



# PROBIOTICS

what they are  
and what they  
can do for you

A patient's guide from your doctor and



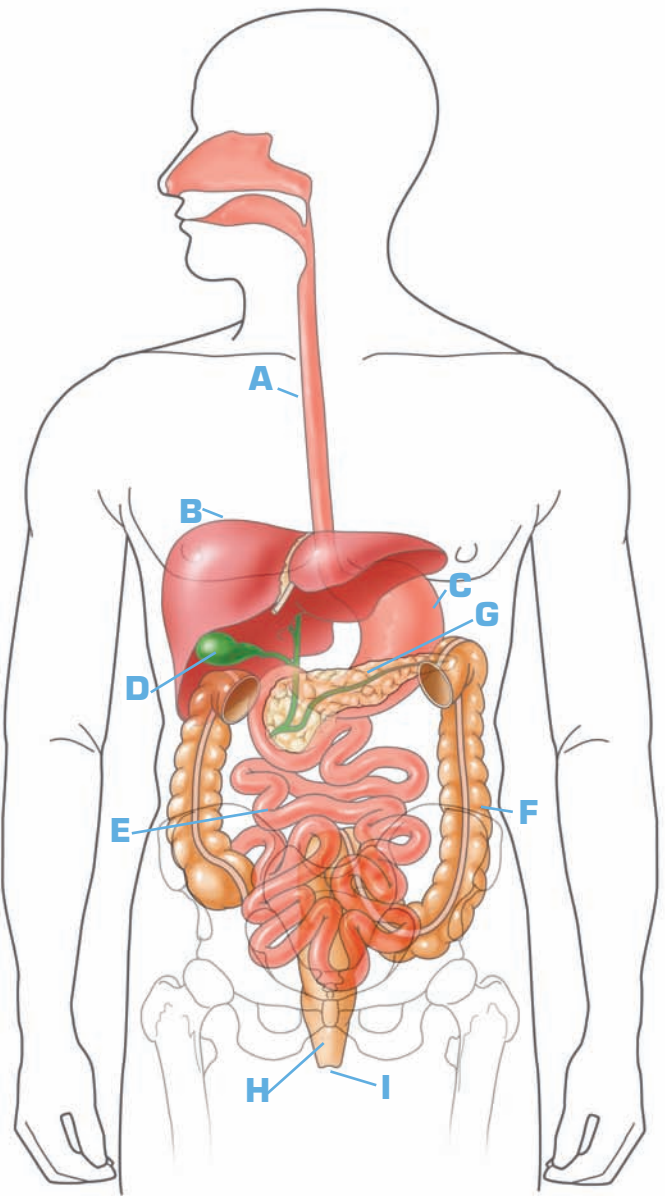
# Probiotics

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Products containing probiotics have flooded the market in recent years. As more people seek natural or non-drug ways to maintain their health, manufacturers have responded by offering probiotics in everything from yogurt to chocolate and granola bars to powders and capsules.

Although probiotics have been around for generations — think of the “live active cultures” in several brands of yogurt — the sheer number of products with probiotics now available may overwhelm even the most conscientious of shoppers. In some respects, the industry has grown faster than the research and scientists and doctors are calling for more studies to help determine which probiotics are beneficial and which might be a waste of money.

# Your Digestive System



A. Esophagus

B. Liver

C. Stomach

D. Gallbladder

E. Small Intestine

F. Large Intestine

G. Pancreas

H. Rectum

I. Anus



The AGA Institute provides you with the following information to help explain what probiotics are, how they work, what their benefits might be and what science says about them.

## What Are Probiotics?

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Probiotics are living microscopic organisms, or microorganisms, that scientific research has shown to benefit your health. Most often they are bacteria, but they may also be other organisms such as yeasts. In some cases they are similar, or the same, as the “good” bacteria already in your body, particularly those in your gut.

The most common probiotic bacteria come from two groups, *Lactobacillus* or *Bifidobacterium*, although it is important to remember that there are many other types of bacteria that are also classified as probiotics. Each group of bacteria has different species and each species has different strains. This is important to remember because different strains have different benefits for different parts of your body. For example, *Lactobacillus casei* Shirota has been shown to support the immune system and to help food move through the gut, but *Lactobacillus bulgaricus* may help relieve symptoms of lactose intolerance, a condition in which people cannot digest the lactose found in most milk and dairy products. In general, not all probiotics are the same, and they don't all work the same way.

