



gut check

Every day, the trillions of bacteria in your belly work hard to regulate your digestion, your immune system, your mood—and maybe even your weight loss.

BY LESLIE GOLDMAN

Turns out, your gut may be good for more than giving you a reality check in stressful situations.

A vast ecosystem of trillions of microbes, known as your gut microbiome, resides inside your belly. A combination of more than 1,000 species and 7,000 bacterial strains, these bacterial cells outnumber the rest of your cells 10 to 1. They're the ultimate multitaskers, playing a role in predigesting food (which makes it easier for your body to absorb nutrients) and ensuring your gastrointestinal system runs smoothly. Plus, they help your immune system fend off foreign invaders like the influenza virus. In fact, about 70 to 80 percent of your immune system lies right there in your belly. And scientists are realizing your gut may have even more influence over your health than they'd thought.

"There's been an explosion in research showing how the bacteria in our gut can influence nutrient absorption, cardiovascular risk, autoimmune disease, and even our mood," says David Rakel, MD, chair of the Department of Family and Community Medicine at the University of New Mexico School of Medicine. By all accounts, these are hard-working bugs—in often surprising ways.

Emerging research pointing to a potential brain-gut connection hints that probiotic foods and supplements rich in the healthy bacteria your body

needs may one day be used to help treat depression. A small 2015 UK study found that healthy volunteers who consumed prebiotics (see "Round it out," p. 28)—high-fiber carbohydrates that serve as fuel for probiotics—had lower levels of the stress hormone cortisol in their saliva than those who weren't taking prebiotics, and their attention to positive versus negative stimuli was similar to that seen in individuals taking antidepressant or anti-anxiety medication.

Your microbiome can also lay the groundwork for weight gain or loss. "People who eat lots of saturated fat tend to have more bacteria called Firmicutes, among others, which are more efficient at absorbing calories from food," Dr. Rakel explains. (Not the kind of efficiency most of us are hoping for.) "When they switch to a Mediterranean diet, with lots of colorful produce, whole grains, beans, and little meat, their level of Firmicutes goes down and their microbiome shifts toward one that is less efficient at storing energy, making it easier to stay lean." Indeed, a 2017 *International Journal of Obesity* study found that the presence of a diverse array of gut bacteria protected against weight gain.

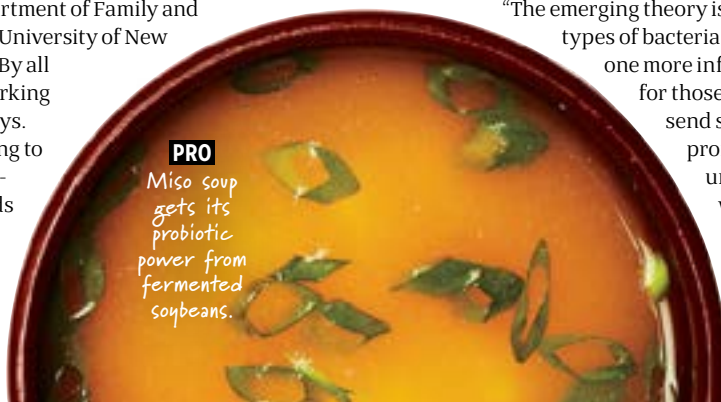
Experts are also beginning to suspect that gut bacteria—specifically, a lack of diversity in the microbiome—could drive junk-food cravings, says Wendy Bazilian, DrPH, RD, a San Diego-based nutritionist and author of *Eat Clean, Stay Lean*.

"The emerging theory is that having only a few types of bacteria in your belly gives each one more influence, making it easier for those bacteria to organize and send signals to the brain that prompt you to eat the unhealthy foods they want," she says.

But when the gut boasts ample bacterial ►

PRO

Miso soup gets its probiotic power from fermented soybeans.





PRE
Artichokes
feed a
flourishing
microbiome.



PRE
Bananas help
fuel a healthy gut.

way into the small and large intestines, where the bacteria live—the gut microbiome itself is surprisingly delicate. Just as an untended backyard garden can swiftly become overgrown with weeds, certain conditions, such as a low-fiber, high-sugar diet, chronic stress, or a course of antibiotics, “might allow harmful bacteria, like salmonella or pseudomonas, yeast, and parasites to flourish and cause damage,” says Susan Blum, MD, MPH, assistant clinical professor of preventive medicine at the Icahn School of Medicine at Mount Sinai in New York, and author of *The Immune System Recovery Plan*.

