



## Do Probiotics Really Work?

**Although certain bacteria help treat some gut disorders, they have no known benefits for healthy people.**

Walk into any grocery store, and you will likely find more than a few “probiotic” products brimming with so-called beneficial bacteria that are supposed to treat everything from constipation to obesity to depression. In addition to foods traditionally prepared with live bacterial cultures (such as yogurt and other fermented dairy products), consumers can now purchase probiotic capsules and pills, fruit juices, cereals, sausages, cookies, candy, granola bars and pet food. Indeed, the popularity of probiotics has grown so much in recent years that manufacturers have even added the microorganisms to cosmetics and mattresses.

A closer look at the science underlying microbe-based treatments, however, shows that most of the health claims for probiotics are pure hype. The majority of studies to date have failed to reveal any benefits in individuals who are already healthy. The bacteria seem to help only those people suffering from a few specific intestinal disorders.

“There is no evidence to suggest that people with normal gastrointestinal tracts can benefit from taking probiotics,” says Matthew Ciorba, a gastroenterologist at Washington University in St. Louis. “If you're not in any distress, I would not recommend them.” Emma Allen-Vercoe, a microbiologist at the University of Guelph in Ontario, agrees. For the most part, she says, “the claims that are made are enormously inflated.”

The popular frenzy surrounding probiotics is fueled in large part by surging scientific and public interest in the human microbiome: the overlapping ecosystems of bacteria and other microorganisms found throughout the body. The human gastrointestinal system contains about 39 trillion bacteria, according to the latest estimate, most of which reside in the large intestine. In the past 15 years researchers have established that many of these commensal microbes are essential for health. Collectively, they crowd out harmful microbial invaders, break down fibrous foods into more digestible components and produce vitamins such as K and B12.

The idea that consuming probiotics can boost the ability of already well-functioning native bacteria to promote general health is dubious for a couple of reasons. Manufacturers of probiotics often select specific bacterial strains for their products because they know how to grow them in large numbers, not because they are adapted to the human gut or known to improve health. The particular strains of *Bifidobacterium* or *Lactobacillus* that are typically found in many yogurts and pills may not be the same kind that can survive the highly acidic environment of the human stomach and from there colonize the gut.

Even if some of the bacteria in a probiotic managed to survive and propagate in the intestine, there would likely be far too few of them to dramatically alter the overall composition of one's internal ecosystem. Whereas the human gut contains tens of trillions of bacteria, there are only between 100 million and a few hundred billion bacteria in a typical serving of yogurt or a microbe-filled pill. Last year a team of scientists at the University of Copenhagen published a review of seven randomized, placebo-controlled trials (the most scientifically rigorous types of studies researchers know how to conduct) investigating whether probiotic supplements — including biscuits, milk-based drinks and capsules — change the diversity of bacteria in fecal samples. Only one study — of 34 healthy volunteers — found a statistically significant change, and there was no indication that it provided a clinical benefit. “A probiotic is still just a drop in a bucket,” says Shira Doron, an infectious disease expert at Tufts Medical Center. “The gut always has orders of magnitude more microbes.”

Despite a growing sense that probiotics do not offer anything of substance to individuals who are already healthy, researchers have documented some benefits for people with certain conditions. In the past five years, for example, several combined analyses of dozens of studies have concluded that probiotics may help prevent some common side effects of treatment with antibiotics. Specific strains may also benefit people with certain gut conditions, however until more is known about the microbiome and how to best augment it, treating these conditions is best left to your physician.

**Source:** [scientificamerican.com/article/do-probiotics-really-work](https://www.scientificamerican.com/article/do-probiotics-really-work)

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