August 2014

Healthy Eating Tip of the Month:
The Pros and Cons of Probiotics

Celebrities endorse them.
Television commercials laud their benefits.
Grocery shelves stock a plethora of varieties.
Even pet foods contain them.

But what are probiotics exactly? What does research say?
Who should eat them and are they only found in yogurt?
Continue reading this month’s edition of Healthy Eating Tip of
the Month to discover the pros and cons of probiotics.

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Probiotics…An Introduction

The 19th century Russian scientist Ilya Ilyich Mechnikov is credited with identifying probiotics and their possible benefits. This “father of probiotics” noted the connection between the longevity of Bulgarian peasants and their diet featuring Lactobacillus-rich milk that was fermented with lactic acid.

Later, in the 20th century, these microorganisms were called probiotics, meaning “for life” in Greek. In 1935, the Japanese drink Yakult became the first commercially released probiotics product. Much later in 2006, an explosion of products containing probiotics were marketed as speculation about alleged health-related benefits grew.⁴,⁵

**Probiotics have formally been defined as “Live microorganisms which when administered in adequate amounts confer a health benefit on the host.” Put more simply, probiotics are the healthy bacteria that naturally reside in the gut, where they promote immunity and digestion.⁵**

How do they function?

The human intestinal tract has been compared to an “ecosystem” that contains around 500 different kinds of microorganisms, primarily anaerobic bacteria. These microorganisms, which together are called the gut’s microbiota populate the gut after birth naturally and necessarily through food and environmental exposure.

Each person’s exact microbiota composition depends upon such factors as genes, age, diet, socioeconomics, and antibiotics. If the delicate balance of the different species of microorganisms is affected, certain pathogenic species may multiply and outnumber the beneficial species, creating gastrointestinal upset, inflammation, or other conditions.

Some types, or strains, of bacteria are described as “helpful” or “friendly”, as they are crucial to our survival and play several important roles, including:

- Production of important nutrients and vitamins
- Growth and integrity of intestinal cells
- Increased immunity through protection against pathogenic species

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No Two Guts Are Alike!

Did you know? The balance of microorganisms found in the gut can be as unique from person to person as one’s fingerprint.⁹
Can probiotics improve gastrointestinal issues, like constipation?

Researchers believe probiotics may help to repopulate the gut and compensate for deficiencies from the use of antibiotics, diseases, or aging.

Researchers suspect that disruptions or imbalances in the gut could result in gastrointestinal disturbances, such as constipation, diarrhea, and bloating. Numerous studies have also examined the relationship between probiotics and various conditions, ranging from irritable bowel syndrome and ulcerative colitis to allergies. However, the results of these studies overall are unclear and currently inconclusive.

The following tables consider the potential efficacy of probiotics upon various conditions and diseases. Research continues to be needed within all areas before regular use can be recommended.\(^8,^{11}\)

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<td><em>Antibiotic-associated diarrhea</em></td>
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<td><em>C-difficile &amp; rotovirus-related diarrhea</em></td>
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<td><em>Pouchitis</em></td>
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<td><em>Ulcerative colitis</em></td>
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<td><em>Diverticular disease</em></td>
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<td><em>Traveler’s diarrhea</em></td>
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<td><em>Stomach ulcers</em></td>
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<td><em>Vaginal infections</em></td>
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<td><em>Cold and flu</em></td>
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<td><em>Obesity</em></td>
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Stay Tuned...

While probiotics have been a focus of research, results are scattered. Unfortunately, studies are complicated by such variables as potency, dose, strain, and timing of administration, in addition to the age and additional disease states of the recipients. This all complicates the interpretation and reliability of test results.\(^8\)
Some research has indicated a discrepancy between stated and actual probiotic levels among supplements. Factors such as storage conditions and refrigeration could influence this difference.

So, should I take a probiotics supplement?

In short, no. Unless otherwise recommended by your physician, gastroenterologist, or other health care professional, supplements are not recommended. While probiotics are generally recognized as safe among healthy adults, supplements can be financially costly and current research studies have not proven their efficacy.

The elderly, immunocompromised, or critically ill should not take probiotic supplements, as they have been associated with endocarditis, sepsis, and fungemia among these groups. Premature infants should also not be given probiotics.
The Two-Month Test
Consider waiting two months before judging the effects of increased probiotics intake, whether through food or pills. This time frame should allow the bacteria adequate time to populate the gut.

Are all probiotics “created equal”?
Not at all. While Lactobacillus, Bifidobacterium, and Saccharomyces boulardii are often found in foods and supplements, a plethora of other species and strains exist.

Individual strains have been associated with improvement of certain diseases and conditions, while combinations of certain strains have been attributed to targeted health benefits. For example, B infantis has demonstrated benefits for symptoms of irritable bowel syndrome. The following are some of the most commonly encountered strains:

- Lactobacillus species
- Bifidobacterium species
- Saccharomyces boulardii

How can I include probiotics in my diet, naturally?
Yogurt has a well-earned reputation for offering healthy bacteria. Specialty brands are readily available and marketed for their probiotics content. However, most yogurts contain some strain(s) of probiotics. Check to see if your favorite brand is a provider by looking for the “Live & Active Cultures” logo on the container.
I don’t like yogurt. What else contains probiotics?

Probiotics occur naturally in a variety of fermented foods. Fermented foods are often treated, heated, smoked, or filtrated to remove live microorganisms. For instance, sourdough bread and sauerkraut are fermented foods, but their microbes are often rendered ineffective through baking or preservatives.

