

Probiotics Help Reduce Symptoms of Depression

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STORY AT-A-GLANCE

- › Scientific advances suggest your state of mind is strongly influenced by the microflora in your gut, and that probiotics (beneficial bacteria) can alleviate symptoms of depression
- › A small study involving adults diagnosed with IBS and depression found the probiotic *Bifidobacterium longum* provided depression relief. At six weeks, 64% of the treatment group had reduced depression scores compared to 32% of the control group that received a placebo
- › While taking a probiotic supplement may be helpful, it's unlikely to make a significant difference if you're still eating junk. Dietary keys include limiting sugars and gluten, and increasing healthy fats, omega-3, fiber and fermented foods rich in natural probiotics

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When it comes to mental health, most assume the brain is in charge. In reality, your gut may be calling the shots. Interestingly enough, in the 1800s and early 1900s, it was thought that waste in your colon could produce infections that lead to depression. As it turns out, they weren't too far off the mark.

Scientific advances now suggest your state of mind is influenced, if not largely directed, by the microflora in your gut, and probiotics (beneficial bacteria) are being thought of as "the new antidepressants." However, while it may be tempting to trade one pill for another, I urge you to consider taking a more comprehensive approach.

Taking a probiotic supplement may be helpful, but if you're still eating the same junk as before, it's not likely to make a significant difference. The key, really, is to eat a healthy diet. Limiting or eliminating sugar is absolutely essential, as adding healthy fats will provide your brain with much-needed fuel, while fermented foods will give you the beneficial bacteria you need.

Add to that daily movement and regular exercise, good sleep and sensible sun exposure, and you're really giving your body the basic building blocks it needs for optimal performance – both physically and mentally. A probiotic supplement cannot achieve this all on its own. That said, studies have demonstrated just how important healthy gut bacteria are when it comes to treating depression.

Probiotics Reduce Symptoms of Depression

More recently, a small, randomized, placebo-controlled study^{1,2,3,4} involving 44 adults diagnosed with both irritable bowel syndrome (IBS) and mild to moderate depression or anxiety found that the probiotic *Bifidobacterium longum* NCC3001 provided depression relief. Half of the participants received the probiotic while the other half received a placebo. At six weeks, 64% of the treatment group had reduced depression scores compared to 32% of the control group.

Those receiving the probiotic also reported fewer symptoms of IBS and improved overall quality of life. At the end of 10 weeks, approximately twice as many in the treatment group were still reporting lower levels of depression.

Interestingly, functional MRI scans revealed a link between reductions in depression score and actual changes in brain activity, specifically in areas involved in mood regulation, such as the amygdala. As noted by Dr. Roger McIntyre, professor of psychiatry and pharmacology at the University of Toronto, who was not involved in the study:⁵

"We know that one part of the brain, the amygdala, tends to be red-hot in people with depression, and it seemed to cool down with this intervention. It provides

more scientific believability that something in the brain, at a very biological level, seems to be affected by this probiotic."

Coauthor Dr. Premysl Bercik, gastroenterologist for Hamilton Health Sciences and professor of medicine at McMaster University, added:

*"This study shows that consumption of a specific probiotic can improve both gut symptoms and psychological issues in IBS. This opens new avenues not only for the treatment of patients with functional bowel disorders but also for patients with primary psychiatric diseases ..."*⁶

[T]he patients on probiotics also reported improvement in their IBS symptoms ... at the end of the probiotic treatment, but not four weeks later when the beneficial effect on depression was still present.

*So one can argue that the primary effect of this probiotic is on depression. Also, the amygdala is one of the important centers in processing abdominal pain so if the probiotic altered the function of this brain region, it could also improve the gut symptoms of IBS (the pain is the hallmark symptom of IBS)."*⁷

Compelling Links Between Depression and Gut Inflammation

A number of studies have confirmed that gastrointestinal inflammation can play a critical role in the development of depression, and that healthy bacteria may be an important part of the treatment. For example, a Hungarian scientific review⁸ published in 2011 made the following observations:

1. Depression is often found alongside gastrointestinal inflammation, as well as autoimmune, cardiovascular and neurodegenerative diseases, and chronic low-grade inflammation is a significant contributing factor in all of these. Thus, "depression may be a neuropsychiatric manifestation of a chronic inflammatory syndrome"

2. A number of clinical studies have shown that treating gastrointestinal inflammation with probiotics, omega-3 fats and vitamins B and D also improves symptoms of depression by attenuating proinflammatory stimuli to your brain⁹
3. Research suggests the primary cause of inflammation may be dysfunction of the "gut-brain axis."¹⁰ The gut-brain connection is well-recognized as a basic tenet of physiology and medicine, so this isn't all that surprising. Your gut acts as a second brain, and is in fact created from the identical tissue as your brain during gestation.

