

Probiotics

The Friendly Bacteria That Actually Improve Your Health



We have been trained to think of bacteria as the bad guys, and we're encouraged to disinfect everything and thoroughly cook food to protect ourselves from these harmful creatures. But there is a flaw in this viewpoint. While it's true that modern sanitation has doubtlessly saved millions of lives by controlling the spread of infectious microbes, it's not true

that all bacteria are bad. We need to be clean, but we don't need to be germ-a-phobic and disinfect everything.

For starters, the overuse of disinfectants and antibiotics has created strains of bacteria that are highly resistant to them, but that's not the worst of it. It has also weakened our immune systems. For instance, we know that children raised in overly sterilized homes have a much higher incidence of allergies and asthma.

Part of the reason this is the case is because the immune system has to be exposed to a certain level of germs in order to learn how to protect the body. That's why overly sterile environments, especially when coupled with the overuse of antibiotics and vaccines, confuse the immune system, making allergic reactions and auto-immune disorders more common. Furthermore, some bacteria are actually part of the immune system.

That's right, our body relies on friendly bacteria, also called the friendly flora or microflora, to help it fight off disease. Our skin and mucus membranes play host to about 400 species of these friendly bacteria and they are absolutely essential to good health.

Antibiotics and Probiotics

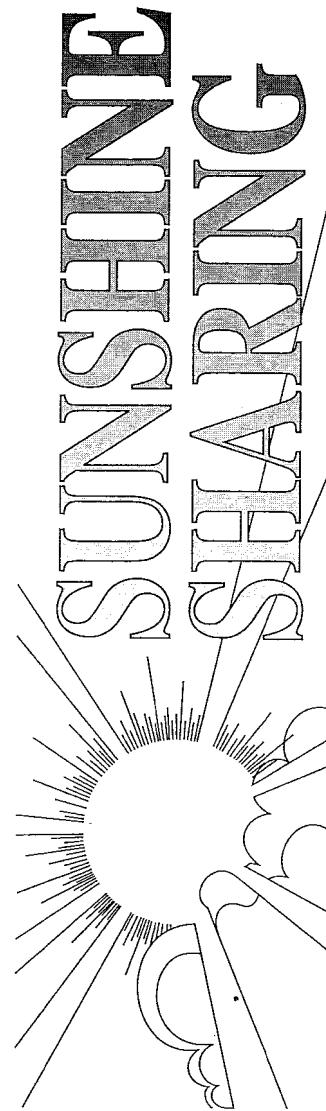
"Anti" means against and "biotic" refers to life. So, the word antibiotic literally means "against life." Several decades ago, scientists became aware that antibiotics not only killed harmful bacteria, they also destroyed friendly bacteria. The loss of these friendly bacteria in the intestines causes digestive problems, weakens the immune system and makes a person susceptible to bacterial and yeast infections. It even contributes to intestinal inflammation.

Researchers theorized that replacing these native micro-organisms would restore the natural balance and improve health. In 1953, Werner Kollath introduced the term "probiotics" to describe supplements that counteracted this side-effect of antibiotics and helped to repopulate the intestines with friendly bacteria. "Pro" means for, so probiotic means "for life." In 1989, Roy Fuller suggested a definition of probiotics as "A live microbial feed supplement which beneficially affects the host animal by improving its intestinal microbial balance."

The largest group of friendly bacteria in the intestines is the *Lactobacillus* group. These bacteria produce lactic acid, which is what gives the sour flavor to sour cream and yogurt. Lactobacillus bacteria are common in raw dairy products. They not only create cultured dairy foods like yogurt, kefir, sour cream and cheese, they also can pickle vegetables as in traditional cucumber pickles, sauerkraut and the Korean dish, kimchi.

Probiotics can be obtained through eating fermented foods with live bacterial cultures and they can also be taken in supplement form. *Lactobacillus acidophilus* was one of the first species widely used as a supplement, but many other species have now been discovered and are now available. In this issue of *Sunshine Sharing* we'll talk about the importance of these friendly bacteria, what destroys them and how we can restore health by using them as supplements.

To learn more about the bacteria that improve your health, look inside...



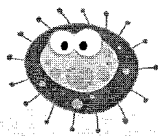
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Meet the Bacterial "Good Guys"

There are many different species of beneficial bacteria or probiotics inhabiting our intestines. Many belong to the genus *Lactobacillus*, such as *L. acidophilus*, usually referred to as acidophilus. Others belong to the genus *Bifidobacterium* and are usually referred to as bifidophilus. A third major group belong to the *Streptococcus* genus, but there are many others.

