ASK THE DOCTOR
Answers to Your Health Questions

Gastric Stable Acidophilus

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Do you ever think about what goes into your body each day? You should. One of the keys to feeling good and being healthy is eating nutritious food and making sure our gastrointestinal (GI) tract has the tools it needs to optimally digest and absorb nutrients. The GI tract includes of the stomach and intestines, which work to digest food and eliminate waste.

A variety of "good" intestinal bacteria help to keep the digestive system running. These "good" bacteria are called *probiotic bacteria*, or probiotics. Probiotics help digest food, process waste, and keep the "bad" bacteria —which have the potential to cause disease and illness—in check.

This issue of ***Ask the Doctor*** will look at the probiotic bacteria that play an important role in maintaining our health and wellness: why we need them, what they can do for us, and how to make sure we are getting enough. Also, we will talk about an exciting new process called True Delivery Technology™ that will ensure that probiotic bacteria taken in nutritional supplements survive transport to the intestines, where they set up house and exert their beneficial effects. As we will see, while probiotic supplementation can help prevent and treat many different illnesses, unless the beneficial bacteria reach the intestines alive and active, the supplement is worthless.

Q. I thought bacteria were bad. How can bacteria be good for us?

A. Some kinds of bacteria do cause illnesses and disease in humans. "Strep" throat is an example of an illness caused by bacteria.

However, the majority of bacteria do not cause disease. In fact, there are types of bacteria that are actually beneficial. "Good" bacteria, known as *probiotic* bacteria, are used in the manufacturing of food and beverages. Some examples of foods that have probiotic food ingredients are buttermilk, yogurt, cheese, sausage, and acidophilus milk.

These same kinds of probiotic bacteria are present in our intestines and help to keep the digestive system running by digesting food and processing waste.

Q. What are probiotics?

A. Probiotics are live bacteria that are non-toxic and do not cause disease (non-pathogenic).[1]

Some of the best-understood probiotic bacteria include members of the *Lactobacillus* and *Bifidobacterium* groups. Because of the *Lactobacillus* and *Bifidobacterium*'s ability to break down lactose, these probiotic bacteria are also known as lactic acid bacteria. Both of these types of probiotic bacteria are well studied and are available in both food and dietary supplements.[1]

Q. Is there a difference between the probiotic bacteria that is found in yogurt, and in nutritional supplements?

A. Actually, the bacteria that is in yogurt, our intestine, and most natural supplements are the same types of probiotic bacteria, *Lactobacillus acidophilus* and *Bifidobacteria*

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longum. Because of this, these bacteria are referred in a generic sense as probiotics. So, the term probiotics may refer to the "good" bacteria that are present in food, or that live in our intestine, or that are part of a natural supplement.

Q. Where do these probiotic bacteria come from?

A. As recently as the middle of the last century, bacteria found naturally in food ingredients were used to make a fermented food product. For example, the lactic acid bacteria found naturally in milk were used to make cheese. This was known as wild fermentation.

Wild fermentations are no longer used. Today, the probiotic bacteria used in food and natural supplements are harvested via a highly controlled fermentation process. This process results in high numbers of bacteria and ensures quality and purity of the bacteria.

Q. Why are probiotic bacteria important for digestive health?

A. Normal microflora (the term commonly used for intestinal bacteria) is associated with good health. An imbalance in this natural microflora (when the beneficial probiotics are outnumbered by the harmful bacteria) is frequently associated with various disease states such as yeast infections and colon cancer.[2]

Eating foods or taking a nutritional supplement containing probiotic bacteria can help support and modify the composition of the large intestine microflora.[3] Microflora of the large intestine assist digestion through fermentation (by making the intestines more inhospitable to invading bacteria species), protection against disease-causing bacteria, and stimulation of the immune system.[2]

The probiotics, *Lactobacillus* and *Bifidobacteria*, occupy a central role in the intestinal flora and provide health benefits.[4]

Q. How do probiotic bacteria help with digestion?

A. Lactose is an important sugar that is converted to lactic acid by lactic acid bacteria.[5] Lactose intolerance results from an inability to digest lactose, due to the failure of small intestine mucosal cells to produce lactase, an enzyme needed to digest lactose.[6] This often results because of genetics, gastrointestinal disease, or because of the decline in the amount of intestinal lactase levels associated with aging.[7] Lactase deficient people accumulate non-absorbed lactose in the gastrointestinal tract, which draws water and electrolytes into the gut and speeds waste through the intestines, leading to bloating, cramping, and diarrhea.[7,8]

Approximately 50 million people in the United States have partial to complete lactose intolerance. The following chart illustrates the racial break down of lactose intolerance in this country.[9]