If you consume loads of processed foods and sugars, your gut bacteria will be severely compromised because processed foods tend to decimate healthy microflora. This leaves a void that is filled by disease-causing pathogenic bacteria, yeast and fungi that instead promote inflammation

Previous research has also demonstrated that probiotics have the power to alter your brain function,¹¹ so the featured study is not alone in that regard.

And, while Bercik and his team failed to find a reduction in anxiety, a study done on mice¹² found that *Bifidobacterium longum* NCC3001 – the same strain used in Bercik's study – normalized anxiety-like behavior in animals that had infectious colitis. Here, the antianxiety effect was attributed to modulation of the vagal pathways within the gut-brain axis.

Other research¹³ has shown the probiotic *Lactobacillus rhamnosus* has a marked effect on GABA levels – an inhibitory neurotransmitter involved in regulating many physiological and psychological processes – in certain brain regions, lowering the stress-induced hormone corticosterone. As a result, anxiety- and depression-related behavior was lessened. Strong connections between the gut microbiome and schizophrenia and bipolar disorder have also been found.¹⁴

How Sugar Influences Your Risk of Depression

A high-sugar diet can trigger or contribute to depression in a number of ways, including by:

- Distorting your microflora by nourishing microbes that are detrimental to health
- Triggering a cascade of chemical reactions in your body known to promote chronic inflammation
- Elevating your insulin level, which can have a detrimental impact on your mood and mental health by causing higher levels of glutamate to be secreted in your brain. Glutamate has been linked to agitation, depression, anger, anxiety and panic attacks
- Suppressing activity of brain-derived neurotrophic factor (BDNF), a growth hormone that promotes healthy neurons. BDNF levels are critically low in both depression and schizophrenia, which animal models suggest might actually be causative

There's a great book on this subject written in 1986, "[Sugar Blues](#)," by William Dufty, that delves into the sugar-depression link in great detail. He even advocated eliminating sugar from the diet of the mentally ill, stating it could be an effective treatment in and of itself for some people.

I too believe the dietary answer for treating depression starts with limiting or eliminating refined sugars (especially processed fructose) and grains, as all forms of sugar feed bad bacteria in your gut and promote systemic-wide inflammation. As a standard recommendation, I suggest limiting your daily fructose consumption from all sources to 25 grams per day or less.

Gluten has also been implicated in depression and other, more serious, mental health problems such as schizophrenia. Bear in mind that if you're sensitive to gluten, it's not enough to cut down. You need to remove it from your diet entirely. The easiest way to eliminate most sugars (and gluten, if need be) is to avoid processed foods and cook from scratch using whole ingredients.

Cutting out processed foods will also significantly reduce your exposure to genetically engineered ingredients, which have also been implicated in chronic inflammation and the destruction of healthy gut bacteria, as well as pesticides such as glyphosate – another culprit in both microbiome disruption and inflammation. Keep in mind that

conventionally grown foods may also be contaminated with pesticide residues so, ideally, aim for as organic a diet as you can.

Dietary Keys to Overcoming Depression

Aside from cutting out sugars and gluten, make sure you're getting sufficient amounts of healthy fats in your diet. Examples of healthy saturated fats include avocados, butter made from raw, grass fed organic milk, organic pastured egg yolks, coconuts and coconut oil, raw nuts and grass fed meats. You may need as much as 50% to 80% of your daily calories in the form of healthy fats such as these.

Beyond that, animal-based omega-3 fat may be the single most important nutrient to battle depression.^{15,16} It's particularly important when combating more serious problems such as psychosis and schizophrenia.^{17,18} Good sources of animal-based omega-3 include fatty fish that are also low in mercury, such as wild-caught Alaskan salmon, sardines and [anchovies](#).

If you don't eat these types of fish on a regular basis, it would be advisable to take a high-quality omega-3 supplement such as krill oil, which has a number of benefits over fish oil, including better absorption. Lastly, to rebalance your gut flora, be sure to eat plenty of:

- **Fiber-rich foods** – This means more vegetables, nuts and seeds (not grains). Research confirms that in order to work, the fiber must be unprocessed.^{19,20} Processed supplement fiber such as inulin powder does not provide gut bacteria with what they need.

Organic whole husk psyllium is a great fiber source, as are sunflower sprouts and fermented vegetables, the latter of which are essentially fiber preloaded with beneficial bacteria. Flax, hemp and chia seeds are other excellent fiber sources.