Scientists are still sorting out exactly how probiotics work. They may:

- ▶ Boost your immune system by producing antibodies for certain viruses.
- ▶ Produce substances that prevent infection.
- ▶ Prevent harmful bacteria from attaching to the gut wall and growing there.
- ▶ Send signals to your cells to strengthen the mucus in your intestine and help it act as a barrier against infection.
- ▶ Inhibit or destroy toxins released by certain “bad” bacteria that can make you sick.
- ▶ Produce B vitamins necessary for metabolizing the food you eat, warding off anemia caused by deficiencies in B-6 and B-12, and maintaining healthy skin and a healthy nervous system.

# Common Uses

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Probiotics are most often used to promote digestive health. Because there are different kinds of probiotics, it is important to find the right one for the specific health benefit you seek. Researchers are still studying which probiotic should be used for which health or disease state. Nevertheless, probiotics have been shown to help regulate the movement of food through the intestine. They also may help treat digestive disease, something of much interest to gastroenterologists. Some of the most common uses for probiotics include the treatment of the following:

## Irritable Bowel Syndrome

Irritable bowel syndrome (IBS) is a disorder of movement in the gut. People who have IBS may have diarrhea, constipation or alternating bouts of both. IBS is not caused by injury or illness. Often the only way doctors can diagnose it is to rule out other conditions through testing.

Probiotics, particularly *Bifidobacterium infantis*, *Sacchromyces boulardii*, *Lactobacillus plantarum* and combination probiotics may help regulate how often people with IBS have bowel movements. Probiotics may also help relieve bloating from gas. Research is continuing to determine which probiotics are best to treat IBS.

## Inflammatory Bowel Disease

Though some of the symptoms are the same, inflammatory bowel disease (IBD) is different from IBS because in IBD, the intestines become inflamed. Unlike IBS, IBD is a disorder of the immune system. Symptoms include abdominal cramps, pain, diarrhea, weight loss and blood in your stools. In Crohn's disease, ulcers may develop anywhere in your intestine including both the large and small bowels. In ulcerative colitis, inflammation only involves the large intestine. Bouts of inflammation may come and go, but in some cases, prescription medication is needed to keep inflammation in check.

Some studies suggest that probiotics may help decrease inflammation and delay the next bout of disease. Ulcerative colitis seems to respond better to probiotics than Crohn's disease does. So far, *E. coli* Nissle, and a mixture of several strains of *Lactobacillus*, *Bifidobacterium* and *Streptococcus* may be most beneficial. Research is continuing to determine which probiotics are best to treat IBD.

## Infectious Diarrhea

Infectious diarrhea is caused by bacteria, viruses or parasites. There is evidence that probiotics such as *Lactobacillus rhamnosus* and *Lactobacillus casei* may be particularly helpful in treating diarrhea caused by rotavirus, which often affects babies and small children. Several strains of *Lactobacillus* and a strain of the yeast *Saccharomyces boulardii* may help treat and shorten the course of infectious diarrhea.

## Antibiotic-Related Diarrhea

Sometimes taking an antibiotic can cause infectious diarrhea by reducing the number of good microorganisms in your gut. Then bacteria that normally do not give you any trouble can grow out of control. One such bacterium is *Clostridium difficile*, which is a major cause of diarrhea in hospitalized patients and people in long-term care facilities like nursing homes. The trouble with *Clostridium difficile* is that it tends to come back, but there is evidence that taking probiotics such as *Saccharomyces boulardii* may help prevent this. There is also evidence that taking probiotics when you first start taking an antibiotic may help prevent antibiotic-related diarrhea in the first place.

## Traveler's Diarrhea

It's possible to get infectious diarrhea when you travel and your body is exposed to new, normally harmless bacteria ("traveler's diarrhea"). Most studies show that probiotics are not very effective in preventing or treating traveler's diarrhea in adults. Scientists face a challenge in determining which probiotics might be useful because of the number of destinations people travel to and the number of different bacteria travelers may encounter.

## Other Uses

Other potential uses for probiotics include maintaining a healthy mouth, preventing and treating certain skin conditions like eczema, promoting health in the urinary tract and vagina, and preventing allergies (especially in children). There is not as much research about these uses as there is about the benefits of probiotics for your digestive system, and studies have had mixed results.

# Are Probiotics Safe?

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It is generally thought that most probiotics are safe, although it is not yet known if they are safe for people with severely impaired immune systems. They may be taken by people without a diagnosed digestive problem. Their safety is evident since they have a long history of use in dairy foods like yogurt, cheese and milk.

However, you should talk to your doctor before adding these or any other probiotics to your diet. Probiotics might not be appropriate for seniors. Some probiotics may interfere with or interact with medications. Your doctor will be able to help you determine if probiotics are right for you based on your medical history.

