

PROBIOTICS

What are probiotics?



Probiotics are live microorganisms or "friendly bacteria", when delivered in adequate amounts provide health benefits to the host¹. Think of probiotics as an additional dose of microbes, taken orally to potentially affect the current and future balance of the microbiome to optimize health. Dose, variety, and frequency of probiotic administration must be taken into consideration to actually impact colonization of the microbiome in order for the probiotics to be effective. Lactobacillus and Bifidobacterium are the best studied probiotics, possible therapeutic effects of Streptococcus, Saccharomyces and Escherichia coli and various combinations of microbiota are being investigated².

What is the microbiome?



The microbiome refers to the vast balance of the microorganisms in our gut and intestines – over 100 trillion of these tiny organisms (mostly bacteria and yeast) which help to keep us alive. There are many important roles of the microbiome; most understood is the protection against harmful germs, breaking down food to release energy, assisting with digestion, stimulation of the gut's immune system, activating genes in gut cells, producing vitamins and other bioactive compounds that are used by the body. As characteristics and diversity of the microbiome are determined by a constellation of factors - birth and breastfeeding history, environmental exposure, diet and antibiotic use - your doctor may recommend taking probiotics to modify or support the microbiome.

Do probiotics prevent food allergy?



No. There is substantial research suggesting our modern lifestyle of living indoors without much exposure to farm animals, antibacterial soaps and hygienic cultural norms has decreased our overall exposure to microbes. This has corresponded with an increased prevalence in allergic disease. Note that the evidence to date is associative, and not causative - thus post-natal administration of probiotics may be promising although is not a preventative treatment of food allergy^{3,4} or other immune system dysfunction. At this time "published statements and scientific opinions disagree about the clinical use" of the administration of probiotics¹, and because of conflicting evidence further investigation is ongoing and a final statement is not possible. While probiotics are advertised for a wide range of health benefits, evidenced based practice provides for only two indications: as a supplement or post-treatment to antibiotics to prevent acute diarrhea and other adverse intestinal effects, and atopic dermatitis (eczema) in infants⁵.

Should I give my child probiotics if they have an increased risk of food allergy or for current food allergies?



Perhaps. Food allergy occurs when the immune system mistakenly treats a particular food as if it's dangerous to you - essentially an overreaction to a specific food protein. As current research shows a healthy microbiome supports a healthy immune system^{3,4}, probiotics may be supportive – but the question of whether or not the probiotics are effective depend on the type of allergy or intolerance, the child's current microbiome, and dose, variety, and frequency of probiotic administration.

PREBIOTICS

Non-digestible fibers or prebiotics serve as food for the beneficial microorganisms in our guts. preserving the integrity and diversity of the whole colony. Food composed of specific fibers, inulin-type fructans and galacto-oligosaccharides, have prebiotic

effect and are shown to selectively stimulate growth and support friendly bacteria⁵ over other nondigestible types of fiber. If you are eating or taking probiotics to boost and support the microbiome, make sure you eat prebiotics at least several times per week.

The following foods contain prebiotics:

	Artichoke	Fennel	Oatmeal
	Asparagus	Garlic	Onion: Leek, Scallion,
	Banana	Grapefruit	Shallot, Spring Onion
	Barley	Honey	Persimmon
	,	Jicama	Pomegranate
	Beet		Rambutan, Lychee
	Breastmilk	Leek	, ,
	Burdock	Legumes: Chickpeas, Lentils, Kidney, Soy	Rye
	Chicory		Tamarillo
	Dandelion	Maple Sugar and Syrup	Watermelon
	Dandellon	Nuts: Cashews, Pistachios	Wheat
	Dried Fruit: Date, Fig		vviicat

PROBIOTIC FOOD SOURCES

Probiotics are found in fermented foods. In western culture the most well-known probiotic food is Yogurt; other fermented dairy products such as Buttermilk, Kefir, Sour Cream or Crème Fraîche may contain probiotics. Some traditional fermented products such as Kimchi, Miso, Sauerkraut, Tempeh and pickled vegetables such as cucumbers (unsweetened pickles), green beans, beets, or mushrooms have probiotics in them.

> Most fermented dairy and yogurts available in the supermarket DO NOT CONTAIN enough probiotic cultures to be beneficial. To find a commercial yogurt likely to contain beneficial probiotics choose a less processed product with less added sugars, labeled with the following: "Contains Live and Active Cultures", in an actual number quantity such as "5 billion CFUs" (colony forming units). The following brands add active, live cultures to their yogurts to make them therapeutic: Stonyfield Farm, Horizon Organic and Lifeway.

Special considerations

Lactose intolerance: Some people with lactose intolerance can tolerate fermented dairy products because the probiotic cultures in yogurt predigest lactose, thus fermented dairy contains fairly low lactose and is up to 99% lactose free.

Cow's Milk Allergy: A person with allergy to cow's milk dairy cannot have yogurt or any other cow's milk dairy product. There are a variety of non-dairy fermented beverages available, usually termed "Water Kefir6" which have water or juice (coconut is popular) as a base. The brand Good Belly has a variety of cow's milk dairy-free juices with added probiotic that would be appropriate for milk allergy.

Soy Allergy: Avoid all soy including miso and tempeh.

PROBIOTIC SUPPLEMENTS

The important question is whether probiotic supplements are effective, and actually composed of live bacteria. Dietary supplements sold in health food stores aren't regulated by the Food and Drug Administration, and may not contain enough of the right kinds of probiotics in the forms that may be effective ?. Remember, not everyone should take probiotics - ask your doctor what product is best for your child.

When choosing a probiotic supplement, always look for:

- Reputable manufacturers, check www.ConsumerLabs.com or other 3rd party non-profit review for more information
- Lactobacillus (in the context of allergy, especially Lactobacillus rhamnosus GG⁴) and Bifidobacterium strains
- Large numbers of CFUs "billions" are typically required for adults, "millions" for kids - although recommended numbers are based on individual diagnosis and history Refrigerated products

Milk Allergy? Lactobacillus probiotic supplements may be okay, check to make sure they are "Dairy Free" and confirm with your Allergist.

> Experts often recommend keeping probiotic supplements refrigerated, not heating supplements, and taking on an empty stomach or 2-3 hours after a meal, as there is less stomach acid present which may help them live through the stomach and survive to the intestinal colony.



Always use caution if your child's immune system is suppressed. Especially avoid probiotics during Bone Marrow Transplant and any organ transplant. With diagnoses such as Irritable Bowel Syndrome, Crohn's Disease, Rheumatoid Arthritis or Severe Acute Pancreatitis check with a health care provider before eating fermented foods or taking probiotic supplements.

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