

a Where Healthy Food Starts guide



yogurt



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Yogurt

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INTRODUCTION to YOGURT

what to know about this fermented dairy product

What is Yogurt?

Originally a simple fermented dairy product, yogurt now has many variations and personalities. It can be thin and runny, or thick and firm. It can be made from cow milk, goat milk, sheep milk, nut milk, soy milk, rice milk, and numerous other creamy substances. In some countries the milk of buffalo, horses, yaks, or camels is used.

For the most part, in this book we talk about yogurt in its original form: a fermented dairy milk. This was how yogurt was first developed, and most of the yogurt in the world is made this way.

Essentially yogurt is the product of beneficial bacteria fermenting milk and turning it into a thickened, acidic food that will stay fresh longer than milk itself, and that contains millions of bacteria that are welcomed by the human gut.

The History of Yogurt

The word *yogurt* comes from a Turkish word meaning to curdle or to thicken. Today it is spelled *yogurt*, *yoghurt*, or *yogourt*, with *yogurt* being the most common American spelling.



It's probable that the earliest yogurt was made by accident in Mesopotamia around 5,000 BC, when milk-producing animals were first domesticated. The milk was likely stored and transported in bags made from the stomachs of these animals, and the digestive juices and bacteria in the stomach linings made the milk coagulate and become acidic.

Or possibly, a shepherd or goat herder placed milk in a vessel that harbored some sort of friendly bacteria, during a warm time of the year. When he returned to this vessel to retrieve his milk, he discovered that the milk had soured into a thick consistency with a pleasantly tangy flavor. He then discovered that if he left a bit of the soured milk (yogurt) in the vessel and added more milk he could repeat the process with somewhat similar results.



And so yogurt was born, or discovered, depending on how you look at it.

Not only was it a new and interesting food, but the acidity helped to keep the milk edible for longer than if it had just sat out in a bowl or jar.

There is also some evidence of yogurt being used as a cleaning product and a beauty lotion as early as 2000 BC. The acidity of the yogurt helps clean away dirt and rust, and also helps clear away dead skin and nourish healthy skin cells.

Yogurt was a popular food in the Middle East for thousands of years, and has been a staple of the Eastern European diet. It's now eaten throughout the world, as a main course, a snack, an ingredient in many recipes, and a condiment. It has gained considerable popularity in America in the last forty or fifty years, in keeping with general trends toward organic, cultured, and nutrient-dense foods.

Yogurt can be mildly tart or quite sour, and can be thick enough to stand up on a plate, or thin enough to pour, or anywhere in between. It contains protein and calcium as well as a variety of vitamins. Additionally, the process of yogurt fermentation is very similar to the process of digestion, so it can be easily consumed.

Many people eat yogurt plain, while others prefer to mix it with fruits or vegetables, or to add flavors or sweeteners. It is used in a variety of recipes as a flavor enhancer or leavening, and frequently enjoyed as a refreshing drink.



Nutritional Content

Not only does yogurt contain the same amount of protein and fat as the milk from which it is made, it also contains calcium, riboflavin, vitamin B6, and vitamin B12. While numerous claims have been made regarding the health benefits and digestibility of yogurt, we don't comment on medical, health, or nutritional qualities of our products. However, a great deal of research on the subject is readily available on the internet and in dozens of books.

How is Yogurt Made?

True yogurt is made from animal milk. Theoretically, the milk of any mammal could be used to make yogurt.

With care, yogurt cultures can also be used to ferment and coagulate non-dairy "milks" such as the creamy liquid obtained from nuts, rice, soy, or coconut. While these products are technically not really yogurt, they can be used and enjoyed just like dairy yogurt, alone or in recipes.

Put very simply, the process of turning milk into yogurt involves fermentation. Certain types of bacteria act on the lactose (milk sugar) that is in milk, and produce lactic acid. The lactic

acid lowers the pH of the milk, and causes the milk protein to coagulate and make a firm mass. The acidified milk is an inhospitable environment for destructive bacteria, so the yogurt stays fresh longer than untreated milk.



The bacteria that do this are called beneficial bacteria, because they support digestion and are nourishing, as opposed to pathogenic (harmful) bacteria that cause disease. The beneficial bacteria are called *probiotic*. They are similar or identical to the type of bacteria that live in the human gut and that are responsible for the process of food absorption. When you use live cultures, the probiotics stay in the yogurt, and the yogurt can then be used as a starter to make more yogurt.

Yogurt and Other Fermented Dairy Products

There are many different ways that beneficial bacteria can be introduced to milk to make an entirely new food. The main difference between the various fermented dairy products is the bacteria used to make them, resulting in different flavors and consistencies.

Yogurt can be cultured with a variety of different bacteria combinations, each of which gives the yogurt a characteristic taste and consistency. There are typically somewhere between two to six different bacteria strains in yogurt, and they are similar to the bacteria found in the intestines.

Kefir is a thickened milk made from little clumps of yeast, bacteria, and milk proteins that ferment the milk. There are dozens of different bacteria strains present in kefir grains. Kefir

has a slightly sour flavor and sometimes a faint effervescence. *Koumiss* is a similar product, made from mare's milk.

Buttermilk is the name given to the whey that's left over when butter is made, but it can also refer to a milk drink made by adding bacteria to milk, producing a thickened product with a tangy flavor.

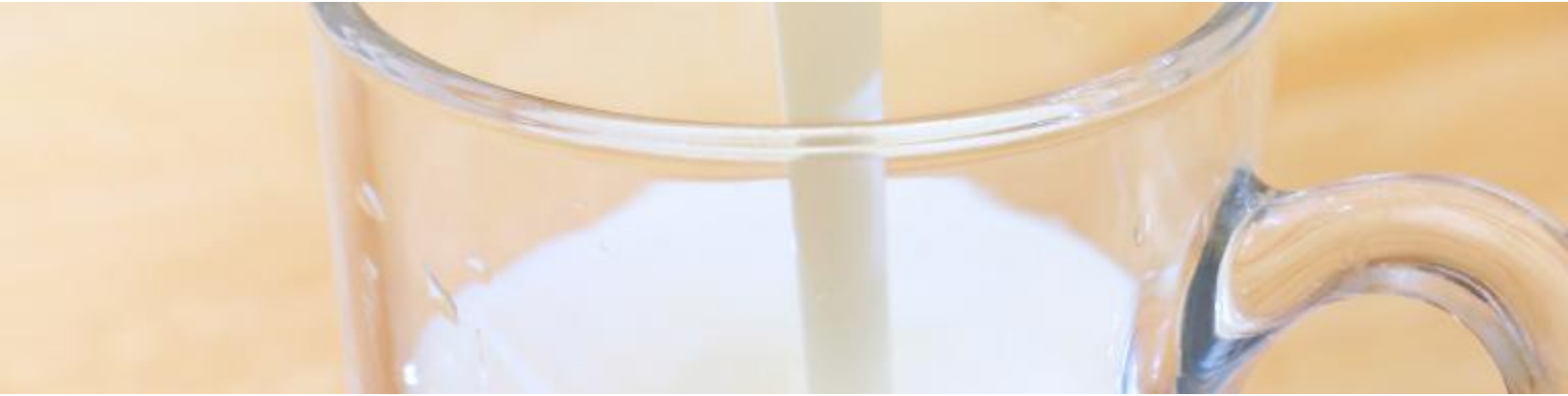
Sour cream is cream or high-fat milk that's been cultured and thickened. It's very slightly sour, and usually quite thick. It was originally made by letting fresh cream thicken naturally as a result of fermentation from the bacteria present in the cream. When cream is pasteurized and has no natural bacteria present, it must be fermented with added bacteria.

Crème fraîche is a European-style sour cream, slightly sweeter than what we are used to in America. It's also made by letting raw cream thicken naturally, or by adding buttermilk cultures to cream. *Crème fraîche* can be heated without curdling, unlike sour cream.

In recipes, you can often substitute one cultured milk product for another and get similar results. In fact, sometimes it is hard to tell the difference between a thin, tart yogurt and a thick, sour kefir, or a creamy buttermilk!

Soft and hard cheeses are also made by culturing milk over a longer period of time. Some cheeses can be easily made by straining the moisture out of yogurt or sour cream, while others require additional fermentation and culturing steps, and sometimes the addition of rennet to produce an additional type of culturing.

Drinkable Yogurt and Why It's Useful



Scandinavia has a lovely history of cultured foods, from sourdough breads to pickled herring to the drinkable yogurt known as piimä.

Piimä is naturally a very thin yogurt, so it may be useful to keep it on hand as a drinkable yogurt that is easy to serve from a glass. You could then use other yogurt cultures to make a thicker yogurt that can be eaten with a spoon.

How It Is Cultured

Piimä is cultured at room temperature. That means there are no yogurt makers, coolers, or other heating apparatuses required.

Because of its Scandinavian roots (Finnish, to be exact), piimä cultures well in colder climates. If you live in a warmer climate, your piimä will simply culture faster, moving into the curds-and-whey stage much sooner than other yogurt varieties.

You can also use the culture with cream or half-and-half for a thicker piimä cream, which can be used as sour cream or crème fraîche in your cooking or serving.

Flavor and Texture

Piimä has a lovely nutty, almost cheese-like flavor. It is also the thinnest of the room-temperature cultured yogurts. Piimä is so thin; in fact, that it is more commonly drunk from a glass than eaten with a spoon.

Piimä has a smooth texture and can sometimes have a stretchy consistency similar to honey.

How to Eat It



In Finland it is commonly drunk straight from a glass in the summer heat with or without salt. You can pour it over fruit or granola in a bowl, layer it in a parfait, eat it with cereal, dip fruit in it, or strain it through cheesecloth for a thicker consistency, then season and use as a spread or cheese.

You could mix it with juice and drink it from a glass, blend it with frozen fruit for a smoothie, or top your favorite savory dishes with this cultured milk product. You can use it as the base of a salad dressing or vegetable dip.

If you are making piimä cream then not only do you have a probiotic-rich cultured cream, you also have the base for some delicious butter. Simply use your cultured piima cream in place of heavy whipping cream to make a nutty, probiotic-rich cultured butter.

How to Make It

Piimä yogurt is made similarly to other room-temperature cultured yogurts. Click here for a [full video tutorial on making piimä](#).

