Probiotics, Bacteria, and Our Health

The human body is home to over five hundred different strains of bacteria that serve specific functions. Even bacteria of the same name may function in different ways. For example, if a specific strain of *Lactobacillus* (a commonly studied probiotic strain) helps prevent an illness, that doesn't mean that another strain of *Lactobacillus* would have the same effect. We have yet to discover all the effects that probiotics have on the body, but we do know that the right strains, cultured and processed the right way, offer the following six proven health benefits:

1. Probiotics Provide Energy

According to Gastroenterologist Matthew Ciorba, up to 10% of our daily energy needs are provided through the process of fermentation by our gut flora. By breaking down the components of food that we are unable to digest (like fiber), bacteria in our gut allow us to assimilate fatty acids, sugars, and amino acids that we would not have access to otherwise.

Related: *How To Heal Your Gut*

2. Probiotics Are Antioxidants and Anti-inflammatory

An excess of oxygen radicals in the gastrointestinal tract is a potential cause of chronic diseases. As these oxygen radicals accumulate in the intestinal tract, they can damage the intestinal lining and create a state of chronic inflammation. Strains of *Bifidobacterium* and *Lactobacillus* have been found to limit the accumulation of free radicals in the intestinal tracts of rats by acting as antioxidants. The

end-products that gut bacteria produce, like the short-chain fatty acid called butyrate, also have antioxidant properties that help to reduce inflammation and heal the intestinal wall.

3. Probiotics Resist Infection

The fermentation end-product butyrate also supports regulatory T-cell functions in the gut and contributes to the integrity of the intestinal wall. This allows the body to prevent infectious pathogens from getting in while we let our immune system eliminate them from the body. Probiotics also prevent pathogenic bacteria like *E. coli* from being able to colonize our intestinal tract by out-competing them for food, using acids to change the environment, and creating anti-microbial substances that prevent the bad bacteria from thriving.

Product Recommendation: Syntol AMD – Arthur Andrew Medical

4. Probiotics Prevent Digestive Issues

We need bacteria to digest food. Probiotics help prevent digestive issues in many ways. They keep our intestinal wall from being oxidized by free radicals by acting as antioxidants and triggering the production of protective mucous. Probiotics also produce substances that provide the intestinal wall with what it needs to heal itself. Butyrate, for example, provides the components that the intestinal wall needs to form new cells while providing energy for existing cells. Butyrate has also been found to increase intestinal motility, which helps prevent constipation.

Recommended: *How To Reverse Fatty Liver Disease (Diet Plan Included)*

5. Probiotics Produce Vitamin K and B Vitamins

In addition to producing butyrate, probiotics have the capacity to synthesize seven different vitamins:

- **Vitamin B12:** Vitamin B12 is required for proper red blood cell formation, neurological function, and DNA synthesis.
- **Vitamin B6:** Vitamin B6 is involved in more than 100 enzyme reactions that are mostly concerned with protein metabolism.
- **Vitamin B5:** Vitamin B5 is needed to produce red blood cells, manufacture sex and stress-related hormones, synthesize cholesterol, and maintain a healthy digestive tract.
- **Vitamin B3:** Vitamin B3 helps the body make various sex and stress-related hormones, improve circulation, and suppress inflammation.
- **Biotin:** Biotin metabolizes carbohydrates, fats, and amino acids and plays a role in preventing insulin resistance.
- **Folate:** Folate is essential for proper cell division.
- **Vitamin K:** Vitamin K is required for the synthesis of proteins involved in blood clotting and bone formation.

These vitamins are essential for processes that affect every cell in the body, but our needs for these vitamins are not met by our probiotics alone. We must consume adequate amounts of these vitamins to receive their benefits because it is unclear how much of these vitamins is produced by our probiotics.

6. Probiotics Help with Fat Loss

A few studies suggest that specific *Lactobacillus* strains have an impact on body fat, weight, and metabolic disorders. For example, the ingestion of *Lactobacillus gasseri SBT2055* for 12

weeks reduced fat mass gain, body weight, and waist to hip ratio in overweight subjects when compared to a placebo. This may be due to the link between leptin and probiotics. Leptin is a hormone secreted by fat cells that lets the brain know when we are full. Probiotics indirectly affect our leptin response by promoting a state of low inflammation and allowing us to get more nutrition out of every calorie we eat. This creates the perfect environment for fat loss.

