

Inside the Microbiome

The bacteria in our guts is responsible for metabolizing nutrients from food, acting as a protective barrier against infections in the intestine, and making fat-soluble vitamin K (which is needed to make proteins that help clot blood). Researchers are just scratching the surface of how the microbiome may impact health conditions such as arthritis, heart disease, and cancer.

Your gut is home to millions of strains of bacteria known collectively as “microbiota” or the “gut microbiome.” And just like snowflakes, **everyone’s gut microbiota is uniquely different.**

There are several factors that influence your gut microbiota, including age, diet, genes, environment, and medications like antibiotics, which can significantly alter gut bacteria. Of these factors, diet may be the most controllable.

Microbes thrive on various components of food. Some microbes make compounds that seem to keep us healthier, while others produce substances that may worsen our health. For example, a scientific study found a link between pediatric obesity and antibiotic use early in life. Research has shown that in mice, a diet high in fat increases gut permeability and raises gut absorption of endotoxins that foster weight gain, inflammation, obesity, and diabetes.

Our gut microbiota is very complex and it’s difficult for scientists to identify which bacteria would be the most beneficial in preventing disease. According to Dr. Hohmann, who works in the infectious diseases division at Harvard-affiliated Massachusetts General Hospital, **a few dietary tweaks may make a big difference**, though gut microbiota change slowly over time and not

overnight. She suggests adding the following foods to our eating patterns:

- **Fermented foods that contain natural probiotics**, including miso, yogurt, kefir, and kimchi. Sauerkraut and pickles are also fermented, but may need to be limited for people with high blood pressure due to their high sodium content.
- **High-fiber, complex carbohydrates** such as beans, lentils, whole grain breads, cereals, and grains such as barley, bran, bulgur, farro, and quinoa. The more variety of plant-based foods, the more diverse our bacteria become.

While it may be tempting to take an over-the-counter probiotic and call it a day, scientists suggest that probiotics do not typically change your gut microbiota on a permanent basis. A few strains of probiotics have been found to modify the gut, but once they’re stopped, the gut microbiome may reverse back to its previous state. Probiotics may be useful in treating loose stools related to antibiotic use, but for the most part, the data on their effectiveness is not very convincing.

Our best bet for a healthy gut is to eat a high fiber, plant-based diet with fewer servings of high fat animal foods, salt, and refined carbohydrates. This will not only improve the insides of our guts, but may also give us a more flattering “gut” on the outside too.