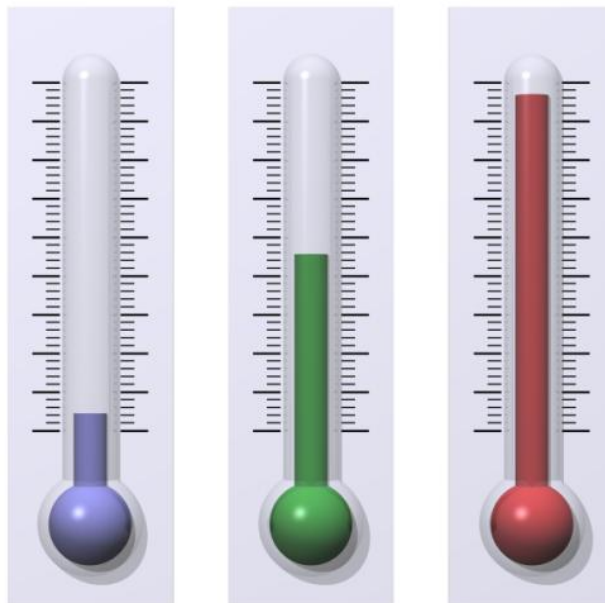
To make piimä cream, simply add the piimä yogurt to the cream. Mix to combine. Cover the container with a loose lid (a coffee filter or tight-weave towel with a tight rubber band also works well) and allow the mixture to sit at room temperature for 12 to 18 hours or until the cream has thickened. Allow the piimä cream to sit in the refrigerator for at least 6 hours before serving to halt the culturing process.

Note: heavy whipping cream will produce thicker piimä cream than will half-and-half, raw cream, etc.

What Is the Difference between Yogurt and Kefir?

Many people assume that because yogurt and kefir are both cultured milk products, there isn't much difference between the two. This is not true. There are many differences between yogurt and kefir, including how they are made, the type of bacteria present, and the health benefits of each.

Incubation Type



There are two types of yogurt: mesophilic and thermophilic. Mesophilic means that it is cultured at room temperature. Thermophilic means that the culture requires a specific range of temperatures to incubate.

Kefir is a mesophilic culture which means it can culture at room temperature. Many yogurt strains, however, are thermophilic and require some sort of warming device to properly culture.

There is also a difference in what is used to propagate the culture in the milk. Yogurt is made by mixing a bit of a previous yogurt batch into fresh milk. Once the new batch is complete you may use that starter again, or in the case of raw milk a separate starter is kept with pasteurized milk. Yogurt can also be made with a dried starter.

Kefir, on the other hand, is made with either a dried starter or a set of kefir “grains.” These gelatinous grains will multiply over time, leaving you with extra grains to use, give away, or compost after every batch. In making kefir, the grains are simply removed from a newly made batch of kefir and added to fresh milk to make the next batch.

Types of Bacteria Present

Yogurt and kefir contain different types of bacteria, each of which perform different tasks.

The beneficial bacteria found in yogurt help keep the digestive tract clean and provide food for the friendly bacteria found in a healthy gut. They pass through the digestive tract, and are called “transient bacteria.”

The bacteria in kefir, on the other hand, can actually colonize the intestinal tract. Kefir also contains a much larger range of bacteria, as well as yeasts. So while yogurt may contain a handful of different strains of bacteria, kefir may contain many more than that.

Kefir Contains Yeasts

Both kefir and yogurt are lactic acid fermentations. On top of that, though, kefir contains beneficial yeasts that can also produce alcohol.

Texture and Flavor

Yogurt has a flavor that most of us are familiar with: tart, smooth, and creamy. Kefir is also tart, but it can have a touch of yeast or alcohol flavor to it due to the beneficial yeasts present in the culture.

Most varieties of yogurt are also thicker than kefir, given the same length of fermentation time. While yogurt is almost always eaten with a spoon, kefir can often be eaten with a straw out of a glass.

Both yogurt and kefir are beneficial cultured dairy products that can perform different, helpful tasks in the body.



GETTING STARTED

GETTING STARTED

how to prepare for making yogurt

GETTING STARTED

Yogurt Basics

No matter what part of the world your yogurt culture came from, or what kind of bacteria it contains, or what kind of milk you are using, there are some basic procedures that you will follow to produce a tasty, nutritious, fermented result.

Ingredients and Supplies You Will Need

Milk. You can use pasteurized milk (homogenized or unhomogenized), raw milk, whole milk, reduced-fat milk, skim milk, or even powdered milk. You can also use other creamy substances such as rice milk, nut milk, soy milk, coconut milk, etc.



Yogurt culture (also called starter). This can be an already-made yogurt, or a dried culture. There are many varieties of [yogurt culture](#), each of which will produce a characteristic yogurt: mild or tart, thin or thick, gelatinous or pourable.

Clean container(s). Glass is best for making yogurt. Food-grade plastic can also be used but is not an ideal choice for yogurts that incubate at warm temperatures. You can make yogurt all in one large container, or you can make it in single-serving containers. *Cleanliness* is very important! Any sort of food or soap residue can contaminate the culture and give you poor results.

Cover. You can culture yogurt with or without a lid. If you culture without a lid, you should have some sort of cover such as a clean towel, or a coffee filter, to keep dust and other particles from getting into the yogurt, and to keep the cat from drinking it while you are not looking. Once the yogurt is complete, you'll need to have some sort of lid for the container, to keep the yogurt fresh.

Pot for heating milk. Not all yogurts require that you heat milk, but for those that do, you will need a pot that will hold the quantity of milk you'll be heating. Stainless steel or glass is a good choice. A double boiler will help keep the milk from sticking to the bottom of the pot.



Cooking thermometer. If you are making a non-heated yogurt, you'll need a thermometer that measures lower temperatures than a cooking thermometer. Check the instructions for the yogurt culture you are using to find what temperatures you'll need to measure, and make sure your thermometer covers that range.

Insulator. This can be a [yogurt-making machine](#), a crock pot, an insulated cooler, or even just a dishtowel. Whatever type of yogurt you make, you will need to keep it at a certain temperature while it incubates.

Timer. Nothing fancy is required. Any method you have to tell time and remind you when the yogurt needs to be looked at will work.

Measuring cups and spoons. You'll need to measure the yogurt and milk that you're using. Whether you are making one cup at a time, or several gallons, make sure you have the measuring tools you need.

A place for the yogurt to incubate. The yogurt will need to sit for 6 to 48 hours (depending on the type of culture you use). You need to have a place that it can rest, undisturbed, at a constant temperature, and away from anything else you might be culturing.

Basic Procedure

Get all your equipment and supplies together. Having all your gear in one place will make your yogurt-making experience much easier than if you have to be rustling around for spoons and cups and lids while you're also trying to maintain temperatures.

Prepare the culture. What you do here will depend on what type of culture you are using. If you are using yogurt from a previous batch, there's nothing to do but measure it. A powdered one-time-use culture can also just be measured. If you're using a dehydrated live culture, you may have to activate it before adding it to the milk. Make sure you have read your instructions carefully and you know what steps to take.



Prepare the milk. If you are making a heat-set (thermophilic) yogurt, heat up the milk to the desired temperature, then let it cool down to the incubating temperature. If you are making a countertop (mesophilic) yogurt, all you need to do is set out the milk in the container you'll use to incubate it in. If you are going to add thickeners to the milk, this is the time to do it.

Add the culture to the milk. This is a pretty simple step! Just make sure the culture is completely mixed in to the milk.

Let it incubate. This is a little trickier than it sounds. When you are first working with a new yogurt culture, you will need to figure out the correct balance of time and temperature for the incubation. You need to let the yogurt sit long enough for the milk proteins to coagulate, but not so long that the yogurt begins to separate into curds and whey.



Refrigerate. Once the yogurt has reached its peak consistency, you should refrigerate it. This will stop the culturing, and also add a little extra firmness.

Fix, amend, enhance. Once the yogurt is completed, you can add flavorings or fruit, or even additional thickeners.

Choosing Your Milk

Some of yogurt's characteristics come from the type of culture that is used. Greek and Bulgarian yogurts are far different from filmjök and piimä, for instance. But the type of milk you choose will also have a great effect on the way your yogurt turns out.

There are certain qualities, such as fat content, that would make obvious changes in the finished product. But there are additional qualities that make a difference in taste, consistency, texture, and quality.

The Characteristics of Milk



Cow milk is the type most of us in America are familiar with. It is generally the standard against which other milks are compared.

Cow milk contains about 1 gram of protein per ounce, mostly in the form of casein. Casein molecules are bound up into groups called micelles, and the micelles tend to stay apart from each other in fresh milk. In cultured milk, the casein micelles change their chemical structure so that they clump together into curds. The part of the milk that clumps up is called the milk solids, and makes up about 12% of the content of cow milk.

About 20% of the protein in milk is *not* casein, and when curds form, the other proteins remain in the liquid whey. They are therefore known as whey proteins.

Cow milk also contains lactose, a type of sugar made up of sucrose and galactose. About 40% of the calories in milk come from lactose.

The fat content varies according to the type of cow the milk comes from, the time of year, and other factors. The fat content of raw milk can vary from around 3% to 5%. The fat forms into globules, and each globule is surrounded by a membrane consisting of phospholipids and protein. This membrane keeps the fat from forming into noticeable clumps, and also keeps the fat from being digested by the enzymes in the milk. Vitamins A, E, D, and K are found in milk fat. The fat content of commercial milk is standardized, with “whole milk” containing 3.25% fat.

Raw milk also contains living white blood cells, as well as various bacteria and enzymes.

Cow milk is slightly acidic, with a pH of 6.4 to 6.8.

What Animal Produced the Milk?

Yogurt cultures can thrive in any animal milk, but there are distinct differences between the milks of different animals. Most of our customers use cow or goat milk for their yogurt production. The chart below shows the average composition of different types of milk.

Milk composition analysis, per 100 grams					
Constituents	Unit	Cow	Goat	Sheep	Buffalo
Water	g	87.8	88.9	83	81.1
Protein	g	3.2	3.1	5.4	4.5
Fat	g	3.9	3.5	6	8
Carbohydrate	g	4.8	4.4	5.1	4.9
Sugars (lactose)	g	4.8	4.4	5.1	4.9
Cholesterol	mg	14	10	11	8
Calcium	mg	120	100	170	195

Goat milk has a taste similar to that of cow milk, although some people find goat milk that is not fresh to have a pungent “goaty” flavor. When a male goat is in a herd of milk-producing female goats, that can affect the flavor also.

In goat milk, the fat globules are extremely small (about one-fifth the size of the globules in cow milk), and stay suspended in the milk rather than rising to the top as in cow milk. This gives the milk a natural homogenization, and a creaminess similar to whole cow milk.

The casein in goat milk is a different kind from what is in cow milk.

