

## **PROBIOTIC BACTERIA AND YOUR HEALTH**

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There is a secret world within you that dramatically influences your health and longevity. The Earth is home to an abundance of life forms that sometimes exist harmoniously and at other times struggle fitfully against each other.

The human body also holds a vast internal ecosystem consisting of millions of living microorganisms that coexist, sometimes harmoniously and sometimes disruptively.

This vast internal ecosystem, called by many researchers our human intestinal flora, dramatically influences, and to a certain degree even directs, every individual's personal state of health and well being. This includes our physical and mental health, our metabolism, and quite possibly, our life span.

Over 400 distinct species of microorganisms inhabit the various regions of the human digestive tract, making up nearly four pounds of every individual's total body weight. This vast population of microorganisms far exceeds the number of tissue cells that make up the human body.

If this ecosystem is functioning properly it guards your body against harmful bacteria, yeast and viruses. It also stimulates the function of the entire digestive system and produces essential vitamins and regulates their levels.

This vast unseen world maintains your body's vital chemical and hormonal balance. It also performs a vast number of necessary tasks for maintaining high energy levels, proper immune function and counteracts cancer-causing compounds in the colon.

### **Beneficial vs. Harmful Microorganisms**

It is important to understand that both beneficial "friendly" and harmful "unfriendly" microorganisms inhabit the human intestinal tract simultaneously. They enjoy a complex symbiotic relationship with each other. In fact, in many cases each contributes to the overall function and health of the intestinal tract, while keeping the other in check at the same time.

For example, even unfriendly microorganisms, such as the small colonies of Candida yeast that inhabit the intestinal tract, carry out important tasks relating to human digestion. They aid in the digestion of sugars and release vital enzymes, nutrients and other essential substances as by products of their work. Normally, friendly microorganisms such as L. acidophilus and others keep the Candida yeast in check. They prevent Candida from over colonizing the digestive tract and spreading elsewhere. If conditions prevail which allow the Candida yeast to grow uncontrollably, their once beneficial work turns grossly destructive to the human host and may result in an infectious spread to other areas of the body.

Of course, under undisturbed conditions, the balance of "friendly" microorganisms to "unfriendly" microorganisms remains remarkably stable. Intestinal function runs smoothly, with digestion and metabolism operating at peak levels, providing essential enzymes, nutrients and chemicals to the rest of the body. Healthful conditions prevail. It is only when the ecology of the gastrointestinal tract becomes disturbed or otherwise altered that the balance of friendly microorganisms to unfriendly microorganisms becomes disrupted, and serious health problems could begin to occur.

## **The Probiotic Revolution**

What we were never taught in school was the startling link between our body's intestinal flora and its' ability to prevent serious illness and add vital years to our lives. Proper bowel maintenance can help us to enjoy a dramatically higher quality of life as well.

At the turn of the century a Dr. Ilya Mechnikov wrote a groundbreaking book "Prolongation of Life." In doing so he created the incredible ongoing revolution this work inspired known as the Probiotic Revolution. Mechnikov, a Nobel laureate who discovered phagocytes and other immune system components, documented in the book what he believed to be a direct link between human longevity and the necessity of maintaining a healthy balance of beneficial microorganisms within the body. Today, some 87 years later, dozens of the world's most brilliant minds carry on the astonishing work Mechnikov started. At alternative medicine research facilities worldwide these frontier scientists have documented many of Mechnikov 's original findings on healing, immune-system enhancement, disease prevention, and life extension.

They are also making remarkable breakthroughs in the understanding of human biology. Breakthroughs that are quietly reshaping the way medical science views the internal biological processes that contribute to human health and longevity.

Not surprisingly, with only a few small exceptions, the information outlets of mainstream medicine are publishing little of this new research. The information presented here will unveil many of the vital new discoveries researchers have made in regards to the health enhancing aspects of beneficial microorganisms operating within the human body.

You will learn how you can use this information to enhance health and well being. You can achieve and maintain an extraordinary new vigor and vitality far into the future, regardless of your age.

### **Why Do We Get Sick So Often?**

When the ecology of the human gastrointestinal tract becomes disrupted, beneficial microorganisms can no longer flourish in needed numbers and proper balances. What's more, harmful toxin producing bacteria and fungi begin to take over, further changing the ecology of the gastrointestinal tract.

