

What Are Probiotics? A Beginner's Guide

By [Dr. Josh Axe, DC, DMN, CNS](#)

June 11, 2019

Did you know that bacteria might actually *keep* you healthy? It all just depends on the type of bacteria. In this case, we're talking about probiotics — one of the most widely researched natural solutions to gut health. For years, scientists and physicians have observed the many benefits of probiotics for not just the gut, but for the entire body.

What does a probiotic do? What are probiotics good for? Why take probiotics? What are the best probiotics? What do probiotics do for you? What is a good probiotic and the most effective probiotic? Are there side effects of too many probiotics?

In this complete probiotic beginner's guide, you will learn everything you need to know about probiotics, including the best probiotic foods and probiotic drinks, best probiotic supplements and how to use them.

What Are Probiotics?

What are probiotics? They are live bacteria that line your digestive tract and support your body's ability to absorb nutrients and fight infection. Your body contains about the same number of gut bacteria molecules as it does cells for the *rest of your body*, so it's no wonder your gut is so important to your health.

The National Center for Complementary and Integrative Health (NCCIH) calls probiotics "live microorganisms (in most cases, bacteria) that are similar to beneficial microorganisms found in the human gut." The NCCIH makes the point that we often think of bacteria as harmful "germs" — however, probiotic bacteria actually helps the body function properly.

Your skin and digestive system alone host about 2,000 different types of bacteria. Probiotics benefits have been proven effective in supporting immune function, reducing inflammation, promoting healthy digestion, as well as maintaining beautiful skin, especially when combined with prebiotics.

Your good gut bacteria is also responsible for:

- Producing vitamin B12, butyrate and vitamin K2
- Crowding out bad microbes
- Creating enzymes that destroy harmful bacteria
- Stimulating secretion of IgA and regulatory T cells, which support immune function

Probiotics are in our systems from the moments we are born. When a newborn is in the birth canal of the mother during delivery, the baby is exposed to the live bacteria of his or her mother for the first time. This event starts a chain of events inside the baby's gastrointestinal tract, and the infant's GI tract starts to produce good bacteria.

Historically, people had plenty of probiotics in their diets from eating fresh foods from good soil and by fermenting foods to keep them from spoiling. Over a century ago, the Russian Nobel Prize winner Elie Metchnikoff theorized that "health could be enhanced and senility delayed by manipulating the intestinal microbiome with host-friendly bacteria found in yogurt." Metchnikoff was ahead of his time with his view of probiotics benefits, but he also was aware that most citizens had regular access to probiotic foods.

Today, however, because of refrigeration and agricultural practices like soaking our foods with chlorine, much of our food contains little to no probiotics in the name of sanitation. Actually, many foods contain dangerous antibiotics that kill off the good bacteria in our bodies.

How do probiotics work? Your gut contains both beneficial and harmful bacteria. Digestive experts agree that the balance of gut flora should be approximately **85 percent good bacteria and 15 percent bad bacteria**.

If this ratio gets out of balance, the condition is known as dysbiosis, which means there's an imbalance of too much of a certain type of fungus, yeast or bacteria that affects the body in a negative way. By consuming certain types of probiotics foods and dietary supplements (often in capsule form), you can help bring these ratios back into balance.

Also, it's important to understand that probiotics are not a new idea. Throughout history, cultures have thrived on probiotics found in fermented foods and cultured foods, which were invented for food preservation long before the refrigerator. The process of fermentation has been lost in recent years, as it is no longer needed to preserve foods, meaning that we now lose out on those vital probiotics benefits.

TOP PROBIOTIC KILLERS

- 
Overuse of prescription antibiotics
- 
Sugar
- 
GMO foods
- 
Inflammatory gluten
- 
Emotional stress
- 
Medications
- 
Alcohol (except for red wine)
- 
Lack of exercise
- 
Over-sanitation
- 
Smoking
- 
Poor sleep habits

(1) <https://www.niddk.nih.gov/health-information/health-statistics/digestive-di...>
(2) <https://nccih.nih.gov/health/probiotics>
(3) <https://www.ncbi.nlm.nih.gov/pubmed/10564096>

Dr. Axe

PROBIOTICS & GUT HEALTH

Probiotics are bacteria that line your digestive tract and support your body's ability to absorb nutrients and fight infection.



