



## 4-H Consumer Judging Guide

# Yogurt

### What is Yogurt?

Yogurt is a cultured dairy product that can be made from whole, lowfat or skim milk, including reconstituted nonfat dry milk powder. The Food and Drug Administration (FDA) describes yogurt as a food produced by culturing one or more of the basic ingredients (cream, milk, partially skimmed milk, skim milk or the reconstituted versions of these ingredients may be used alone or in combination) and any of the optional dairy ingredients with a characterizing bacteria (live and active) culture that contains the lactic acid-producing bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophilus*). Yogurt is made by inoculating certain bacteria (starter culture), usually *Streptococcus thermophilus* and *Lactobacillus bulgaricus*, into milk. After inoculation, the milk is incubated at approximately  $110^{\circ}\text{F} \pm 5^{\circ}\text{F}$  until firm; the milk is coagulated by bacteria-produced lactic acid.



Yogurts may have additional cultures, sweeteners, flavorings, color additives, stabilizers, emulsifiers and preservatives added to it. Yogurts may be heat-treated after culturing to extend the shelf life of the food. Most yogurts in the United States are made from cow's milk, although any type of milk can be used. In other countries, yogurt is made from the milk of water buffalo, yak, goat, horses and sheep.

Because yogurt is made with live and active cultures, it has become a healthy lifestyle favorite. Yogurt comes in many flavors and varieties that appeal to everyone's taste buds.

### Health Benefits

Yogurt is a nutrient-dense food that meets a wide variety of nutritional needs for everyone. Yogurt is a good source of protein – an average 8-ounce serving contains between 8 and 10 grams of protein or 16 to 20 percent of the Daily Recommended Value (DRV). Because yogurt is cultured, the amount of protein often succeeds liquid milk. Yogurt is also an excellent source of calcium. Yogurt may contain up to 35 percent of the Recommended Daily Intake (RDI) for calcium. Yogurt is low in fat and high in certain minerals and essential vitamins, including riboflavin B<sub>2</sub>, vitamin B<sub>12</sub>, phosphorus and potassium.

The words *live and active cultures* refer to the living organisms — *Lactobacillus bulgaricus* and *Streptococcus thermophilus* — that convert pasteurized milk to yogurt during fermentation. Researchers are currently exploring how live and active culture yogurt may have a beneficial effect on the immune system, may have the potential to lower cholesterol and how it may combat certain types of cancer-causing compounds, particularly in the digestive tract.

Health benefits of eating yogurt include:

- May help reduce osteoporosis risk.
- Yogurt can be eaten by people who are lactose intolerant.
- Diets rich in calcium may help reduce hypertension.
- May enhance the immune system of certain individuals.
- Is versatile and convenient – use as a substitute for mayonnaise, sour cream and cream cheese to lower calories.
- May reduce the risk of colon cancer.
- Is an excellent source of calcium.

- Yogurt is considered a meat alternative because of high protein content.
- Yogurt can be purchased in a large variety of flavors and styles that can be used to reduce calories.

## Protein

An average eight-ounce serving of live and active culture contains approximately 20 percent of the daily value for protein.

### Recommended Dietary Allowances (RDA) of Protein for Children

Age Group (years)	RDA (grams/day)
1-3	13 grams
4-8	19 grams
9-13	34 grams
14-18	52 grams (boys), 46 grams (girls)

**Source:** Food and Nutrition Board, Institute of Medicine of the National Academy of Sciences.

## Calcium

Calcium is needed at every stage of life, and yogurt with its live and active cultures is a great source. Calcium is critical for bone growth, development and maintenance at every age and stage of life. Toddlers have an increased need for dietary calcium to support growth and skeletal development that take place rapidly in the early years of life. Calcium needs continue into the teenage years and is particularly crucial for adolescent girls who need to stock their calcium supplies to prevent osteoporosis later in life. The need for calcium increases as the body matures. Adults achieve their peak bone mass at age 35, and after that bone loss begins to take place. Calcium intake is critical in helping reduce bone loss, especially for postmenopausal women.

### Dietary Reference Intake

Age Groups (years)	Adequate Intake (milligrams/day)
1-3	500 milligrams
4-8	800 milligrams
9-18	1300 milligrams
19-50	1000 milligrams
51+	1200 milligrams

**Source:** Food and Nutrition Board, Institute of Medicine of the National Academy of Sciences.

Yogurt is rich in calcium, high in protein, tolerated by lactose-sensitive children and adults, convenient, versatile and tasty.

Calcium is an essential part of any balanced diet and is found in a wide variety of foods, but most people just don't get enough calcium each day. Use the chart below to ensure that you are meeting your daily calcium quota.