Prevalence of Lactose Intolerance in the U.S.
95% of Native Americans
90% of Asian-Americans
70% of African-Americans
60% of Jewish Americans
50% of Mexican Americans
Less than 25% of Caucasian Americans (non-Jewish, non-Hispanic)

Lactic acid bacteria have been shown to help the breakdown of lactose, specifically by enhancing the activity of lactase (beta galactosidase), which improves lactose digestion and tolerance.[8,10] Furthermore, in a randomized, controlled clinical trial, *Bifidobacteria longum* was shown to assist in the breakdown of lactose and relieve the symptoms of lactose intolerance (flatulence) in people with lactose intolerance.[11]

Q. What is the difference between digestive enzymes and probiotics? Can they be taken together?

A. Digestive enzymes, such as protease, amylase, and lipase, act upon food, breaking it down into simpler components that can be used by the body for energy.[12] Without enzymes, digestion could not taken place. Therefore, the food that we eat could not be absorbed and utilized by our bodies.

Probiotics help the enzymes to digest food and process waste. In essence, probiotic bacteria and enzymes work together to ensure that the digestive tract is running smoothly. When taken together, enzymes assure greater levels of digestion and absorption of your food, and probiotic bacteria aid the enzymes in digestion and keep problems in check.

Q. Is helping to ensure a healthy digestive system the only use for probiotics?

A. Absolutely not! Probiotic bacteria, such as *Lactobacillus acidophilus*, have been found to help prevent vaginal yeast infections in women that suffer from these reoccurring infections.[13]

Approximately 35% of vaginal infections are caused by the yeast, *Candida albicans*. *Candida* is a fungus that is a component of the normal gastrointestinal microflora.[14] However, *Candida* must not be allowed to increase in numbers. An overgrowth is associated with adverse health effects like vaginal infections, oral thrush, or even serious systemic yeast infections. Probiotics have been shown to keep levels of *Candida* in check.[14]

Probiotic bacteria have also been demonstrated to have anti-cancer properties. In a clinical study, colon cancer patients given *Lactobacillus acidophilus* fermented milk showed a significant increase in numbers of intestinal *Lactobacilli* and a decrease in risk factors associated with colon cancer.[15]

Patients suffering from inflammatory bowel diseases, such as ulcerative colitis and Crohn's disease, can benefit from probiotic bacteria supplementation. Studies have shown that probiotic bacteria assist in maintaining remission in ulcerative colitis and preventing reoccurrence of Crohn's disease. Manipulating the intestinal flora may prove to be more effective and better tolerated than the drugs that are conventionally given to treat these diseases.[16-20] In one study, *Lactobacillus acidophilus* was found to improve the intestinal barrier and clinical status in children suffering from Crohn's disease.[16]

Probiotics supplementation can also improve and prevent skin diseases, such as eczema. Studies have shown that probiotic bacteria can actually control

inflammation associated with skin conditions.[21-23] In one study, infants with eczema who were given probiotic–supplemented formulas showed a significant improvement in skin condition.[23]

The chart below summarizes some of the diseases and conditions that probiotic bacteria can help prevent and/or improve.

Disease	Benefits of Probiotic Supplement
Vaginal yeast infections	Prevents vaginal yeast infections in women.[13]
Colon Cancer	Decreases risk factors associated with colon cancer.[15]
Crohn's Disease	Found to improve the intestinal barrier in patients with Crohn's disease.[16,18-20]
Ulcerative Colitis	Helps to maintain disease remission in ulcerative colitis patients.[17-20]
Eczema	Counteracts inflammatory responses outside the intestinal tract by preventing diseases such as eczema and dermatitis.[21-23]

Q. How often should probiotics be taken to ensure optimal support of the digestion system?
A. Probiotic bacteria do not permanently colonize in the body. They need to be replenished by the consumption of foods containing probiotic bacteria or by taking a probiotic natural supplement. Whatever form you choose to replenish the intestinal probiotics, they need to be ingested daily for their health-promoting effects to continue.

Q. If I take a probiotic nutritional supplement, how many bacteria should a good quality supplement contain?
A. The critical factor is not how many bacteria that a supplement contains, but rather how many bacteria reach the intestines healthy, vigorous, and ready to work.

A good quality supplement will deliver at least 1 billion *living*, *healthy* probiotic bacteria per dose to your intestines. The bacteria in the probiotic natural supplement should be a mixture of both *Lactobacillus* and *Bifidobacteria*.