60 MILLION TO 70 MILLION

Americans are affected by digestive disease

\$100B

Digestive disease and disorders cost the U.S. over \$100 billion per year. (1)



vs.



Your body contains about the same number of gut bacteria molecules as it does cells for the rest of your body.

1. Live microorganisms (aka bacteria) are similar to beneficial microorganisms found in the human gut.
2. Probiotic bacteria actually helps the body function properly.

— National Center for Complementary and Integrative Health (2)

2,000

Your skin and digestive system alone host about 2,000 different types of bacteria.

70–80 percent of our entire immune system is located in the digestive tract. (3)



Our gut or 'second brain' is responsible for creating 95 percent of the serotonin; it may have significant impact on brain function and mood.

What Are The Different Types of Probiotics?

There are many different types of probiotics on the market, each of which varies based on numerous factors such as stability, strain diversity and CFU count.

Typically, there are two main species of probiotics, including *Bifidobacteria* and *Lactobacillus*. In addition to being the most widely available in both probiotic foods and supplements, these two species have also been extensively studied for their beneficial effects on immune function, digestive health, weight loss and more.

There are also many specific strains of probiotics, each of which has been shown to benefit specific health conditions. Some of the best probiotic strains include:

- *Bacillus coagulans*
- *Bacillus subtilis*
- *Bifidobacterium bifidum*
- *Bacillus clausii*
- *Lactobacillus plantarum*
- *Lactobacillus fermentum*
- *Lactobacillus reuteri*
- *Lactobacillus acidophilus*
- *Lactobacillus gasseri*
- *Lactobacillus rhamnosus*
- *Lactobacillus sporogens*
- *Saccharomyces boulardii*

In addition to probiotic supplements, many of these strains can also be found naturally in probiotic foods. Fermented foods like tempeh, natto and miso are all great sources of probiotics and feature many different types of probiotics to support several aspects of health.

What Do They (Probiotic Strains) Do?

1. *Bacillus coagulans*

This specific strain of bacteria consistently ranks as a contender for the best probiotic for constipation and healthy digestion. And according to one study out of Iran, it may also be the best probiotic for irritable bowel syndrome (IBS). In fact, researchers showed that treating patients with IBS using *Bacillus coagulans* helped significantly improve diarrhea and reduce abdominal pain compared to a placebo.

Plus, thanks to its immune-modulating properties, it can also decrease inflammation and minimize symptoms of certain autoimmune disorders. For example, one study published in the journal *BMC Complementary & Alternative Medicine* showed that *Bacillus coagulans* was effective at reducing inflammation, relieving pain and improving the ability to perform regular daily activities in people with rheumatoid arthritis.

2. *Saccharomyces boulardii*

There have been a multitude of recent studies indicating that the best probiotic supplement should definitely include this beneficial strain of bacteria. In addition to its digestion-boosting benefits, *Saccharomyces boulardii* has powerful antimicrobial and antitoxin effects, which can help block the growth of bacteria and parasites while also flushing out harmful toxins.

As if that wasn't impressive enough, in vitro studies show that *Saccharomyces boulardii* can also stimulate immune function, decrease markers of inflammation and strengthen the barrier of the digestive tract to aid in the prevention of conditions like leaky gut syndrome.

3. Bacillus subtilis

Bacillus subtilis stands out from other strains of bacteria because it's one of the few types that is able to grow and thrive in a variety of diverse environments, including in soil, on the roots of plants and in the gastrointestinal tracts of animals. Animal models suggest that it may be in the running for the best probiotic for diarrhea, noting that it can improve both growth performance and digestive health. (6)

Some research also shows that it could have immune-boosting, antiviral effects as well. One animal study conducted by researchers in Ukraine, for instance, isolated a specific type of peptide from *Bacillus subtilis* and found that the protective effects were comparable to that of Tamiflu, a common medication used to treat and prevent the flu.