Goat milk is more alkaline than cow milk, and tends to be whiter. It contains slightly less lactose, protein, and fat than cow milk, and slightly more water. It contains about 13% milk solids, and the curd that forms is softer than what forms with cow milk. As a result, yogurt made with goat milk tends to be a little less firm than yogurt made from cow milk. (However, using a *chèvre* culture with goat milk produces a thick, yogurt-like product that can be strained to make *chèvre* cheese, or left as is to eat like yogurt.)

Sheep milk is sweeter than cow milk and is used more for making cheese than for making yogurt. It is higher in fat, lactose, and milk solids than cow milk, and makes a very rich yogurt. The fat globules are smaller than those in cow milk, providing natural homogenization. Sheep milk contains over 19% milk solids and makes a firm curd that is more friable (crumbly) than cow milk curd. It has a higher casein content than cow or goat milk, and thus coagulates faster. The type of casein is more similar to that of goat milk than to that of cow milk.

Buffalo milk has about 11% more protein than cow milk, and almost twice as much fat (but only about one-fifth as much cholesterol). Buffalo milk is pretty hard to get, as there are only a few buffalo dairies in the United States. However, buffalo produce around 15% of the world milk supply as they are quite common in Southeast Asia, South America, and India. Buffalo milk is very rich and a little sweeter than cow milk.

Pasteurization

Milk in its natural state is a very friendly environment for bacteria of all sorts. If exposed to pathogenic organisms, milk can become overloaded with organisms that might cause illness. Milk that is stored badly, or that has to travel long distances, can easily become contaminated and dangerous to consume.

Before methods were developed to protect milk from developing harmful bacteria loads, it was not uncommon for people to become quite ill from contaminated milk, or even die. One method of keeping milk safe to drink is pasteurization, which kills the harmful microorganisms.



The most common form of pasteurization is called High Temperature/Short Time (HTST). In this process, the milk is forced under pressure through metal plates or pipes, heated to 161°F for 15 to 20 seconds, then immediately cooled to 39°F for storage and transportation. Pasteurized milk still is perishable, however, and must be stored cold by both suppliers and consumers. Pasteurized milk generally produces good results in culturing.

A newer process, ultra-pasteurization (UP) or ultra-high temperature treatment (UHT), pressurizes the milk, then heats it to 275°F or more for about one second. This extends its shelf life and allows the milk to be stored unrefrigerated because of the longer-lasting sterilization effect, but UHT milk is actually cooked, and is thus unsuitable for culturing. If UHT milk is the only variety of milk available, we recommend using a direct-set variety culture such as our Traditional Flavor Yogurt Starter or our Mild Flavor Yogurt Starter. The nature of UHT milk makes it difficult to perpetuate over time, so re-culturing starters such as Bulgarian, Greek, viili, etc., are not the best choice here.

The UHT process can also be called Flash Pasteurization.

Microfiltration, also called “extended shelf life” pasteurization (ESL), is a process that partially replaces pasteurization and produces milk with fewer microorganisms and longer shelf life without a change in the taste of the milk. In this process, cream is separated from the whey and is pasteurized in the usual way, but the whey is forced through ceramic

microfilters that trap 99.9% of microorganisms in the milk (as compared to 95% killing of microorganisms in conventional pasteurization). The whey then is recombined with the pasteurized cream to reconstitute the original milk composition. Microfiltered milk behaves similarly to pasteurized milk in culturing.

Thermization (sometimes called thermalization) is a process where the milk is heated to 140°F to 150°F for 15 to 20 seconds, then refrigerated. This reduces the number of microorganisms in the milk, but not to the same degree as pasteurization. The FDA considers thermized milk to be raw, while the European Union considers it to be pasteurized. Vat pasteurization is another way of pasteurizing milk more lightly, by heating it to 145°F for 30 minutes in large vats. The behavior of thermized milk or vat-pasteurized milk in culturing would be between pasteurized and raw milk.

Raw milk is not treated with heat before delivery to the consumer, and contains its original microorganisms. These microorganisms provide some competition with the yogurt organisms, and the milk is sometimes difficult to culture. When making yogurt with raw milk, you must either heat the milk yourself to reduce or eliminate the natural microorganisms, or go through some extra steps to establish the strength of the yogurt culture before inoculating the raw milk. Yogurt made with unheated raw milk is often thinner than pasteurized-milk yogurt, both because of the competing microorganisms and because the unheated protein molecules are more durable and less likely to coagulate.

Many states place restrictions on the sale of raw milk, or do not allow the commercial sale of raw milk at all. The laws governing the sale of raw milk vary in each state, and raw milk may be available to individuals from their own animals, from neighbors or small farmers, or from grocery stores. The laws may differentiate between cow milk and goat milk. Further, the laws may be subject to change making raw milk either more difficult or less difficult to purchase.

Homogenization

Raw milk in a container separates easily into a rich layer of cream that sits on top of a larger, low-fat milk layer. The fat globules rise to the top of a container of milk because fat is less dense than water. They rise rather quickly because the individual fat globules tend to form into clusters containing about a million globules, held together by a number of minor whey

proteins. These clusters rise faster than individual globules can. The fat globules in milk from goats, sheep, and water buffalo do not form clusters so readily and are smaller to begin with, so the cream is very slow to separate from these milks.

Commercially sold milk is usually homogenized, a treatment that prevents the cream from separating out of the milk. In the homogenization process, the milk is pumped at high pressures through very narrow tubes, breaking up the fat globules. Since a greater number of smaller particles possess more total surface area than a smaller number of larger ones, the original fat globule membranes cannot completely cover them. Casein clusters are attracted to the newly exposed fat surfaces, so it is much harder for the fat globules to separate from the milk.



The exposed fat globules are vulnerable to certain of the enzymes present in milk, which could cause the fat to become rancid. To prevent this, the enzymes are inactivated by pasteurizing the milk immediately before or during homogenization.

Homogenized milk tastes blander, but feels creamier in the mouth than non-homogenized; it is whiter and more resistant to developing off flavors. Non-homogenized milk sold commercially may or may not have been pasteurized. Milk that has undergone high-pressure homogenization, sometimes labeled as "ultra-homogenized," has a longer shelf life than milk that has undergone ordinary homogenization at lower pressures.

Non-homogenized milk makes wonderful yogurt. With non-homogenized milk the cream will rise to the top of the yogurt just like it does with the milk, so the top layer of the yogurt will be thicker and more yellow in color.

Fat Content

Milk is often processed by removing the cream, which is then used (or sold) as a separate product. The cream can be skimmed by hand, or separated from the milk rapidly in centrifugal separators. The amount of fat left in the milk describes the milk: whole milk (standardized to 3.25% fat), reduced-fat (2% fat), low-fat (1% fat), or skim (no fat). Some dairies sell “full fat” milk with 3.4% or 3.8% fat, which is very close to its natural composition.

Yogurt made with reduced-fat milk will be thinner than yogurt made with whole milk. Commercially available low-fat yogurts include additives and stabilizers to make them unnaturally thick, or have been strained of some of their whey.

Many yogurt cultures perform very well in half-and-half or even in cream, producing a rich, thick yogurt that is almost like sour cream. Yogurt can also be made with unhomogenized milk, raw milk, whole milk, reduced-fat milk, skim milk, or even powdered milk. You can also use other creamy substances such as rice milk, nut milk, soy milk, coconut milk, etc.

Alternative Milks (Soy, Nut, Rice, etc.)

Technically, *milk* refers to a white secretion used by mammals to feed their young. The milk from cows or goats (and, less frequently, sheep, yak, or water buffalo) is generally referred to as “dairy milk.” However, the term “milk” is also used to describe any creamy white product extracted from plants and used as a substitute for or alternative to dairy milks.

Most alternative milks can, with some care, be cultured into a yogurt-like substance. These are suitable for people who can’t tolerate dairy milks, or who choose not to use animal products in their diet.

The nutritional composition of alternative milks is considerably different from that of dairy milk. While yogurt cultures can usually manage to produce coagulation of the proteins in the alternative milks, they won’t survive in the alternative milks and can’t be recultured. To make yogurt with alternative milks, you have to use a new starter each time.

1 cup milk	Cow 0% fat	Cow 1% fat	Cow 2% fat	Cow whole	Rice	Soy	Almond	Coconut
Calories	90	120	130	150	110	90	70	552
Fat	0g	2.5g	5g	8g	2.5g	3.5g	3g	57g
Carbs	13g	14g	13g	11g	20g	10g	9g	13g
Protein	10g	11g	10g	8g	1g	6g	1g	5g
Calcium	35%	40%	35%	30%	25%	30%	30%	4%
Sugars	13g	14g	13g	11g	13g	6g	8g	8g
Type of Sugar	lactose	lactose	lactose	lactose	glucose	sucrose	glucose	fructose

Note: the nutrient composition of alternative milks can vary according to how much water is used to produce the milk. For instance, if you make your own milk, and use half as much water as in the recipe, you will increase the proportion of fat, protein, and sugar in the milk.

Most alternative milks can be purchased commercially, but usually have additives that can interfere with fermentation. Whenever possible, you should use milks without additives or preservatives.

Making Your Own

It is fairly easy to make your own alternative milk.

Rice milk can be made with brown or white rice. Milk made from brown rice will be a little thicker. Put 1/2 cup of rice in a pot with 4 cups of water. Bring to a boil, then turn down to low heat and simmer for about an hour. The rice will be quite soft at this point. Cool the rice a little, then put it in a food processor and puree. Strain the puree through a cloth bag to get the rice milk. The remaining pulp can be discarded, or added to recipes for thickening.



Soy milk is made from white soy beans (not green ones). Soak 1/2 cup of soybeans for 8 to 24 hours in water with a little sea salt added, changing out the water a few times during the soaking. Drain off the soaking water, and put the soaked beans in a food processor with water just barely covering them, and process for 2 or 3 minutes until the beans are very finely ground. Heat a quart of water in a large pot. (The water should fill the pot about halfway.) Add the ground beans to the pot of water, and cook over medium heat, for about 20 minutes, stirring frequently. The mixture will foam up as it heats. If it gets close to the top of the pot, sprinkle a little cold water over it to make it subside. At the end of the cooking, you'll have a mixture that looks like watery oatmeal, as the fibrous part of the soybean separates from the milk. Cool the mixture, then strain it through a cloth bag. (The leftover fiber is called okara, or *u no hara*, and can be dried or frozen for use in cooking, or as fertilizer.) Soy yogurt made at home has a slightly grassy flavor compared to soy yogurt bought commercially.