These bacteria provide many benefits (see sidebar below), but one of the most important benefits is that they are part of the immune system. Clinical trials have demonstrated that probiotics may decrease the incidence of respiratory tract infections and dental problems in children. They can also aid in the treatment of acute diarrhea in children and help to prevent traveler's diarrhea in adults.

Probiotics Create a Protective Immune "Blanket"

Probiotics enhance immunity in many ways. First of all, they form a biofilm (see sidebar on page three) which acts as a kind of living "blanket" that coats the intestinal tract. This inhibits other species of microorganisms from gaining a foothold on the intestinal mucosa. They also compete with other microbes for food, which further holds down the growth of infectious organisms.

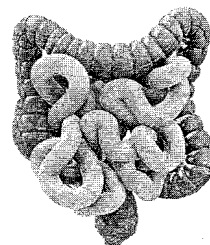
A decrease in beneficial bacteria can lead to other infections, such as vaginal yeast and urinary tract infections. Overuse of antibiotics can allow yeast to proliferate, which weakens the immune

system and results in more frequent infections. Probiotics, on the other hand reduce the risk of infections, especially intestinal ones.

Probiotics are "Chemical Warfare" Against Infection

A second immune-enhancing benefit of probiotics is that they produce chemicals that are deadly to harmful forms of bacteria. For example, the *Lactobacillus* bacteria get their name from their ability to produce lactic acid, which inhibits the growth of harmful bacteria. This is why natural dairy foods ferment to form foods like yogurt and cheese rather than just rotting.

Probiotics Stimulate the Immune System



A third benefit of friendly bacteria is that they have a stimulating effect on the body's immune system. Animal studies showed that *S. thermophilus* and *L. bulgaricus* increased proliferation of lymphocytes, stimulated B lymphocytes and activated macrophages. Other research suggests that probiotics may improve immune function by increasing the number of IgA-producing plasma cells, as well as increasing the proportion of T-cells and Natural Killer (NK) cells.

The immune-enhancing benefits of probiotics may also help to inhibit cancer. In laboratory tests, some strains of *Lactobacillus bulgaricus* have demonstrated anti-mutagenic effects, meaning they inhibit the cells from mutating into cancer cells. This is thought to be due to their ability to bind with heterocyclic amines, which are carcinogenic substances formed in cooked meat.

Probiotics Cool the "Fire" of Inflammation

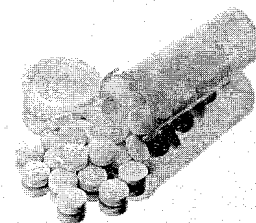
The fourth way probiotics benefit the immune system is by reducing inflammation. Some strains of probiotics appear to modulate inflammatory and hypersensitivity (allergic) responses, apparently due (at least in part) to the regulation of cytokine function. Clinical studies suggest that they can prevent recurrences of inflammatory bowel disease as well as improve milk allergies.

Benefits of Probiotics

- ✓ Probiotics form a biofilm (see sidebar on page 3) that coats the intestinal tract and creates a barrier that inhibits other microbes from gaining a foothold on the intestinal membranes.
- ✓ They hold down the growth of infectious organisms (harmful bacteria and yeast) by competing for food and producing lactic acid which makes the pH of the colon unfriendly to their growth.
- ✓ They stimulate the immune system to work properly.
- ✓ They can prevent diarrhea and parasitic infections if taken daily in large doses (10-12 capsules per day) when traveling.
- ✓ They reduce the risk of inflammatory bowel disorders.
- ✓ They help the body digest fats and proteins.
- ✓ They synthesize certain vitamins the body needs, including B1, B2, B6, B12, folic acid and biotin.
- ✓ They detoxify certain poisons in the digestive tract (such as ammonia and excess hormones).
- ✓ They help prevent constipation.
- ✓ They feed the intestinal tissue. (70% of the energy requirements of the intestinal mucosa come from fatty acids produced as a by-product of bacterial fermentation.)
- ✓ Animal studies have demonstrated the efficacy of some probiotic strains in lowering serum cholesterol levels. It appears that they break down bile salts in the gut, thus inhibiting the reabsorption of the cholesterol in the bile.

