Nutrition and Probiotics

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What are probiotics?

The word probiotic is Greek and means for life. Pro means “for” and biotic means “life.”

Or, for a more modern definition—

*Live microorganisms, which, when administered in adequate amounts, confer a health benefit on the host.*
(Source: FAO/WHO 2001 Expert Consultation.)

So what does this mean?

Probiotics are actually tiny living organisms, such as bacteria, viruses and yeasts that live inside our GI tract. The intestine contains extensive bacteria, potentially 100,000 billion bacteria. There is large diversity between individuals. Each person has their own unique pattern of bacterial composition, like a fingerprint.

Probiotics are not the same as prebiotics, which are non-digestible food ingredients that stimulate the growth of beneficial microorganisms. Prebiotics release short-chain fatty acids, which decreases the pH (making it more acidic) of the colon and, thereby, enhances mineral absorption, particularly calcium, iron, and magnesium.

When probiotics and prebiotics are mixed together, they form a symbiotic relationship. Most probiotics are bacteria similar to those found naturally in the gut. Bacteria typically come from two groups—Lactobacillus or Bifidobacterium. Within each group there are different species. For example, Lactobacillus acidophilus and Bifidobacterium bifidus, and within each species are different strains. Some probiotic foods date back to ancient times, such as fermented foods and cultured milk products.

Interest in probiotics has been increasing over the past decade. The intestine is the body’s most important immune function related organ; approximately 60% of the body’s immune cells are present in the intestine. The immune system controls the immune responses against dietary proteins (food allergies), viruses, and bacteria.

Friendly bacteria are vital to proper development of the immune system, to protect against microorganisms that cause disease and to aid in the digestion and absorption of food and nutrients. The balance of bacteria (good and bad) can be thrown off in two major ways:
1. Antibiotics, which can decrease the natural bacteria in the gut along with the disease causing bacteria. Probiotics can offset the gas cramping and diarrhea associated with some antibiotic use.

2. Microorganisms that cause disease such as bacteria, yeast, fungi can upset the balance. Research is looking at the benefit of probiotics in easing the symptoms of infectious diarrhea, irritable bowel syndrome, inflammatory bowel disease, infection with Helicobacter pylori, tooth decay, vaginal infections, and skin infections.

According to the National Center for Complimentary and Alternative Medicine, some uses of probiotics for which there is some evidence are as follows:

1. to treat diarrhea (especially from rotavirus)
2. to prevent infections of the urinary tract or female genital tract
3. to treat irritable bowel syndrome
4. to shorten the length of an intestinal infection that is caused by bacterium called Clostridium difficile (c-diff)
5. to prevent and manage atopic dermatitis (eczema) in children

How does this relate to bariatric surgery?

It is theorized that bariatric surgery can upset the balance between good and bad bacteria which can cause mild lactose intolerance and gas. Certain probiotics have been found to help reduce gas produced from lactose intolerance including Lactobacillus bulgaricus and Streptococcus thermophilus.

Prebiotics can help with the constipation many patients experience after bariatric surgery; these include lactulose and oligofructose taken in amounts greater than 20 gm per day.

So what foods contain probiotics? Pasteurization kills probiotics but food manufacturers add them back into food. No strict labeling guidelines exist for probiotic-containing foods at this time. The dose needed for probiotics varies widely, depended on type and formulations. Only live microorganisms are classified as probiotics; avoid any that are not listed as live.

Here is a list of some foods containing probiotics:

1. yogurt (look for the live/active cultures symbol)
2. cottage cheese
3. buttermilk
4. soy sauce
5. miso (fermented soy bean paste)
6. tempeh (fermented soy beans)
7. fresh sauerkraut

Prebiotics are consumed in different ways; they can be:

1. sprinkled on food
2. stirred into liquid
3. taken in capsule form
4. prebiotic-fortified foods and beverages, such as sports drinks.

Most supermarkets, pharmacies and health food stores carry probiotic supplements. If you purchase a probiotic supplement, it is recommended that you increase the dose gradually, to prevent added gas production. A probiotic supplement should contain 5 billion CFUs (colony forming units) and you can increase up to 10 billion CFUs per day.

** Individuals who are immuno-compromised should only use these products under the advisement of a doctor**

References:
World Gastroenterology Organization Practice Guidelines: probiotics and prebiotics
National Institutes of Health: National Center for Complementary and Alternative Medicine: An Introduction to Probiotics
Yakult USA Science Website
Probiotics and Prebiotics accessed from RD411 website