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Yogurt: Health and Probiotic Benefits

Fact Sheet 9.390 | Food and Nutrition Series| Health

*by L. Bauer and M. Bunning (05/24)**

Benefits of Yogurt

Yogurt is a nutrient-rich protein source which has been shown to reduce the risk of osteoporosis and high blood pressure, increase the feeling of fullness, and improve tolerance of dairy for lactose intolerant individuals.

When milk is fermented to form yogurt, the formation of lactic acid results in a more acidic end product by lowering the pH from 6.5 in the starting ingredient, milk, to around 4.6 in the finished product, yogurt.

- The higher acidity (lower pH) of yogurt not only reduces lactose content (compared to milk) but also reduces the risk of pathogenic bacterial growth and extends shelf-life.

Importance of key nutrients

Most types of yogurt are an excellent source (provides more than 20% of recommended daily amount) of protein, riboflavin, vitamin B-12, calcium, and phosphorus and a good source (provides between 10-19% of recommended daily amount) of potassium, pantothenic acid, magnesium, and zinc. (See Table 1)

Potassium: Critical nutrient in cell signaling and muscle function; reduces risk of high blood pressure.

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Protein: Source of amino acids for energy and for making nearly all body components, including enzymes (catalysts for body reactions), hormones, muscle cells, antibodies, and molecules for transporting nutrients in the blood.

B Vitamins, especially Riboflavin, Vitamin B12, and Pantothenic acid: Components of enzymes; especially important in metabolism of carbohydrates, protein, and fat.

Calcium: Vital for bone and dental health, including osteoporosis prevention; important for heart health, including reducing the risk of high blood pressure; key nutrient in cell signaling, muscle function, and reducing risk of colon cancer and obesity.

Magnesium: Vital for maintaining calcium status and functions; important in nutrient metabolism; role in cell signaling, synthesis, and activities; associated with proper neuromuscular and cardiovascular function.

Phosphorus: Vital for bone and dental health; important in metabolism of nutrients for cellular energy; key nutrient in cell signaling, enzymatic activity, and cell structure; aids in pH balance and oxygen delivery.

Zinc: Important component of enzymes in many body processes, including nutrient metabolism, growth and development, immunity, and hormone function.

Quick Facts

- Fermented dairy products, such as yogurt, combine the nutrient-rich attributes of dairy with the beneficial activities of probiotics to make a healthful food option.
- Yogurt is made by fermenting milk with a bacterial culture containing lactic acid-producing bacteria, typically Lactobacillus delbrueckii subspecies bulgaricus (L. bulgaricus) and Streptococcus thermophilus (S. thermophilus).
- The wide assortment of yogurt varieties available to consumers increases opportunities to include yogurt in a healthful diet.

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Table 1. Nutrients in yogurt, plain, per 8 ounce container (227 g)*

Nutrient	Units	Skim milk	%DV^	Low fat	%DV	Whole milk	%DV
Calories		127	-	143	-	138	-
Total Fat	g	0.4	1%	3.5	5%	7.4	12%
Saturated Fat	g	0.3	1%	2.3	12%	4.8	24%
Cholesterol	mg	5	2%	14	5%	30	10%
Sodium	mg	175	7%	159	7%	104	4%
Potassium	mg	579	17%	531	15%	352	10%
Total Carbohydrate	g	17.4	6%	16	5%	10.6	4%
Dietary Fiber	g	0	0%	0	0%	0	0%
Sugars	g	17.4	-	16	-	10.6	-
Protein	g	13	26%	11.9	24%	7.9	16%
Vitamin A	IU	16	0%	116	2%	225	5%
Vitamin C	mg	2	3%	1.8	3%	1.1	2%
Thiamin	mg	0.109	7%	0.1	7%	0.066	0%
Riboflavin	mg	0.531	31%	0.486	29%	0.322	19%
Vitamin B6	mg	0.12	6%	0.111	6%	0.073	4%
Vitamin B12	mcg	1.38	23%	1.27	21%	0.84	14%
Pantothenic Acid	mg	1.455	15%	1.342	13%	0.883	9%
Folate	mcg	27	7%	25	6%	16	4%
Calcium	mg	452	45%	415	42%	275	28%
Iron	mg	0.2	1%	0.18	1%	0.11	0%
Magnesium	mg	43	11%	39	10%	27	7%
Phosphorus	mg	356	36%	327	33%	216	22%
Zinc	mg	2.2	15%	2.02	13%	1.34	9%

* USDA National Nutrient Database for Standard Reference, Release 28 (2016).
^ Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.
Good (orange) = 10-19%
High (yellow) = at least 20%
Key nutrients in red font.

Probiotic Benefits

Yogurt can be a source of beneficial bacteria, including those categorized as probiotics. The word probiotics means “for life” and they are defined by the World Health Organization (WHO), as "live microorganisms that, when administered in adequate amounts, confer a health benefit on the host." In order for a microorganism to be called a probiotic, specific criteria must be met to assure safety and health benefits to humans. Researched evidence on probiotics' health effects must designate genus, species, and strain level. Health claims on food products made with potentially beneficial bacteria need to have been tested for that specific strain. A key benefit of probiotics in the diet is to improve the intestinal bacterial balance, which helps prevent the growth of harmful bacteria. In the example of yogurt, all strains of L. bulgaricus and S. thermophilus are approved as probiotics for producing a the enzyme, lactase, that aids in digestion of the milk sugar lactose.

Research is ongoing to investigate effects of probiotics on our health, but some of the strongest research-based benefits include:

- Ease digestion of lactose and symptoms of lactose intolerance
- Protect against acute diarrhea in children, and decrease diarrhea caused by antibiotics or rotavirus
- Boost immune health to help prevent illness
- Decrease risk of allergy and eczema

Additional research is needed to improve knowledge regarding functions of individual strains, or precisely how probiotics work, as well as microbial interactions in the gut, validation of safety and quality of strains, and required dosages and length of time needed to confer health benefits.