Probiotic Enemies and Allies

Probiotics have both enemies and allies. We've already indicated that antibiotics disrupt the balance of friendly bacteria in the intestines, but they aren't the only enemies of a healthy gut flora. Birth control pills, NSAIDs, corticosteroid drugs, chemotherapy drugs and even chlorinated water disrupt the balance of intestinal bacteria. Poor diet, especially eating a lot of refined sugar and white flour products, also negatively affects the friendly flora.



Fortunately, there are some allies we can use to promote the health of our gut bacteria. The biggest ally is naturally-fermented foods. Yogurt is the most familiar of these foods—just make sure your brand has live cultures. It's also better if your yogurt is made with organic, whole milk. Other cultured dairy products such as kefir and soft cheeses can also be good sources of natural probiotics, provided you're not allergic to dairy foods.

Naturally pickled vegetables, such as natural pickles, sauerkraut and kimchi, are also beneficial foods for gut health. Make sure to purchase health food store varieties with live cultures. They will be refrigerated. Fermented soy foods like tempeh, miso and natural soy sauce are also helpful. Probiotic-filled miso reportedly contains more than 160 bacteria strains. It's used to make a soup that is low in calories and high in B vitamins and protective antioxidants.



Probiotics also need food. Substances that feed friendly flora are called prebiotics. Fructooligosaccharides are prebiotic compounds found in many plants. Inulin is the most well-known prebiotic and is found in many herbs and foods from the Sunflower family, including **burdock**, **dandelion**, chicory, elecampane and Jerusalem artichokes. Many of these plants are known for their ability to improve intestinal health.

Probiotic Supplements

There are many situations where taking probiotic supplements is very beneficial. First, probiotics should always be taken after using antibiotics or other drugs which destroy intestinal flora. They should also be taken following any intestinal cleanse. Anyone who suffers from compromised immunity, auto-immune diseases,

frequent infections, yeast infections or cancer, should also consider taking probiotic supplements.

Second, probiotics should be taken in large doses (10-12 capsules per day) when traveling where there is a risk of infectious diarrhea or parasites. Probiotics reduce the risk of traveler's diarrhea and parasitic infections. When traveling, it may also be helpful to take remedies to fight intestinal infections with the probiotics. A good program would be **High Potency Garlic** (2-4 daily) and **GastroHealth** (4-6 daily) with **Probiotic Eleven** (10-12 daily).

Third, people with inflammatory bowel disorders, peptic ulcers, chronic fatigue, autism, chronic yeast infections or mood disorders such as depression may find a comprehensive program to improve gut health beneficial. The program should include probiotics like Probiotic Eleven, digestive enzymes like **Proactazyme** or **Food Enzymes** and remedies for leaky gut like **Kudzu/St. John's wort** and **I-Glutamine**.

When these or other conditions suggest the need to enhance the gut flora, here are some probiotic supplements to consider taking.

Acidophilus

NSP's Acidophilus contains the species *Lactobacillus acidophilus* in a dairy-free base. *L. acidophilus* is one of the major bacteria in the intestinal microflora of both the small and large intestines. Acidophilus is probably the most widely used probiotic supplement.

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Intestinal Biofilm and Recurrent Infections

We tend to think of bacteria as free-floating organisms. However, in nature, bacteria actually live together in colonies known as biofilm. Biofilm is a matrix of external water-saturated sugars (exopolysaccharides) that the bacteria form to create a "housing complex" for themselves. This sugar matrix is crisscrossed with microchannels to allow for nutrient flow and several species of microbes may live together in the same biofilm complex.

Pond scum and dental plaque are two examples of biofilm. If you've pulled up a plant and noticed a white film on the roots, that's also a biofilm. Friendly bacteria colonize the roots of plants and actually help to make minerals and other nutrients available to the plant roots. This is why compost (decaying organic matter) helps plants grow better—it's loaded with friendly bacteria.

Just like friendly bacteria colonize the roots of plants, they also colonize the "roots" of our intestines where we absorb nutrients. In a healthy gut, various species of bacteria will form a biofilm coating on the intestinal wall. This biofilm creates a physical barrier between the intestinal tissue and the material passing through it. Not only is this biofilm part of our immune system, it also helps us absorb nutrients better (just like the biofilm on plant roots).

The establishment of this gut biofilm starts in infancy during breast-feeding. White blood cells in the immune system pluck bacteria from the intestinal wall and transport them to the breast to be added to the mother's milk. This is why dairy foods (unpasteurized cow or goat milk) naturally contain lactobacillus and other friendly bacteria. Milk allows the microbes in the mother's intestines to colonize those of her infant.

