

# Nourishing Gut Bacteria Is Critical for Health, Well-Being

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✓ Fact Checked

August 13, 2023

## STORY AT-A-GLANCE

- › One of the best and least expensive ways to optimize your gut microbiome is to eat traditionally fermented and fiber-rich foods. Probiotic supplements can also be beneficial
- › One of the reasons a healthy diet is able to influence your health is by creating an optimal environment for beneficial bacteria in your gut, while decreasing pathogenic or disease-causing bacteria, fungi, and yeast
- › If you have to take an antibiotic, be sure to also take a high-quality probiotic. To ensure the bacteria's survival, take the probiotic a few hours before or after taking the antibiotic

***Editor's Note: This article is a reprint. It was originally published March 13, 2016.***

Barely a day goes by without some type of media announcement noting the importance of your gut flora.

One of the best and least expensive ways to optimize your gut microbiome is to eliminate sugars and processed sugars and eat traditionally fermented foods, but probiotic supplements can also be beneficial.

Greg Leyer,<sup>1</sup> who has a Ph.D. in food microbiology, is head of scientific affairs at Chr Hansen, a global, differentiated bioscience company that develops natural ingredient solutions for the food, nutritional, pharmaceutical and agricultural industries, and he's been passionate about probiotics and health for more than two decades:<sup>2</sup>

*"I got interested in microbiology and spent my graduate research career looking at pathogenic bacteria, those bacteria we want to avoid and that make us sick," he says.*

*"In the course of doing those studies, I became aware that not all bacteria are bad and became intrigued in this whole concept of probiotics ... My first post-graduate job was in the area of developing probiotics for infant nutrition. That was 21 years ago.*

*I've been in the probiotic research development field ever since, and have seen the clinical research and the market just explode."*

## **Nourishing Your Microbiome Begins With Real Food**

Mounting evidence reveals there's more to nutrition than previously thought — a large component of it actually revolves around nourishing the health-promoting bacteria in your body, thereby keeping harmful microbes in check.

Probiotics are supplements designed to increase your beneficial bacteria, the largest concentration of which is found in your gut. Different types of bacteria live in different locations in your gastrointestinal tract. You also have bacteria residing in other areas of your body, such as your mouth and skin.

While probiotic supplements have their benefits and their place, it's important — before taking a supplement — to optimize the conditions where these beneficial bacteria grow.

One of the reasons a healthy diet is able to influence your health is by the fact that it helps create an optimal environment for beneficial bacteria in your gut, while decreasing pathogenic or disease-causing bacteria, fungi, and yeast.

"Healthy eating" basically amounts to eating real food, which means avoiding processed foods and staying away from sugars, because few things fertilize and accelerate the growth of pathogenic microbes better than sugar. As noted by Leyer:

*"In studies done in people all over the world, you'll see different microbial communities residing in people that have different dietary intakes. You want to provide foods that are going to nourish this healthy community of bacteria in your gastrointestinal tract.*

*Sugars aren't selective. Bacteria like sugars, but the bad bacteria love sugars. Eating real food, complex carbohydrates, fiber, and things like that, are more selective. Simply put, the pathogenic bacteria don't utilize non-fiber carbs as efficiently. It's more difficult for them to grow with complex carbohydrates as an energy source."*

## **The Importance of Probiotics When Taking an Antibiotic**

Unfortunately, the U.S. Food and Drug Administration restricts supplement makers from making certain health claims; for example, you cannot market a probiotic saying, "This is useful to take after an antibiotic," because that would imply that antibiotics might harm you in some way.

As a result of these restrictions, unless you spend a fair amount of time reading about the subject you may not be aware of many of the benefits of probiotics.