Early studies suggest that in addition to the above benefits, the following may also be attributable to probiotics:

- Reduce risk of: daycare infections, dental caries in children, complications due to Helicobacter pylori infection in the stomach, and certain cancers, including bladder and colon cancers.
- Treatment for certain diseases including: inflammatory bowel disease, colitis, and Crohn’s disease; Clostridium difficile diarrhea; necrotizing enterocolitis, which primarily affects premature or sick newborns; and irritable bowel syndrome (IBS).

Beneficial bacteria

Although we often hear about harmful bacteria, many types of microorganisms can be beneficial. The human body is estimated to have 10 times the number of microbial cells to human cells, and it is generally accepted that the digestive track contains 500 to 1000 different species of bacteria. Many types help to maintain a healthy gut environment by digesting fiber, producing useful chemicals, and preventing infections.

Prebiotics and Synbiotics

Along with probiotics, prebiotics and synbiotics, contribute to classification of a food as a functional food. A functional food is one that goes beyond meeting nutritional needs to promote wellness and potentially reduce disease risk.

Prebiotics essentially feed gut bacteria. Prebiotics are non-digestible substances that provide a beneficial physiological effect for the host by selectively stimulating the growth or activity of beneficial bacteria.

- They are mostly non-starch carbohydrates that we cannot digest, including:
  - Fructooligosaccharides (FOS): Oligofructose, Inulin
  - Galacto-oligosaccharides (GOS)
  - Lactulose
  - Breast milk oligosaccharides

- Good food sources of prebiotics include: artichokes, asparagus, bananas, barley, chicory root, greens (dandelion, chard, kale), garlic, leeks, onions, rye, and wheat.

Some foods or drinks contain both probiotics and prebiotics; they are referred to as synbiotics. Yogurt, or similarly cultured dairy products, can be developed as synbiotics by adding probiotics and prebiotics to yogurt after production.

Purchasing Yogurt

Yogurt has gained popularity as a healthful food, and can be used as a meal, snack, or dessert. Yet the nutritional attributes of yogurt can differ widely across types, styles, and flavors.

When buying yogurt for its qualities as a naturally fermented milk product, the following are items to look for on a yogurt label to make a nutritious and healthful choice:

- "Live and active cultures" indicates bacterial cultures are still alive and present. Heat treatment after being cultured will kill beneficial cultures. Manufacturers can voluntarily label with the National Yogurt Association's Live & Active Cultures seal. The seal is available to all manufacturers of refrigerated yogurt whose products contain at least 100 million cultures per gram at the time of manufacture, and whose frozen yogurt contains at least 10 million cultures per gram at the time of manufacture. Some yogurt products may have live cultures but choose not to carry the seal on their label.

Things to consider when purchasing yogurt

- A (simple) short list of ingredients: milk, live cultures, real fruit. Look for yogurt made with the least amount of extra ingredients, such as added sugars or artificial colors. A naturally fermented product will have a thick gel-like consistency but stabilizers, such as pectin, gelatins, or gums, are often added to improve texture.
- Nutrient-rich, especially calcium and protein. In 6 ounce containers of regular yogurt, look for at least 5 g protein and at least 20% daily value of calcium. In 5.3 ounce containers of Greek yogurt, look for at least 10 g of protein and at least 10% daily value of calcium. Some yogurts may be fortified with Vitamin D. This would be indicated on the label.
- Expiration date. Fresh is best. Purchase and consume yogurt prior to the expiration date to ensure probiotics are at their peak activity. Yogurt that has been heat treated after culturing will have an extended shelf-life, but no longer contains beneficial bacterial cultures and enzymes.

Yogurt comes in three types based on fat content, and in many styles with different forms, textures, and tastes.

Types:

- Yogurt contains at least 3.25 % milkfat.
- Lowfat yogurt: contains between 0.5 and 2 percent milkfat.
- Nonfat yogurt: contains less than 0.5 percent milkfat.

Styles or Varieties:

- Balkan style or Set-style: cultured milk is incubated in individual containers rather than a large vat. This results in an unstirred, thicker product.
- Custard style, French style, or Swiss style: consistency is custard-like, with fruit and yogurt mixed together and evenly distributed. A stabilizer such as gelatin may be added for texture.
- Fruit-on-the-bottom or Sundae style: yogurt is layered over fruit, which can be mixed together or turned upside down to look like a sundae.
- Greek style, Strained, or Yogurt Cheese: liquid whey is strained and removed to produce a thick, concentrated yogurt. Greek yogurt is higher in protein than standard yogurt, but lower in carbohydrates and calcium due to removal of the whey.
- Skyr (pronounced skeer) or Icelandic style: a strained, skim-milk product similar to strained yogurt. Icelandic yogurt is higher in protein than standard yogurt, but lower in carbohydrates and calcium due to removal of the whey.
- Drinkable yogurt: yogurt is blended with fruit to make a drinkable product. Note: this is different from kefir, a fermented dairy drink made from a different starter culture than yogurt. The health benefits from kefir are attributable to the ingredients and activity of fermenting microorganisms.
- Frozen yogurt: a frozen dairy dessert that is not subject to federal standards such as other yogurt products. Frozen yogurt does not need to be fermented with live and active cultures, and is often nutritionally comparable to ice cream. Manufacturers can voluntarily label with the Live & Active Cultures seal if the product contains the required amount of cultures and is made by fermenting pasteurized milk with traditional yogurt cultures.

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