



PRE & PROBIOTICS

DID YOU KNOW

Probiotics and prebiotics may help normalize a gut microbiota disturbed by antibiotics or other stressors and in doing so, improve your health.

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WHAT ARE PROBIOTICS

Probiotics are live microorganisms that when taken in sufficient amounts can provide health benefits. Sometimes - but not always - they are similar to microbes that normally colonize our bodies.

Question: Do probiotics improve the microbiota?
Answer: Transiently.

What the research tells us:

- As live microbes, probiotics can influence the microbes that colonize our body.
- Although few in number compared to our gut microbes, probiotics can grow, metabolize and interact with resident microbes. Rarely do probiotics permanently colonize.
- Probiotics may exert effects on the microbiota as they travel through the less densely colonized regions of our GI tract (stomach and small intestine).
- Probiotics may use similar mechanisms as our colonizing microbes to improve health.



WHAT ARE PREBIOTICS

Simply put, they are food for beneficial microbes that live on or in us. They are metabolized by the 'good' gut microbes (used for energy), positively impacting the gut environment, with an overall health benefit.

Question: Can prebiotics improve the microbiota?
Answer: Yes!

What the research tells us:

- Prebiotics positively impact the composition and/or activity of our resident microbiota.
- Prebiotics may increase levels of beneficial bacteria.
- Prebiotics may increase microbe-derived metabolites or signaling molecules that are important for health.



DIETARY FIBRE

Fibre is a key nutrient for a happy, healthy gut. It is defined as the, "edible parts of plants or carbohydrates that are resistant to digestion and absorption in the human small intestine with complete or partial fermentation in the large intestine".

The two categories of fibres include:

- Water Insoluble (less fermented) and
- Water Soluble (well fermented)

WATER SOLUBLE

More fermentable

- Pectin
- Gums
- Mucilages

Found in fruits, vegetables, legumes, certain seeds, sugar beets, potato, seaweed extracts, microbial gums (ie xanthum) and plant extracts (such as gum karyaya). .

WATER INSOLUBLE

Less fermentable

- Cellulose
- Hemicellulose
- Lignin

Found in vegetables, nuts and seeds, sugar beets, cereal grains and various brans.



DIETARY FIBRE

The recommended daily intake of fibre for most adults is 25-35g per day. Most individuals who consume a western-style diet are lucky to reach 10g!

A FIBRE-RICH DIET IS:

- Lower in energy density,
- Lower in fat content,
- Richer in micronutrients.

HIGH FIBRE FOODS:

- Take longer to eat
- Increase feelings of fullness
- Help control blood sugars
- Help manage cholesterol levels



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BOOSTING FIBRE

Increasing the amount of total fibre in your diet is a great way to improve your digestive health! It is also incredibly easy and doesn't mean skimping on flavour. Just remember to increase your fibre gradually, as too much fibre too quickly can promote intestinal gas, abdominal bloating and cramping!

Let's take a look at the following strategies:

- Choose a high-fiber breakfast cereal — 7g or more fibre per 100g.
- Add a few tablespoons of unprocessed wheat bran / oat bran to your favorite cereal.
- Look for breads that list whole wheat, whole-wheat flour or another whole grain as the first ingredient on the label and have at least 2 grams of dietary fiber a serving.
- Experiment with brown rice, wild rice, barley, whole-wheat pasta and bulgur wheat.
- Substitute whole-grain flour for half or all of the white flour when baking.
- Add kidney beans to canned soup or a green salad. Or make nachos with refried black beans, lots of fresh veggies, whole-wheat tortilla chips and salsa.
- Make snacks count. Fresh fruits, raw vegetables, low-fat popcorn and whole-grain crackers are all good choices. A handful of nuts or dried fruits also is a healthy, high-fiber snack.



FIBRE CONTENT OF CERTAIN FOODS

Recommended target: 20g to 35g per day

Your estimated intake: _____ g per day

Source	Dietary fibre (g/100 g edible portion)		
	Total	Insoluble	Soluble
Grains			
Barley	17.3	–	–
Corn	13.4	–	–
Oats	10.3	6.5	3.8
Rice (dry)	1.3	1.0	0.3
Rice (cooked)	0.7	0.7	0.0
Wheat (whole grain)	12.6	10.2	2.3
Wheat germ	14.0	12.9	1.1
Legumes & pulses			
Green beans	1.90	1.40	0.50
Soy	15.0	–	–
Peas, green frozen	3.5	3.2	0.3
Kidney beans, canned	6.3	4.7	1.6
Lentils, raw	11.4	10.3	1.1
Lima beans, canned	4.2	3.8	0.4
White beans, raw	17.7	13.4	4.3
Vegetables			
Potato, no skin	1.30	1.0	0.30
Bitter gourd	16.6	13.5	3.1
Beetroot	7.8	5.4	2.4
Fenugreek leaves	4.9	4.2	0.7
Ladyfinger	4.3	3.0	1.3
Spinach, raw	2.6	2.1	0.5
Turnips	2.0	1.5	0.5
Tomato, raw	1.2	0.8	0.4
Green onions, raw	2.2	2.2	0.0
Eggplant	6.6	5.3	1.3
Cucumbers, peeled	0.6	0.5	0.1
Cauliflower, raw	1.8	1.1	0.7
Celery, raw	1.5	1.0	0.5
Carrot, raw	2.5	2.30	0.20
Broccoli, raw	3.29	3.00	0.29
Fruits			
Apple, unpeeled	2.0	1.8	0.2
Kiwi	3.39	2.61	0.80
Mango	1.80	1.06	0.74
Pineapple	1.20	1.10	0.10
Pomegranate	0.60	0.49	0.11
Watermelon	0.50	0.30	0.20
Grapes	1.2	0.7	0.5
Oranges	1.8	0.7	1.1
Plums	1.6	0.7	0.9
Strawberry	2.2	1.3	0.9
Bananas	1.7	1.2	0.5
Peach	1.9	1.0	0.9
Pear	3.0	2.0	1.0
Nuts and seeds			
Almonds	11.20	10.10	1.10
Coconut, raw	9.0	8.5	0.5
Peanut, dry roasted	8.0	7.5	0.5
Cashew, oil roasted	6.0	–	–
Seasame seed	7.79	5.89	1.90
Flaxseed	22.33	10.15	12.18

Source Farhath Khanum et al. 2000; Schakel et al. 2001



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