Could Fixing Your Gut Health Help Treat Your Depression?

Analysis by Dr. Joseph Mercola Fact Checked

July 21, 2022

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STORY AT-A-GLANCE

- For the first time, a randomized controlled trial demonstrated that high-dose probiotic supplementation is beneficial for people with depression
- An improvement in mood was noted among all of the patients, but those in the probiotic group had significantly greater improvements, along with an increased abundance of beneficial Lactobacillus in their gut
- An increase in grey matter volume was also noted in the people taking probiotics, along with changes in brain activity
- Targeting the microbiota-gut-brain (MGB) axis, which plays a role in the physiological and behavioral functions that are often affected in depression, may be key to improving depression

Depression is among the most common mental health conditions in the U.S., with 21 million Americans — or 8.4% of adults — experiencing at least one major depressive episode in 2020.[1] Antidepressant medications remain a first-line treatment for depression,[2] even though two-thirds of depressed patients don't respond well to them.[3]

In the U.S., a mental health crisis is underway, with so many people struggling with depression and/or anxiety that there aren't even enough practicing psychiatrists to handle it. To treat everyone affected, each of the 33,000 practicing psychiatrists in the U.S. would have to see approximately 3,000 patients a year, which simply isn't feasible.[4]

It's being increasingly recognized that more is needed to resolve this complex condition, including targeting the microbiota-gut-brain (MGB) axis, which plays a role in the physiological and behavioral functions that are often affected in depression. It's known, for instance, that your gut microbiota impacts brain function and depressive behavior, while people with depression have been found to have altered gut microbiota composition.[5]

For the first time, a randomized controlled trial has also demonstrated that high-dose probiotic supplementation is beneficial for people with depression,[6] further highlighting the importance of tending to your gut for optimal mental health.

Probiotics Benefit People With Depression

In a four-week study, 21 people receiving medical help for depression received probiotics along with antidepressants, while 26 received a placebo containing maltose along with an antidepressant. The probiotic supplement contained eight different strains, amounting to a high daily dose of 900 billion colony forming units (CFUs).

"As there is still no clear evidence which specific bacteria improve depressive symptoms," they explained, "we decided to use a probiotic supplement that is easily accessible in drug stores and, thus, easy to implement in clinical practice."[7]

Stool samples, brain imaging and depression assessments were used to evaluate the patients before, during and after the probiotics or placebo. An improvement in mood was noted among all of the patients, but those in the probiotic group had significantly greater improvements, along with an increased abundance of beneficial Lactobacillus in their gut.[8]

Past studies have found that Lactobacillus rhamnosus supplementation during pregnancy and postpartum led to significantly lower scores for depression and anxiety in women during the postpartum period.[9] Lactobacillus has also been found to produce the gamma aminobutyric acid (GABA) neurotransmitter, which inhibits excessive neuronal firing, helping to induce a natural state of calm[10] in animal studies,[11] while also reducing depression-related behavior.[12]

The featured study also revealed an increase in grey matter volume in the people taking probiotics, along with changes in brain activity. While people with depression tend to perceive photos of neutral faces as negative, those taking probiotics were more likely to view them as neutral.[13] According to the study:[14]

> *"Our data imply that an add-on probiotic treatment ameliorates depressive symptoms (HAM-D) along with changes in the gut microbiota and brain, which highlights the role of the MGB axis in MDD and emphasizes the potential of microbiota-related treatment approaches as accessible, pragmatic, and non-stigmatizing therapies in MDD."*

How Beneficial Bacteria May Help Depression

The study revealed several mechanisms by which beneficial bacteria may be useful for depression, including by altering gut microbiota with a favorable increase in Lactobacillus. Certain Lactobacillus strains have been found to produce short-chain fatty acids, including acetate, butyrate and propionate, which benefit health and play a role in building the gut barrier, making it less permeable to disease-causing microorganisms.[15]

Increased levels of Lactobacillus may also reduce anxiety symptoms.[16] Considering their findings that the probiotics helped to shift the emotional reaction to neutral faces, the researchers also suggested that probiotics "modify the negativity bias in emotional face processing and meet the main requirement of a successful treatment in depression defined by altering negative affective biases."[17]

The primary information highway between your gut and your brain is your vagus nerve, which connects the two organs. Your gut also communicates with your brain via the endocrine system in the stress pathway (the hypothalamus, pituitary and adrenal axis) and by producing mood-boosting neurotransmitters like serotonin, dopamine and GABA,[18] helping to explain why your gut health has such a significant impact on your mental health.

