Feed The Good Guys (And Gals) In Your Gut

The intestinal microbiome consists of many different types of microbes. Prebiotics provide the fuel for the beneficial ones to thrive.

October 21, 2019 By Mike Barr

Almost everyone has heard of probiotics and how helpful they can be for gut health, but the word "prebiotics" can seem a little confusing. The definition and scope of prebiotics have been evolving as researchers increase their understanding of prebiotic mechanisms in the body, but questions, such as how prebiotics differ from probiotics and how many types of prebiotics are there, remain.

What are prebiotics?

Prebiotics are a class of compounds recognized for their ability to be selectively utilized by host microbiota to the benefit of the host. The intestinal microbiome consists of many different types of microbes, and prebiotics provide the fuel for so called good bacteria to thrive and support human health. For example, consumption of prebiotics may lead to increased numbers of beneficial bacteria such as Bifidobacterium and Lactobacillus, which can help stimulate the immune system and may help positively affect blood lipids. Essentially prebiotics are the food that probiotics need to spring into action within the gut.

A probiotic meal ticket

Prebiotics literally are the meals that probiotics need to consume in order to thrive and help support a healthy gut microbiota. Small amounts of prebiotics are found in certain foods. For example, the prebiotic inulin is found in asparagus, bananas, barley, chicory root, garlic, honey, Jerusalem artichoke, onions, and rye. Prebiotics are also found in mother's milk (human milk oligosaccharides, or HMOs) and are thought to help colonize the infant's intestinal microbiota with beneficial bacteria. One of the reasons why breast feeding for the first 6 months of an infant's life is associated with superior health later in life. Supplementation with prebiotics directly delivers this fuel source to the probiotics in the gut.

Types of prebiotics

There are many types of prebiotics, including certain kinds of fats (conjugated linoleic acid and polyunsaturated fatty acids), HMOs, phenolics and phytochemicals, readily fermentable dietary fibers, and oligosaccharides. Oligosaccharides include fructose, glucose, galactose, mannose, and

xylose. Here’s a short list of the most well-known prebiotics:

Inulin

Inulin is a nonviscous, soluble fiber that is readily fermented by gut microbiota. Plants that are rich in inulin include Jerusalem artichoke and chicory root.

IMOs

Isomalto-oligosaccharides, or IMOs, are well-tolerated prebiotic soluble fibers that promote levels of Bifidobacteria and Lactobacilli.

FOS

Fructo-oligosaccharides (FOS) are soluble fibers that have been extensively studied for their prebiotic effects, and been shown to promote the abundance of Bifidobacterium within the gut.

Resistant starch

Resistant starches are compounds that cannot be digested in the small intestine. Instead, they pass to the colon where they are fermented by microbiota. Sources of resistant starch include unripe bananas, unprocessed whole grains, legumes, and various starchy vegetables such as potatoes, yuca and plantains.

How much?

While there isn’t a standard or recommended amount yet, supplementation and/or consumption of foods with added prebiotics can help achieve daily intake of these important compounds. The best (and coolest!) way to assess the state of your intestinal ecology is to sample your poop and see what’s going on. Due to a powerful hospital lobby in Albany, I am told, these tests can be tricky to do in the State of New York. That’s why I recently opened an office across the river. Email me for sample reports or names of labs. It’s all very exciting and, at least in my opinion, the future of personalized (preventive) medicine!

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