### Quick-Read Equivalency Chart

Food	Serving Size	Calcium (milligrams)
Live and active culture yogurt (plain)	1 cup	450 milligrams
Calcium-fortified orange juice	1 cup	300 milligrams
Milk (nonfat)	1 cup	300 milligrams
Chocolate milk 1%	1 cup	285 milligrams
Swiss cheese	1 ounce	270 milligrams
Cheddar cheese	1 ounce	205 milligrams
Salmon (edible with bones)	3 ounces	180 milligrams
Frozen yogurt	1/2 cup	155 milligrams
Turnip greens, cooked	1/2 cup	125 milligrams
Dried figs	3	80 milligrams
Broccoli, cooked	1/2 cup	35 milligrams

**Source:** The Food Processor. ESHA Research 7.0, 1998.

## Yogurt Varieties

Yogurt products come in a wide variety of flavors, forms and textures. Here are the common terms associated with yogurt products available today. Some of the definitions were established by the Food and Drug Administration (FDA), while others were determined by the manufacturers.

**Lowfat and nonfat:** There are three types of yogurt: regular yogurt, lowfat yogurt and nonfat yogurt. Yogurt made from whole milk has at least 3.25 percent milk fat. Lowfat yogurt is made from lowfat milk or part-skimmed milk and has between 0.5 and 2 percent milk fat. Nonfat yogurt is made from skim milk and contains less than 0.5 percent milk fat.

**Lite (light) yogurt:** One-third less calories or 50 percent reduction in fat than regular yogurt.

**Swiss or custard:** Fruit and yogurt are mixed together for individual servings. To ensure firmness or body, a stabilizer, such as gelatin, may be added. These products are also referred to as "blended" yogurt.

**Frozen yogurt:** Frozen yogurt is a nonstandardized food and, therefore, is not subject to federal composition standards, as is the case for “yogurt.” In order to qualify for National Yogurt Association’s (NYA) Live and Active Cultures seal, frozen yogurt must be a product made by fermenting pasteurized milk (can include skim milk and powdered skim milk plus other ingredients) using traditional yogurt cultures until the proper acidity is reached. Many manufacturers, according to their unique recipes, will then mix this (the “yogurt” component) with a pasteurized ice cream mix of milk, cream and sugar plus stabilizers or other ingredients needed for desired consistency. This frozen yogurt base mix can then be blended with fruit or other ingredients and then frozen. The freezing process does not kill any significant amount of the cultures. In fact during the freezing process, the cultures go into a dormant state but, when eaten and returned to a warm temperature within the body, become active and are capable of providing all the benefits of cultures in a refrigerated yogurt product.

Not all products terms “frozen yogurt” actually contain live and active cultures. Some so-called “frozen yogurts” use heat-treated yogurt, which kills the live and active cultures, or they may simply add in cultures to the mix along with acidifiers, and skip the fermentation step all together. To make sure that a frozen yogurt contains yogurt produced by traditional fermentation and has a significant amount of live and active cultures, look for the NYA Live and Active Cultures seal.



**Contains active yogurt cultures:** Yogurt labeled with this phrase contains the live and active bacteria thought to provide yogurt with its many desirable healthful properties. Look for the NYA Live & Active Cultures seal to ensure that the yogurt you buy contains a significant amount of live and active cultures.

**Heat-treated:** Yogurt labeled with this phrase has been heated after culturing, thereby killing the beneficial live and active yogurt cultures.

**Liquid or drinkable yogurt:** Fruit and yogurt are blended into a drinkable liquid.

**Made with active cultures:** FDA regulations require that all yogurts be made with active cultures. Only those that are *not* heat-treated, however, retain live and active cultures when they reach consumers.

**Sundae or fruit on the bottom:** Fruit is on the bottom, so that turned upside down, it looks like a sundae. Consumers can mix the fruit and yogurt together to make it smooth and creamy.

**Buttermilk:** Buttermilk is reminiscent of yogurt because it is made by adding a lactic acid bacteria culture to pasteurized whole milk (skim milk or nonfat milk can also be used). The old-fashioned way to make buttermilk was from the leftover liquid from churning butter from cream; i.e., milk from the butter or buttermilk. After the addition of the culture, the milk is left to ferment for 12 to 24 hours at a low temperature. It is usually labeled cultured buttermilk and may be salted or unsalted. Buttermilk is slightly thicker in texture than regular milk but not as heavy as cream.

**European-style yogurt or stirred curd method:** The yogurt is cooked in a large vat instead of in individual cups. The curds are stirred in the vat, before they are poured into the cups, resulting in a smoother, creamier yogurt.