*"There's a lot of very compelling research that we're not able to talk about on a product label," Leyer notes. "One of the exciting areas is the role of healthy bacteria when co-prescribed with an antibiotic, and the effect it has on maintaining healthy populations in your gut.*

*Antibiotics are selective for bacteria and not viruses, but they're not terribly selective for a particular type of bacteria. Antibiotics – and many studies have shown this – will have a tremendously disruptive effect on the overall microbial community.*

*They'll kill the target organism that might be causing your infection which is a good thing ... but they also do a lot of harm to the good bacterial populations that are there.*

*Studies have shown that when you co-administer probiotics with antibiotics and continue the probiotic administration even after stopping the antibiotic regimen, you're quickly able to restore that microbial community to the healthy state it was prior to the antibiotic treatment."*

## **Guidelines for Taking Probiotics With Antibiotics**

If you're taking an antibiotic, don't simultaneously take the probiotic as the antibiotic is liable to simply kill the bacteria off. Instead, take them a few hours before or after taking the antibiotic. From the clinical research Leyer has done, this strategy appears to work quite well.

Saccharomyces yeast, a beneficial type of yeast, may also be helpful when taking a course of antibiotics, as it has also been shown to prevent antibiotic-associated diarrhea.

*"Fifteen to 25% of people who take an antibiotic end up getting antibiotic-associated diarrhea.*

*Probiotics – I'll include Saccharomyces in this group – have been shown to have tremendous benefits in reducing the risk of developing that kind of secondary complication of antibiotic treatment," Leyer says.*

## **The Hazards of Antibiotics in the Food Supply**

Medical antibiotics are not the sole source of exposure. About 80% of all antibiotics sold in the U.S. are actually used in livestock production to fatten up the animals and prevent disease.

So, unless you're buying organic grass-fed meats, you're likely ingesting minute doses of antibiotics with each hamburger and steak you eat. This continuous low-dose exposure has the added downside of promoting antibiotic resistance. The role of antibiotics in promoting (rather than treating) disease is slowly gaining ground.

There's no question that antibiotics have saved lives. But if you were to carefully analyze and objectively determine their true impact, you just might find they've done more harm than good. Leyer cites the book "Missing Microbes: How the Overuse of Antibiotics Is Fueling Our Modern Plagues," written by Dr. Martin Blaser, which presents the theory that many of our modern disease epidemics may be rooted in the disruptive effect modern foods have on our microbiota.

*"Keeping your intestinal microflora healthy, consuming healthy, active, probiotic bacteria is a key component to maintaining, in my opinion, your overall health,"*  
Leyer says.

## **Probiotics for the Prevention of Leaky Gut, and More**

Leaky gut results when there's a disruption in the interconnections between the cells in your intestines. Little holes or tears can develop, allowing food particles to enter your blood stream, which can cause an autoimmune response.

It's a serious problem, and I've known a number of people who nearly died from it. There are a number of causes for leaky gut, but whatever the cause, one of the most powerful remedies is to consume homemade organic bone broth and fermented vegetables. Certain probiotic supplements can also be helpful. According to Leyer:

*"I am familiar with the evidence behind certain probiotics and their ability to prevent or lessen leaky gut. The issue with leaky gut is that you're getting things into the circulation system that aren't supposed to be there.*

*Lipopolysaccharides (LPS) ... are inflammatory components from gram-negative bacteria ... [LPS] is a diagnostic test to look for leaky gut.*

*What we're finding is that subchronic levels of LPS circulating in the blood causes this chronic inflammation cascade. Chronic inflammation seems to be at the root of a lot of disease states ... One that is front and center is Type 2 diabetes and insulin resistance.*

*There's been some really intriguing work with probiotics maintaining tight-junction barrier, reducing leaky gut, reducing circulating LPS, and affecting insulin sensitivity through downplaying this inflammation."*

Probiotics have also been extensively tested for their immunological functions. For example, in the elderly, probiotics can help boost activity of immune cells that fight off cancer cells. The mechanism involved here is an orchestration of immune chemical messengers called cytokines. But there's still much to be learned about the exact mechanisms by which probiotics influence health.

*"There are some areas in the probiotic science where the mechanisms are becoming better understood. And there are some areas in probiotic science that is more theory than really causal right now.*

*But the more layers of the onion you peel back, the more you understand this is an incredibly complicated web of information from gut to human, to nervous system to immune system. This complex interplay is at the heart of probiotic mechanisms and one reason it is not so simple to clearly identify." Leyer explains.*

## **Probiotics and the Gut-Brain Axis**

It's become quite clear that the benefits of probiotics transcend the gut. More recent studies have delved into the role of gut bacteria in the workings of the gut-brain axis, and how they benefit your mental and psychological health. Anxiety, depression and other mood disorders are increasingly recognized as being, in part, related to an unbalanced microbiome.

