tummy aches to aging, but to date, there haven't been any scientific studies on the beneficial effects of kombucha in humans. It's low in calories—about 60 per bottle—and a lot more enjoyable for your coworkers than a bowl of kimchi. Just make sure to get one, like GT's Kombucha, that is marked

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# Doctor's Orders

To those of us without a postgraduate degree in gastrointestinal anatomy, the probiotic aisle is a pretty daunting place—there are as many bottles of unpronounceable supplements as there are bacteria. The strength of a probiotic supplement is measured in the number of colony-forming units (CFUs) it contains. A supplement might have anywhere from 1 to 450 billion CFUs per serving, but a typical dose for people who have mild digestive issues is 30 to 100 billion per day, says Vincent Pedre, a physician in New York City and the author of *Happy Gut* (HarperCollins). Don't worry about keeping your supplements cold: "Many are freeze-dried, so they're pretty stable at room temperature," says Ganjhu. But in general, probiotics that come in capsules are more likely to make it through your stomach acid alive than a loose powder is. A few to look for:

**Metagenics UltraFlora Restore:** A mix of *Lactobacillus* and *Bifidobacterium* strains, it's the go-to after antibiotics, Pedre says.

**Align:** "It has *Bifidobacterium infantis*, which is native to the GI tract," Ganjhu says. It may help irritable bowel syndrome (IBS).

**Culturelle:** *Lactobacillus rhamnosus* GG (LGG) can reduce bloating and the symptoms of IBS for some people, says Brandt, who has recommended LGG-rich Culturelle to his patients.

**VSL#3:** A bacterial powerhouse, VSL#3 packs 225 billion CFUs per serving and is recommended for some people with Crohn's disease or recurrent yeast infections.



The number of bacterial cells present for every human cell in your body

## A Bug's Life

There are gazillions of bacterial species living in our intestines. Some are good, a few are bad, and most are...well, we have no idea what most of them are.

**Good bugs:** These are the bacteria that keep our bodies healthy by improving digestion, fighting infection, and possibly making us happier—they're called probiotics. They usually have long Latin names, like *Lactobacillus rhamnosus*. And they tend to come from four genres: *Lactobacillus*, *Bifidobacterium*, *Bacillus*, and *Streptococcus*. The reason that last one sounds suspiciously similar to the thing that causes strep throat is they are one and the same. Within each genus are species that include several strains, which can each have different effects on the body. While one species of *Strep* keeps you home sick, another could improve acne.

**Bad bugs:** There are strains of *E. coli*, *Salmonella*, *Staphylococcus aureus*, and *Yersinia pestis* (which causes bubonic plague), for example, that you do not want to come in contact with. Some are relatively common: There are about a million cases of salmonella infection in the U.S. every year. And some are not: There are an average of seven cases of bubonic plague annually.

## (VERY) ACTIVE INGREDIENTS

It was only a matter of time before creepy-crawlies (to be fair, really, really small ones) wiggled their way into face creams. Clinique, Burt's Bees, Chantecaille, Aurelia, and Éminence have all created skin-care products with probiotics. While most of the research has been done in petri dishes, "some very promising human studies have shown that this class of ingredients can be beneficial to skin," says Whitney Bowe, a dermatologist in New York City. According to experts, probiotics seem to improve chronic inflammatory skin diseases, like acne, rosacea, and eczema. The theory is that probiotics dial down cytokines, cellular signaling molecules, that get overexcited in people with these conditions. Probiotics may also be helpful in—ding! ding! ding!—warding off signs of aging. As we get older, the pH of our skin becomes more basic, triggering enzymes that break down collagen and elastin. Many probiotics can lower the skin's pH and turn off some of those collagen-degrading enzymes, says Bowe, who recommends both topical and oral probiotics to patients. You probably already have some in your refrigerator. "I use a Greek-yogurt mask once a week for about ten minutes," says Bowe. "We know that bacteria on the skin have an effect, but we do not know which bacteria are good and which are bad," says Leslie Baumann, a dermatologist in Miami. It's a promising area, but for now, experts are undecided.



Probiotics have made their way into skin care. From left: Elizabeth Arden Superstart Skin Renewal Booster, Tula Revitalizing Eye Cream, Nude Miracle Mask, and Clinique Redness Solutions Daily Relief Cream.

FROM LEFT: MELLISSA FISHER; DAVID STESNER (4)

# The Food Network

Because the science on probiotics is new, there are no clear guidelines about how much to eat, but we do know you need to be patient. It usually takes at least two weeks to start feeling a difference, says Ganjhu.

**Fermented food.** Certain types of fermentation use bacteria to convert sugar to acid. (Other types of fermentation include mold and yeast and don't give you the same health benefits.) Foods like sauerkraut, kimchi, raw miso, and pickles are great sources of healthy bacteria—provided the food isn't pasteurized or chemically processed. While most kimchi gets its acidic taste from fermentation, many commercial pickle and sauerkraut makers have ditched the time-consuming process in favor of bacteria-free vinegar pickling. Look for pickled items in the refrigerated section—those are more likely to be fermented, says Alex Lewin, the author of *Real Food Fermentation* (Quarry Books). He also suggests checking the ingredient list. "If it lists vinegar, it's probably not fermented," he says.

**Yogurt.** Live bacteria are added to pasteurized milk to aid the fermentation process that makes yogurt. For those hoping to get a little *Bifidobacterium lactis* action (found in Activia), look for the phrase "active cultures" or "live cultures" on the label and a list of bacteria near the ingredient list. Whether the yogurt is traditional, Greek, or kefir, it contains probiotics, but kefir tends to have the most.

**Prebiotics.** Like all living things, probiotics need to eat, and their favorite foods are certain carbohydrates called prebiotics. Our bodies can't digest these carbohydrates, which are found in oats, wheat, leeks, onions, and bananas, so they pass unaltered through our gastrointestinal tract, where they are gobbled up by hungry bacteria.



## THE FUTURE OF ANTIBACTERIAL CLEANSERS? BACTERIAL CLEANSERS.

Imagine one day swapping out bar soap for a spray that eats sweat. A company called Mother Dirt (owned by the biotechnology company AOBiome) sells a sweat-eating bacterial mist that may have you reaching for your soap and deodorant a lot less often. The spray contains *Nitrosomonas eutropha*, a bacteria that consumes ammonia—the part of sweat that is most irritating to skin—and produces a by-product that reduces the number of odor-causing bacteria. A few employees haven't used soap in years, and customers swear they have better skin and shinier hair now. "People are starting to realize that we've confused cleanliness with sterility," says Jasmina Aganovic, the president of Mother Dirt. A small study conducted by AOBiome found that those who used the spray for two weeks reported more improvement in their skin than the placebo group. "Everyone wants to use a cleanser, scrub, and toner because they want to get every molecule of dirt off their skin, but we really don't have much dirt on our skin," says Bowe. "What you're doing is hurting the natural environment that is there to protect you."