Junk Food Linked to Depression in Children and Teens

The other major clue of the importance of your gut health to your mental health is the powerful role that food plays in depression. Adolescents who eat a lot of processed foods high in salt and low in potassium, such as fast foods, are more likely to have symptoms of depression.[19]

It's possible that eating foods high in sodium and low in potassium may lead to depression by negatively influencing neurotransmitters and neural function during a time that is particularly vulnerable.

"Given the substantial brain development that occurs during adolescence, individuals in this developmental period may be particularly vulnerable to the effects of diet on the neural mechanisms underlying emotion regulation and depression," researchers with the University of Alabama at Birmingham wrote. In addition, poor diet could influence depression by disturbing the gut microbiome, which could further influence brain function.[20]

Past studies have also confirmed the diet-depression link among children and teens. When researchers systematically reviewed 12 studies involving children and adolescents, an association was revealed between unhealthy diet and poorer mental health, as well as between a good-quality diet and better mental health.[21]

The consumption of junk food has also been associated with psychiatric distress and violent behaviors in children and adolescents, which includes worry, depression, confusion, insomnia, anxiety, aggression and worthless feelings, as well as physical fighting, being a victim and bullying.[22]

Your Eating Habits Play a Role in Depression

Adults, too, are more likely to be depressed if they eat an unhealthy diet. Research found seniors who followed the DASH diet, which is low in sugar and high in fresh fruits and vegetables, were 11% less likely to develop depression over the following six years, whereas those following a standard Western diet had the highest rates of depression.[23]

In 2018, a systematic review and meta-analysis with a total of 101,950 participants also found an association between a proinflammatory diet and risk of depression.[24] People who ate a proinflammatory diet were 1.4 times more likely to suffer from depression.[25] "Thus, adopting an anti-inflammatory diet may be an effective intervention or preventative means of reducing depression risk and symptoms," according to the study.[26]

Sugar intake, a known inflammatory food, is also specifically linked to common mental disorders and depression. Research published in 2002 also found a "highly significant correlation between sugar consumption and the annual rate of depression."[27]

Meanwhile, if your diet is focused on ultraprocessed foods, it's likely lacking in nutrients that are essential for mental health, including vitamin B12. Researchers from Ordu University in Turkey revealed that low vitamin B12 and vitamin D levels, along with increased homocysteine, may play a role in depression among children and adolescents.[28]

In their study of 89 children and adolescents with depression, along with 43 subjects without depression to serve as controls, 11.23% of those with depression also had low levels of folate.

Both vitamin B12 and folate have previously been described as antidepressant nutrients.[29] Folate, found in dark leafy greens like spinach, avocados and other fresh vegetables, is involved in your body's production of mood-regulating neurotransmitters. In one study, people who consumed the most folate had a lower risk of depression than those who ate the least.[30]

It's widely known that people with a vitamin B12 deficiency are at an increased risk of depression,[31] which could be, in part, due to resulting alterations in the level of DNA methylation in the brain, leading to neurologic impairment.[32]

Vitamin B12 also helps regulate homocysteine levels, and increased homocysteine is linked to B12 deficiency as well as depression. In one study, older adults with low levels of vitamin B12 had a 51% increased risk of developing depression.[33]

Eating Healthy Reduces Depression

While junk foods can mess with your mood, eating healthy whole foods can boost it. Researchers from Macquarie University, Australia, studied 76 students between the ages of 17 and 35 who followed a poor diet and had moderate to high levels of depression symptoms.[34,35]

One group of participants was asked to improve their diet by cutting back on refined carbohydrates, sugar, processed meats and soft drinks, while eating more vegetables, fruits, dairy products, nuts seeds, healthy fats and anti-inflammatory spices such as turmeric and cinnamon.[36]

After only three weeks of healthier eating, those in the healthy diet group had significant improvements in mood and their depression scores went into the normal range. Likewise, the researchers noted, "Several systematic reviews and meta-analyses show a relationship between diet quality and depression.