- **Fermented foods** – By eating a variety of fermented and cultured foods such as fermented vegetables (all kinds), kombucha, kefir or raw yogurt, natto, kimchi and others, you will get a wide assortment of beneficial bacteria into your system.

If you, for whatever reason, will not eat fermented foods, then a high-quality probiotic supplement is certainly recommended. Just understand you probably will not reap as great a benefit as if you were actually eating fermented foods.

Specific Nutrients for Brain Health

Over the years, I've interviewed a number of doctors and scientists about the treatment of mental health problems using nutrition, including Dr. Hyla Cass, a practicing psychiatrist who uses integrative medicine in her practice, Dr. Andrew Saul, co-author of a book about the use of niacin (vitamin B-3) for psychiatric disorders, and William Walsh, Ph.D., author of "Nutrient Power: Heal Your Biochemistry and Heal Your Brain," who specializes in nutrient-based psychiatry.

My interview with Walsh has not yet been published, but is of particular interest here. For this reason, I've included a condensed version of that interview above.

According to Walsh, there's compelling evidence to suggest nutrients involved in the synthesis or functioning of neurotransmitters dictate mental function. Hence certain nutritional deficiencies can significantly raise your risk of mental health problems.

Nutrients that have a powerful influence on mental health include:

Zinc	Copper	Selenium
Niacin (B-3)	Vitamin B-6	Vitamin B-12 ^{21,22,23}
Folates	Vitamin D ²⁴ (Low vitamin D levels are associated with increased symptoms of depression and anxiety. ²⁵)	S-adenosylmethionine (SAME)

Walsh is convinced the use of psychiatric medication will eventually fade away as we learn more about normalizing brain function through nutritional interventions. "These powerful drugs ... they do not normalize the brain. They cause an abnormal condition," he

warns. "They might correct depression or anxiety, but you wind up with something that's not normal."

Cass also stresses that one of the first steps in treating any mental health problem is to clean up your diet and address your gut health. Otherwise, you'll have virtually no chance of getting emotionally and mentally well. On her website, CassMD.com, you can find a free report called "Reclaim Your Brain," which details nutritional substances you can use to address conditions like anxiety and depression.

21st Century Reason for Depression

The pervasive use of microwave radiation in the form of cellphones, cellphone towers, Wi-Fi, computers, smart meters, baby monitors and the expected trillion internet things all invade our cells with energy exposure they were never designed for.

It turns out that the mechanism of how they cause harm was revealed about five years ago by Professor Emeritus Martin Pall, whom I hope to interview soon. He found out that the electromagnetic fields (EMFs) trigger voltage gated calcium channels (VGCC) in the cell membranes that will release a million calcium ions per second from the extracellular space into the intracellular space.

The tissues with the highest density of these VGCCs are the brain and the pacemaker cells in the heart. When the sensors in the brain are activated, they will release hormones and neurotransmitters that have been shown to be associated with depression and anxiety, and there is fairly strong evidence they are a major factor in autism. They can also lead to cardiac arrhythmias.

So, if you suffer with depression, anxiety, autism or arrhythmias, it would be wise to be obsessive about limiting your EMF exposure. I will be discussing far more about this in the future but there are many online resources that can guide you until then, one of them being my video below.

Holistic Mental Health Suggestions

Regardless of the nature or severity of your mental health problem, to successfully treat it, you need to take a holistic approach. Rarely will medication be the sole answer. So, in addition to all of the dietary guidelines already offered, here are some other suggestions – presented in no particular order – to keep in mind.

Withdraw from antidepressants and other drugs under medical supervision – If you're currently on an antidepressant and want to get off it, ideally, you'll want to have the cooperation of your prescribing physician. Some are happy to help you to withdraw if they know you're going to be responsible about it. Others may not want to bother, or they don't believe you can get off the medication. You may need to do some reading in order to be better prepared.

Dr. Joseph Glenmullen from Harvard wrote a very helpful book on how to withdraw called "The Antidepressant Solution." You can also turn to an organization with a referral list of doctors who practice more biologically or naturally, such as the American College for Advancement in Medicine at www.ACAM.org. Once you have the cooperation of your prescribing physician, start lowering the dosage of the medication you're taking.

There are protocols for gradually reducing the dose that your doctor should be well aware of. At the same time, start taking a low-dose multivitamin.