We've all heard the saying "Death Begins in the Colon." Then it should come as no surprise that many alternative doctors believe that a disrupted ecology of the gastrointestinal tract may be at the heart of up to ninety percent of all known human illness and disease.

The gastrointestinal tract's balance of beneficial flora is most commonly disrupted by antibiotic usage; excessive sugar consumption, stress and drinking chlorinated water.

Researchers also have found that altered levels of acidity and alkalinity in the gastrointestinal tract will change the ecology of the bowel environment, and thereby affect the type, quantity and behavior of microorganisms found there.

For example, a diet consisting chiefly of processed foods can dramatically alter the vital acid/alkaline balance of the intestinal tract. Such an imbalance can lead to a dramatic overgrowth of unwanted and extremely harmful microorganisms.

Excessive alcohol consumption, frequent use of both over the counter as well as prescription anti-inflammatory drugs, painkillers and frequent consumption of colas or other carbonated beverages can all disrupt the gut.

A diet high in red meats or rich, fatty foods will dramatically alter the acid/alkaline balance of the intestines, leading to the overgrowth of disease causing, putrefactive bacteria that eventually overcome the beneficial bacteria and open the door to an onset of serious health problems.

Moreover, colonies of putrefactive bacteria often discharge highly toxic by-products while reacting with foods in the digestive tract. This reaction could further upset the ecology of the gastrointestinal tract and slowly poison the entire body. The end result is the onset of chronic degenerative diseases.

### **Is Supplementation the Key?**

Due to disturbances in the intestinal tract's environment, important beneficial microorganisms may no longer be present in desirable quantities in most adults. The result is all too often seen in the fading health and vitality of millions of individuals who could otherwise be enjoying the fruits of their labor without the burden of chronically poor health.

The solution may be as simple as supplementation with adequate and desirable quantities of beneficial microorganisms. Many doctors feel that inadequate levels of beneficial bacteria may be associated with health robbing conditions.

This situation can be prevented through the supplementation of the diet with food products rich in beneficial bacteria. Foods such as cultured yogurt, buttermilk, cottage cheese, whey and other soured milk food products are good examples. These foods may be enough for general prevention.

If you have had antibiotics, endure a high stress level, or have any of the signs of the following symptoms then you may have a bacterial imbalance. Chronic fatigue, frequent diarrhea, intestinal gas, frequent constipation, poor immune response, bladder infections, chronic vaginal infections, Candida, allergies, skin fungus, dairy product sensitivities, menstrual complaints or chronic bad breath are all indicators of a possible imbalance.

In such a case, you may benefit from a probiotic supplement. There are powerful dietary supplements that help you rebuild the balance of beneficial microorganisms in your gastrointestinal tract and reverse the imbalances that may contribute to the onset of chronic conditions.

Ones that contain friendly bacteria are increasingly providing results to sufferers of conditions that often mystify practitioners. Candida and Chronic Fatigue patients often relay sagas about the agonizing search to remedy their affliction.

Frequently this exercise culminates in and only in the combination of cleaning up the putrefaction in their systems and reestablishing a harmonious balance to their gastrointestinal tract.

### **Resident and Transient Microbes**

Among the innumerable living inhabitants of the human gastrointestinal tract, there are resident inhabitants as well as transient or visiting microorganisms. Both play a direct and vital role in maintaining superior health and well-being; and both may very well have an important impact on the life span of every individual.

## **Resident Microorganisms – Bifidobacteria**

Bifidobacteria consist of a number of different species, four of the most important being *B. longum*, *B. bifidum*, *B. infantis* and *B. breve*. From birth these vital bifidobacteria play a crucial role in human health. When a baby is born, the intestines are virtually sterile, free of microorganisms.

Immediately, something like a Wild West land grab ensues as friendly and harmful bacteria alike vie for territory and dominance.

Between the fourth and seventh day among breast fed babies, bifidobacteria normally outdo the rest of the field. Researchers now realize that one of the chief reasons breast fed babies get markedly fewer infections than formula-fed ones is that mother's milk tends to promote superior growth of bifidobacteria in the gastrointestinal tract, whereas store bought formulas have little such beneficial effect.