A meta-analysis showed that healthy diet regardless of pattern (e.g. Mediterranean, vegetarian, Tuscan) was linearly associated with reduced incidence of depression."[37]

Fermented foods, which are naturally rich in probiotics, should also be consumed regularly to support gut health and corresponding mental health. In addition, researchers compiled a list of five key dietary recommendations for the prevention of depression, based on current published evidence. The basic premise is to eat real food. The five strategies include:[38]

1. Follow "traditional" dietary patterns
2. Increase consumption of fruits, vegetables, nuts and seeds
3. Eat lots of foods rich in omega-3 fats
4. Replace unhealthy foods with wholesome nutritious foods
5. Limit your intake of processed foods, fast foods, commercial bakery goods and sweets

Consider Magnesium Deficiency if You're Depressed

Approximately 50% of American adults are not getting the estimated average requirement for magnesium (around 400 milligrams a day).[39] Subclinical magnesium deficiency is common and leads to numerous mental health issues, while symptoms of magnesium deficiency may include depression, confusion and agitation.[40]

Individuals with depression are also known to have lower magnesium levels in the blood,[41] brain[42] and cerebral spinal fluid.[43] Only magnesium L-threonate, as opposed to magnesium chloride or magnesium gluconate, increases cerebrospinal fluid magnesium levels and improves cognition in animal models,[44] while a randomized equivalent trial found that oral magnesium supplementation was just as effective as an antidepressant for improving mood.[45]

This suggests that boosting magnesium levels, particularly with the use of magnesium L-threonate, may therefore have profound benefits on mood. In addition to tending to your gut health via a healthy, whole foods diet rich in fermented foods — and possibly a probiotic supplement — people with depression may also want to consider supplementing with magnesium L-threonate — in an amount of 150 to 200 mg per day.

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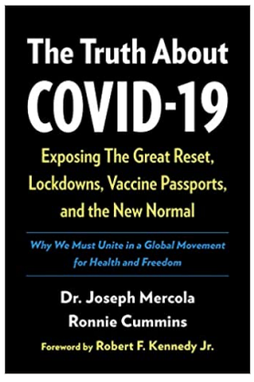

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forbiddenhealing

Joined On 2/21/2011 9:51:43 AM

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Yes Almond, metals and toxins are definitely a vector of depression, like a poorly functioning biome..and both contribute to low-voltage in the brain-pan....NAC both boosts charge and scrubs metals like MEGA C and chlorella do even more vigorously....Big continual dosing of each remove mercury, cadmium, lead, arsenic, etc.....Silica / Figi water / horsetail work against aluminum, glycine against glyphosate, boron against fluorides....and probiotics work against bacterial endotoxins emanating from the gut...Add some sunshine, B vitamins, cannabinoids...get a sense of purpose and watch depression fade..quickly!

Reply | Mark as Spam | Posted On 7/21/2022 7:15:07 AM

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rrealrose

Joined On 11/10/2011 8:59:01 AM

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Captn Detox, several months ago, found a stash of broken cell wall and fermented chlorella staring back at me. Started again taking a few chlorella tablets after eating. When I tried this several years back, never seemed to do a thing...therefore, gut restoration can be primary focus B4 expecting other options to help much, yes?

Mark as Spam | Posted On 7/21/2022 10:54:07 AM

Like Dislike

forbiddenhealing

Joined On 2/21/2011 9:51:43 AM

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Rrrreal...Naw, if you have metal burdens they will frustrate biome improvement..do both, get a hair metal/mineral analysis and stop playin ring around the rosie. Mercury is a powerful antibiotic! Also a major depressant and charge killer.

Mark as Spam | Posted On 7/21/2022 12:35:34 PM

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rrealrose

Joined On 11/10/2011 8:59:01 AM

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So the glutathione and chlorella are being taken in vain? Or I just need a starting reference point?

Mark as Spam | Posted On 7/21/2022 1:50:15 PM

Like Dislike

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forbiddenhealing

Joined On 2/21/2011 9:51:43 AM

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take the NAC AND Mega C + chlorella to chelate the junk mobilized by C and NAC.

Mark as Spam | Posted On 7/21/2022 3:02:31 PM

Like Dislike

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fvtomasch

Joined On 3/11/2017 7:33:24 AM

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forbiddenhealing-Low Vitamin D levels are also associated with depression. Many people if not most are low in D. Many people's bodies are out of align with various nutrients. The body needs many different amounts essential vitamins and minerals to work efficiently. This article has Vit D levels by age group way to low in my opinion. It seems the authors did not take weight and D dosages into consideration since many people are now overweight or obese. 30-35 iu's per pound of weight for at least a few months will get most people to a healthy 50-70 level.

