

Digestion and Assimilation of Nutrients

No matter how good your diet or supplements are, if those foods can't be adequately digested and assimilated into your body, they obviously will not make it to your brain as intended. So we need to talk a bit about the various, and quite common, causes of indigestion and malabsorption, and how to overcome these.

Dr. Jockers has put together some great articles on related topics. See links below. Here is a good introductory article on [strategies to improve your digestion](#)

Acid Reflux Indigestion and Related Meds

This includes info on heart burn, GERD, ant-acids, and PPI (proton pump inhibitors) medications, like Prilosec (Omeprazole), Nexium and Prevacid.

Acid reflux, and the resulting “heart burn” or GERD can be very uncomfortable, and are usually kept under control by antacids, like TUMS, or PPI's like those mentioned above. However, few realize that these typical methods of reducing that discomfort, can [inhibit your absorption of several key nutrients](#) needed for brain health, to include Vitamin B-12 – critical for energy generation in the brain; iron – also needed for energy; zinc – for nerves and immune system; and magnesium – required for more than 300 different chemical action in the body and brain. A lack of magnesium has been shown to result in fatigue, cramps, restless legs, insomnia, numbness, seizures, and heart rhythm disturbances, and neuro-excitotoxicity - a type of over-excitement in the brain that can lead to cell loss and Alzheimer's.

So what's a body to do? The problem is every body is different, and there can be different causes of similar sensations. However, this [article by Dr. Jockers](#), illustrates well the problems involved in Acid Reflux – symptoms, causes and natural solutions.

For a second opinion, [Watch this super 10 min summary](#) by best selling author of the **UltraMind Solution**, renown Functional Med doc Mark Hyman, MD, of potential root causes, consequences and better ways to address these issues. (See comments below his video, for additional insights.)

A good place to start is with enzymes. According to nutritional researcher John Barron, the average American diet is overcooked and void of, or at least lacking in, essential enzymes needed to break down these foods. (There's not a lot of enzymes in processed, canned or packaged foods.) According to Barron:

“This means that, for most of us, the food entering our stomach is severely enzyme deficient. The food then sits there for an hour, like a heavy lump, with very little pre-digestion taking place. In an attempt to overcompensate for lack of enzymes in the food, the stomach produces an inordinate amount of stomach acid to compensate, leading to acid indigestion.” [See this article for more insight](#) on the gut-brain connection,

several potential contributors and other easy logical solutions, e.g. reducing consumption of canned or over-cooked food, eating more enzyme rich foods, chewing food longer (which gives more time for enzymes in your mouth to break down your food), and taking a good comprehensive enzyme like Dr. Jocker's notes or [one of these](#).

One other important practice to keep in mind is to avoid drinking too much water before any meal, especially ice water, as water tends to wash out enzymes needed for digestion! And ice or very cold water can further inhibit digestive enzyme expression. Drinking alcohol or smoking tobacco can also contribute to acid reflux.

Two other potential remedies, alluded to in the article linked to above on GERD and PPI's, are the [Raft forming alginates](#), which block the reflux and a chewable [Magnesium tablet](#) that works like TUMs only better.

After noting how PPI's can increase risk for heart attacks and strokes, diabetes, hip fractures, Alzheimer's, kidney disease, osteoporosis, liver cancer and lung disease, Functional Med doc Al Sears, MD, provided the following list of some [additional ideas for addressing these issues](#). (Click on the link for references to relevant studies.)

1. **The best heartburn remedy is ginger root.** This is the go-to remedy I recommend first for all my patients. This medicinal plant is known in many traditional cultures as a "universal remedy." Ginger has anti-inflammatory properties and speeds up the digestive process, preventing gas build up. It also helps to regulate bile and gastric juices in your digestive system.

Adding a cup of ginger tea to your daily diet can work wonders. It also tightens your LES [lower esophageal sphincter], helping with the back-flow of stomach acid.

2. **If that doesn't work, try D-limonene.** If ginger root isn't making you feel as well as you want, try this orange peel extract. In one trial, 90% of people taking D-limonene reported complete relief of their heartburn in just two weeks. And the effect lasted six months after they stopped taking it.³

I recommend one 1,000 mg capsule once a day after a meal.

3. **If the problem continues, use melatonin.** If you're still suffering from symptoms, I suggest taking this hormone before bed. You may know melatonin as a sleep hormone, but it also helps normalize LES pressure to allow it to close more effectively. One randomized study compared melatonin to Prilosec for GERD patients. After just 40 days, **100% of the melatonin group had a complete remission** of their symptoms. But only 65.7% of the Prilosec group got relief.⁴

Look for a melatonin spray, drops or a sublingual that melts under your tongue. Take 6 mg about 20 minutes before bed.

