

Beneficial Bacteria: Can Probiotics Ease Depression?

Our bodies teem with trillions of bacteria, viruses, and fungi. The thought of these microscopic critters may make you cringe, but without them, you wouldn't be alive.

A busy belly

The microorganisms in your gut—ten times the number of cells in your body—do some of the most important work. They help regulate many parts of your body, especially the immune system, and contribute to brain development and behavior. A shortage of certain beneficial gut microbiota, however, may cause diabetes, autoimmune diseases, allergies, irritable bowel syndrome, and schizophrenia. Recently, studies also have linked it to depression and anxiety.

Luckily, there's something called probiotics. These beneficial bacteria are ingested through certain foods and supplements. They emit enzymes that destroy toxins in the body; and consume nutrients that disease-causing microorganisms depend on to survive, crowding them out.

Rats show the way

A recent study involving newborn rats looked at depression and anxiety, which are closely related, chemically. The [study](#) found that some species of probiotics might ease these conditions in the same way that certain antidepressants do. Probiotics that treat psychological issues are called psychobiotics.

In the study, scientists first separated the newborn rats from their mothers to create a condition that caused them anxiety and depression. The rats were divided into two groups. The scientists gave one group the antidepressant drug, citalopram, and the other group the bacterium, *Bifidobacterium infantis*. Shortly after receiving the bacterium and the citalopram, all the rats calmed down and the levels of norepinephrine in their brains returned to normal. This suggested to the researchers that both the drug and the bacterium relaxed the rats' neural processes.

In another study, rats given the bacterium, *Lactobacillus helveticus* for 14 days scored low in anxiety tests. Scientists tested yet another, *Lactobacillus rhamnosus*. After 28 days, the rats scored lower in both anxiety and depression.

Humans confirm a gut reaction

Scientists also conducted a rigorous double-blind, placebo-controlled, randomized study with healthy volunteers. Every day for 30 days, half of the people took *Lactobacillus helveticus* with *Bifidobacterium longum*, and the other half took a placebo. Neither the volunteers nor the researchers knew who ingested the bacterium or the placebo.

After the 30 days, everyone answered the same psychological questionnaires, and their urine was checked for levels of cortisol, a stress hormone. Blood samples revealed who took in the test bacteria; the volunteers who did showed lower cortisol levels.

A happy couple

Like many microorganisms in the gut, those that help with depression and anxiety enjoy a great relationship with the brain. The proteins they produce—serotonin, gamma-aminobutyric acid (GABA), acetylcholine, and dopamine—naturally want to be in its company. Reaching the brain through the bloodstream, the microorganisms act as neurotransmitters delivering messages from other parts of the body.

When there are healthy amounts of the right gut microbiota, the body's immune system effectively wards off infection and other health disorders. But an insufficiency in certain microorganisms makes the lining of the gut, or mucosa, more permeable and it also weakens the immune system making it easy for all types of bad bacteria to invade the gut.

Once inside, they form and expand their own colonies, bullying the good bacteria and making it hard, if not impossible, for them to secrete enough of the beneficial proteins. Enter depression and anxiety.

The gloomy gut

It's increasingly common for people in our modern world to have inadequate gut microbiota, especially the kind that can help keep depression anxiety, and other disorders, at bay. That's because as urban dwellers we have lost contact with many microorganisms in nature that always served us well. And we also invented disinfectants and fast food.

"As our society has become more civilized, we're sterilizing everything more—from our foods to our hands. This kills off some bad bacteria, but new bacteria form, trying to fight back," says [Rudolph Bedford, M.D.](#), a gastroenterologist at [Providence Saint John's Health Center](#) in Santa Monica, California. "When you have a weaker immune system and these bad bacteria enter the gut, you're more vulnerable to various disorders." Studies have shown also that a poor diet is a risk factor for depression.

Probiotics to the Rescue

You can improve the balance of microbiota in your gut with a healthy diet and supplements. Dr. Bedford suggests the following:

- **Eat your probiotics.** They're in yogurt, which studies have shown improves the mood.
- **Reduce sweets, processed food, and simple carbs.** Bad bacteria thrive on sugar.
- **Avoid greasy foods and fatty meats.** The bad fats from these are harder to digest, increasing unhealthy gut microbiota.
- **Choose healthy and fresh.** Eat more fruits and vegetables, fish and avocado for their good fats, and lean meats.

When it comes to probiotic supplements, there are so many different ones on the market and there's no regulatory agency that oversees them. That's a problem because

what you see on the bottle may not be true, says Dr. Bedford. “The two bacteria studied the most are *Lactobacillus* and *Bifidobacterium*. Find a probiotic that includes these.” You can’t eat or take too many, he assures. “Whatever your body doesn’t use, it gets rid of. There’s no downside to probiotics.”

A growing interest

Psychobiotics will continue to evolve in the next decade or so. “But for now, I don’t think they’ll be the answer for everyone with depression or anxiety, though for some people they may effectively augment their medication,” says Dr. Bedford. Whether for psychological issues or overall good health, the research continues. “Probiotics is a new area of investigation and we’ll only hear more about them in the coming years.”

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