

# Fermented Foods and Fiber Can Help Reduce Your Stress

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › Because your gut and brain communicate via your gut-brain axis, altering microbes in your gut can influence your mood and mental health
- › Eating a psychobiotic diet, which is high in prebiotic and fermented foods, led to a reduction in perceived stress after four weeks
- › Those who followed the psychobiotic diet the most had the greatest decreases in stress
- › The psychobiotic diet included fruits and vegetables high in prebiotic fiber, including onions, leeks, cabbage, apples and bananas, along with fermented foods, such as sauerkraut and kefir
- › Fermented foods include kefir, natto, kimchi, miso, tempeh, pickles, sauerkraut, olives and other fermented vegetables, but you'll need to purchase raw varieties or make them yourself to gain optimal health benefits

Feeling stressed? You're in good company. The American Psychological Association's Stress in America 2022 survey reveals "a battered American psyche," downtrodden by external stressors like divisiveness in government and politics, historic levels of inflation and widespread violence.<sup>1</sup>

No matter what's causing your stress, it can significantly interfere with your quality of life. Of the adults surveyed, 27% said they're so stressed most days that they can't function. Another 37% said that when they're stressed, they can't bring themselves to do

anything. And a sizeable percentage also experienced adverse effects due to stress, such as forgetfulness, inability to concentrate and difficulty making decisions.<sup>2</sup>

Further, 34% said stress is completely overwhelming most days.<sup>3</sup> It's a sad state of affairs, but one that can be changed, including by what some may consider a surprising element — your diet. Specifically, a psychobiotic diet, which is high in prebiotic and fermented foods.

## **Eating Fermented Foods and Fiber Sidelines Stress**

Because your gut and brain communicate via your gut-brain axis, altering microbes in your gut can influence your mood and mental health. It's now widely recognized that your diet is not only a major factor in the composition of your microbiota but also that your daily dietary patterns influence the microbes in your gut.<sup>4</sup>

Researchers with APC Microbiome Ireland at University College Cork (UCC) investigated the influence of a psychobiotic diet on the microbial profile and mental health of 45 adults.<sup>5</sup> Participants were randomized to eat either a psychobiotic diet or a control diet for four weeks. The psychobiotic diet included fruits and vegetables high in prebiotic fiber, including onions, leeks, cabbage, apples and bananas, along with fermented foods, such as sauerkraut and kefir.<sup>6</sup>

After four weeks, those following the psychobiotic diet had a reduction in perceived stress. Those who followed the psychobiotic diet the most had the greatest decreases in stress. Further, significant changes were found in 40 different chemicals, along with subtle changes in microbial makeup. Professor John Cryan, one of the study's lead authors, said in a UCC news release:<sup>7</sup>

*“Although the microbiome has been linked to stress and behavior previously, it was unclear if by feeding these microbes demonstratable effects could be seen. Our study provides one of the first data in the interaction between diet, microbiota and feelings of stress and mood.*

*Using microbiota targeted diets to positively modulate gut-brain communication holds possibilities for the reduction of stress and stress-associated disorders, but additional research is warranted to investigate underlying mechanisms.”*

## **‘Psychiatrists Rarely Give Patients Dietary Advice’**

If you go to a psychiatrist to discuss stress, you’re unlikely to receive information about what to eat to support your mental health — but you should. Professor Ted Dinan, the study’s co-lead author, explained:<sup>8</sup>

*“As a psychiatrist, I am conscious of the fact that psychiatrists rarely give patients dietary advice. Our research in recent years provides evidence that an appropriate diet is essential in managing stress-related disorders. Hopefully, the current paper will encourage psychiatrists to include nutritional advice as part of holistic patient management.”*

In fact, the greatest concentration of serotonin is found within your intestines, not your brain, and the state of your gut health can have a significant effect on that of your mood and anxiety level. For instance, probiotics, or beneficial bacteria, have been found to reduce psychological stress in patients about to undergo surgery.<sup>9</sup>

A review of seven small clinical trials also found probiotics and/or prebiotics may be helpful for those struggling with depression and anxiety.

According to the authors, all of the studies "demonstrated significant improvements in one or more of the outcomes" compared with no treatment, placebo or baseline measurements, leading them to conclude that "utilizing pre/probiotic may be a potentially useful adjunctive treatment" for patients with depression and/or anxiety.<sup>10</sup>

While it seems the gut microbiome's role in health is a recent discovery, as early as 1898 — more than a century ago — a paper in the Journal of the American Medical Association proposed that intestinal microbes might play a role in melancholia.<sup>11</sup>

Even severe and chronic mental health problems, including post-traumatic stress disorder, might be eliminated through the use of certain probiotics such as *Lactobacillus helveticus* and *Bifidobacterium longum*, which have been shown to have a calming influence in part by dampening stress hormones.<sup>12</sup> So, it's likely that minor or moderate stress would also respond favorably to positive dietary changes. Cryan told The Telegraph:<sup>13</sup>