Besides yogurt, kefir (fermented milk beverage), kimchi (fermented cabbage), tempeh (fermented soy beans), and aged cheeses (bleu, cheddar) are usually good sources of probiotics.

In recent years, probiotics have been added to a variety of products, including infant rice cereal, cheeses, juice drinks, cottage cheese, herbal tea, chocolate, milk, breakfast cereals, and frozen yogurt. Most products boldly highlight probiotic content and the “digestive health” benefits of their products.²

Did you know?

Incorporating foods that contain probiotics into a healthy, balanced diet can help provide the added benefits of other nutrients like fiber and calcium.

Fermentation in food processing occurs when beneficial bacteria and salt work together to change sugar into a preservative, such as lactic acid.³
So, what are prebiotics?

While probiotics are living microorganisms that help maintain a healthy gut, prebiotics are the substances that help fuel probiotics. More specifically, prebiotics are fermentable fibers, or non-digestible carbohydrates, that stimulate the growth and activity of probiotics.

The fermentation of these fibers by the probiotics promotes the production of beneficial end products, such as short-chain fatty acids. At a molecular level, mineral absorption may improve along with immune function.²

In addition to probiotics, dairy products are one of the best sources of prebiotics. The acidity, nutritional composition, and refrigeration promotes the activity and integrity of probiotics and prebiotics alike.²

Where can prebiotics be found?

Prebiotics are often identified as fructans or resistant starches. Fructans are a source of fermentable fibers and include inulin, chicory root, and fructo-oligosaccharides. Dietary sources of fructans include vegetables such as onion and artichokes, fruits such as unripe bananas, wheat, and garlic.

Resistant starches are non-fructan fibers that aid probiotics. Dietary sources include unripened fruits and certain starches. Prebiotics are also found in some manufactured products such as bread, energy bars, and cereal that contain added fiber.¹,²

Two in One...

**Synbiotics** are products and foods that contain both probiotics and prebiotics.²
Did you know?
Kombucha is often a sweetened (and symbiotic) black tea fermented with bacteria and yeast.

Berry Harvest Salad

8 servings.
1 small carrot, coarsely shredded (about 1/3 cup)
2 cups cooked barley
2 tablespoons olive or canola oil
2 cups frozen whole kernel corn, thawed
2 tablespoons honey
1/2 cup dried cranberries
1 tablespoon lemon juice
1/4 cup thinly sliced green onions (2 to 3 medium)
1 medium unpeeled apple, chopped (about 1 cup)

Mix all ingredients except oil, honey, and lemon juice in a large bowl. Shake oil, honey, and lemon juice in a tightly covered container. Pour over barley mixture and toss.

Fresh Mango and Strawberry Smoothies

6 servings.
1 mango, preferably perfectly ripe
1 pound strawberries
6 ounces apple juice, frozen concentrate or white grape/peach juice
1 cup nonfat plain yogurt

Peel and dice mango. Hull the strawberries. Combine the fruit into the pitcher of a blender and puree. Add frozen juice concentrate and yogurt. Puree until smooth and serve.

Tip: Great topped with low fat ice cream or frozen yogurt. Freeze the strawberries or use frozen for a frosty smoothie.
Caramelized Peaches with Vanilla Bean Honey Yogurt and Toasted Almonds

Serves 8.

4 peaches, cut in half and pitted
1 cup nonfat plain yogurt
1 vanilla bean, scraped
1 oz. honey
4 oz. toasted slivered almonds
Small pad of butter

In a nonstick skillet over medium-high heat, melt butter. Add peaches; saute 3 minutes. Bake in a 350°F oven, if needed to soften. In a bowl, mix together the vanilla bean, honey, and yogurt. Drizzle the yogurt over the peaches. Garnish with toasted almonds.6

What’s in the News...

Preliminary research indicates that probiotics may play a role in preventing the common cold, in addition to also reducing the duration of related symptoms. The tested strains were *Lactobacillus plantarum* and *Lactobacillus paracasei*.8

Other preliminary research points to probiotics as a treatment for stomach ulcer symptoms (due to *H. pylori* infection). While they were unsuccessful in treating the cause, it appears that some combination of *Lactobacillus*, *Bifidobacterium*, and/or *Saccharomyces* may be efficacious in symptom relief.8

While these studies are encouraging, they lack sufficient evidence. More research is needed before supplementation can be indicated.11
Visit the University Hospital cafeteria for a chance to win this month’s fabulous prize!

The Healthy Eating Tip of the Month bulletin board is located in the cafeteria of University Hospital. In addition to helpful handouts, you’ll discover a box where you can enter this month’s drawing. At the end of August, one lucky entrant will win this month’s prize: a Hamilton Beach Single-Serve Blender!

Enter to win a single serving blender with travel lid, perfect for mixing yogurt smoothies and other beverages for on-the-go!

For more details about this month’s prize, visit http://www.walmart.com/ip/Hamilton-Beach-Single-Serve-Blender-Red/16553374
Want More Information?

American Gastroenterological Association:
http://www.gastro.org

American College of Gastroenterology:
http://patients.gi.org

National Center for Complementary and Alternative Medicine:
http://nccam.nih.gov

Academy of Nutrition and Dietetics:
http://www.eatright.org

University of Michigan Health Library:
http://www.uofmhealth.org/health-library

MHealthy Recipe Finder:
http://hr.umich.edu/mhealthy/programs/recipe

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