4. Bacillus clausii

Bacillus clausii is a strain of bacteria with benefits that extend well beyond its effects on digestion and gut health. In fact, studies show that *Bacillus clausii* could also have potent antimicrobial properties to protect against harmful bacteria, viruses and fungi as well as immune-enhancing effects to fight off infection.

Plus, it may also be a candidate for the best probiotic for kids with diarrhea, as studies show that it can reduce the duration and frequency of diarrhea in children with minimal risk of adverse symptoms or side effects.

5. Lactobacillus plantarum

Lactobacillus plantarum has been associated with a number of impressive health benefits. In terms of digestive health, it's been shown to improve symptoms of IBS, including abdominal pain and bloating. It can also help bump up immunity while simultaneously reducing inflammation in the digestive tract.

What's more, it may even come with some serious anti-aging benefits as well. A clinical trial published in the *Journal of Microbiology and Biotechnology* actually found that supplementing with *Lactobacillus plantarum* was able to reduce wrinkle depth, increase skin gloss and improve skin elasticity by nearly 22 percent after just 12 weeks.

6. Lactobacillus gasseri

As one of the best probiotics for weight loss, there have been a slew of studies demonstrating just how powerful this strain of bacteria may be when it comes to your waistline. For instance, one study in the *British Journal of Nutrition* showed that taking *Lactobacillus gasseri* daily led to significant reductions in body weight and body fat compared to a control group, with participants losing up to 8.5 percent body fat over a 12-week period.

Another study out of Korea had similar findings, reporting that taking *Lactobacillus gasseri* for 12 weeks led to significant reductions in hip and waist circumference compared to a placebo.

Are They Effective?

Whether you're looking to skyrocket immune function, decrease disease risk or simply improve your overall health, probiotics can make a worthy addition to your daily routine.

Nestled inside your gut are trillions of live microorganisms that make up the microbiome. Many of these bacterial cells are considered “good bacteria” and help support immune function, enhance nutrient absorption, and aid in the synthesis of key neurotransmitters and other compounds.

Probiotics are a type of organism that can help boost the amount of beneficial bacteria in your gut. They are found in probiotic supplements and fermented foods, including tempeh, natto, miso and kombucha. Some of the potential benefits of probiotics include:

- Improved digestion
- Reduced cholesterol levels
- Increased immunity
- Cancer protection
- Enhanced regularity
- Better mental health
- Reduced allergy severity

How to Use Them Safely (Risks and Side Effects)

All probiotics aren't created equally. Not all strains have beneficial effects, and it's important to do your research before starting a new supplement. And, as always, all new supplement regimens should be conducted under the supervision of a medical professional.

Probiotic side effects can sometimes include diarrhea if you take too much too fast. You can start off with a smaller amount, like one tablespoon of kefir or one probiotic capsule a day, and work your way up if you're just getting into eating probiotic foods or taking dietary supplements.

One very rare side effect of probiotics seen in cancer patients is sepsis. This is an extremely rare occurrence.

Overall, most studies have found that probiotics are associated with very few probiotics side effects and a large number of benefits.

Health Benefits of Probiotics

Studies indicate that probiotics can provide health benefits for the following diseases and conditions:

- digestive disease (help treat and prevent)
- decrease antibiotic resistance
- may improve mental illness
- boost immunity and decrease inflammation
- improve skin conditions
- protect against food allergies
- may treat dangerous newborn disease (necrotizing enterocolitis (NEC) and neonatal sepsis)
- help lower blood pressure
- treat diabetes
- may improve non-alcoholic fatty liver disease
- may help prevent or slow/stop the growth of bladder and colorectal cancers
- may prevent cavities
- may remedy urinary tract infections (UTIs)

What Foods Contain Probiotics?

In addition to probiotic supplements, you can also try adding more probiotic foods into your diet to help optimize your gut health. Fermented foods and foods with added probiotics are a great option to help get in your daily dose.