Probiotics appear to have the ability to make compounds called neuropeptides that interact directly with your brain. Probiotics certainly influence your immune system by way of modulating inflammation, which has interactions with and can cross the blood-brain barrier.

*"There's an interesting study where people gave infants probiotic bacteria for the first two years of their life," Leyer says. "They were really looking at the ability of this probiotic to ward off the incidence of atopic eczema or skin rashes.*

*When the kids were 13 years old, they went back and said, 'Okay. Let's look at autistic spectrum disorder, attention-deficit hyperactivity disorder (ADHD), and [other] psychological kind of issues and ask if there is a relationship between those children who were administered the probiotic early in life, and incidence.'*

*Of the kids that took the probiotic, none had developed any kind of autistic spectrum disorders; 17% of those that did not get probiotics developed autistic spectrum disorders. The study wasn't designed to look at ADHD or autism, but it's an interesting way to look back in time and say:*

*Here's a population of people that were essentially imprinted with probiotic bacteria at a very young age. We now understand better that there's this developmental window in young people that's critically important for longer term health."*

## **Beware of 'Probiotic' Junk Food**

As a general rule, I believe most people would be able to obtain most of their nutritional support from real food. This is certainly the case with beneficial bacteria, because there are a lot of good fermented foods that provide them.

One of my biggest pet peeves when it comes to probiotic foods is yogurt, because most of them are nothing more than creamy junk food. The Cornucopia Institute has published a [Yogurt Buyer's Guide and Scorecard](#)<sup>3,4</sup> where you can learn more about your favorite brands.

Many who seek to improve their health buy commercial yogurt from the grocery store, thinking they're doing something good for themselves when in reality they're not. They'd be far better off taking a probiotic supplement, as then they'd avoid added sugars and

other unhealthy additives. The exception to that rule is traditionally cultured yogurt made from organic raw milk.

Commercial yogurts often contain upwards of 25 to 30 grams of sugar per serving, which meets or exceeds the daily recommended amount of sugar for the whole day!

The amount of probiotics you'll get from commercial yogurt is also far lower than what you'd get from a high-quality probiotic supplement. A commercial yogurt might give you a million probiotic cells, which sounds like a lot, but if you take a quality-made supplement you're getting tens of billions of probiotics – three orders of magnitude greater amounts. So in that respect, a supplement is clearly easier and more cost-effective.

*"The other thing you have to consider is that in a yogurt, you've got a very acidic condition that's degrading the quality of the probiotics over the course of the shelf life of that yogurt. In a quality-made dietary supplement, these probiotics are essentially in suspended animation or dormant until you consume them; they come back to life when you swallow the capsule." Leyer notes.*

## **Probiotic Guidelines**

Many tend to imagine that taking probiotics is like planting seeds in your garden. They grow, reproduce, and all you basically have to do is "seed and feed" them. But that's actually not the case. Your intestinal tract contains thousands of different bacterial types, not to mention fungi and viruses. It's a challenging environment with lots of competition.

Probiotics have developed the ability to withstand normal concentrations of stomach acid and bile in the small intestine, and live there, but they don't live and thrive there forever. As noted by Leyer:

*"When you stop taking the probiotics, studies show that you start seeing less and less of that probiotic residing there. It will decline to this baseline level similar to where it was before you started taking a probiotic supplement.*



*On the immune side, there are studies that show that immune benefits decline within a few days after stopping taking the probiotics. So it's really important to maintain a continual onslaught of these healthy bacteria."*

Factors to look for when trying to identify a high-quality probiotic supplement include the following:

Make sure it's a reputable brand. If you trust the products made by a company, perhaps they're doing a great job making their probiotics as well.

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Look for a potency count (colony forming units or CFUs) of 50 billion or higher. That's the number of bacteria being delivered per dose.

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Declaration of shelf life, i.e. the shelf life of the CFUs. Avoid capsules that only declare the CFUs at time of manufacture. Food products should be in resealable packaging and stored as directed.