Over ninety percent of the microbial count in a breast fed infant's intestinal tract is composed of the highly beneficial bifidobacteria. These microorganisms, in turn, produce high degrees of essential byproducts in the intestines, which act as a barrier to the growth of dangerous pathogenic microbes that cause infection and disease.

The levels of beneficial bifidobacteria appear to decline dramatically as the human body ages. Some researchers believe this steep decline is due chiefly to gradual disruptions and changes in the acid/alkaline balance of the bowels; which tend to favor the growth of harmful viral and fungal organisms as well as putrefactive, disease causing bacteria, and disfavor the growth of beneficial bifidobacteria.

Many researchers now believe that declining levels of bifidobacteria in the intestinal tract may actually mark the eventual onset of chronic degenerative disease. These declines brought on by aging make supplementation of these vital, beneficial microorganisms all the more crucial.

Vital bifidobacteria may help detoxify the human system and remove numerous harmful substances. According to David B. Hughes and Dallas G. Hoover of the University of Delaware, bifidobacteria have the ability to remove cancer forming elements or the enzymes that lead to their formation.

### **Bifidobacteria Longum**

Writing in the April 1991 issue of *Food Technology*, Hughes and Hoover reported animal studies demonstrating bifidobacteria longum's ability to protect against the formation of liver tumors related to pathogenic microbes in the intestine.

Bifidobacteria longum has also been found to substantially inhibit the formation of colon and mammary gland tumors in laboratory animals caused by nitrosamines, common dietary mutagens found in browned or charred food. Although no claims can be made for curing colon cancer, certain strains of friendly bacteria have indeed been documented in animal studies to have anti-tumor properties.

Certain strains also possess the ability to counteract cancer-causing compounds in the colon. Japanese research has recently shown that the beneficial microorganisms bifidobacteria longum and bifidum breve are substantial producers of important B vitamins. The production of these B vitamins is of special importance today, especially when a large number of adult Americans lack needed levels of the vitamin.

According to recent medical data, without adequate levels of B vitamins, the human body has a difficult time converting high levels of the atherosclerosis promoting compound homocysteine into harmless cystathionine, which may result in a more rapid onset of hardening of the arteries.

Proper levels of these essential B vitamins may act as a preventative to arterosclerosis. It is of vital necessity to maintain adequate levels of B-12 in order to sustain peak mental agility and physical vigor as we age.

Many of the problems associated with aging such as mental fatigue, depression, low energy levels, upper respiratory problems have been linked to decreasing levels of B-12. Some researchers suggest that supplementing the body with a healthy population of bifidobacteria may be extremely helpful in maintaining adequate levels of these important health enhancing and disease preventing B vitamins.

### **Lactobacilli**

Lactobacilli have recently caught the rapt attention of medical and scientific researchers due to the extraordinary health enhancing benefits they exhibit. Unfortunately, much like the beneficial bifidobacteria, these vital resident microorganisms have also been noted to decline in numbers in the human body as we age.

As they decline, certain diseases they would normally help prevent can now gain a foothold. For example, one of the many tasks the lactobacilli are responsible for is the production of vitamin K. Vitamin K is important in helping blood to clot and is essential for the building of strong bones. New research suggests that Vitamin K deficiency may be a crucial factor in predisposing the human body to the onset of osteoporosis.

This is only one example of why scientists studying these beneficial lactobacilli almost unanimously agree that supplementing the body with them is of vital importance as we age.

### **Lactobacillus Rhamnosus**

According to noted Canadian bacteriologist Edward Brochu, *L. rhamnosus* exhibits a number of fascinating immunological properties.

For example, in animal studies it has been demonstrated to increase the natural killing activity of spleen cells, which may help to prevent tumor formation. It also demonstrated an increased resistance to *listeria monocytogenes*, the disease causing bacteria associated with encephalitis.

Even more laboratory studies have shown *L. rhamnosus* to boost phagocytic activity. The destruction of foreign invaders and other harmful matter by phagocytes can be increased by three times their normal activity. Circulating antibodies have been shown to increase by six to eight times their normal levels after introduction of *L. rhamnosus*.