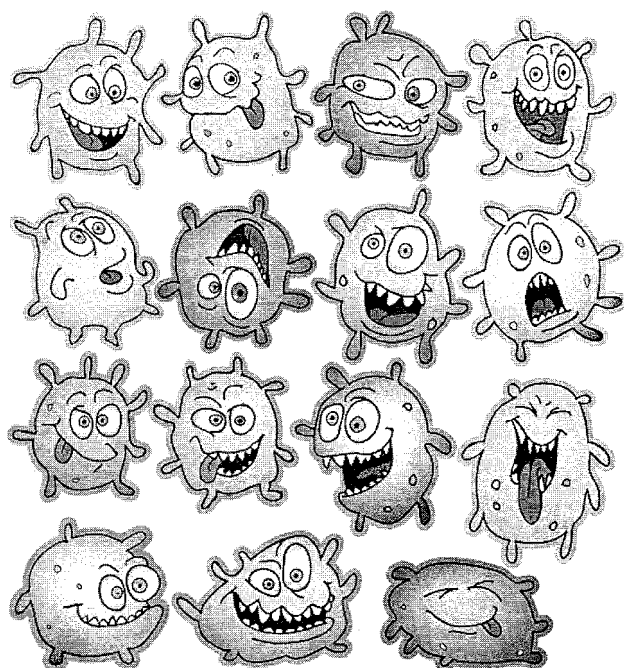
However, if we fail to develop a healthy gut biofilm in infancy, or if it gets destroyed through overuse of antibiotics,

disinfectants and other chemicals, then harmful microbes can also colonize the gut. Both yeast and infectious bacteria like *E. coli* can create biofilm, which helps explain recurrent infections. Biofilm communities allow microbes to defend themselves against other competing microbes, disinfectants, antibiotics and even the immune system.

So, if you develop a biofilm of bad microbes in your body, then you may have recurrent infections. When you take your antibiotics, antifungals or other antimicrobial agents for these infections, they knock down the free-floating microbes, but some of the microbes remain safely protected inside the biofilm. So, after you start to feel better and stop taking the antimicrobial herbs or medications, the microbes reassert themselves and the infection returns.

Fortunately, there is a way around this problem. Take digestive enzymes along with your antimicrobials *between* meals. The enzyme packets in the **Candida Clear** program are very effective at digesting the biofilm and thus exposing the microbes to the antifungal agents in the program. This is what makes Candida Clear so effective for yeast infections. You can get a similar result with bacterial infections by taking **Proactazyme** along with remedies like **GastroHealth**, **High Potency Garlic** or **Goldenseal and Echinacea** between meals. Follow this up with a round of **Probiotic Eleven** or another probiotic supplement to repopulate the colon with a biofilm of friendly microbes.





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Bifidophilus Flora Force

The Bifidophilus Flora Force supplement contains *L. acidophilus*, and includes three other species of friendly bacteria: *L. caseii*, *L. rhamnosus*, and *Bifidobacterium longum*. This product is in a base of fructooligosaccharides, which serve as prebiotic food for the bacteria and aid their implantation in the colon.

Probiotic Eleven

You've probably heard of broad spectrum antibiotics, a term that refers to an antibiotic that kills a broad range of bacteria. Well, Probiotic Eleven is a broad spectrum probiotic, because it contains eleven different species of friendly bacteria. In addition to the *L. acidophilus*, *B. longum*, *L. rhamnosus*, and *L. casei* found in Bifidophilus Flora Force, Probiotic Eleven also contains *B. bifidus*, *L. brevis*, *L. bulgaricus*, *L. plantarum*, *Streptococcus thermophilus*, *B. infantis* and *L. salivarius*.

Probiotics

The Beneficial Bacteria

Bacteria aren't all bad. In fact, some bacteria are necessary and beneficial to your health. These friendly bacteria are called probiotics and they function as part of your immune system.

Learn how these friendly bacteria can improve your health.

Sunshine Heros Probiotic Power

This is a probiotic supplement for children containing the same 11 strains of probiotic bacteria found in Probiotic Eleven. It is in a base of fruit and vegetable extracts, amino acids, antioxidants and other nutrients that provide general health benefits. Children can chew 1-2 tablets per day.

Additional Help and Information

For more information about probiotics, contact the person who gave this newsletter to you. Their contact information should be found at the top of this page. They have additional handouts and resource materials to help you. You can also consult some of the following sources:

The Comprehensive Guide to NSP by Tree of Light Publishing
The PDR for Nutritional Supplements edited by David Rorvik