For depression it does take time to build levels up so medications may be needed but people must be careful. Omega 3's are also important for mood and should be incorporated into mental health protocols . Everything in balance but today everyone needs a quick fix so medications alone seem to be the first line defense.
www.jneuropsychiatry.org/peer-review/depression-and-vitamin-d-deficien.. www.ncbi.nlm.nih.gov/.../PMC533861

Mark as Spam | Posted On 7/22/2022 10:12:22 AM

Like Dislike

Almond

Joined On 2/26/2008 4:23:33 PM

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I have been reading some interesting research on NAC and glutathione being helpful for the gut and depression. It would not surprise me if detox were part of the solution to many gut problems and depression. Just consider all the toxins in the food chain and environment nowadays.

Reply | Mark as Spam | Posted On 7/21/2022 12:25:58 AM

Like Dislike

Leahoz
Joined On 2/2/2020 9:55:19 AM
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Almond, our bodies detox often....it is needed!. Our 'Healthy' bacteria understand how to do this. We have been alive for tens of thousands of years and are still here. Do you take Rockerfeller's employment of Loius Pastuer who devised the model of health. He was paid to weaponise a Health system, and it is called 'medicine', a money maker for the initial $$banksters!! known as Rockefeller. Very clever.

Mark as Spam | Posted On 7/21/2022 1:43:06 AM

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juststeve
Joined On 1/5/2012 11:13:54 AM
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Rockerfeller Bankter or Rockerfeller $nake$ter$?

Mark as Spam | Posted On 7/21/2022 4:46:10 AM

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rrealrose
Joined On 11/10/2011 8:59:01 AM
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Almond, I started taking lipoC and glutathoine regularly when the covid prank started. Yes, these help the liver w more consistent energy levels. Also taking NAC but sequentially and not that often. its a 2-edge sword for me...more interested in the cisteine.

Mark as Spam | Posted On 7/21/2022 12:34:45 PM

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fszaf56
Joined On 12/20/2010 12:20:23 AM
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When I got off of gluten and cow dairy, my mental health improved greatly. Getting a dog and walking daily, priceless!

Reply | Mark as Spam | Posted On 7/21/2022 8:25:24 AM

Like Dislike

rrealrose
Joined On 11/10/2011 8:59:01 AM
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Yes, when I first read about gluten sensitivity years ago, whoever I was reading mentioned that depression is one of the first signs of food sensitivity(ies). Leaky gut is still often overlooked.

Mark as Spam | Posted On 7/21/2022 12:05:46 PM

Like Dislike

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badboy2

Joined On 11/15/2010 5:08:52 AM

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A deficiency of either-or vitamin B3 (niacin), and sulfur (MSM) will cause depression.

Reply | Mark as Spam | Posted On 7/22/2022 2:07:12 AM

Like Dislike

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badboy2

Joined On 11/15/2010 5:08:52 AM

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If you eat a lot of processed foods, canned foods, you should know they all have preservatives of one kind or another, and all have dire effects on your gut bacteria. They destroy them in the same way that anti-biotics, cough medicine, antihistamines, fluoride and also toxic metals destroy your gut bacteria. One sure sign of gut bacteria problems is candida overgrowth and yeast infections. Another is toenail fungus. This guy is a hard to get rid of virus that is keeping house in your body. It takes more than re-seeding the gut with friendly probiotics and prebiotics. It takes a daily intake of billions of multistrand bacteria, 2 to 3 times a day, and months to a year to get rid of. That is a better way than having a doctor pull your toenails off and start anew.

How long it takes depends on how diligent you are, also a good diet, and the avoidance of all process sugars. Remember that those fruit juices have 25 to 27 grams of sugar per 8 ounce serving, and some have another 25 grams of sugar added. That much sugar will hurt your overall health and feed your fungus, candida, and cancer(s). Gut bacteria breaks down the food you eat, builds up your immune system (75% of the body's immune system is in the gut), fights diseases and flu that enter the body via nose and mouth, keeps candida (yeast infections) under control, and much more. In some medical circles the gut is considered the second brain of the body.

Reply | Mark as Spam | Posted On 7/22/2022 2:02:54 AM

Like Dislike

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versatile

Joined On 10/16/2007 4:23:09 PM

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Depression can be cured. Cured. There's just one problem. If depression is cured by addressing the cause, then it wasn't depression, it was caused by the cause. Depression caused by unhealthy gut bacteria wasn't depression, it was unhealthy gut bacteria. The same is true of ANY cause and cure of depression - the same is true of any cause and cure of any mental disorder. A cure proves the diagnosis was wrong.