It may also help the body resist microbial infections by increasing levels of immunoglobulins and directly activating macrophages. Researcher Brochu, of the Institute Rosell of Montreal, Canada, concludes one report by saying: "*L. rhamnosus* may be considered as one of the most important lactobacilli, if not the best. "

## **Lactobacillus Salivarius**

According to Scott Gregory, O.M.D., author of *A Holistic Protocol for the Immune System*, the resident *L. salivarius* is a friendly gastrointestinal super culture. *L. salivarius* is specially noted for its ability to provide the human body with increased stores of energy due to its unique ability to break down foods in the intestinal tract and make vital nutrients more readily available for use elsewhere in the body. It also helps the entire colon, by eating away encrusted putrefactive materials, and it helps repair the intestinal tract by providing needed enzymes and essential nutrients, as well as by adhering to and protecting the mucosal lining.

## **The Amazing Qualities of Lactobacillus Acidophilus**

*Lactobacillus acidophilus* is the best known of all the lactobacilli. This popular resident of the gastrointestinal tract is also widely known for its ability to produce significant quantities of the enzyme lactase, which aids in the digestion of milk and other dairy products and eliminates many of the serious problems associated with lactose intolerance.

Scientists are now discovering even more amazing qualities possessed by this famous resident micro-organism. For example, Dr. Morton Walker, in his recent book *Secrets of Long Life*, reports that *L. acidophilus* has now been shown to produce at least four powerful antimicrobial compounds, including acidolin, acidophilin, lactocidin and bacteriocin.

Each of these compounds has demonstrated formidable neutralizing effects against serious disease causing microbes such as campylobacter, listeria, staphylococci, and a long list of others. Moreover, Eileen Hilton, an infectious disease specialist at the Long Island Jewish Medical Center in New York has recently demonstrated the phenomenal disease preventing effects of this amazing beneficial microorganism on women who had previously suffered with chronic vaginal yeast infections.

Ongoing research being conducted at the University of Nebraska and reported by renowned probiotic research expert Dr. Khem Shahani, Professor, Department of Food Science and Technology, has shown that the powerful DDS-1 strain of *L. acidophilus* is able to reduce cholesterol levels.

Known as the "Cadillac" strain, it is also able to inhibit the growth and toxin producing capabilities of 23 known disease-causing pathogens, as well as reduce tumor growth and effectively neutralize or inhibit carcinogenic substances in laboratory studies. Additionally, according to Professor Shahani, selected and specially grown strains of *L. acidophilus* have shown both antifungal and antiviral activity. Consequently, *acidophilus* can retard the proliferation of vaginitis as well as flu or herpes.

## **Transient Microorganisms**

Transient microorganisms are also extremely important to understand. These include food borne microorganisms and even soil borne microorganisms that make their way into the human digestive tract and, depending upon the characteristics of the specific organism involved, either subtly or dramatically influence the overall health of the human system.

Transient microorganisms are different from resident microorganisms in that they do not take up permanent residence in the gastrointestinal tract. Instead, they establish small colonies for brief periods of time before dying off or being flushed from the intestinal system via normal digestive processes, or by peristaltic bowel action.

However, in taking up temporary residence, they contribute to the overall function and condition of the digestive system. For example, the lives of some of the most important resident microorganisms involved in human digestion and intestinal health depend on by products produced by the visiting transients. Therefore, in many cases, these two very different types of microorganisms nonetheless enjoy a complex symbiotic relationship that may dramatically influence the health and well being of your entire body.

There are numerous health benefits of transient microorganisms. *Bacillus laterosporus* is one of the most enigmatic of the transient friendly microorganisms found in the human gastrointestinal tract. In recent clinical studies, it has been demonstrated to provide phenomenal relief from symptoms of disease and ill health particularly those symptoms associated with suppressed immune system function i.e., chronic fatigue syndrome, *Candida* infections, Epstein-Barr virus, herpes, Crohn's disease, chlamydia, cytomegalovirus, parasitic infections, and many more.

Dr. Luc Deschepper, M.D., recently treated 1,500 patients with *B. laterosporus* for illnesses related to suppressed immune system function. The microorganism produced such significant improvement in symptoms that his patients now demand the special *B. laterosporus* supplement he used in the study. One reason for its surprising effectiveness against immune related illnesses may be its strong antibiotic qualities.