Your microbiome is established early on, heavily influenced by how you were born and whether you were fed breast milk or formula. (Vaginal delivery allows a mother to pass along her own microbes, mainly lactobacillus, which flourish in the birth canal; breastfeeding transmits bifidobacterium and other healthy bacteria through the milk as well as through contact with the mother’s skin.)

From that point on, your diet becomes the most important factor in shaping and influencing the type and quality of bacteria governing your health, Dr. Rakel says. While researchers don’t yet know enough to be able to say definitively that through eating a lot of this kind of bacteria you’ll lose weight, solve gastrointestinal issues, or resolve other problems, they agree that all-around good gut balance should be a priority for reaping multiple health-related benefits. Here’s how to make your microbiome flourish.

GOOD GUT GUIDELINES

The best way to enhance and diversify your gut-friendly flora is to eat a wide variety of fiber-rich, plant-based foods, along with adding at least one serving daily of natural sources of probiotics such as fermented foods.

Make friends with fermentation

Probiotic standouts include fermented vegetables like kimchi and sauerkraut; kefir (a drinkable cultured dairy beverage) and yogurt; kombucha tea; and

FRIENDLY BACTERIA

Probiotics: Probiotics are living bacteria and other microorganisms that help our bodies function properly. The most common ones belong to groups called lactobacillus and bifidobacterium.

Prebiotics: Prebiotics are naturally occurring food components that fuel the growth of beneficial gut bacteria.

fermented soy products such as miso soup, soy milk, soy sauce, and soy-based meat substitutes like tofu and tempeh. It’s too early to offer a specific prescription, but experts agree that huge portions aren’t necessary to receive the benefits. Dr. Blum says a tablespoon of fermented beets, for instance, used as a condiment on a salad, is all you need to seed your gut with a daily dose of good gut bugs.

Bazilian notes that when buying yogurt and kefir, you should look for the words “live and active cultures” on the label, which ensures you’re getting the bacteria you want. Avoid varieties with more than 10 grams of added sugar per serving—the sweet stuff is a well-known microbiome saboteur—or with artificial sweeteners like aspartame or sucralose. “Just a small amount, the equivalent of a couple of packets, can negatively impact your gut,” Bazilian says.

Round it out Next, feed those probiotics with plenty of prebiotics: Bananas, oats, and whole grains, beans, cruciferous vegetables (cauliflower, broccoli, cabbage, radishes), artichokes, and, as Dr. Rakel cheekily puts it, “foods that make you



PRE
Cruciferous
veggies
like
radishes
keep
probiotics
alive.

smell a little like onion, garlic, and asparagus,” all work synergistically with probiotics to amplify their effects. You needn’t consume prebiotics and probiotics simultaneously, but they can certainly work well together: a banana and kefir smoothie; broccoli, asparagus, and tempeh stir-fry; Brussels sprouts topped with kimchi. Cooking destroys some prebiotics, so enjoy these foods raw whenever possible; when it’s not, light steaming can minimize the loss.

Boost your fiber intake Nearly all prebiotic foods are high in fiber, which helpful bacteria love to feast on. “When gut microbes feed on fiber, they produce short-chain fatty acids,” Dr. Kellman explains. “Those are then absorbed into the bloodstream, where they work to regulate the immune system and reduce inflammation.” Fiber also stimulates the



PRO
Kimchi, made from fermented cabbage, is a probiotic star.

autoimmune problems.

The Academy of Nutrition and Dietetics recommends that women aim for 25 grams of fiber per day; men, 38 grams. (Over age 50? The goals are 21 and 30 grams daily, respectively.)

TRUST YOUR GUT

Finally, try to get your probiotics from food, not supplements, as much as possible. “It’s not just about the bacteria—it’s how the bacteria interact with the foods they’re found in,” Dr. Rakel explains. Bottom line, he says: “If you just eat well, the microbiome will take care of itself.”

The bacteria in your gut may be the only bugs you’ll ever willingly (purposefully!) cultivate. But you’ll be rewarded in the short term with the satisfaction of eating a delicious variety of good-for-you foods, and in the long run, with the many benefits that a healthy microbiome can bring. **E**

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