Some of the best probiotic foods include:

- Tempeh
- Miso
- Natto
- Kombucha
- Raw cheese
- Kefir
- Probiotic yogurt
- Kimchi
- Pickles
- Sauerkraut

Keep in mind that these probiotic foods should be low in added sugar, preservatives and extra ingredients to really get the most bang for your buck. Even if you're consuming the best probiotic drink or best probiotic yogurt, it may not contain the same health benefits if it's highly processed and pumped full of additives.

How Should You Take Probiotics?

Note that the probiotics benefits of one probiotic strain may be completely different from the health benefits seen from another probiotic. If you want to use probiotics to address a specific health concern, it's vital to select the right probiotic for the right condition — or you can consume a wide range of probiotics in your food to be covered.

When reading a probiotic label, it should reveal the genus, species and strain of the probiotic. The product (usually in capsules or probiotics pills) should also give you the colony forming units (CFUs) at the time of manufacturing. Also, the majority of probiotics can die under heat, so knowing the company had proper storing and cooling of the facility is also important.

There are seven specific things you want to consider when buying a probiotic supplement:

1. **Brand quality** — Look for reputable, established dietary supplement brands with readily available customer reviews.
2. **High CFU count** — Probiotic dosage is measured in “colony forming units,” or CFUs. Ideally, you should aim for at least 5–10 billion CFUs per day for children and 10–20 billion CFUs each day for adults. However, the recommended dosage may vary based on individual health concerns, so discuss with your doctor for personalized guidance as needed.
3. **Survivability and strain diversity** — Look for strains like *Bacillus coagulans*, *Saccharomyces boulardii*, *Bacillus subtilis*, *Lactobacillus plantarum*, *Bacillus clausii* and other cultures or formulas that ensure probiotics make it to the gut and are able to colonize.
4. **Prebiotics and supplementary ingredients** — For probiotic bacteria to grow, they also need prebiotics. High-quality probiotic supplements have both prebiotics and other ingredients designed to support digestion and immunity. Examples of these ingredients are (preferably fermented) flaxseed, chia seed, cañihua seed, astragalus, ashwagandha, hemp seed, pumpkin seed, milk thistle, peas, ginger, mung bean and turmeric.
5. **Stability and organism types** — Some probiotic strains need to be kept cold in order to preserve their potency. This applies to their production, transport, storage and sales. Others are shelf-stable and don't require

refrigeration. Unfortunately, most refrigerated probiotics never make it past the stomach because they aren't stable. Instead, look for a shelf-stable product that contains soil-based organisms.

6. **Sugar** — Sugar is not a good food source for probiotics. Prebiotics are the food source meant to keep probiotics alive. A synbiotic is a dietary supplement that contains both prebiotics and probiotics. The best synbiotics contain healthy plant starches and fiber.
7. **Living vs. dead** — “Live and active cultures” are a better bet than “made with active cultures.” After fermentation, the product may be heat-treated, which kills off both good and bad bacteria (extending shelf life).

So when is the best time to take a probiotic? Most sources typically recommend taking your probiotic first thing in the morning, about 15–30 minutes before breakfast. This ensures that your probiotic supplement is able to reach your digestive tract quickly without getting stuck in the stomach behind your morning meal.

Final Thoughts on Probiotic Beginner's Guide

- Natural probiotics are bacteria in your digestive tract that support the immune system and help reduce chronic inflammation, potentially impacting the development of a large number of diseases.
- Because so much of your health begins in the complex microbiome of the gut, proper balance of your gut bacteria is crucial to overall health.
- The first step in cultivating a healthy gut with probiotics is to avoid good bacteria “killers” like sugar, chronic stress and alcohol.
- Extensive research has found that probiotics have a number of health benefits, including the prevention of digestive diseases like irritable bowel syndrome and infectious diarrhea, increased immunity, and more.
- You can incorporate probiotics into your routine by eating more sour and fermented foods, feeding your gut bacteria with insoluble fiber in high-fiber foods, and even by taking a high-quality probiotic supplement in order to take advantage of probiotics benefits.
- Probiotic side effects are rare, but always use caution when starting any new supplements.