

Probiotics and Prebiotics

WHAT YOU NEED TO KNOW

A healthy digestive tract is home to more than 1000 species of bacteria. These species of bacteria vary widely, but live together as a community, sharing our body space. We call this collection of bacteria and microorganisms our microbiota. Balance within our microbiota is essential to our health. Beneficial bacteria help us digest food, synthesize vitamins, and support immunity. They also play a role in the production of neurotransmitters, produce anti-inflammatory compounds, and help our bodies filter and absorb nutrients from the food we eat. However, our microbiota can be affected by several factors including infection, immune response, toxins, and changes in lifestyle such as daily stress and the food and fluids we consume or don't consume. Just as weeds can crowd out flowers in a garden, unwanted bacteria can overcrowd beneficial bacteria under these conditions. To maintain optimal colonization in the digestive tract, it can be helpful to consume probiotic-rich foods or take supplements* if necessary.

Probiotics: These are good bacteria that we can replenish through food choices and supplements*. To maintain healthy colonization in the digestive tract, probiotics must be taken or eaten regularly.

**Note: If you experience any digestive discomfort with taking a probiotic capsule or consuming probiotic foods, discontinue the probiotic source and consult a health care provider.*

Prebiotics: These are fiber-rich foods that help probiotics flourish by providing a steady, nutrient-rich diet. When probiotics break down prebiotics in the colon, they produce butyric acid, a short chain fatty acid, which fuels digestive cells and protects the digestive tract from harmful bacteria.

Sources of Probiotics

Fermented vegetables (sauerkraut, kimchi, pickles, beets, carrots)
Fermented fruits (chutneys, jams, green papaya, pickled jackfruit)
Yogurt, kefir, sour cream, buttermilk (plain, no added sugar, with live and active cultures)
Kombucha, a fermented beverage
Fermented condiments (homemade ketchup, relishes, salsas, pickled ginger)
Water kefir, coconut milk kefir
Homemade coconut milk or cashew yogurt
Beet kvass
Natto, miso, tempeh, and tamari sauce

Sources of Prebiotics

Asparagus
Avocado
Banana
Dandelion greens
Eggplant
Endive, radicchio
Garlic, leeks, onions
Honey
Jerusalem artichokes (sunchokes)
Jicama
Kefir
Legumes
Whole grains (e.g. oats)
Yogurt
Resistant starch: cooled and parboiled rice; tiger nuts; cooked and cooled potatoes, cooked and cooled legumes (soaked or sprouted)

**Dietitians in
Integrative and
Functional
Medicine**

a dietetic practice group of the
eat right. Academy of Nutrition
and Dietetics

How to incorporate probiotic and prebiotic foods at meals

Breakfast

- Scrambled eggs with sauerkraut, fermented salsa, or kimchi
- Smoothie with coconut water kefir or kombucha
- Yogurt or homemade coconut or cashew yogurt with seeds and berries
- Fermented vegetables in a breakfast skillet
- Swap juice for a glass of beet kvass

Lunch/ Dinner

- Chopped fermented pickles with tuna, salmon, egg, or chicken salad
- Salad with your favorite kraut, fermented beets, or fermented chutney
- Make your own kefir ranch, miso-tahini dressing, or Italian dressing made with kombucha
- Make an Asian bowl (bok choy, quinoa, salmon) or stir fry and top with kimchi
- Tacos topped with fermented jalapeños slices

Snacks and Extras

- Cut-up veggies with a kefir dill dip
- Kombucha with jerky
- Lacto-fermented dill pickles or carrot chips
- Combine kefir with frozen berries
- Avocado and sauerkraut

PROFESSIONAL TIPS

To get the maximum benefits from fermented foods, read product labels and choose only those that contain “active, live cultures”. Raw and unpasteurized is best unless you have a compromised immune system.

Start with a tablespoon and slowly increase the amount to avoid any potential gastrointestinal discomfort.

OTHER RESOURCES

National Center for Home Food Preservation:
http://nchfp.uga.edu/how/can6a_ferment.html

GREEN CABBAGE, CARROT, AND GINGER KRAUT

Ingredients

- 1 head green cabbage
- 2 Tbsp. (or more) grated ginger
- 1 bag organic shredded carrots
- 1 Tbsp. sea salt
- 2 1 –quart wide mouthed mason jars, washed with soap and very hot water or hot water sterilized

Directions

1. Remove the outer leaves of the cabbage and scrub the outside of the cabbage. Chop or shred cabbage into fine ribbons (the finer the veggie, the more juices will be released). Combine with carrots and grated ginger.
2. Salt the vegetables lightly.
3. Squeeze the salted vegetables with your hands until the cabbage is soft and has released a pool of juice at the bottom of the bowl. (You may choose to divide the shredded vegetables into two batches).
4. Pack the salted and squeezed vegetables into your prepped mason jars. Press the vegetables down with force so that air pockets are expelled and the juice rises up over the vegetables.
5. Place one of the outer cabbage leaves over the top of the packed vegetables, fold the leaf, and press down submerging it fully under the liquid to prevent loose pieces from floating to the surface.
6. Screw the top on to each jar. Each day following, as pressure builds from the fermentation, loosen the lid of each jar to release gas or “burp” the kraut.
7. Allow the kraut to ferment 3 days to 3 weeks, tasting along the way. Flavor and texture will change becoming more acidic and softer with longer fermenting times.
8. When you wish to slow the fermentation, remove to the refrigerator and enjoy within a few months!

Adapted from *Wild Fermentation*

1. Hurley, Amanda K. The Garden in Your Gut. Johns Hopkins Health Review. <http://www.johnshopkinshealthreview.com/issues/fall-winter-2015/articles/the-garden-in-your-gut>. Published Fall/Winter, 2015. Accessed August 28th, 2017.

2. Katz, Sandor. E. Wild Fermentation. Chelsea Green. 2016: 51-52.

3. Katz, Sandor. E. The Art of Fermentation. Chelsea Green. 2012: 21-31.

4. Nair MRB, Chouhan D, Sen Gupta S, Chattopadhyay S. Fermented Foods: Are They Tasty Medicines for Helicobacter pylori Associated Peptic Ulcer and Gastric Cancer? Frontiers in Microbiology. 2016;7:1148. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4958626/>. Published July 25th, 2016. Accessed August 28th, 2017.

5. “Probiotic and Prebiotic Foods.” Handout. The Institute for Functional Medicine. 2016. Print.

6. Roberfroid, Marcel B. Prebiotics and probiotics: are they functional foods? The American Journal of Clinical Nutrition. 2000; 71 (6), 1682-1687. <http://www.ncbi.nlm.nih.gov/pubmed/10837317>. Accessed August 29th, 2017.

7. Scheintaub, Leda. Cultured Foods For Your Kitchen. Rizzoli International. 2014: 15-19.

8. Selhub EM, Logan AC, Bested AC. Fermented foods, microbiota, and mental health: ancient practice meets nutritional psychiatry. Journal of Physiological Anthropology. 2014;33(1):2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3904694/>. Published January 15th, 2014. Accessed September 1st, 2017.