Nut milk can be made by first soaking a cup of nuts overnight in water with a little sea salt added. Drain off the soaking water, then put the nuts in a blender with a quart of clean water. Puree this mixture thoroughly, then strain through cheesecloth to get the nut milk. (The ground nuts can be used as a flour substitute in baking, or in a large variety of recipes.)

Using Alternative Milks for Yogurt

Most yogurt starters are grown in dairy milk, so for individuals with extreme sensitivity to dairy, the small amount of exposure could be problematic. For those people, or for people who want to avoid dairy for other reasons, we offer Vegan Yogurt Starter, which is entirely plant-based.

If you do choose to use a reculturing type of yogurt, you will need to maintain a separate quantity of dairy-based yogurt that can be used as a starter culture.

Because most alternative milks have less sugar than dairy milk, it can help to add some sugar to the culture to promote fermentation. (It provides more food for the bacteria.) For soy, nut, or coconut milk, approximately 6 to 8 grams (1.5 to 2 teaspoons) per cup would give the milk the same sugar profile as dairy milk. Rice milk is already fairly high in sugar, so it wouldn't necessarily help to add more.

The yogurt from alternative milks can be made thicker with the addition of thickeners such as cornstarch, arrowroot, gelatin, or agar before or after culturing.

Choosing a Yogurt Starter



There are many varieties of yogurt starters to choose from. All of them contain probiotic bacteria, and all of them will work with dairy milk or alternative milks. Yogurt has been developed in many places throughout the world, and as a result there can be variations in taste, consistency, and types of bacteria.

The type of yogurt culture you choose depends entirely on your personal preferences.

Taste

The characteristic tangy or sour taste of yogurt is due to the acidification of the milk during fermentation. This can range from a taste that is slightly more sour than fresh milk, to a tartness that is quite astringent. The tartness of the yogurt will depend on the type of bacteria culture that's used, as well as how long the yogurt has fermented. (Longer fermentation means more tart.)

The acidity of yogurt tends to be in the range of pH 4. Yogurt must have a maximum pH of 4.4 to be sold legally in the United States.

Consistency

There is also a great range of firmness and textures in yogurt. The culture used, the length and temperature of culturing, and the type of milk used will all play a part in the consistency of yogurt.

One of the thinnest yogurts is [piimä](#). When this is made with cream, it becomes just slightly thickened, and is still thin enough to drink through a straw. It is probably the thinnest type of fermented milk that can still be called yogurt. From this very thin style, yogurt can range all the way to Greek-style yogurt, which can be thick enough to hold its shape on a plate.

Yogurt can be ropy (holds together like glue), creamy, or gelatinous. These variations are due mostly to the type of bacteria that is used.

Source



Yogurt cultures that have originated in different parts of the world have characteristic flavors and consistencies. People from different cultures often develop a taste for certain types of yogurt, and measure all other yogurts against their own “standard.”

Perpetuation

Direct-set cultures are powders that are added to a quantity of milk to produce a single batch of yogurt. With some care, a direct-set starter can be re-cultured two or three times by

saving some of the yogurt and adding it to another batch of milk to produce additional yogurt. Eventually, however, a new direct-set starter must be used.

Reusable cultures can be propagated indefinitely. With each batch, some of the yogurt is saved to add to a new batch of milk to make more yogurt. Reusable cultures should be re-propagated at least every five to seven days to maintain the vigor of the bacteria.

An *heirloom* cultures are a type of reusable culture that has been propagated from a particular region of the world, and that has a distinctive taste and consistency.

Culturing Temperature

Thermophilic means “heat-loving.” To make yogurt with a thermophilic culture, you must heat the milk to a temperature that will break down the milk proteins (about 160° to 180°F), then cool it back down to culturing temperature (around 110°F). The culture is added to the warm milk and kept at that temperature while it cultures; usually between 4 and 12 hours. Thermophilic cultures typically produce yogurt that is thicker than a yogurt from a mesophilic culture.

Mesophilic means “medium-loving,” indicating that a mesophilic culture will propagate best at a cozy room temperature (around 70° to 78°F). With a mesophilic culture, there is no need to preheat the milk. The culture is simply added to the milk and allowed to sit at room temperature as it cultures; usually between 12 and 24 hours. Mesophilic cultures typically produce yogurt that is not as thick as a yogurt from a thermophilic culture.

Comparison of Yogurt Cultures

The next two pages show the yogurt cultures sold by Cultures for Health. The different combinations of bacteria produce the specific characteristics of the various yogurts.

Traditional Flavor	<ul style="list-style-type: none"> • Slightly tart • Thick, smooth, with a firm body • Direct-set, thermophilic (temperature-specific culture) 	Bifidobacterium lactis Lactobacillus acidophilus Lactobacillus delbrueckii subsp. bulgaricus Streptococcus thermophilus
Mild Flavor	<ul style="list-style-type: none"> • Mild yogurt flavor • Thick, smooth, with heavy body • Direct-set, thermophilic (temperature-specific culture) 	Bifidobacterium lactis Lactobacillus acidophilus Lactobacillus delbrueckii subsp. bulgaricus Lactobacillus delbrueckii subsp. lactis Streptococcus thermophilus
Viili	<ul style="list-style-type: none"> • Mild flavor • Moderately thick, jelly-like • Heirloom, mesophilic (room-temperature culture) • Source: Finland (originally from Sweden) 	Lactococcus lactis subsp. cremoris L. lactis subsp. lactis biovar. diacetylactis Leuconostoc mesenteroides subsp. cremoris
Filmjök	<ul style="list-style-type: none"> • Mild, almost cheesy flavor • Moderately thick, smooth • Heirloom, mesophilic (room-temperature culture) • Source: Sweden 	Lactococcus lactis Leuconostoc mesenteroides
Matsoni	<ul style="list-style-type: none"> • Somewhat tart, more strongly flavored than many yogurts (good for frozen yogurt) • Moderately thick, smooth • Heirloom, mesophilic (room-temperature culture) • Source: Georgia (Caucasus). Also known in Japan as Caspian Sea Yogurt. 	Lactobacillus lactis subsp. cremoris Acetobacter orientalis

To learn more or obtain one of the above culture starters use the following links: [Traditional Flavor](#), [Mild Flavor](#), [Viili](#), [Filmjök](#), [Matsoni](#)

Piimä	<ul style="list-style-type: none"> Fairly mild taste Thin, similar to buttermilk Heirloom, mesophilic (room-temperature culture) Source: Finland 	<p>Streptococcus lactis var. bollandicus Streptococcus taette</p>
Traditional Greek	<ul style="list-style-type: none"> Slightly tangy flavor Semi-thick, smooth Reusable, thermophilic (temperature-specific culture) Source: Greece 	<p>Lactobacillus bulgaricus Streptococcus thermophilus</p>
Bulgarian	<ul style="list-style-type: none"> Traditional yogurt taste Semi-thick, smooth Reusable, thermophilic (temperature-specific culture) Source: Bulgaria 	<p>Lactobacillus bulgaricus Streptococcus thermophilus</p>
Vegan	<ul style="list-style-type: none"> Takes on the flavor of the milk in which it is cultured Usually thick and smooth; varies with the milk used Direct-set, thermophilic (temperature-specific culture) 	<p>Bifidobacterium bifidum Lactobacillus acidophilus Lactobacillus casei Lactobacillus delbrueckii subsp. bulgaricus Lactobacillus rhamnosus Streptococcus thermophilus</p>
Kosher Yogurt Starter, Traditional Flavor	<ul style="list-style-type: none"> Traditional tart flavor Heavy body, smooth Direct-set, thermophilic (temperature-specific culture) Certified Circle K (dairy) starter 	<p>Bifidobacterium lactis Lactobacillus delbrueckii subsp. bulgaricus Lactobacillus acidophilus Streptococcus thermophilus</p>
Kosher Yogurt Starter, Mild Flavor	<ul style="list-style-type: none"> Mild yogurt flavor Heavy body, smooth Direct-set, thermophilic (temperature-specific culture) Certified Circle K (dairy) starter 	<p>Bifidobacterium lactis Lactobacillus acidophilus Lactobacillus delbrueckii subsp. bulgaricus Lactobacillus delbrueckii subsp. lactis Streptococcus thermophilus</p>

To learn more or obtain one of the above culture starters use the following links: [Piimä](#), [Traditional Greek](#), [Bulgarian](#), [Vegan](#), [Kosher Yogurt Starter Traditional](#), [Kosher Yogurt Starter Mild Flavor](#)

Yogurt Starter Notes

Some of the Cultures for Health yogurt starters result in an end product that is more useful for a particular purpose. See below for some additional notes on some of the specific cultures:

Viili	Matsoni	Piimä	Traditional Greek	Bulgarian	Vegan
<ul style="list-style-type: none"> •Not the "ropey" variety of Viili; this variety has a more jelly-like consistency and is a good choice for children 	<ul style="list-style-type: none"> •The stronger flavor holds up beautifully to freezing making it a great choice for frozen yogurt. 	<ul style="list-style-type: none"> •Makes a wonderful base for smoothies or creamy salad dressings; also useful for adding bacteria to pasteurized milk while maintaining a beverage-like consistency. 	<ul style="list-style-type: none"> •Can be strained to achieve the very thick consistency characteristic of commercial Greek-style yogurt. 	<ul style="list-style-type: none"> • Perhaps the most popular variety in the world and a good choice if you are looking for classic yogurt taste. 	<ul style="list-style-type: none"> •Ideally suited for soy or rice milks; can also be used with nut milks.

Bacteria Strains

Various health claims have been made for yogurt in general, and for specific bacteria strains. While we cannot comment on health benefits or medical effects of our products, we encourage our customers to research this subject on their own.

In addition to any effects on their consumers' health, different bacteria strains can also affect how yogurt develops and tastes.

For a product to be sold as "yogurt" in the United States, a culture must include *Lactobacillus bulgaricus* or *Lactobacillus delbrueckii subsp. bulgaricus*, and *Streptococcus thermophilus* or *Streptococcus salivarius subsp. thermophilus*. By this definition, cultured milk products that do not contain this combination are not yogurt, but do have many of the same properties as yogurt, including taste and consistency, and can be used like yogurt in recipes.

Acetobacter orientalis is a bacteria strain native to Indonesia. It lowers the pH of the milk, and also produces gases during fermentation. It was first identified in Japan in what is known as Caspian Sea yogurt (also known as matsoni).

Lactobacillus acidophilus breaks down lactose and produces lactic acid as its sole product. *L. acidophilus* occurs naturally in the human digestive system and other parts of the body.

