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Can Inflammation in this Organ be at the Root of Your Depression?

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Recent studies have shown that inflammation may be involved in the pathogenesis of depression. In fact, some research has demonstrated that depression is frequently associated with gastrointestinal inflammations and autoimmune diseases as well as with other ailments in which chronic low-grade inflammation is a significant contributing factor.

It is possible that depression could be a neuropsychiatric manifestation of a chronic inflammatory syndrome. And the primary cause of inflammation may be the dysfunction of the "gut-brain axis".



According to a study reprinted on the website Green Med Info:

"... [A]n increasing number of clinical studies have shown that treating gastrointestinal inflammations with probiotics, vitamin B, D and omega 3 fatty acids, through attenuating proinflammatory stimuli to brain, may also improve depression symptoms and quality of life. All these findings justify an assumption that treating gastrointestinal inflammations may improve the efficacy of the currently used treatment modalities of depression and related diseases."

By Dr. Mercola

The notion that inflammation in your gut could be linked to your symptoms of depression may sound far-fetched, but it actually makes perfect sense when you understand the intricate connection between your brain and your digestive tract.

Perhaps the simplest example to use is getting butterflies in your stomach when you're nervous, thus your thoughts, i.e. brain, are manifesting symptoms in your gut. But another route of connection is via low-grade inflammation, which is a significant contributing factor to numerous diseases that often occur alongside depression, and may, in fact, be manifesting your depressive symptoms.

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Is Depression the Result of Chronic Inflammation?

A recent review has pointed out several mechanisms by which [gastrointestinal inflammation may play a critical role](#) in the development of depression.

Among them:

1. **Depression is often found alongside gastrointestinal inflammations and autoimmune diseases** as well as with cardiovascular diseases, neurodegenerative diseases, type 2-diabetes and also cancer, in which chronic low-grade inflammation is a significant contributing factor. Thus researchers suggested "depression may be a neuropsychiatric manifestation of a chronic inflammatory syndrome."
2. Research suggests **the primary cause of inflammation may be dysfunction of the "gut-brain axis."** Your gut is literally your second brain -- created from the identical tissue as your brain during gestation -- and contains larger amounts of the neurotransmitter serotonin, which is associated with mood control. It's important to understand that your gut bacteria are an active and integrated part of your body, and as such are heavily dependent on your diet and vulnerable to your lifestyle. If you consume a lot of processed foods and sweetened drinks, for instance, your gut bacteria are likely going to be severely compromised because processed foods in general will destroy healthy microflora and sugars of all kinds feed bad bacteria and yeast, as well as promote systemic inflammation.
3. An increasing number of clinical studies have shown that **treating gastrointestinal inflammation with probiotics, vitamin B, vitamin D and [omega-3 fats](#) may also improve depression symptoms** and quality of life by attenuating proinflammatory stimuli to your brain.



What this all boils down to is that chronic inflammation in your body disrupts the normal functioning of many bodily systems, and can wreak havoc on your brain. But it appears inflammation may be more than just another risk factor for depression; it may in fact be THE risk factor that underlies all others. Although this refers to postpartum depression, the inflammatory response is the same in its impact on all forms of depression.

Published in the [International Breastfeeding Journal](#), researchers stated:

"The old paradigm described inflammation as simply one of many risk factors for depression. The new paradigm is based on more recent research that has indicated that physical and psychological stressors increase inflammation. These recent studies constitute an important shift in the depression paradigm: inflammation is not simply a risk factor; it is the risk factor that underlies all the others."

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Moreover, inflammation explains why psychosocial, behavioral and physical risk factors increase the risk of depression. This is true for depression in general and for postpartum depression in particular.

Puerperal women are especially vulnerable to these effects because their levels of proinflammatory cytokines significantly increase during the last trimester of pregnancy -- a time when they are also at high risk for depression. Moreover, common experiences of new motherhood, such as sleep disturbance, postpartum pain, and past or current psychological trauma, act as stressors that cause proinflammatory cytokine levels to rise."

This is Why Sugar is Also a Major Factor in Depression

There's a great book on this subject, [The Sugar Blues](#), written by William Duffy more than 35 years ago, that delves into the sugar-depression link in great detail. The central argument Duffy makes in the book is that sugar is an extremely health-harming addictive drug, and that simply making that *one* dietary change -- eliminating as much sugar as possible -- can have a profoundly beneficial impact on your mental health. 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.