Attack of the Antibiotics

Antibiotics are designed to kill a broad range of bacteria in an effort to fight off infection. Unfortunately, antibiotics also destroy over one-third of the bacteria in our gut. This causes rapid shifts in our microbiome (intestinal bacteria) that leaves us vulnerable to harmful bacteria like *Clostridium difficile* and *Salmonella typhimurium.*

Even if the harmful bacteria do not infect our system, our intestinal tract will still be compromised. Without a proper balance of beneficial flora, our intestinal tract will become inflamed and leaky, letting pathogens through. We will also lack the Vitamin K and B vitamins that are normally produced by probiotics in the large intestine. This can lead to hormonal imbalance, a lack of energy, and an increased risk of disease.

With all of these negative effects, it becomes obvious as to why antibiotic use is associated with a large number of health problems and an increased susceptibility to infectious diseases. The health of our microbiome is essential for our health and well-being. Check out *How to Detoxify From Antibiotics and Other Chemical Antimicrobials* for more on this.

Related: *Signs You Have Too Much Candida*

Don’t Worry, Change Is Simple

Even if you have taken antibiotics recently, you can begin to counteract their negative effects immediately. According to David Relman, a microbiologist at Stanford University, the bacteria in our gut adapt quickly to what we eat. In an article in the *Frontiers in Microbiology*, M.P. Francino explains that our microbiome is “…capable of returning to a composition similar to the original one.”

This means that food can be our medicine if we eat the “right” foods.

What Are the “Right” Foods?

The “right” foods are prebiotic. Probiotics provide your gut with the beneficial bacteria it needs to thrive. Prebiotics provide your beneficial bacteria with what they need to survive and to provide you with all of the benefits mentioned earlier in this article. Think raw produce, herbs, and spices.

Many experts agree that one of the best ways to get probiotics in your diet is by eating fermented vegetables. Kim chi, sauerkraut, and pickles are fermented vegetables that contain different kinds of probiotics. These probiotics are already working to digest your meal before you eat it, which makes nutrients within the food more bioavailable. This is especially beneficial for those with digestive issues.

To ensure that you are eating the best fermented vegetables, check the label on the container. Look for the words “raw”, “unpasteurized”, and “naturally fermented.” When looking at labels, smaller, local businesses are worth a close look, and anything national will most certainly be pasteurized in some way. Most of the probiotics are killed when the product is heated or pasteurized. Also, make sure there are no preservatives like sodium benzoate or sodium sulfite. The best

fermented vegetables are made using organic vegetables and unrefined salt. Herbs, spices, and seeds are added for more flavor and nutrition.

Fermented vegetables also provide you with plenty of prebiotic material. As our bacteria enjoy their meal, they produce many highly beneficial end-products like butyrate.

Non-starchy vegetables like broccoli and artichokes, greens like kale and collards, and salad greens like spinach and arugula come with plenty of fiber to feed your probiotics and plenty of nutrients to feed your body.

After Dr. Mercola had his homemade sauerkraut tested in a lab, he reported that "…a 4-6 ounce serving of the fermented vegetables had ten trillion bacteria." This means that 2 ounces of sauerkraut had more probiotics than a full bottle of 100-count probiotic capsules.

Michael Edwards, OLM's Editor-in-Chief has an unusual opinion of fermented foods.

> *I love sauerkraut and I hope everyone reading this learns to make it. Fermented vegetables have many benefits (for instance, see the vitamins up at #5), but the bacteria itself doesn't make my list. Our stomach acid kills most of it. That's what stomach acid is designed to do. I know some who swear they make such a potent product that much more of the bacteria makes it into the gut. After trying some of these products, I agree.*
>
> *But, for anyone who is sick, and especially anyone who has an abundance of Candida, fermented vegetables cannot provide enough, or cannot provide a strong enough strain of bacteria to counteract a sick gut's biofilm. I recommend a high qaulity, trusted probiotic supplement along with a prebiotic diet."*

What about Yogurt?

Dairy products, like milk, are commonly known as an essential part of our diet, so probiotic-rich yogurt should be called a "superfood", right?

Unfortunately, some of the widely accepted beliefs about the benefits of dairy products, like the belief that dairy builds strong bones, have been disproven. Dairy has also been linked to various cancers, especially prostate and breast cancer. Combine these findings with the fact that conventional yogurt lacks beneficial prebiotics and contains high amounts of sugar, and it becomes clear why it may be best to limit the consumption of dairy. Due to the state of the dairy industry and how yogurt is processed, even plain, unsweetened conventional yogurt is more likely to feed pathogens than to be a source of probiotics.