Lactobacillus delbrueckii subsp. bulgaricus breaks down lactose to produce lactic acid, which lowers the pH of milk and causes the protein to coagulate. It cannot ferment any sugar other than lactose.

Lactococcus lactis subsp. cremoris is a variety of lactococci that has a pronounced ability to develop flavor in the foods it ferments. It digests lactose and produces lactic acid, lowering the pH of milk and allowing the milk protein to coagulate. It produces a characteristic gel-like polysaccharide that is typical of viili yogurt.

Lactococcus lactis digests lactose and produces lactic acid, lowering the pH of milk and allowing the milk protein to coagulate. It can also be used to ferment vegetables and grains as well as non-dairy milks.

Lactococcus lactis subsp. lactis biovar. diacetylactis digests lactose and produces lactic acid, lowering the pH of milk and allowing the milk protein to coagulate. It has a tendency to dominate over other lactococci. This bacteria produces a characteristic buttery flavor and aroma in the milk products it ferments.

Leuconostoc mesenteroides is a mesophilic bacteria strain known for producing a sour taste and a gel-like texture. It's generally found on crop plants, and can also be used to ferment vegetables. It also speeds up the process of acidification in milk and promotes an anaerobic (no oxygen) environment, which inhibits pathogenic bacteria.

Leuconostoc mesenteroides subsp. cremoris is a mesophilic bacteria strain that is often used to produce aroma during the culturing process.

S. lactis var. bollandicus, along with *S. taette*, is used to make piimä, a cultured milk that is often considered to be a type of yogurt. It produces a sour flavor.

Streptococcus thermophilus breaks down lactose, producing lactic acid, lowering the pH of the milk and causing the protein to coagulate. By law, in order to be sold as “yogurt” a product must include this bacteria strain.

S. taette, along with *S. lactis* var. *bollandicus*, is used to make piimä, a cultured milk that is often considered to be a type of yogurt. *S. taette* produces a sour flavor and a viscous texture.

Which Type of Yogurt Starter Do I Have?

Brand/Name	Type
Commercial yogurt from the grocery store used as a starter culture	Thermophilic Direct-set
Yogourmet*	Thermophilic Direct-set
Euro-Cuisine*	Thermophilic Direct-set
Danisco*	Thermophilic Direct-set
Dairy Connection*	Thermophilic Direct-set
New England Cheese Making Company*	Thermophilic Direct-set
Cultures for Health Traditional Flavor	Thermophilic Direct-set
Cultures for Health Mild Flavor	Thermophilic Direct-set
Greek	Thermophilic Reusable
Bulgarian	Thermophilic Reusable
Viili	Mesophilic Reusable
Filmjök	Mesophilic Reusable
Matsoni	Mesophilic Reusable
Piimä	Mesophilic Reusable
*Brand names trademarked by their respective manufacturer	

Don't see the yogurt starter you are using on the list? Use these guidelines to determine the type you have:

- Thermophilic or Mesophilic?
 - Do the instructions indicate the yogurt should be cultured between 100° and 115°F? If so, you have a thermophilic culture.
 - Do the instructions indicate the yogurt should be cultured at room temperature? If so, you have a mesophilic culture.
- Direct-set or Reusable?
 - Do the instructions indicate using a specified amount of powdered starter each time you make yogurt? If so, you have a direct-set culture.
 - Do the instructions indicate using some yogurt from a previous batch? If so, you have a reusable culture.

HOW TO MAKE YOGURT

start making homemade yogurt today!

Making Yogurt with Direct-set Cultures

The procedure for making yogurt will be pretty much the same regardless of what milk you use or what starter you use. Basically you are going to add bacteria to milk and let it work. However, there are two types of culture you can add to the milk: a *reusable culture*, where you save some yogurt from each batch to culture the next batch; and *direct-set*, where you add some dried yogurt culture to milk each time you want to make a new batch.

Direct-set cultures are *thermophilic* (heat-loving), and require a yogurt maker or some other way of keeping the milk warm while it ferments.

You can use pretty much any kind of dairy milk to make a direct-set yogurt culture: cow, goat, sheep, even buffalo. The essential ingredients are milk proteins, milk fat, and lactose. The milk can be raw, pasteurized, thermized, or vat-pasteurized.

Raw milk is milk that has *not* been treated at high temperatures under pressure. It is also not homogenized. Raw milk comes straight from the cow (or other animal), is chilled quickly, and bottled for the consumer. *Pasteurized milk* has been sterilized at high temperatures under pressure. *Vat-pasteurized* or *thermized* milk has been heated but not treated with high pressure.

You can also use direct-set cultures to make yogurt with alternative (non-dairy) milks. *Alternative milk* can be soy milk, rice milk, nut milk, or any other type of non-dairy milk. You can use a dairy-based direct-set culture, or a special non-dairy culture made specifically for non-dairy milks.

Here are the steps for making yogurt with a direct-set culture. Following the outlines are more detailed instructions and some discussion about each step.

Direct-Set Starter with Raw Milk (low-temperature method)

Step 1 Prepare the Milk

- Measure out 1 to 2 quarts of fresh raw milk.
- Heat the milk to between 110° and 112°F.
- Put the milk into a clean glass container, or a plastic insert for a yogurt maker.
- Optional: Add cream or powdered milk. Thickeners such as agar, tapioca starch, guar gum, etc. can also be added at this point. Make sure the thickener is thoroughly incorporated into the milk.

Step 2 Inoculate the Milk with the Culture

- Add 1/8 teaspoon of starter to 1 to 2 quarts of milk. (You can make larger quantities of yogurt by adding 1/4 teaspoon to 1 to 4 gallons of milk.)
- Stir thoroughly to mix the culture into the milk.
- Put a lid on the jar. If you are using a yogurt maker, you can leave the lid off or put it on.

Step 3 Culture the Milk

- Put the inoculated milk in a yogurt maker, or wrap it and put it in a place that will remain at 110° to 112°F.
- Let it sit without being disturbed for 5 to 7 hours.
- Begin to check the yogurt at 5 hours, and again every half hour or so, until it is set.
- When the yogurt is set, let it cool for 2 hours to room temperature.
- Put it in the refrigerator for 6 hours.

Direct-Set Starter with Raw or Pasteurized Milk (high-temperature method)

Step 1 Prepare the Milk

- Measure out 1 to 2 quarts of fresh raw or pasteurized milk.
- Heat the milk to between 160° and 180°F then cool it down to 110° to 112°F.
- Put the milk into a clean glass container, or a plastic insert for a yogurt maker.
- Optional: Add cream or powdered milk. Thickeners such as agar, tapioca starch, guar gum, etc. can also be added at this point. Make sure the thickener is thoroughly incorporated into the milk.

Step 2 Inoculate the Milk with the Culture

- Add 1/8 teaspoon of starter to one or two quarts of milk. (You can make larger quantities of yogurt by adding 1/4 teaspoon to 1 to 4 gallons of milk.)
- Stir thoroughly to mix the culture into the milk.
- Put a lid on the jar. If you are using a yogurt maker, you can leave the lid off or put it on.

Step 3 Culture the Milk

- Put the inoculated milk in a yogurt maker, or wrap it and put it in a place that will remain at 110° to 112°F.
- Let it sit without being disturbed for 5 to 7 hours.
- Begin to check the yogurt at 5 hours, and again every half hour or so, until it is set.
- When the yogurt is set, let it cool for 2 hours to room temperature.
- Put it in the refrigerator for 6 hours.

Direct-Set Starter with Alternative Milk

Step 1 Prepare the Milk

- Use 1 to 2 quarts of coconut milk, nut milk, or soy milk and add 1-1/2 to 2 teaspoons sugar per cup. Or, use 1 to 2 quarts of rice milk.
- Heat the milk to between 108° and 110°F. (You can heat it more and cool it down if you like.)
- Put the milk into a clean glass container, or a plastic insert for a yogurt maker.
- Optional: Add thickeners such as agar, tapioca starch, guar gum, etc. Make sure the thickener is thoroughly incorporated into the milk.

Step 2 Inoculate the Milk with the Culture

- Add 1/8 teaspoon of starter to 1 to 2 quarts of milk. (You can make larger quantities of yogurt by adding 1/4 teaspoon to 1 to 4 gallons of milk.)
- Stir thoroughly to mix the culture into the milk.
- Put a lid on the jar. If you are using a yogurt maker, you can leave the lid off or put it on.

Step 3 Culture the Milk

- Put the inoculated milk in a yogurt maker, or wrap it and put it in a place that will remain at 108° to 110°F.
- Let it sit without being disturbed for 5 to 7 hours.
- Begin to check the yogurt at 5 hours, and again every half hour or so, until it is set.
- Put it in the refrigerator for 6 hours.

Preparing the Milk



Direct-set cultures need to incubate between 110° and 112°F, so you will need to get the milk warmed up before you introduce the culture.

If you are using pasteurized milk, you must first sterilize it. Some people ask why this is necessary if the milk has already been pasteurized. The answer is that pasteurization kills the natural bacteria that are in milk, so as it ages, the milk can collect and nurture bad bacteria. If you simply warm the milk up to 110°F, the bad bacteria can flourish and make the milk taste unpleasant or even make it harmful. (This is why pasteurized milk has an expiration date, and is not good to use after a certain time.)

Sterilizing the milk just before culturing it makes sure that the milk is completely clean and will present a welcoming environment where the yogurt culture can thrive and do its work. Additionally, heating the milk denatures (changes the characteristics of) the milk proteins, weakening the cell membranes and allowing the protein molecules to adhere to each other, causing better coagulation in the yogurt.

You can sterilize raw milk the same way you do pasteurized milk, but many people like to warm the milk only up to culturing temperature so they can keep the natural bacteria and enzymes that are present in raw milk. (Keep in mind this will also make it less easy for the milk to coagulate, so the resulting yogurt will be thinner than when the milk is heated to 160°F first.)

After you've heated the milk, you'll need to cool it back down to 110°F or so. Temperatures over 118°F will kill the bacteria in the yogurt culture.

If you are using an alternative milk, heat it up to culturing temperature, or heat it more and cool it down.

When the milk is ready, put it into the jar or container you will use for culturing. If you're going to use a collection of small jars, you can put the milk in a larger container, add the culture, then pour the inoculated milk into the small containers.

At this point, you can also add extra dried milk powder and/or thickeners such as agar, cream, tapioca starch, cornstarch, pectin, etc. If you add milk powder, it should be from the same type of animal as the milk you're using. Whatever you add, mix it up thoroughly in a small amount of milk to dissolve it, then add that to the milk you'll be culturing.