Research shows *B. subtilis* to be one of the most important immune system stimulators of all the transient microorganisms. It is remarkable for its ability to activate the body's immune defense, as well as its ability to stimulate the proliferation of crucial lymphocytes. This has made it one of the most interesting microorganisms of the past decade.

Other research shows *L. sporogenes*, also known as *Bacillus coagulans*, to be uniquely beneficial to human health. In a recent study, researchers discovered that regular supplementation acts to significantly modify serum lipoproteins or blood fat levels. According to Dr. A. B. Gandi, this versatile microorganism also provides an excellent preventative effect against various diseases of the intestine. *Streptococcus thermophilis* is a transient microorganism that produces a number of antibiotic like substances as part of its metabolic process. This aids the body in its ongoing fight against disease causing microbes. Perhaps more importantly, *S. thermophilis* also helps to suppress tumor development and growth in laboratory studies.

Moreover, *S. thermophilis* produces substantial quantities of the enzyme lactase. So it aids in the digestion of milk sugars and may provide an effective remedy against lactose intolerance a condition that afflicts nearly two-thirds of the world's population. It has also been used in hospitals as an effective remedy for chronic diarrhea in infants.

### **A Broad Spectrum Does the Trick**

A number of phenomenal new breakthroughs in probiotic research have recently led to a whole new level of understanding among researchers regarding which specific types of resident as well as transient beneficial microorganisms provide the most profound benefits to the human body.

Researchers on the cutting edge of this technology have pioneered highly effective products. These breakthrough products contain all of the beneficial microorganisms. Some contain up to fourteen different strains of the most powerful beneficial microorganisms in the world. The human body needs all a broad spectrum of beneficial transient and resident microorganisms.

These Probiotics as they've come to be called, are being used with extraordinary results by a select group of doctors in private practice nationwide. Supplementing with a friendly flora product is often a decisive element in the overall healing strategy employed by these holistic health professionals. They find that it makes an important contribution to health and recovery. Without exception, the clinicians interviewed for this article used nothing less than superlatives to describe their experience with Probiotics.

## **Background on Probiotics**

We are accustomed to think that bacteria are dangerous forms of microscopic life with the potential to wipe us out. Not all bacteria are agents of darkness. Many are absolutely vital to our health and if we have a deficiency of them, we suffer consequences that far exceed their microscopic size.

An entire bacterial universe resides in the nooks and crannies of your gastrointestinal landscape. There are some 400 different species of these intestinal squatters. Individually, they number in the countless billions. You literally live or die at this sub cellular level of existence and you have little or lots of energy based on who is winning the intestinal battle of bacteria.

The harmful bacteria, whose names are associated with death and disease, multiply and spread their toxic influences whenever the body's immune system is weak or whenever the army of beneficial flora is depleted. Your bacterial allies fight off the pathogens and aid the body's defense system by producing natural antibiotics that are known to counteract harmful microorganisms.

The intent of the good bacteria here is self-protection against harmful bacteria. However, you also reap many benefits. In return for the warmth, shelter, and food you provide there within your digestive tract, they carry out many important duties on your behalf. Some functions are the production of digestive enzymes, the production of vitamins, enhancement of healthy bowel function and the prevention of the formation of cancerous substances.

Normally, if all is well within, you live life blithely ignorant of your bacterial goings on. That is as it should be. However, if you are not digesting your food well, experiencing a variety of health problems, and not efficiently eliminating toxins, the cause could very well be a bacterial imbalance.

The delicate bacterial balance in the intestines is readily susceptible to upset. Impure water, food poisoning or infection can unleash powerful toxic microorganisms that can overwhelm the friendly intestinal flora. The digestive juice produced in the stomach diminishes as we age leaving conditions ripe for the overgrowth of undesirable elements, such as yeast.

These are common natural causes for bacterial disturbances. There are also significant man made causes including the use of antibiotics, chronic stress, diets that are high in meat and radiation treatments. Supplementing with a friendly flora product is often a decisive element in the overall healing strategy employed by holistic health professionals. They find it makes an important contribution to health and recovery. Probiotics offer different strains of friendly bacteria that have been scientifically proven to generate restorative and healing effects in the body.

If indeed you are not feeling well and you have had a course of antibiotics, been under considerable stress, or eat nutrient poor food, a high quality probiotic formula may be of great value to you in restoring your health.