**French yogurt or French-style yogurt:** Is the same as custard-style yogurt.

**Greek yogurt:** Greek yogurt is a thicker, creamier version of the regular variety. Greek yogurt is strained to remove the excess whey from the yogurt which, in turn, gives it a thicker and creamier texture. In Greece, yogurt is made with sheep’s or goat’s milk.

**Yogurt cheese:** Yogurt that has been drained and pressed into a soft cheese form. The consistency of the yogurt cheese will be similar to soft cream cheese. It can be used as a base for dips and spreads or as a topping for baked potatoes. It is a great alternative for regular mayonnaise, sour cream or cream cheese.

**Smoothie:** There are many types of smoothies that contain yogurt or frozen yogurt. These smoothies usually use yogurt as the base and mix in various fruits to the consistency of a milkshake with healthier benefits.

**Liquid yogurt or yogurt smoothie:** Yogurt that has been thinned to make it drinkable and blended with fruit, fruit juice or other flavorings.

**Kefir:** Kefir is similar to a drinking-style yogurt, but it contains beneficial yeast as well as friendly “probiotic” bacteria found in yogurt. Kefir can be made from any type of milk – cow, goat or sheep, coconut, rice or soy. The curd size of kefir is smaller than yogurt, which makes it easier to digest. Kefir is rich in vitamin B<sub>12</sub>, and vitamin K. It is an excellent source of biotin, a B vitamin that aids the body’s assimilation of other B vitamins, such as folic acid, pantothenic acid and B<sub>12</sub>.

**Yogurt drinks:** A “yogurt drink,” according to Federal Standards of Identity, must meet the requirements for yogurt (the white mass – yogurt portion). It must contain a minimum of 8.25 percent milk solids that are not fat and 3.25 percent milkfat prior to the addition of other ingredients. It also must be fermented with *Streptococcus thermophilus* and *Lactobacillus bulgaricus*. The process of making yogurt beverages closely resembles that used for stirred-style yogurt. Yogurt drinks usually pass through a homogenizer to reduce the particle size. This assures complete hydrocolloid distribution and stabilizes the protein suspension. Flavor may be added immediately prior to homogenization, or the white mass may be homogenized and then flavored.

## Costs

When looking at costs, you will need to decide whether to buy single-size cartons or larger cartons. Larger cartons are generally cheaper when you compare the price per ounce.

- 32-ounce store brand nonfat @\$1.66 = \$.05 per ounce
- 6-ounce store brand flavored nonfat @ \$.60 = \$.10 per ounce
- Package of eight 2.25-ounce name brand portable yogurt treats (18 ounces) @ \$2.95 = \$.16 per ounce.

- Fruit-flavored varieties may cost more and include jam-like fruit that adds extra sugar. The sweetened fruit replaces some of the yogurt in the carton so you get less of the calcium-rich yogurt. Buy plain or vanilla yogurt and add your own fruit to it.
- **Other things to consider:** serving size, calories, fat content and price.

## Resources Used

National Yogurt Association:

<http://aboutyogurt.com/index.asp>

Iowa State University Extension, Spend Smart. Eat Smart. Milk, Cheese, and Yogurt:

<http://www.extension.iastate.edu/Publications/PM2066AX.pdf>

Food and Drug Administration: <http://www.fda.gov/>

Making yogurt drinkable, *Dairy Foods*, June, 2004, by Bob Roberts: <http://findarticles.com>

[/p/articles/mi\\_m3301/is\\_6\\_105/ai\\_n6081210/](http://p/articles/mi_m3301/is_6_105/ai_n6081210/)

What is buttermilk? Does buttermilk contain butter?

<http://homecooking.about.com/od/cookingfaqs/f/faqbuttermilk.htm>

Nutritional Content of Kefir:

<http://www.kefir.net/nutrit.htm>

Yogurt Cheese:

<http://lowfatcooking.about.com/od/quicktips/qt/yogcheese.htm>

How to Make Yogurt Smoothie:

[http://www.ehow.com/how\\_4536718\\_make-yogurt-smoothie.html](http://www.ehow.com/how_4536718_make-yogurt-smoothie.html)

What is Greek Yogurt?

[http://www.cookthink.com/reference/257/What\\_is\\_Greek\\_yogurt](http://www.cookthink.com/reference/257/What_is_Greek_yogurt)

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Prepared by Laura J. Connerly, Ph.D., Instructor - Family Resource Management, University of Arkansas Division of Agriculture, [lconnerly@uaex.edu](mailto:lconnerly@uaex.edu).

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