Alternative milk can be difficult to culture since its nutritional profile is so different from dairy milk. It will help to add sugar to soy or nut milk, and thickeners can also help provide a more palatable yogurt. This is the point at which to add those things. Refer to our [alternative milk chart](#) to see how the different milks compare to dairy milk.

Rice milk is especially hard to make yogurt with because of the very low amount of protein in it. Thickeners can help considerably.

Inoculating the Milk

You must use the correct proportion of culture. Too much culture in the milk will result in a thin, weak yogurt. The reason for this is that the cultures will compete for food in the milk mixture, and if there are too many bacteria, they will use up the food before the yogurt is completely set. A smaller amount of culture will provide a nutritious environment for the culture, so it can do its work and let the milk proteins coagulate properly.

You will use a very small amount of culture: 1/8 teaspoon for 1 to 2 quarts of milk, and 1/4 teaspoon for 1 to 4 gallons of milk. Whatever milk you use, and whatever starter you use, stir the inoculated milk gently but thoroughly to distribute the starter.

Culturing the Milk

Now just let the milk sit until it turns into yogurt.

The temperature of the culturing yogurt should remain fairly constant, and the yogurt should not be disturbed as it cultures.

Dairy milk yogurts will set up in 5 to 7 hours, and alternative milk in 6 to 8 hours. You can begin looking at the yogurt at the earliest end of the range, and check it again every half hour or so.

If your kitchen is particularly cool you may need to establish a spot for it that is warm enough, but not too warm to kill the bacteria.



There are several options for keeping the yogurt warm while it cultures:

- Use a yogurt maker. Make sure the unit is running at a constant temperature between 105° and 112°F by filling the yogurt compartment with water, turning the unit on, and taking the temperature of the water every half hour for a regular culturing cycle (around 7 hours).
- Wrap the jar in a dishtowel and put it in an insulated cooler with the cover on.
- Make an insulated incubator out of a small crock pot by lining it with foam. Put the jar of yogurt inside, put a piece of foam on top, and put the lid on.
- Turn on the light in an electric oven, then wrap the yogurt in a dishtowel and put it *inside* the oven. Check the temperature of the oven first, as some ovens may reach temperatures higher than 110°F with the light on.
- Set the yogurt inside a food dehydrator that has the trays taken out, and that is set for no higher than 110°F.

The amount of time you let the yogurt culture depends on your preference for tartness and texture. The longer it cultures, the more tart it will be, and the more thick. Toward the absolute limit of culturing time, the yogurt may begin to separate into solid (curds) and liquid (whey). The whey is quite nutritious and can be strained off to use in cooking or culturing, or it can be stirred back in to the yogurt.

Separation is usually the result of yogurt culturing either too long or too fast. Once it begins to separate, it is not long before the bacteria will begin to die off, since the separation can be a sign that the lactose has been used up and is not available to feed the bacteria. You may have to experiment with times and temperatures to find the ideal conditions for your yogurt to set up as you like it.

There is a two-hour cooling-off period for thermophilic yogurt, to help ease the transition between the culturing temperature and the refrigeration period. Finished yogurt should be put into the refrigerator for six hours to halt the fermentation.

Once the fermentation has been stopped, it will not restart if you bring the milk back to room temperature.

If you want a thicker yogurt but don't want to let it culture long enough to separate on its own, you can strain it through a coffee filter after it has been refrigerated and let the whey drain out. This is also how you get a thick Greek-style yogurt.

Making Yogurt with Reusable Cultures

The procedure for making yogurt will be pretty much the same regardless of what milk you use or what starter you use. Basically you are going to add bacteria to milk and let it work. However there are two types of culture you can add to the milk: a *reusable culture*, where you save some yogurt from each batch to culture the next batch; and *direct-set*, where you add some dried yogurt culture to milk each time you want to make a new batch.

When you work with a reusable culture, you will take slightly different steps depending on the kind of culture you use and the kind of milk you use. We sell both *mesophilic* and *thermophilic* yogurt cultures.

Mesophilic means “medium-loving” and refers to a culture that will work at room temperature. *Thermophilic* means “heat-loving” and refers to a culture that requires a yogurt maker or some other way of keeping the milk warm while it ferments.

You can use pretty much any kind of dairy milk to make a reusable yogurt culture: cow, goat, sheep, even buffalo. The essential ingredients are milk proteins, milk fat, and lactose. The milk can be raw, pasteurized, thermized, or vat-pasteurized.

Raw milk is milk that has *not* been treated at high temperatures under pressure. It is also not homogenized. Raw milk comes straight from the cow (or other animal), is chilled quickly, and bottled for the consumer. *Pasteurized milk* has been sterilized at high temperatures under pressure. *Vat-pasteurized* or *thermized* milk has been heated but not treated with high pressure.

The steps for making yogurt are similar regardless of what type of starter you’re using or what kind of milk, but there are a few important differences. Here is a table of the different ways to make yogurt with a reusable culture.

Following the tables are more detailed instructions and some discussion about each step.

Mesophilic with Raw Milk	Mesophilic with Pasteurized Milk
Before you start (do this with a new, dehydrated starter): make a mother culture.	
Heat 1 cup of raw milk to at least 160° but not over 180°F, place in a glass jar, then cool to room temperature. Or, use pasteurized milk at room temperature.	Measure 1 cup of pasteurized milk into a glass jar.
Add 1/8 teaspoon dried starter and mix well.	Add 1/8 teaspoon dried starter and mix well.
Cover with a towel or coffee filter and let sit for 12 to 48 hours at 70° to 78°F.	Cover with a towel or coffee filter and let sit for 12 to 48 hours at 70° to 78°F.
Begin checking the yogurt at 12 hours, and again every hour or so until it is set.	Begin checking the yogurt at 12 hours, and again every hour or so until it is set.
When the yogurt is set, put it in the refrigerator for 6 hours.	When the yogurt is set, put it in the refrigerator for 6 hours.
Step 1: Prepare the milk.	
Put fresh milk in a clean glass jar. Use as little as 1 cup or as much as 2 quarts.	Put fresh milk in a clean glass jar. Use as little as 1 cup or as much as 2 quarts.
Optional: Add cream or powdered milk. Thickeners such as agar, tapioca starch, guar gum, etc. can also be added at this point. Make sure the thickener is thoroughly incorporated into the milk.	Optional: Add cream or powdered milk. Thickeners such as agar, tapioca starch, guar gum, etc. can also be added at this point. Make sure the thickener is thoroughly incorporated into the milk.
Step 2: Inoculate the milk with the prepared culture.	
Add some mother culture in the proportion of 1 tablespoon of mother culture for each cup of milk, up to 2 quarts. Don't forget to save at least 1 tablespoon of mother culture to make more. Do not use yogurt from previous batches to make new yogurt. (See Step 4.)	<u>For your first batch of yogurt</u> , add 1 tablespoon of mother culture to the milk. <u>For subsequent batches</u> , add yogurt from the previous batch into the fresh milk. Use the proportion of 1 tablespoon of culture or yogurt for each cup of milk, up to 2 quarts.
Stir thoroughly to mix the culture into the milk.	Stir thoroughly to mix the culture into the milk.
Cover the milk with a coffee filter or clean towel and secure the cover with a rubber band. Or, use a lid.	Cover the milk with a coffee filter or clean towel and secure the cover with a rubber band. Or, use a lid.
Step 3: Culture the milk.	
Put the inoculated milk in a place that will remain at 70° to 78°F.	Put the inoculated milk in a place that will remain at 70° to 78°F.
Let it sit without being disturbed for 12 to 18 hours.	Let it sit without being disturbed for 12 to 18 hours.
Begin to check the yogurt at 12 hours, and again every half hour or so until it is set.	Begin to check the yogurt at 12 hours, and again every half hour or so until it is set.
Put it in the refrigerator for 6 hours.	Put it in the refrigerator for 6 hours.
Step 4: Make a new mother culture (for raw milk yogurt).	
Heat one cup of raw milk to 160°F, then cool to room temperature, or use pasteurized milk at room temperature.	
Add 1 tablespoon of the previous mother culture and mix well.	
Cover and let sit for 12 to 48 hours at 70° to 78°F.	
When the yogurt is set, put it in the refrigerator for 6 hours.	

Thermophilic with Raw Milk

Thermophilic with Pasteurized Milk

Before you start (do this with a new, dehydrated starter): make a mother culture.

Heat 1 cup of raw milk to at least 160° but not over 180°F, place in a glass jar, then cool the milk to 110°F.

Heat one cup of pasteurized milk to at least 160° but not over 180°F, place in a glass jar, then cool to 110°F.

Add 1/8 teaspoon dried starter and mix well.

Place 1/2 teaspoon of dehydrated culture and add half the heated milk. Stir well. Add the rest of the milk and mix again.

Cover and let sit for 5 to 8 hours at 110°F in a yogurt maker, or wrap it and put it in a place that will remain at 110° to 112°F.

Cover and let sit for 5 to 8 hours at 110°F in a yogurt maker, or wrap it and put it in a place that will remain at 110° to 112°F.

Begin checking the yogurt at 5 hours, and again every half hour or so until it is set.

Begin checking the yogurt at 5 hours, and again every half hour or so until it is set.

When the yogurt is set, let it cool for 2 hours at room temperature.

When the yogurt is set, let it cool for 2 hours at room temperature.

After the yogurt is cool, put it in the refrigerator for 6 hours.

After the yogurt is cool, put it in the refrigerator for 6 hours.

Step 1: Prepare the milk.

Measure out 1 cup or as much as 2 quarts of fresh raw milk.

Measure out 1 cup or as much as 2 quarts of fresh pasteurized milk.

Heat fresh milk to between 110° and 112°F.

Heat fresh milk to between 160° and 180°F then cool it down to 110° to 112°F.

Put the milk into a clean glass container, or a plastic insert for a yogurt maker.

Put the milk into a clean glass container, or a plastic insert for a yogurt maker.

Optional: Add cream or powdered milk. Thickeners such as agar, tapioca starch, guar gum, etc. can also be added at this point. Make sure the thickener is thoroughly incorporated into the milk.

Optional: Add cream or powdered milk. Thickeners such as agar, tapioca starch, guar gum, etc. can also be added at this point. Make sure the thickener is thoroughly incorporated into the milk.

Step 2: Inoculate the milk with the prepared culture.

Add some mother culture in the proportion of 1-1/2 to 2 teaspoons of mother culture for each cup of milk, up to 2 quarts. Don't forget to save at least one tablespoon of mother culture to make more. Do not use yogurt from previous batches to make new yogurt. (See Step 4.)