Another herbal blend many are finding helpful is a tonic called **Lilly of the desert**, Aloe herbal **Stomach Formula**. It includes organic Aloe Vera Juice and an herbal combo that includes Ginger root, and 7 additional herbs that help sooth stomach acid and improve digestion.

And if the above is not enough, Dr. Jockers has another great article on [10+ ways to improve stomach acid levels](#). There are some novel ideas here as well. Some combination of the above should enable any person stuck on PPI's to escape that all too frequent dangerous approach.

For additional insights and remedies for **Gut Brain Axis** issues and Mood, [check out this article](#) by Dr. Isaac Eliaz,

Probiotics and Prebiotics and how to choose what's best for you

We now know that the gut or what is called the microbiome contains trillions of bacteria, that are very important, not only for digestion, but [brain health and happiness](#), as well as our [health in general](#).

Here's [another great review of this topic](#) from Dr. Jocker's.

Here is an interesting article that reviews [how probiotics can help memory](#). It is followed by a review of 11 of the top probiotic strains and how they help the gut and body. While none are noted to specifically help memory, you can see how they might help by improving digestions and assimilation of foods, improving the vascular system, and reducing inflammation the bane of the brain. While constipation is often a problem for seniors, and is associated with higher risk for Parkinson's, probiotics can usually relieve that, as well as diarrhea.

Here is another great article on [5 Ways to Increase your good gut bacteria](#) for a healthier brain, from Canadian researcher Jordan Fallis. On that site he also has more specific articles on probiotics for **depression** and **anxiety**.

For a good in-depth review of the research connecting gut health to brain health. [See this article](#) by young Dr. Perlmutter (son of David Perlmutter, MD, one of the pioneers in probiotic advocacy, and among the most respected Neurologists in the world.) If that article is too long or if you are in a hurry you may want to move on to the following videos.

Here is a [good overview](#) of the various things that might adversely affect the health of our gut biome. (We suggest you take notes) And this [YouTube video](#) contains a decent overview of a variety of foods and supplements to rebuild your microbiome – especially after a dose of **antibiotics**, which without a good probiotic could take a year or more to

recover from. You likely would not need all of these, but she provides a variety to choose from.

If that video is not followed by one on prebiotics (which provide nourishment for probiotics and may increase BDNF (a brain growth enhancer), then you may want to [click here](#), for 5 options to choose from.

Inulin is one good well documented Prebiotic. [Here is an article](#) about another one that contains: “xylooligosaccharides to optimize growth potential of beneficial bifidobacteria. Bifidobacteria occur naturally in the human gastrointestinal tract.” And have been found to be lacking in individuals who developed COVID and long-hauler’s syndrome.

Here is that [prebiotic blend](#), alluded to above.

If you are looking for a good probiotic for your brain, particularly memory, here is another [nice short written review](#) of probiotics and how to choose one appropriate for your needs.

Several years ago, a study in Europe looked specifically at the potential for a few common probiotic strains to facilitate brain health, even Alzheimer’s. Here in Dr. Perlmutter senior’s words are the results.

“The results of the study were stunning. The placebo group showed an increase in hs-CRP, the inflammation marker, by 45%. [But] in the group taking the probiotic,,, hs-CRP didn’t just stay the same, but actually declined by 18%, indicating a dramatic reduction in inflammation...” Their mini mental scores, which included a test of memory, “went from 8.67 up to 10.57,... a huge improvement. Again, not only was their mental decline stopped in it’s tracks, these individuals regained brain function!” See his [review and the probiotics used here](#).

More recently in 2021 [a meta-analysis](#) (review of various studies) conducted in China of studies from around the world, concluded with this statement: “Our findings suggest that dietary supplementation with probiotics improves cognitive function, especially in people with MCI [Mild Cognitive Impairment].” All of the strains used were of *Lactobacillus* and *Bifidobacterium*

However, before you run to your local health food store to buy a new Pre- and Probiotic, you may want to first consider one using Phage technology, which wipes out the bad bugs, residing there, to leave more room for the good bugs to move in. [Here’s a good](#)

[article](#) to learn more about this technology. And here's a link to an inexpensive [product that contains Phage](#) plus a few good probiotics.