Reply | Mark as Spam | Posted On 7/21/2022 9:21:25 AM

Like Dislike

BrianDossDMD

Joined On 4/18/2022 7:24:22 AM

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It absolutely has made a difference in my life of course getting sick all the time and feeling like crap for 33 years and almost dying from a lack of nutrition its easy to understand why I would've been depressed!!!

Reply | Mark as Spam | Posted On 7/21/2022 8:44:35 AM

Like Dislike

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mrrobb

Joined On 6/15/2011 2:41:18 PM

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yeah for decades Depression was 'treated' by Big-Phama with Uppers and Downers and a slew of 'anti depressants' >>> www.mayoclinic.org/diseases-conditions/depression/in-depth/antidepress.. <<>> with thne 'fun 'side effects likie death or suicide or worse :) But No One stated the Idea of 'You are what you eat' ...

Reply | Mark as Spam | Posted On 7/21/2022 3:01:37 PM

Like Dislike

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mrrobb

Joined On 6/15/2011 2:41:18 PM

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its really pretty simple.....really.....when ya eat....what you shove in your mouth is obviously effects you.....and it doesn't take a PhD to understand .....and if someone other that you have made or raised that 'food' than you really have no idea what you're really putting in your face....all you might 'know' is what the box or can label lets you maybe know.....maybe....most will state "Salt" but what kind of salt> could be MSG, Mono-sodium Glutamate, which is understood as a "Salt" or ?? And if you but 'Salt' the label might say sodium chloride and sugar and other chemicals , but what do you really "KNOW" about that product?????and that is where I do trust Dr Mercola's products...and have for abt 20 years....and over the past near 20 years I have never been disappointed....and I am NOT employed or paid by mercola.com....I am just a happy consumer of his products .

Mark as Spam | Posted On 7/21/2022 3:19:24 PM

Like Dislike

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mrrobb

Joined On 6/15/2011 2:41:18 PM

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Interesting .....humm.....your body is mostly bacteria so obviously by NOT poisoning it , is to your advantage....duhh But like most.....gobble down the chemical poisons on most fruits and vegetable , in the water and all processed foods...candy and gum and sodas and beer and liquors....and the air ya breath and the EMF and 4G-5G radiation....and don't forget the lifetime of Fluoridated water in foods and water and toothpaste and medications and on and on... It's really amazing why humans are still alive....and decades of 'leaded gas fumes' and radio-active bombs...and da Duck-n-cover games and the dozens of useless 'vaccinations' ....and then the USELESS Entertainments dumped out on the billions of brain-trained people....in the form if TV and Movies and politics and the BS called "News" .....creating panic and fear and emotional chaos to fuel a already confused and tormented mind.... It really is amazing how the human body can tolerate all the abuses and poisonings and still function.... BUT....5G will be THE Culling Machines to finally eradicate billions effectively....kiil 'em while they are being 'Entertained'.....!!!!!!!!!

Reply | Mark as Spam | Posted On 7/21/2022 2:24:13 PM

Like Dislike

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mrrobb

Joined On 6/15/2011 2:41:18 PM

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And.....taking 'Da Jab'(s) all the graphene oxide will just make you an 'Easy Kill' for 5G .....yeah the body loaded with GO will be like a Target on the back of the millions Jabbed .....

Mark as Spam | Posted On 7/21/2022 2:29:30 PM

Like Dislike

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mrrobb

Joined On 6/15/2011 2:41:18 PM

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and Interesting herbicide used by farmers worldwide is 'Round-up' and may more like it....containing Glyphosate.... And its used on corn feed to cattle and on the potatoes you eat and about everything else..... Corn feed to milk cows.....Hummm....produce milk with glyphosate but the milk isn't tested for glyphosate per/se . and the meat .....well.....maybe RoundUpBugers.....ah No thanks..... McGlyso??? McRoundup??? Potatoes.....sprayed at harvest time to kill off the plant and then the actual potato is raked up out of the glyphosate laden soil....and the Glyphosate has been absorbed by the potato .....no problem..what the consumer doesn't know.....MMM g-Lays-phosate chips...

Mark as Spam | Posted On 7/21/2022 3:43:48 PM

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