*"The mechanisms underpinning the effect of diet on mental health are still not fully understood. But one explanation for this link could be via the relationship between our brain and our microbiome (the trillions of bacteria that live in our gut). Known as the gut-brain axis, this allows the brain and gut to be in constant communication with each other, allowing essential body functions such as digestion and appetite to happen.*

*It also means that the emotional and cognitive centers in our brain are closely connected to our gut. The next time you're feeling particularly stressed, perhaps you'll want to think more carefully about what you plan on eating for lunch or dinner. Including more fiber and fermented foods for a few weeks may just help you feel a little less stressed out."*

## **What Else Are Fermented Foods Good For?**

Fermented foods have earned top superfood status<sup>14</sup> for good reason. Historically, fermentation was used to preserve foods and improve flavor, but it turns out that microorganisms that contribute to the fermentation process are associated with a wide range of health benefits.

When fermented, food becomes more nutritionally and functionally rich, as it contains resulting probiotics, prebiotics to enhance the proliferation of beneficial bacteria in your gut and other bioactive components, or biogenics.

"These functional ingredients act biologically in the gastrointestinal tract and have the ability to modify the gut microbiota, influence translocation of endotoxins and

subsequent immune activation, and promote host nutrition,” researchers wrote in Nutritional Neuroscience.<sup>15</sup> Further, it’s likely not a coincidence that mental health disorders, including depression and anxiety, are often seen alongside gut problems.<sup>16</sup>

Lactic acid bacteria, for instance, which is found in fermented foods, synthesize vitamins and minerals, produce biologically active peptides and remove some non-nutrients. According to a paper published in Critical Reviews in Food Science and Nutrition:<sup>17</sup>

*“Compounds known as biologically active peptides, which are produced by the bacteria responsible for fermentation, are also well known for their health benefits.*

*Among these peptides, conjugated linoleic acids (CLA) have a blood pressure lowering effect, exopolysaccharides exhibit prebiotic properties, bacteriocins show antimicrobial effects, sphingolipids have anticarcinogenic and antimicrobial properties, and bioactive peptides exhibit antioxidant, antimicrobial, opioid antagonist, antiallergenic, and blood pressure lowering effects.*

*As a result, fermented foods provide many health benefits such as antioxidant, antimicrobial, antifungal, anti-inflammatory, antidiabetic and anti-atherosclerotic activity.”*

Research also shows countries that consume higher amounts of traditionally fermented foods have lower COVID-19 mortality rates. According to German researchers, significant changes in the microbiome caused by modern life and low fermented food consumption may have increased the spread or severity of the disease.

For each gram-per-day increase in the average national consumption of fermented vegetables, the mortality risk for COVID-19 decreased by 35.4%.<sup>18</sup> Beneficial bacteria found in fermented foods may even be effective for suppressing colon cancer,<sup>19</sup> and may also inhibit cancers of the breast, liver, small intestine and other organs. It’s further noted in the journal Foods:<sup>20</sup>

*"Ingestion of vibrant probiotics, especially in fermented foods, is found to cause significant positive improvements in balancing intestinal permeability and barrier function, with direct effects on metabolic syndrome, atherosclerosis, inflammatory bowel diseases, and colon cancer and indirect effects on depression, anger, anxiety, and levels of stress hormones."*

## **It's Simple to Add Fermented Foods to Your Diet**

If you're not already eating fermented foods, now would be a good time to consider adding some into your diet. Fermented vegetables are easy and inexpensive to make at home, and provide a host of physical and mental health benefits, thanks to the beneficial bacteria they provide.

It's important to understand, however, that when you purchase fermented foods like yogurt and kefir at a supermarket, most are actually junk foods rather than superfoods. This is because most commercial yogurt is high in sugar, artificial sweeteners and other additives, while being relatively low in beneficial bacteria.

One of the primary reasons for this difference has to do with the fact that commercial products are pasteurized to prolong shelf-life, and pasteurization kills the very bacteria the products are supposed to supply.

Fermented foods include kefir, natto, kimchi, miso, tempeh, pickles, sauerkraut, olives and other fermented vegetables, but you'll need to purchase raw varieties or make them yourself to gain optimal health benefits. Ideally, you'll want to eat a wide variety of them as each contains a different set of beneficial bacteria.

How can you get the advantages offered by fermented foods from your very own kitchen? The good news is it doesn't take days of slaving away in a hot kitchen to create homemade fermented vegetables. The short explanation is as simple as getting some wide-mouth canning jars and filtered water, choosing which organic vegetables you want to use and packing your jars. The next step is easy: Simply wait a few days for the vegetables to "ripen."

You can view a step-by-step guide in the video above. As demonstrated, you'll see that culturing vegetables is easy and inexpensive. You can also make your own homemade yogurt and kefir. If you don't eat fermented foods on a regular basis, a probiotic supplement can be useful.

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