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Tahoe Center of Natural Medicine, 600 N. Lake Blvd., POB 5024, Tahoe City, CA 96145

Phone: 530.583.0002

Fax : 530.583.0044

## PROBIOTICS

There are roughly 3 pounds of bacteria living in our gut! That translates to be somewhere between 6 and 60 trillion actual bacteria living in you! That means the bacteria in your gut outnumber the cells in your body by roughly 10 to 1.

These numbers should make it easier to understand the importance of a healthy balance of “good” and “bad” bacteria in our digestive system. Furthermore, the role that balance plays in maintaining optimal, overall health.

### *What are they?*

Microbial cultures have been used to ferment foods for thousands of years. It wasn't until the early 20th century when Nobel Prize Laureate Elie Metchnikoff postulated that a high concentration of *Lactobacilli spp.* in human intestinal flora was essential for health and longevity. Based upon his work, the first scientific assessments of *Lactobacilli spp.* were conducted in 1908.

The term “probiotics” means “for life”, versus “antibiotics” which means “against life”. Today the term “probiotics” is used to refer collectively to a number of species of cultured bacteria viewed to be beneficial for digestive health. The term “acidophilus” has become commonly used to refer to probiotics collectively, although it is a specific strain of *Lactobacilli*, *L. acidophilus*, which is one of the more common strains sold as a supplement. Probiotics most commonly include, but aren't limited to, many strains of *Lactobacilli* and *Bifidobacteria*. There is also a strain of non-colonizing yeast, *Saccharomyces boulardii*, which has been shown to have probiotic qualities.

### *Why are they important?*

Intestinal health begins as an infant and has a profound impact on long-term health. It is another reason “breast is best”. *Bifidobacteria* comprise roughly 90% of the total intestinal flora in breast-fed infants. Due to the more alkaline nature of formula, the intestines of formula-fed infants become colonized with a variety of strains of bacteria.

Intestinal health affects how you are able to digest and assimilate your food, which in turn impacts your nutritional status. Any deficiencies ultimately impact the rest of your health. Impaired intestinal health can affect your blood cholesterol, menstrual regularity, weight gains/ losses, skin health, immune status, to name only a few.

### *How do they work?*

“Good” bacteria have advantageous nutritional effects on vitamin and mineral synthesis, cholesterol and blood fat lowering effects, and anti-viral activities. A healthy balance of bacteria supports the integrity and health of the intestinal lining, thereby supporting healthy digestion and assimilation of nutrients.

“Good” bacteria also support the immune system, although the details regarding how that happens is not yet quite clear. Studies demonstrate probiotic supplementation decreases the incidence of both infant ear infections and childhood atopic diseases, such as allergies and eczema.

Too much “bad” bacteria can have negative effects directly on the intestines causing side effects such as diarrhea, constipation, gas and bloating. They can also cause more general side effects such as headaches, increased susceptibility to bacteria and viruses, nutritional deficiencies, and many other health complaints.

In a healthy individual roughly 85% of their intestinal microflora should be “good” bacteria, while the remaining 15% will be “bad” bacteria. So it's all about the real estate! Simply by maintaining a healthy quantity of “good” bacteria in the intestines, the “good” bacteria block and maintain available space in your intestines otherwise left available for the “bad” bacteria to occupy. Additionally, having an adequate amount of the “good” bacteria will limit the available nutrient supply, making it difficult for the “bad” bacteria to thrive.

*Lactobacilli spp.* are known to produce natural antibiotics of their own. The compounds not only directly prevent “bad” bacteria from growing, but also have been shown to inhibit how the “bad” bacteria function and their ability to produce toxins.

### ***When do I need them?***

Many factors can affect a healthy balance of microflora such as illness, stress, diet, climate, aging and medications (especially antibiotics). Therefore, depending upon the health of your intestines, daily supplementation may provide positive health benefits.

It is very important to always consult your healthcare practitioner before starting any new supplement or medication. A healthcare practitioner can help ensure the product selected is appropriate for the condition being treated, that the dosage is correct, and can help to avoid any potentially harmful drug interactions. The following are some conditions that may be benefited from supplementation with the appropriate probiotic regimen.

Studies have demonstrated that children of pregnant and nursing mothers supplementing with probiotics have decreased rates of ear infections and allergies. For infants, either the breastfeeding mother can take the supplement, or the culture can be given directly to the infant on a finger or on the nipple.

Antibiotic therapies are not selective to the bacteria causing you an infection; they actually kill a great deal of the bacteria in your gut, as well as the infectious agent. Therefore, taking a probiotic in conjunction with, and at least 3 weeks following, a course of antibiotics helps to minimize these effects and return the intestines to a healthy state. When taking with antibiotic therapy, take as far away from your antibiotic dose as possible so as to not interfere with the antibiotic activity. For example, if you take the antibiotic at 8 a.m. and 8 p.m., take your chosen probiotic at noon.

There are many acute conditions that benefit from short-term, high dose supplementation with probiotics. A few of these are vaginitis, antibiotic-associated diarrhea, and infantile thrush.

Chronic conditions in which daily supplementation with probiotics has been shown to be effective include allergies, eczema, chronic childhood ear infection, recurrent diarrhea, Crohn’s disease, and recurrent yeast infections.

Becoming more common is an intestinal overgrowth of the pathogenic organism called *Clostridium difficile*, or “*C. diff*”. It has become more common secondary to prolonged stays in the hospital, with broad spectrum antibiotic use and in immuno-suppressed populations. *C. difficile* infections often result in recurrent gastrointestinal upset that becomes difficult to control and is often “resistant” to many antibiotic therapies. Studies have demonstrated *Saccharomyces boulardii* to be effective in controlling the overgrowth and returning balance to the intestines.

### ***All products are not created equal.***

Since the products we are discussing are live cultures, they are somewhat sensitive to processing and storage. Consequently, there have been countless studies demonstrating that products being sold actually have little or no live cultures by the time they reach the consumer. Choosing a good product is important to the success of the therapy.

First rule of thumb, the product should be refrigerated. The only exception is *Saccharomyces boulardii* which doesn’t require refrigeration as the cultures are less susceptible to temperature changes.

Tablet forms, which require freeze drying, aren’t as reliable as dried powders in capsules. For children, capsules can always be opened and put directly in the mouth (they are sweet and kids usually like them), or placed into food or drink.

Not necessary but more reliable, look for the term “lyophilized” or “lyo” indicating how the product was dried. This is a process of drying that maintains the integrity of the cultures better than traditional drying processes.