Research about the use of probiotics in children has grown in recent years. Although studies have shown that probiotics may help to treat infectious diarrhea in babies and small children, researchers are unsure whether probiotics are particularly helpful for children with Crohn's disease or other types of inflammatory bowel disease. Ask your child's pediatrician about probiotics before giving them to your child.

The exception here is breastfeeding. Breast milk stimulates the growth of normal gut organisms that are important for a baby's digestive health and developing immune system. That is one reason why doctors strongly encourage mothers to breastfeed their babies.

Overall, scientists agree that more research is necessary before they can make blanket statements about the safety of probiotics in general or about individual groups and strains. Future studies will show whether probiotics can be used to treat diseases, are safe to use for a long time, and if it is possible to take too many probiotics or mix them in inappropriate ways. These studies will also guide us as to which probiotics to use for different disorders.

Keep in mind that probiotics are considered dietary supplements and are not FDA-regulated like drugs. They are not standardized, meaning they are made in different ways by different companies and have different additives. How well a probiotic works may differ from brand to brand and even from batch to batch within the same brand. Probiotics also vary tremendously in their cost, and cost does not necessarily reflect higher quality.

Side effects may vary, too. The most common are gas and bloating. These are usually mild and temporary. More serious side effects include allergic reactions, either to the probiotics themselves or to other ingredients in the food or supplement.

# Choosing a Probiotic

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Probiotics are available in yogurt and other dairy products, chocolate and granola bars, juices, powders, and capsules. You can purchase them at your local supermarket or health food store as well as on the Internet. Here are some tips to help you choose.

- ▶ **Check the label.** The more information there is on the label, the better. Ideally, the label will tell you the probiotic's group, species and strain, and how many of the microorganisms will still be alive on the use-by date. Although some products guarantee how many organisms were present at the time it was manufactured, often it is less clear how many organisms are present when these products are actually consumed.
- ▶ **Call the manufacturer.** Unfortunately, many labels don't say exactly which strain is in the product; many list only the group and the species, such as *Lactobacillus acidophilus* or *Bifidobacterium lactis*. If you're planning to take a probiotic for a specific condition, call the company and find out exactly which strains its products contain and what research they have done to support their health claims. You may be able to find this information on their Web site, as well.
- ▶ **Beware of the Internet.** If you order products from the Internet, make sure you know the company from which you are ordering. There are plenty of scammers out there who are willing to send you fake products labeled as probiotics. At best, the ingredients could be harmless, like garlic powder. At worst, they could be laced with powerful herbs, prescription medications or illegal drugs. Some companies may simply take your money and disappear.
- ▶ **Stick to well-established companies and companies you know.** The longer a company has been around, the more likely its products have been tested and studied repeatedly and the bigger the reputation the company has to protect. Some manufacturers that have been making products with probiotics for a while are Attune Foods, Culturelle, Dannon, Kraft, Nestle, VSL Pharmaceuticals, Procter & Gamble, and Yakult.

## Storage

One final note: Remember to store your probiotic according to package instructions and make sure the product has a sell-by or expiration date. Probiotics are living organisms. Even if they are dried and dormant, like in a powder or capsule, they must be stored properly or they will die. Some require refrigeration whereas others do not. They also have a shelf-life, so make sure you use them before the expiration date on the package.

Go to [www.gastro.org/patient](http://www.gastro.org/patient)  
for more information on digestive  
health and tests performed by  
gastroenterologists and to find an  
AGA member physician in your area.

The American Gastroenterological Association (AGA) is dedicated to the mission of advancing the science and practice of gastroenterology. Founded in 1897, the AGA is one of the oldest medical-specialty societies in the U.S. Our 16,000 members include physicians and scientists who research, diagnose and treat disorders of the gastrointestinal tract and liver. The AGA Institute runs the organization's practice, research and educational programs.

This brochure was written by Terri D'Arrigo, a professional medical writer, for the AGA Institute. The content in this brochure was reviewed by the following gastroenterologists:

**Richard Fedorak, MD**

*University of Alberta, Edmonton, Alberta, Canada*

**John I. Allen, MD, MBA, AGAF**

*Minnesota Gastroenterology  
Chair, AGA Clinical Practice & Quality Management Committee*

**Linda A. Less, MD, AGAF**

*Johns Hopkins School of Medicine*



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The Digestive Health Initiative® (DHI) is an AGA Institute initiative that offers educational programs on digestive disorders for individuals who are affected by a digestive disease, in an effort to educate the larger health-care community.

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Funding for the brochure has been provided by Attune Foods,  
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For more information about digestive diseases,  
please visit the AGA Web site at [www.gastro.org](http://www.gastro.org).

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