The experts tend to agree that after a month or two of using a probiotic with phage technology it's good to experiment with a variety of probiotics, to help repopulate your gut with a wide variety of probiotics. A good basic one to start with that's been around for a while is called **PB8**. Its inexpensive but effective.

Leaky gut, how you can tell if you have it, and ways to overcome that

Leaky gut syndrome is a nickname for increased intestinal permeability, which underlies "an enormous variety of illnesses and symptoms," including brain fog, memory decline and Alzheimer's.

In [a review of her book *Digestive Wellness*](#), Dr. Elizabeth Lipski, noted that, "...irritable bowel syndrome (IBS), migraine headaches, attention deficit disorder, and fibromyalgia may seem like different diagnoses, but they may all have the underlying cause of leaky gut syndrome or food intolerances.

"The list of health conditions associated with increased intestinal permeability grows each year as we increase our knowledge of the synergy between digestion and the immune system. Currently there are more than 13,800 research articles on intestinal permeability.

It's also found in people with AIDS, liver diseases including hepatitis and cirrhosis, lung conditions including asthma and bronchitis, and other conditions."

Dr. Lipski notes that, "When there is increased intestinal permeability, substances larger than particle size—bacteria, fungi, potentially toxic molecules, and undigested food particles—are allowed to pass directly through the weakened cell membranes into the bloodstream, activating antibodies and alarm substances called cytokines. (See young Dr. Perlmutter's article above on the impact of cytokines on the brain.)

The cytokines alert our lymphocytes (white blood cells) to battle the particles. Oxidants are produced in the battle, causing irritation and inflammation far from the digestive system."

Common symptoms to look for to help you identify a leaky gut include:

- ◆ Chronic fatigue or lack of energy that does not improve with rest
- ◆ Gastro intestinal discomfort in conjunction with any of the following
- ◆ Chronic diarrhea, constipation, gas, flatulence or bloating
- ◆ Auto immune dysfunction or poor immune system function
- ◆ Nutritional deficiencies – as indicated on a blood test
- ◆ Headaches, brain fog, and memory loss

- ◆ Cravings for carbohydrates and sugar
- ◆ Weight gain
- ◆ Arthritis and joint pains
- ◆ Depression and/or anxiety
- ◆ Autoimmune conditions such as lupus, celiac disease, or rheumatoid arthritis

([Go to 1MD.org to see](#) the list of symptoms above and for more information on the 5 Medications that can lead to a leaky gut, noted below)

What Causes Leaky Gut?

A variety of dietary factors may contribute to Leaky gut such as the overconsumption of simple carbs and sugars, PPI's, food allergies, lectins (see Gundry video below) lack of exercise, alcohol, tobacco, etc. Plus the other things noted above that deplete healthy gut bacteria. However, medications are among the most common contributors to leaky gut. According to 1MD, [5 Common Meds that can lead to a leaky gut include:](#)

1. Antibiotics wipe out the good bacteria as well as the bad, and can contribute to the development of antibiotic-resistant bacteria. When the good bacteria get depleted that can lead to SIBO (small intestinal bacterial overgrowth) or candida overgrowth. The result is chronic gut inflammation and damage to the gut wall, which leads to leaky gut.
2. NSAIDS (Non-Steroidal Anti-Inflammatory drugs, like ibuprofen) commonly taken for fevers and pain.
3. Steroids often prescribed for autoimmune disorders.
4. Acid reduction medications (See Acid Reflux above)
5. Birth control pills increase estrogen in a body, which increases the risk of a candida overgrowth, which can contribute to gut wall damage and a leaky gut.

So What Can Help?

Dr. Lipski [suggests](#), "If you believe you suffer from leaky gut, it's best to work with a health professional who can help you determine the underlying factors. Fortunately, you can find many ways to heal your gut." However, It may require changing some habits. Her suggestions include:

1. Chewing your food more completely.
- 2, Taking specific supplements that will help your body repair itself. These include:
 2. **L-Glutamine** – also recommended by 1MD and in a [Life Extension Review](#)
 3. **Bone broths** – also recommended on 1MD site
 4. **Quercetin**
 5. **Zinc**
 6. **Carnosine**