For your first batch of yogurt, add 1-1/2 to 2 teaspoons of mother culture for each cup of milk. *For subsequent batches,* add yogurt from the previous batch into the fresh milk. Use the proportion of 1-1/2 to 2 teaspoons of yogurt for each cup of milk, up to 2 quarts.

Stir thoroughly to mix the culture into the milk.

Stir thoroughly to mix the culture into the milk.

Cover the milk with a coffee filter or clean towel and secure the cover with a rubber band. Or, use a lid.

Cover the milk with a coffee filter or clean towel and secure the cover with a rubber band. Or, use a lid.

Step 3: Culture the milk.

Put the inoculated milk in a yogurt maker, or wrap it and put it in a place that will remain at 110° to 112°F.

Put the inoculated milk in a yogurt maker, or wrap it and put it in a place that will remain at 110° to 112°F.

Let it sit without being disturbed for 5 to 7 hours.

Let it sit without being disturbed for 5 to 7 hours.

Begin to check the yogurt at 5 hours, and again every half hour or so, until it is set.

Begin to check the yogurt at 5 hours, and again every hour or so, until it is set.

When the yogurt is set, let it cool for 2 hours to room temperature.

When the yogurt is set, let it cool for 2 hours to room temperature.

Put it in the refrigerator for 6 hours.

Put it in the refrigerator for 6 hours.

Step 4: Make a new mother culture (for raw milk yogurt).

Heat one cup of milk to at least 160° but not over 180°F, then allow the milk to cool to 110°F.

Add 1-1/2 to 2 teaspoons of the previous mother culture and mix well.

Cover and let sit for 5 to 7 hours at 110°F.

When the yogurt is set, let it cool for 2 hours at room temperature.

After the yogurt is cool, put it in the refrigerator for 6 hours.

Preparing the Mother Culture

This is a very important step, whether you are using raw or pasteurized milk, and whether you are using a mesophilic or thermophilic culture. The reason for doing this is that the dehydrated culture has been in a state of hibernation so it can be shipped to you. It is not yet active, and the first time you use it, the bacteria will not be up to their full strength. So, you let them work in a very small amount of milk to become established and multiply.

Once the culture is established, it will multiply and become more vigorous and hardy. If you're using pasteurized milk, the resulting yogurt will contain live, strong bacteria, and you can use some of that yogurt to culture a new batch.

If you are using raw milk, you're also making the mother culture so you can perpetuate it for culturing additional batches of milk each time you make yogurt. Raw milk contains many of its own bacteria that multiply over time, and compete with the yogurt culture. When you make a mother culture with raw milk, you must first sterilize a small quantity of the milk to give the yogurt culture a safe environment in which it can reproduce.

The package you get from Cultures for Health contains two packets of starter, so if you have any problems with the first one, you can try again. Once you have a mother culture established, you can store the second packet in the freezer for up to nine months, or make an extra mother culture with it.

Preparing the Milk

Whether you are using raw milk or pasteurized milk, the procedure for setting up a batch of mesophilic yogurt is the same: simply measure the milk into the container you will use for culturing. No other preparation needed!

For mesophilic yogurt, the milk should be at room temperature, which is between about 68° and 78°F. The warmer the room is, the faster the yogurt will culture. If you have stored the milk in the refrigerator, it's easier on the cultures to let the milk warm up to room temperature before you add the cultures.

A thermophilic culture needs to incubate between 110° and 112°, so you will need to get the milk warmed up before you introduce the culture.

If you are using pasteurized milk, you must first sterilize it. Some people ask why this is necessary if the milk has already been pasteurized. The answer is that pasteurization kills the natural bacteria that are in milk, so as it ages, the milk can collect and nurture bad bacteria. If you simply warm the milk up to 110°F, the bad bacteria can flourish and make the milk taste unpleasant or even make it harmful. (This is why pasteurized milk has an expiration date, and is not good to use after a certain time.)

Sterilizing the milk just before culturing it makes sure that the milk is completely clean and will present a welcoming environment where the yogurt culture can thrive and do its work. Additionally, heating the milk denatures (changes the characteristics of) the milk proteins, weakening the cell membranes and allowing the protein molecules to adhere to each other, causing better coagulation in the yogurt.

You can sterilize raw milk the same way you do pasteurized milk, but many people like to warm the milk only up to culturing temperature so they can keep the natural bacteria and enzymes present in raw milk. (Keep in mind this will also make it less easy for the milk to coagulate, so the resulting yogurt will be thinner than when the milk is heated to 160°F first.)

After you've heated the milk, you'll need to cool it back down to 110°F or so. Temperatures over 118°F will kill the bacteria in the yogurt culture.

When the milk is ready, put it into the jar or container you will use for culturing. If you're going to use a collection of small jars, you can put the milk in a larger container, add the culture, then pour the inoculated milk into the small containers.

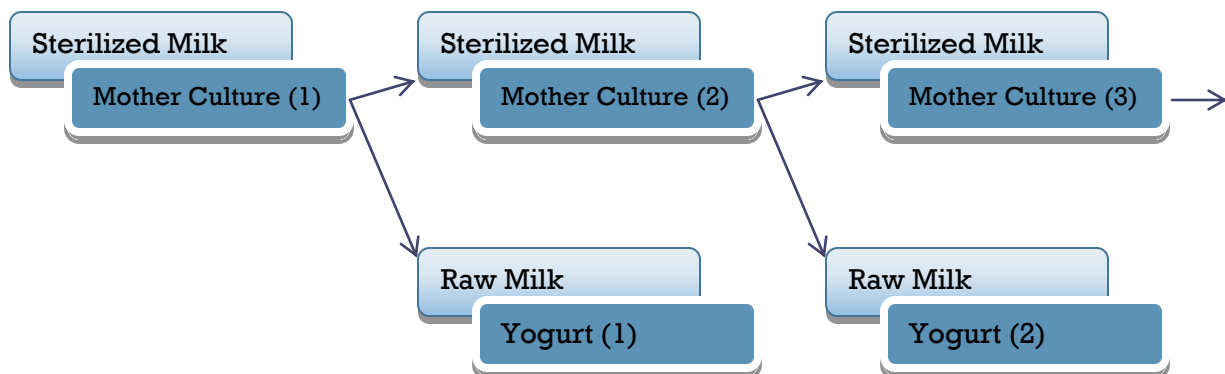
At this point, you can also add extra dried milk powder and/or thickeners such as agar, cream, tapioca starch, cornstarch, pectin, etc. If you add milk powder, it should be from the same type of animal as the milk you're using. Whatever you add, mix it up thoroughly in a small amount of milk to dissolve it, then add that to the milk you'll be culturing.

Inoculating the Milk

There are two very important things to remember when you are adding the yogurt culture to the prepared milk.

First: You must use the correct proportion of culture. Too much culture in the milk will result in a thin, weak yogurt. The reason for this is that the cultures will compete for food in the milk mixture, and if there are too many bacteria, they will use up the food before the yogurt is completely set. A smaller amount of culture will provide a nutritious environment for the culture, so it can do its work and let the milk proteins coagulate properly.

Second: if you are working with raw milk, you must remember to leave enough of the mother culture to make a *new* mother culture. The bacteria will not remain strong enough in the raw milk to be reusable batch after batch, so you must continue to make small quantities of yogurt with sterilized milk. You can then use that mother culture each time you make a new batch of yogurt.



For the first batch of yogurt, you will add mother culture to the prepared milk.

For a mesophilic culture, add mother culture in the proportion of 1 tablespoon to 1 cup of milk. Since you made 1 cup of mother culture, you will have 16 tablespoons: enough to make 16 cups (4 quarts) of yogurt if you're using pasteurized milk.

If you're using raw milk, you'll have enough mother culture for 15 cups of yogurt plus 1 cup of new mother culture. This will give you plenty of mother culture to make yogurt and more mother culture, and even some left over.

For a thermophilic culture, add the mother culture in the proportion of 1-1/2 to 2 teaspoons of mother culture to 1 cup of milk. (That works out to a little less than 3 tablespoons per quart.) Since you made 1 cup of mother culture, you will have enough mother culture to make 24 to 32 cups of yogurt (6 to 8 quarts)!

It is difficult to maintain the proper culturing temperature with quantities larger than 2 quarts, so if you are making large quantities of yogurt, you must either make it in smaller containers, or set up a way to keep a larger container at a consistent temperature.

If you are using your thermophilic culture with raw milk, don't forget to hold some of the mother culture aside to make more mother culture.

Whatever milk you use, and whatever starter you use, stir the inoculated milk gently but thoroughly to distribute the starter.

Culturing the Milk

Now just let the milk sit until it turns into yogurt.

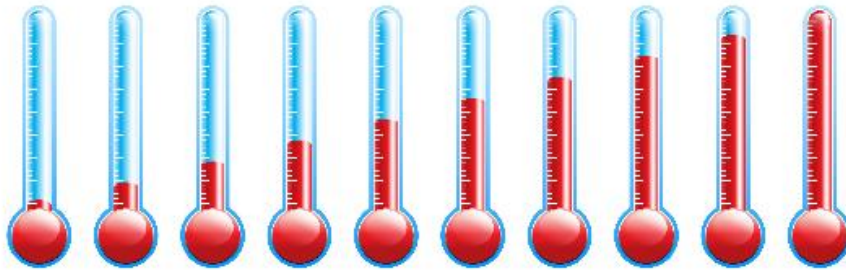
The temperature of the culturing yogurt should remain fairly constant, and the yogurt should not be disturbed as it cultures. A mesophilic yogurt can sit on a countertop.

Mesophilic yogurt will set up in 12 to 48 hours, and thermophilic yogurt in 5 to 7 hours. You can begin looking at the yogurt at the earliest end of the range, and check it again every half hour or so.

If your kitchen is particularly cool you may need to establish a spot for it that is warm enough, but not too warm to kill the bacteria.

For a mesophilic yogurt, some options for keeping it warm are:

- Set it in a high spot where the ambient temperature is likely to be warmer, like on top of a refrigerator, or in a high cabinet.
- Put it on top of a piece of electronic equipment that is always on, such as a DVR. (Make sure the jar it is on a tray or in pan to avoid accidental spills.)
- Check with a local nursery or garden shop for a “seedling mat” that can be set to around 75°F.
- Turn on the light in an electric oven, then put the yogurt on top of the oven where some of the internal heat from the stove can warm the oven surface.