Again, the critical key to a good quality probiotic supplement is that the bacteria must be *alive* to work. Only *living* probiotic bacteria can colonize in the intestines. A good quality probiotic nutritional supplement will have GUARANTEED levels of live bacteria at the point of consumption. Inferior brands will merely state levels of live bacteria at the point of manufacture.

Recently, a private laboratory tested various probiotic nutritional supplements in the marketplace, including one utilizing True Delivery Technology™. These supplements were best selling brands, two of the supplements were enteric coated, and all had label guarantees about potency. The lab counted the levels of living bacteria found and compared these findings to the bacterial levels claimed by each manufacturer. The chart below right illustrates that most probiotic supplements do not deliver the number of living bacteria that they claim on their labels.

Q. Then how do I know I am getting what I pay for?
A. First, look for a product that has a "use by" date or an "expiration" date clearly stated on the package.

It is also important to look for a probiotic supplement that does not *require* refrigeration. Probiotic supplements that require refrigeration often have been subjected to warm temperatures during shipment and storage that will inevitably kill off some or all of the bacteria.

It is also important that the product label guarantees live bacteria at the time of purchase, not at the time of shipment or manufacturing. However, from the laboratory test discussed to the right, we see that sometimes these written guarantees are not worth the paper they are written on.

There is one scientifically validated process—True Delivery Technology™—that assures live and vigorous bacteria are delivered to the intestine. This process suspends the probiotic bacteria in a moist paste and immediately seals the bacteria in a perfectly seamless spherical gelatin ball. This bacterial paste is completely protected from air and dryness so that the bacteria are alive until the specialized gelatin dissolves – *in the intestines*.

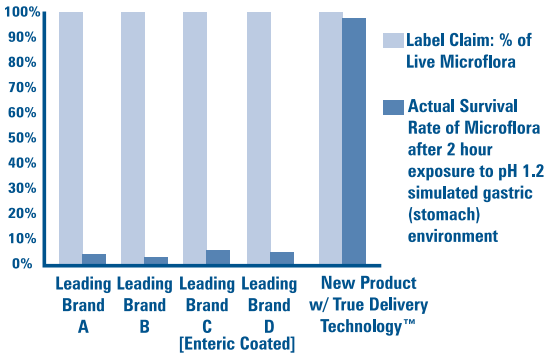
Q. Why is it important to dissolve only in the intestine?
A. Lactic acid bacteria are not very resistant to the acids of the stomach. The harsh environment of the stomach destroys the majority of these bacteria.

This new coating process technology protects bacteria from the stomach acid. The sphere is specially developed to only dissolve in the alkaline environment of the intestines. As we see in the chart below, enteric coating is not enough as it does nothing to protect the bacteria while they wait for purchase on a shelf.

Q. What does this new coating technology mean to me?
A. This specialized process is an expensive processing step, but it has many advantages to you.

The gelatin spheres actually "seal" the bacteria in the capsule, which protects them from air. Probiotic bacteria are anaerobic, meaning they do not require oxygen to live. In addition, the special coating's ability to seal the bacteria in the capsule eliminates the need for the nutritional supplement to be refrigerated –

Results of lab tests comparing the survival rate of microflora in 4 top-selling brands and the new gastric-stable acidophilus after 2 hour exposure to pH 1.2 simulated gastric (stomach) environment



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though they can be kept in the refrigerator, if desired.

By protecting the bacteria on the shelf and in the stomach, the probiotic bacteria successfully reach the intestine. As a result, there will be a greater number of healthy, intact bacteria that can colonize in the intestine.

Conclusion

Many health care practitioners believe all health issues are related in some way to the process of digestion. Probiotics play a crucial role in improving our digestive health, which, in turn, is interconnected to every single function in our bodies.

Taking a probiotic supplement is an excellent way to replenish the good bacteria in your intestinal microflora. A quality probiotic product contains two different types of bacteria from *Lactobacillus* and *Bifidobacteria* species with at least one billion *live* bacteria per dose.

But how do you know the bacteria are still alive? Look at the package. If there is no date stamp, put it down. If it says the company guarantees there was a certain number alive at the time of manufacture, put it down. That means that the company is not willing to claim the bacteria are alive when delivered to the target site, the intestine. If the product must be constantly refrigerated, put it down. How do you know it didn't sit in a truck for two days, or was in a warehouse before it was shipped to the health food store?

Find a probiotic that says the bacteria are guaranteed to be alive in the numbers stated on the label until the date printed on the bottle. Find a product using unique, cutting edge science to deliver the probiotic bacteria in a form new to the United States – a form that uses spherical, sealed, double coating to protect the bacteria. *That* company has gone to extra time and expense to make sure you reap the benefits that probiotics can offer.

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