3. Taking a **variety of probiotic** strains to maintain a diverse microbiome. 1MD also suggests
- 4, **Monitoring your digestive symptoms** after eating certain foods to identify food allergies or sensitivities, and avoiding these foods.
- 5, **Eliminating infections, overgrowths of bacteria**, or yeasts like candida.
- 6, Introducing more [foods that reduce inflammation](#). Like those high in probiotics to include Fermented foods containing lactic acid bacteria, such as cultured milk products like Kefir and low sugar yogurt,
- 7, **Foods high in polyphenols**, to include fruits, seeds, vegetables, tea, cocoa products, and wine.
8. **Omega-3 fatty acids**, wild caught fish, fish oil or cod liver oil, high in EPA – which helps to reduce inflammation and has a soothing healing effect on stomach lining.
- 9, **A Mediterranean diet**, which includes some meat, mostly fish, like salmon or sardines, and anchovies, and some whole grains, but more fruit and vegetables than meats, plus healthy fats as in olive oil from avocados, nuts, beans, seeds, fiber and some red wine, but less red meat and minimal sugar.
10. **Bone broth** is also proven to be great for healing a damaged gut and restoring it to full health. Sticking with whole foods that are not processed and including plenty of fresh fruits and vegetables also ensures your gut avoids inflammation.
11. **Managing Stress**. [Stress and anxiety are commonly linked to digestive issues and gut damage](#), so controlling them is a good start for allowing your gut to heal.
12. **Getting Enough sleep** [See Step # 6 below]

Here is a [video of Dr. Jocker's](#) talking about the role of fasting and intermittent fasting to heal a leaky gut, how to do it and how it may help. Plus here are **his** [top 12 recommendations](#) for healing a leaky gut lining.

For a long but rather interesting review of gut health and an additional remedy for Leaky Gut syndrome, as well as other gut issues, you may want to [watch this infomercial](#) by Dr. Gundry, renown heart surgeon turned supplement developer and salesman. He goes on for about 45 min but it is a rather fascinating review – and his finding and product do have empirical support.

Overcoming IBS (Irritable Bowel Syndrome) IBD Inflammatory Bowel Disease) and related issues including **Colitis, Crohns, SIBO** (Small intestinal bacterial overgrowth)

Irritable bowel syndrome (IBS) is a gastrointestinal disorder characterized by chronic abdominal pain, cramps, bloating, and altered bowel habits that may include diarrhea and/or constipation. It should not be confused with *inflammatory* bowel disease (IBD), a

broad term describing conditions characterized by chronic inflammation of the gastrointestinal tract – more specifically Ulcerative Colitis and Crohn’s disease.

We have not taken the time to do write-ups on these or related disorders as other doctors in the Functional Medicine arena have already done a great job of that. So, as is our intention with this site, we will link you to those other articles. For some great insights and guidance from Dr. Jockers regarding IBS [click here](#).

For another review of this disorder and protocol, i.e. recent advancements in treatment, both in Traditional medicine and Functional/ alternative medicine [click here](#).

Inflammatory Bowel Disease (IBD) as noted is a broader category referring to what is usually termed either Ulcerative Colitis or Crohn’s disease. For a closer look at these two diseases and evidence based treatments [go here](#) (for Dr. Jockers); and you can [go here](#) for the Life Extension Protocol.

Small intestinal bacterial overgrowth (SIBO) is a complicated and particularly difficult disorder to deal with, often confused with Crohns. A proper diagnosis is very important for an effective treatment. This [short article](#) explains why an assessment may be helpful in fighting this stubborn ailment, and how a home test may be obtained. Dr. Jocker’s also has [such a test](#).

Fortunately Dr. Jockers has devoted much of his practice to uncovering the [contributing factors and strategies](#) that may be helpful in overcoming these devastating disorders including SIBO. The Life Extension [protocol for IBS](#) also has some notes re SIBO.

This Helps Them All

Among other things both Dr. Jocker’s and Life Extension note that researchers have found that all of these diseases and GI disorders, i.e. IBS and Leaky gut, **Crohn’s, ulcerative colitis, Diverticulitis, and even SIBO** can benefit from a “Low-FODMAP diet”. Go [here on Dr. Jocker’s site](#) for the most detailed description of this diet and it’s benefits.

For those who understand the value of a ketogenic diet for the brain and body, another consideration would be the [Low FODMAPs Keto Diet](#). You can learn more about this in great detail, by clicking on that link.

Finally, for additional insights and protocols for overcoming other gut issues like Celiac Disease, Diverticulosis, Peptic Ulcers and Oral Health [click here](#):

Once our system for breaking down and assimilating nutrients is working optimally we will be able to digest and absorb the nutrients our brain needs to succeed. Then we will be ready for our circulatory system to transport them to your brain. How to maximize that transport system will be our next topic.