

Are probiotics all they're cracked up to be?

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Probiotics have been touted as a treatment for everything from diarrhea to mental health disorders, with sales of probiotic supplements expected to exceed \$65 billion globally in 2024.

Plenty of consumers swear by probiotics, but there is little conclusive evidence that unequivocally supports their effectiveness for any particular health issue, and some Tufts experts agree that while ongoing research into probiotics is promising, more large-scale studies are needed before they can strongly recommend them.

Probiotics: What we know

Probiotics are the so-called "good bacteria" that exist naturally in the lining of the intestinal tract, or "gut." Along with trillions of other microorganisms, including fungi and viruses, probiotics help make up the body's microbiome. Having a healthy gut microbiome is important for gastrointestinal health, immune function, and metabolism.

Certain foods, including some yogurts, kefir, and buttermilk, and fermented foods such as kimchi and sauerkraut, contain probiotics. They are also widely available in supplement form.

There is some evidence that probiotics can be useful for certain digestive issues, including lactose intolerance, C.Difficile infections, and a form of irritable bowel syndrome (IBS) called pouchitis. But evidence for many of the other claims is currently scant or nonexistent. When probiotics have the desired outcome, it's not always clear how or why, according to Ben Wolfe, associate professor of biology at the School of Arts and Sciences.

The mysterious microbiome

While most experts agree that adding probiotics to your diet, whether via food or a supplement, isn't harmful, they may or may not work for what ails you.

"Every patient has a different microbiome, so probiotics are going to behave differently in each person," says Sushrut Jangi, a gastroenterologist and assistant professor at Tufts University School of Medicine. "Another key issue is the amount that people take is so small, it's like putting a drop of water into an ocean to change it."

Jangi says he sometimes suggests that patients with digestive issues try probiotics, but with "huge caveats." "I see patients who have things like irritable bowel syndrome where they're having diarrhea or constipation, and I sometimes try a probiotic to see if it will help. If the patient feels better, then we've accomplished our mission. But people have such mixed results that it becomes very difficult to strongly recommend probiotics because everyone responds so differently. And part of it could just be a placebo effect."

To add to the confusion, there are loads of different species of probiotics. Some of the more well-known ones include *Lactobacillus*, *Bifidobacterium*, and *Streptococcus thermophilus*. Among each species are thousands of different strains.

"Every study looks at a slightly different cocktail," says Jennifer Lee, a scientist at the Jean Mayer USDA Human Nutrition Research Center on Aging. "A particular study will say this combination of probiotics are efficacious, while another study may say their strain is more beneficial. That's why, for the lay audience and scientific community, more rigorous studies and clear interpretation of the results are needed to determine the health benefits of certain single or group formulations."

Your sex and age can impact your microbiome, as can your diet.

"Whether or not you took an antibiotic in the last couple of months can have a huge effect," says Wolfe. "What part of the world you live in and overall exposures to different kinds of microbes and microbial communities can have an effect. If you have a known dysfunction of

your immune system or you're immune compromised, or if you have certain genetic disorders, that can also change the composition of your microbiome. It's hard to just throw one pill at lots of people and see it work perfectly for everyone."

What to look for in a probiotic

If you are inclined to try probiotics, there are a few things to consider. For one, taking a supplement is a more reliable strategy than trying to get them in foods.

"You can be a bit more controlled and selective if you're using the pill or supplement form versus if you go to a supermarket and buy sauerkraut or kimchi, because you have no idea what bacteria are in that," says Wolfe. "Consumers are eating these things thinking they're getting some benefit, but they don't even know what they're actually eating besides the raw ingredients."

Furthermore, not all yogurts or foods that claim to be rich in probiotics are. The pasteurization process, often used for [dairy products](#), for example, may kill the organisms. "You want to look for products that have added live bacteria post pasteurization," says Lee. "The amount of probiotics that's in a product is likely the amount that they put into it at the time of production. But the way the product is treated and the shelf life means the food may not have the same amount of bacteria that the label states by the time you eat it."

Then there is the issue of dosage. Colony Forming Units (CFUs) are the measure of viable bacteria or microorganisms in a probiotic supplement. Lee says a general guideline is to look for products with a CFU count that's at least in the millions, if not the billions. Again, this recommendation comes with caveats.

"Just because it lists a high amount does not necessarily mean that it may be more effective," she says. "Depending on the strain, sometimes a lower number is sufficient for efficacy, and one strain is not necessarily better than the others. If you were to, say, have 1 billion CFUs of one strain and then a million of another versus another product that has a billion for each, it may have varying host effects."

Another thing to keep in mind is that probiotic supplements are not regulated by the FDA and may contain unnecessary additives, or companies may claim a probiotic is tailored for a specific ailment or population (e.g., women or children).

Wolfe suggests doing some research to try to find a supplement that has at least some science behind it showing that the strain is actually known to confer health benefits. "What is the published research and how was it done? Try to make sure that it is coming from a company that actually has data testing the viability and purity of the strains. Not all companies do that, and you can usually look up that information on their website."

Ultimately, Wolfe thinks the best way to navigate the perplexing world of probiotics is to talk to your doctor, ideally a gastroenterologist. "Doctors, especially those that work with patients with digestive issues, are becoming much more savvy and informed about all of these different options, and they know from experience working with patients what [probiotics](#) have potentially been helpful for different situations," he says. "Don't try to wade through all of this by yourself."

Provided by Tufts University

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