If you're quitting an SSRI under doctor supervision, Cass suggests going on a low dose of 5-hydroxytryptophan (5-HTP). For bipolar patients, holistic psychiatrists may prescribe nutritional supplements such as fish oil (omega-3 fats), inositol, niacin, tryptophan and others, depending on your individual needs.

Address Lyme disease – Bipolar symptoms can be related to Lyme disease, so if Lyme infection is present, that needs to be addressed, also by a more functionally oriented doctor.

Combat inflammation – Keeping inflammation in check is an important part of any effective treatment plan. If you're gluten-sensitive, you will need to remove all gluten from your diet. A food sensitivity test can help ascertain this. Switching to a whole

food diet as described in my [optimal nutrition plan](#) can go a long way toward lowering the inflammation level in your body and brain.

Optimize your vitamin D level – Vitamin D deficiency is another important biological factor that can play a significant role in mental health, especially depression. A double-blind randomized trial²⁶ published in 2008 concluded that supplementing with high doses of vitamin D "seems to ameliorate these symptoms indicating a possible causal relationship." Research²⁷ also claims that low vitamin D levels appear to be associated with suicide attempts.

Ideally, maintain your vitamin D level between 40 and 60 ng/mL year-round. If you cannot get sufficient sun exposure to maintain this level, taking an oral vitamin D3 supplement would be advisable. Just remember to also take vitamin K2 and magnesium, as these all work together.

Clean up your sleep hygiene – Make sure you're getting enough high-quality sleep, as sleep is essential for optimal mood and mental health. A fitness tracker that tracks your sleep can be a useful tool. The inability to fall asleep and stay asleep can be due to elevated cortisol levels, so if you have trouble sleeping, you may want to get your saliva cortisol level tested with an Adrenal Stress Index test.

If you're already taking hormones, you can try applying a small dab of progesterone cream on your neck or face when you awaken during the night and can't fall back to sleep. Another alternative is to take adaptogens, herbal products that help lower cortisol and adjust your body to stress. There are also other excellent herbs and amino acids that help you to fall asleep and stay asleep. Meditation can also help.

Add to your self-help tool bag – Slowing your breathing using the Buteyko breathing technique increases your partial pressure of carbon dioxide (CO₂), which has enormous psychological benefits and can quickly reduce anxiety.

Other helpful tools include Eye Movement Desensitization and Reprocessing (EMDR), and Emotional Freedom Techniques (EFT). EFT is well-studied, and research shows it can significantly increase positive emotions and decrease negative emotional states.

One scientific review found statistically significant benefits in using EFT for anxiety, depression, PTSD and phobias.

EFT is particularly effective for treating stress and anxiety because it specifically targets your amygdala and hippocampus, which are the parts of your brain that help you decide whether or not something is a threat.^{28,29} For serious or complex issues, seek out a qualified health care professional that is trained in EFT³⁰ to help guide you through the process.

Beneficial herbs and supplements: SAMe, 5-HTP and St. John's Wort – SAMe is an amino acid derivative that occurs naturally in all cells. It plays a role in many biological reactions by transferring its methyl group to DNA, proteins, phospholipids and biogenic amines. Several scientific studies indicate that SAMe may be useful in the treatment of depression. 5-HTP is another natural alternative to traditional antidepressants.

When your body sets about manufacturing serotonin, it first makes 5-HTP. Taking 5-HTP as a supplement may raise serotonin levels. The evidence suggests 5-HTP outperforms a placebo when it comes to alleviating depression³¹ – more than can be said about antidepressants.

One caveat: Anxiety and social phobias can worsen with higher levels of serotonin, so it may be contraindicated if your anxiety is already high. St. John's Wort has also been shown to provide relief from mild depressive symptoms.

Get adequate daily movement and regular exercise – Studies show there is a strong correlation between improved mood and aerobic capacity. There's also a growing acceptance that the mind-body connection is very real, and that maintaining good physical health can significantly lower your risk of developing depression in the first place.

Exercising creates new GABA-producing neurons that help induce a natural state of calm. It also boosts your levels of serotonin, dopamine and norepinephrine, which help buffer the effects of stress.

What to Do if Someone You Know Is Depressed

Perhaps one of the most helpful things you can do if you have a friend or family member who struggles with depression is to help guide them toward healthier eating and lifestyle habits, as making changes can be particularly difficult when you're feeling blue – or worse, suicidal.

If you are feeling desperate or have any thoughts of suicide, please call the National Suicide Prevention Lifeline, a toll-free number: (800) 273-TALK (8255), or call 911, or simply go to your nearest hospital emergency department. You cannot make long-term plans for lifestyle changes when you are in the middle of a crisis.

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