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Look for a product containing multiple species of bacteria, as high diversity tends to be associated with better health. That said, products containing species of Lactobacillus and Bifidobacteria are generally recommended.

Examples would be Lactobacillus acidophilus and Lactobacillus plantarum. These organisms predominantly reside in the small intestine or the upper gastrointestinal tract (GI) where a vast majority of your immune cells reside. Bifidobacteria, on the other hand, reside in the large intestine or the lower bowel, which is another critical location associated with health. Bifidobacterium lactis, Bifidobacterium longum, and Bifidobacterium bifidum are important ones.

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Look for non-GMO brands.

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Confirm that they're manufactured according to current Good Manufacturing Practices (cGMP).<sup>5</sup>

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# Optimize Your Microbiome for a Disease Prevention Strategy

As noted by Leyer, "probiotic consumption for health and wellness is here to stay." A tremendous amount of research shows that the microbial community in your body has a wide ranging influence over your health. "The days of 'all bacteria are bad' are long gone," Leyer says. "Eating clean and natural foods, nourishing your gut, and having a healthy intestinal community are really at the core of wellness."

I also firmly believe that applying this knowledge can make a distinct and positive difference in your health, boosting not only your immune function, but also your neurological function and mood. Best of all, supporting your microbiome isn't very complicated. You do need to take proactive steps to implement certain key strategies while actively avoiding other factors though. So to optimize your microbiome, consider the following recommendations:

## Do

**Eat plenty of fermented foods** — Healthy choices include lassi, fermented grass-fed organic milk such as kefir, natto (fermented soy), and fermented vegetables.

**Take a 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 is an exception if you don't eat fermented foods on a regular basis.

**Boost your soluble and insoluble fiber intake**, focusing on vegetables, nuts, and seeds, including sprouted seeds.

## Avoid

**Antibiotics**, unless absolutely necessary, and when you do, make sure to reseed your gut with fermented foods and/or a high quality probiotic supplement.<sup>6,7</sup>

**Conventionally-raised meats** and other animal products, as CAFO animals are routinely fed low-dose antibiotics, plus genetically engineered grains loaded with glyphosate, which is widely known to kill many bacteria.

**Chlorinated and/or fluoridated water** — Especially in your bathing such as

## Do

### **Get your hands dirty in the garden –**

Exposure to bacteria and viruses can serve as "natural vaccines" that strengthen your immune system and provide long-lasting immunity against disease.

Getting your hands dirty in the garden can help reacquaint your immune system with beneficial microorganisms on the plants and in the soil.

According to a 2014 report,<sup>8</sup> lack of exposure to the outdoors can in and of itself cause your microbiome to become "deficient."

**Open your windows –** For the vast majority of human history the outside was always part of the inside, and at no moment during our day were we ever really separated from nature.

Today, we spend 90% of our lives indoors. And, although keeping the outside out does have its advantages it has also changed the microbiome of your home.

## Avoid

showers, which are worse than drinking it.

**Processed foods –** Excessive sugars, along with otherwise "dead" nutrients, feed pathogenic bacteria.

Food emulsifiers such as polysorbate 80, lecithin, carrageenan, polyglycerols, and xanthan gum also appear to have an adverse effect on your gut flora.<sup>9</sup>

Unless 100% organic, they may also contain GMOs that tend to be heavily contaminated with pesticides such as glyphosate. Artificial sweeteners have also been found to alter gut bacteria in adverse ways.<sup>10</sup>

**Agricultural chemicals, glyphosate (Roundup)** in particular is a known antibiotic and will actively kill many of your beneficial gut microbes if you eat foods contaminated with Roundup.

## Do

Research<sup>11</sup> shows that opening a window and increasing natural airflow can improve the diversity and health of the microbes in your home, which in turn benefit you.

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**Wash your dishes by hand instead of in the dishwasher** — Research has shown that washing your dishes by hand leaves more bacteria on the dishes than dishwashers do, and that eating off these less-than-sterile dishes may actually decrease your risk of allergies by stimulating your immune system.

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## Avoid

**Antibacterial soap**, as they too kill off both good and bad bacteria, and contribute to the development of antibiotic resistance.

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## Sources and References

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