The Dirty Truth about Supplements

Scientific literature is riddled with uncertainty regarding the effectiveness of probiotic supplements. For example, a Canadian study in 2004 measured the viable organisms in 10 brands of probiotic preparations and none matched the amount on their labels. Eight brands had only 10% of the stated number of probiotics and two of the brands had no viable probiotics at all.

Even if these probiotic supplements contained all of the viable probiotics that they promised, there would still be no guarantee that the probiotics would survive the journey to the intestinal tract.

> *Most probiotic supplements are also ineffectual for a multitude of reasons. It's not just the probiotic count that matters; strain quality varies widely and are more often ineffectual. Of the ones I've tried (about 45)* ***Bio-K****,* ***Abzorb****,*

> *and FloraMend are three I know of that work. Most probiotic supplements are a waste of money, and many actually feed Candida and other non-benefical microflora.” – Michael Edwards*

The Treacherous Journey of Probiotics

First, probiotics must survive the environment they are exposed to when they are outside of the body. Once the probiotics are ingested, they must survive the extreme acidity of stomach acid and bile acids. One study states that, “…survival rates have been estimated at 20–40% for selected [probiotic] strains.” According to the American Nutrition Association, Lactobacillus, Bifidobacterium, and Streptococcus probiotic strains can survive the journey through the stomach. However, L. bulgaricus and S. thermophilus, as well as Leuconostoc and Lactococcus species, cannot survive.

Even when the probiotics make it to the intestinal tract, they still have to attach to and colonize the intestinal wall. This is another uncertain aspect in consuming probiotics that is difficult to measure. Unfortunately, there is no way to guarantee that the probiotics in your sauerkraut, kim chi, or probiotic supplement will actually colonize your intestinal tract.

How to Make Probiotics Work for You

Even the best probiotic will do little to combat a poor diet. In fact, the best probiotic supplement is the “right” food. To improve your digestive health and receive all the benefits of probiotics, all you have to do is eat prebiotics and probiotics in the form of raw, unpasteurized fermented organic vegetables and organic non-starchy vegetables every day. With enough time on this kind of diet without processed and refined

foods, almost anyone can improve their digestive system.

Recommended Reading:

- *Fermenting Vegetables*
- *Candida, Gut Flora, Allergies, and Disease*
- *How to Kill Fungal Infections*
- *Health Benefits of Apple Cider Vinegar & How to Make Your Own*
- *Your Guide to Root Vegetables – Health Benefits, Recipes, and More*

Sources:

- *Can probiotics modulate human disease by impacting intestinal barrier function? – Cambridge*
- *Probiotics: In Depth – NIH*
- *Dietary changes affect gut microbes within a day – Science News*
- *A Healthful Dose of Bacteria – Yogurt Is the Best Probiotic Source, but Clients Do Have Other Options – Today's Dietitian*
- *Caveat emptor. "Probiotics" might not be what they seem. – NCBI*
- *A Gastroenterologist's Guide to Probiotics – NCBI*
- *Potential beneficial effects of butyrate in intestinal and extraintestinal diseases* – NCBI
- *The weight of leptin in immunity.* – NCBI
- *Lipid peroxidation and antioxidant status in colorectal cancer* – NCBI
- *Probiotic Mechanisms of Action – Karger*
- *Probiotics: determinants of survival and growth in the gut – The American Journal of Clinical Nutrition*
- *Vitamin B5 (Pantothenic acid) – University of Maryland Medical Center*
- *Vitamin B6* – NIH
- *Vitamin B12 – NIH*
- *Vitamin B3 (Niacin)* – University of Maryland Medical

Center
- *Vitamin H (Biotin) – University of Maryland Medical Center*
- *Folate – NIH*
- *Vitamin K – NIH*
- *Antibiotics and the Human Gut Microbiome: Dysbioses and Accumulation of Resistances – NCBI*
- *The effects of antibiotics on the microbiome throughout development and alternative approaches for therapeutic modulation – NCBI*
- *Human nutrition, the gut microbiome, and immune system: envisioning the future – NCBI*
- *Health Concerns about Dairy Products – The Physicians Committee for Responsible Medicine*
- *Non-starchy Vegetables* – Diabetes
- *The Science of Probiotics – American Nutrition Association*
- *Fermenting Foods–One of the Easiest and Most Creative Aspects of Making Food from Scratch* – Dr.Mercola