It's become increasingly clear that one route by which sugar is so detrimental to your mental health is because sugar consumption triggers a cascade of chemical reactions in your body that promote chronic inflammation. Further, excess sugar and fructose will distort the ratio of good to bad bacteria in your gut, which also [plays an integral role in your mental health](#). Sugar does this by serving as a fertilizer/fuel for pathogenic bacteria, yeast and fungi that negatively inhibit the beneficial bacteria in your gut.

For instance, recent research showed the probiotic *Lactobacillus rhamnosus* was found to have a marked effect on GABA levels in certain brain regions and lowered the stress-induced hormone corticosterone, resulting in [reduced anxiety- and depression-related behavior](#). But if you consume a lot of processed foods and sweetened drinks (which are typically fructose-heavy), your gut bacteria are likely going to be severely compromised and so is your mental health! So the dietary answer for treating depression is to severely limit sugars, [especially fructose](#), as well as grains.

It's worth noting that sugar can also lead to excessive insulin release that can lead to hypoglycemia, which, in turn, causes your brain to secrete glutamate in levels that can cause agitation, depression, anger, anxiety, panic attacks and an increase in suicide risk.

So radically [reducing your sugar intake, especially fructose](#), to less than 25 grams per day will be one of the most powerful interventions for dealing with depression, as well as fighting chronic inflammation and supporting healthy gut bacteria. Consuming more than 25 grams of



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fructose a day will clearly push your brain biochemistry, and your overall health, in the wrong direction.

Relieving Gastrointestinal Inflammation May Ease Your Depressive Symptoms

We discussed the importance of limiting sugar and fructose, which is one of the primary ways to treat gastrointestinal inflammation, above. You will also want to be sure your gut is regularly "reseeded" with good bacteria, or probiotics, which are the foundation of a healthy gastrointestinal tract.

My recommendations for optimizing your gut bacteria are as follows:

- **Fermented foods** are still the best route to optimal digestive health, as long as you eat the traditionally made, unpasteurized versions. Healthy choices include lassi (an Indian yoghurt drink, traditionally enjoyed before dinner), fermented raw (unpasteurized) grass-fed organic milk such as [kefir](#), various pickled fermentations of cabbage, turnips, eggplant, cucumbers, onions, squash and carrots, and [natto](#) (fermented soy). If you regularly eat fermented foods such as these that, again, have not been pasteurized (pasteurization kills the naturally occurring probiotics), your healthy gut bacteria will thrive.
- **Probiotic supplement.** Although I'm not a major proponent of taking many supplements (as I believe the majority of your nutrients need to come from food), probiotics are definitely an exception. I have used many different brands over the past 15 years and there are many good ones out there.
- If you do not eat fermented foods, taking a high-quality probiotic supplement certainly makes a lot of sense considering how important they are to optimizing your mental health.



Probiotics have a direct effect on brain chemistry, transmitting mood- and behavior-regulating signals to your brain via the vagus nerve, which is yet another reason why your intestinal health can have such a profound influence on your mental health, and vice versa. Two other important factors to treat gastrointestinal inflammation and also help relieve depression are:

- **Animal-based omega-3 fats:** These not only regulate inflammatory processes and responses, but also [positively influence outcome in depressive disorders](#). So if you are currently struggling with depression, taking a high-quality, animal-based omega-3 fat supplement like krill or fish oil daily is a simple and smart choice.
- **Vitamin D:** Most people are not aware that [vitamin D deficiency is associated with inflammation](#) and depression. One previous study found that people with the lowest levels of vitamin D were [11 times more prone to be depressed](#) than those who had normal levels, so you will want to be sure your levels are in the healthy range by getting

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proper sun exposure or using a safe tanning bed. As a last resort, you can also take a high-quality vitamin D3 supplement, but make sure you [have your levels monitored](#) if you choose this route.

There's a wealth of evidence showing gastrointestinal involvement in a variety of neurological disease. With this in mind, it should also be crystal clear that nourishing your gut flora with good bacteria is extremely important, from cradle to old age, because in a very real sense you have two brains, one inside your skull and one in your gut, and each needs its own vital nourishment.

Make sure to talk to your WellnessOne practitioner about his recommendations and to find out what supplements are available to help with these problems.



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