Bacteria are probably the most misunderstood forms of life on Earth. There are literally millions of different types of bacteria on our planet. Of these, a very small percentage is actually toxic to humans and animals.

Yet, widespread fear of bad or pathogenic bacteria as the cause of many, if not all of our worst infectious diseases has led to overuse of antibiotics in medicine and pesticides in agriculture. The problem with this approach is the destruction of all bacteria, both the friendly and the unfriendly.

This upsets the natural biological balance and actually leaves the body more susceptible to future infection. Friendly bacteria, the true natural enemy to the unfriendly bacteria, are no longer present in sufficient numbers to control or prevent infection from unfriendly bacteria or other types of pathogens, including fungi and parasites.

In other words, the primary cause of infection is not due to the presence of unfriendly bacteria, but is actually due to insufficient friendly bacteria. With a sufficient balance of many different types of friendly bacteria in significant numbers, unfriendly bacteria do not have the opportunity to create illness. The most common sources of friendly bacteria are mothers' milk, raw fermented foods including yogurt and sauerkraut and fresh, raw and organically grown produce. For most people none of the above mentioned sources of friendly bacteria are a regular part of the diet.

These deficiencies of friendly bacteria, coupled with the overuse of broad-spectrum antibiotics, have put many people into very unstable positions of extremely low resistance to infection from pathogenic bacteria. The intestinal tract is the first line of defense in the body's immune system and friendly bacteria are the number one factor in creating and maintaining health and well being of the intestines.

While the complete list of all the benefits friendly bacteria provide is impossible to state here, there are three key aspects. They create beneficial compounds and essential nutrients. This list includes lactic acid, B vitamins, digestive enzymes, insulin and interferon like factors, vitamin K and essential fatty acids.

They regulate and enhance the overall bowel function including digestion, assimilation and elimination. This greatly improves health by enhancing the utilization of nutrients from the food supplies and greatly reduces immune stresses by reducing bowel toxicity.

They protect against pathogens including unfriendly bacteria, fungi, viruses and parasites. This will lead to an improvement in overall immune and endocrine function as well as a reduction in the incidence of infection, food poisoning and food allergies.

While the awareness of the need to supplement the diet with friendly bacteria or bacteria active cultured foods is not new, it is certainly growing. Until just recently, available products have been very limited in their content. Containing primarily acidophilus and/or bifidus type strains; most products simply do not emulate the living ecology of the soil or fresh, raw and organic food and cannot provide the full spectrum of benefits available from all of the friendly bacteria the earth has to offer.

While supplementation with virtually any active friendly bacteria product will be helpful, products that more adequately represent the living ecology of organic agriculture and food will certainly provide the highest level of benefits.

Recent advancements in bacteria technology have yielded much more diverse blends of friendly bacteria including not only the lactobacillus types but also what are commonly known as soil based organisms or PROBIOTICS. While they may not come with the same scientific background as some of the more popular types of bacteria, soil based organisms are completely safe.

This statement is based on the fact that we have been eating PROBIOTICS in our food supply for thousands of years and we would be consuming more of them now if we were eating live foods. When combined with acidophilus and other currently popular types of bacteria, PROBIOTICS help to balance out our bacterial supplementation to represent the natural living ecology of the earth.

A full spectrum blend of friendly bacteria is not only perfectly safe for pregnant women, infants, toddlers, children and pets of any age, but also critical for optimum health. Less than adequate levels of friendly bacteria are directly related to high incidences of infection including ear infections, food poisoning and acne.

Mixed with applesauce or yogurt, SBO based friendly bacterial supplements are easily administered and are the most important and effective tool we currently have available to support our weakened digestive tracts and immune systems.

Additionally, PROBIOTICS are generally room temperature stable and acid resistant, creating a much more reliable bacterial supplement. The powerful health benefits that friendly bacteria can provide, coupled with the development of new supplements that provide a greater natural balance of bacteria, will easily make this class of nutrient one of the most important parts of a healthy regimen.

In conclusion, scientific research on human health and longevity has suggested that aiding the growth of select strains of beneficial microorganisms through careful dietary supplementation may very well provide remarkable health benefits. By taking advantage of this research, individuals can optimize their health and longevity and help prevent chronic problems from gaining a foothold.