For a thermophilic yogurt, there are also several options:

- Use a yogurt maker. Make sure the unit is running at a constant temperature between 105° and 112°F by filling the yogurt compartment with water, turning the unit on, and taking the temperature of the water every half hour for a regular culturing cycle (around 7 hours).
- Wrap the jar in a dishtowel and put it in an insulated cooler with the cover on.
- Make an insulated incubator out of a small crock pot by lining it with foam. Put the jar of yogurt inside, put a piece of foam on top, and put the lid on.
- Turn on the light in an electric oven, then put wrap the yogurt in a dishtowel and put it *inside* the oven. Check the temperature of the oven first, as some ovens can get to over 115°F with just the light on.
- Set the yogurt inside a food dehydrator that has the trays taken out, and that is set for no higher than 110°F.

The amount of time you let the yogurt culture depends on your preference for tartness and texture. The longer it cultures, the more tart it will be, and the more thick. Toward the absolute limit of culturing time, the yogurt may begin to separate into solid (curds) and liquid (whey). The whey is quite nutritious and can be strained off to use in cooking or culturing, or it can be stirred back in to the yogurt.

Separation is usually the result of yogurt culturing either too long or too fast. Once it begins to separate, it is not long before the bacteria will begin to die off, since the separation can be a sign that the lactose has been used up and is not available to feed the bacteria. You may have to experiment with times and temperatures to find the ideal conditions for your yogurt to set up as you like it.

There is a two-hour cooling-off period for thermophilic yogurt, to help ease the transition between the culturing temperature and the refrigeration period. Finished yogurt should be put into the refrigerator for six hours to halt the fermentation.

Once the fermentation has been stopped, it will not restart if you bring the milk back to room temperature.

If you want a thicker yogurt but don't want to let it culture long enough to separate on its own, you can strain it through a coffee filter after it has been refrigerated, and let the whey drain out. This is also how you get a thick Greek-style yogurt.

Making a New Mother Culture

If you're using raw milk with a mesophilic culture, or with a thermophilic culture and only heating it to 110°F, you will have to make a new mother culture to inoculate your next batch of yogurt.

You should reculture the mother culture within seven days to make sure the bacteria stay strong. If you have extra mother culture after you have inoculated the yogurt and made more mother culture, you can eat it just like any other yogurt.

Making Yogurt with Raw Milk



Raw milk yogurt is delicious and full of beneficial bacteria from both the raw milk and the yogurt culture. When using raw milk to make yogurt, there are several factors that must be considered including how the bacteria content of the raw milk affects the yogurt culture, the consistency of raw milk yogurt, potential risks within the process and more. Following the discussion of these special considerations are detailed instructions for each of the three methods available for making raw milk yogurt.

Special Considerations when Making Raw Milk Yogurt

Making yogurt with raw milk differs from using pasteurized milk and several factors should be considered.

Bacteria Content. We recommend using only fresh milk to make yogurt. Raw milk comes with its own set of beneficial bacteria, and if your milk is a few days old or wasn't chilled down quickly enough before you bought it, that bacterial count can be high. This means that the culture you introduce to make your yogurt could have some hefty competition, which can lead to yogurt with an “off” flavor, or yogurt that does not set properly.

Raw Milk Fat Content. While you can make yogurt with raw milk of any level of fat content, there are a few factors to consider. First, milk with higher fat content will generally yield thicker yogurt (see below). Second, because raw milk is not homogenized, be aware that as the milk cultures and the yogurt sets, the cream will rise to the top. So the top layer of your

raw milk yogurt will be more yellow and of a much thicker consistency. The cream layer can be scooped off and eaten alone or mixed into the yogurt.

Consistency. Raw milk generally makes yogurt which has a much thinner consistency than yogurt made with pasteurized milk. Pasteurization damages proteins and a byproduct of that damage is thicker yogurt when the milk is cultured. While raw milk with a high fat content will yield thicker yogurt than lower-fat raw milk, overall raw milk yogurt will have a thinner consistency when compared to yogurt made with pasteurized milk. There are several ways to thicken raw milk yogurt. The most desirable is to strain the yogurt using tight-weave cheese cloth or a tea towel, thereby removing some of the whey and leaving a thicker consistency yogurt. (This method also produces raw cultured whey which can be used to culture vegetables, soak grains and flour, as a base ingredient for a smoothie, etc.) An alternative option is to add dry milk powder, agar flakes, or tapioca powder to the yogurt as a thickening agent.

Risk. Although most people who consume raw milk do not feel that raw milk is inherently dangerous, there are risks to everything and people have become ill from raw milk. (It is also possible to become ill from pasteurized milk.) Talk to your farmer, do your research, and decide whether or not these risks are worth it.

Perpetuation of the Culture. Some varieties of yogurt starter are meant to be used once while others are meant to be perpetuated from batch-to-batch. Caution must be taken when using a perpetuating yogurt starter with raw milk as the beneficial bacteria present in raw milk make the perpetuation process more difficult and uncertain. Over time, the bacteria in the raw milk will generally weaken the yogurt culture so if you try to perpetuate one batch of raw milk yogurt to another, eventually the milk bacteria will present too great a challenge and the yogurt starter will stop culturing the milk effectively. If using a perpetuating yogurt culture, it is safest to first make a mother culture so you can use the mother culture to inoculate each batch of raw milk yogurt and keep your yogurt starter healthy. (See below for detailed instructions.) No special perpetuation steps are necessary if using a direct-set (one-time-use) variety of yogurt culture.

Methods for Making Raw Milk Yogurt

There are three general options for cultures for making raw milk yogurt. Yogurt starter cultures can be divided into two groups: thermophilic (heat loving) and mesophilic (low temperature) which refers to the ideal temperature range for culturing each type of yogurt. Yogurt cultures also come in two varieties that determine how the culture is used: direct-set (one-time use) or a perpetuating variety where a small amount of a previous batch is used to make the next batch. There are advantages and disadvantages to each type when working with raw milk.



Option 1: Direct-set Thermophilic Yogurt Starter

A direct-set thermophilic yogurt culture is one of the most popular choices for making raw milk yogurt. Direct-set yogurt cultures are one-time-use cultures. Either one of the following can be used as your starter culture:

- A packet of freeze-dried powder that is stored in the freezer and used to inoculate each batch *OR*
- A small amount of yogurt from the store. If using ready-made yogurt as your starter, be sure to use an unflavored variety that is labeled as containing live active cultures.

Thermophilic direct-set starter cultures are known for making yogurt with a thicker consistency compared to perpetuating varieties of yogurt starters. Direct-set cultures work

well with yogurt makers or a similar heating appliance or heating method as the milk will need to culture at 110°F to properly set the yogurt.

Instructions. Heat the raw milk to between 110° and 112°F (milk kept below 118°F is generally still considered raw). If using a freeze-dried yogurt culture, add the specified amount of culture to the specified amount of milk. If using yogurt from the store as your



starter culture, add a tablespoon of yogurt for each cup of raw milk you wish to culture. Stir gently until fully dissolved and well-distributed throughout the milk. Incubate the mixture at 105° to 110°F for 6 to 7 hours until set. Refrigerate prior to eating.

Advantages. Easy to use, packets store in the freezer until you are ready to make yogurt; the culture does not require regular care or maintenance (easy to take breaks from making yogurt using this type of culture); generally makes thicker consistency yogurt when compared to perpetuating cultures.

Disadvantages. Direct-set cultures are one-time-use (generally not able to be perpetuated or with very limited perpetuation lifespan); if using a packet of freeze-dried starter culture each packet generally contains 6 to 8 doses depending on the variety; if using yogurt from the store as a starter culture, you will need to buy a new container of yogurt on a regular basis to use as a starter culture.

Available Varieties. We currently carry several varieties of direct-set thermophilic yogurt starters: [Traditional Flavor](#), [Mild Flavor](#), [Kosher Traditional Flavor](#), and [Kosher Mild Flavor](#).

Option 2 and Option 3 (below) utilize perpetuating (reusable) yogurt starters. As discussed above, perpetuating a raw milk yogurt from one batch to the next is an uncertain process due to

the competition provided by the beneficial bacteria in the raw milk. Over time the raw milk bacteria will weaken the yogurt bacteria and eventually it will not culture the milk effectively. To preserve the health of the yogurt culture, we recommend using the mother-culture method for perpetuating the starter culture.

Making a Mother Culture for Yogurt Starter Perpetuation. To make a mother culture, a small amount of milk (generally a cup or less) is heated to pasteurize the milk and provide a blank slate of sorts in terms of bacteria content. The yogurt culture is then added to this cup of pasteurized milk and cultured to create a clean mother culture for use in making raw milk yogurt. A small amount of the mother culture is used inoculate each batch of raw milk yogurt (generally 1-1/2 to 3 teaspoons of mother culture per cup of raw milk depending on the type of culture). A new mother culture should be made at least every 7 days to preserve the health of the yogurt bacteria and ensure it remains active and strong for culturing each batch of yogurt. (A new mother culture can be made using a small amount of the existing mother culture.) Exact instructions for making a mother culture vary slightly depending on the variety of yogurt culture (thermophilic vs. mesophilic) so please consult the specific instructions provided with each packet of yogurt starter.



Option 2: Reusable Thermophilic Yogurt Starter

A perpetuating thermophilic yogurt culture is similar to the direct-set starters in the way the yogurt is cultured, but has the advantage of allowing for perpetuation of the yogurt culture rather than buying a new packet of yogurt starter on a regular basis. These cultures work

well with yogurt makers or a similar heating appliance or heating method as the milk must culture at about 110°F to properly set the yogurt. As stated above, we strongly recommend using a mother culture to inoculate each batch of raw milk yogurt to preserve the integrity of the yogurt starter.

Instructions. To make a batch of raw milk yogurt, heat one cup of raw milk to 112°F. Mix in 1-1/2 to 2 teaspoons of the pure mother culture. Mix the starter and milk well. You can make larger batches of yogurt by adhering to the same ratio of 1-1/2 to 2 teaspoons of yogurt to 1 cup of milk. Cover the yogurt and incubate at 110°F for 5 to 7 hours. Once the yogurt is set (when the jar is tipped, the yogurt shouldn't run up the side of the jar and should move away from the side of the jar as a single mass), allow the yogurt to cool for 2 hours. Place the yogurt in the refrigerator for 6 hours to halt the culturing process. Each batch of raw milk yogurt must use the pure mother culture as the starter culture. Do not try to culture a new batch of yogurt using a previous batch of raw milk yogurt. This will result in a compromised culture and over time your yogurt will no longer culture properly.

Advantages. If the mother culture procedure is used, the yogurt culture can be perpetuated via the mother culture from batch-to-batch, with no need to continually purchase yogurt starter.

Disadvantages. Need to create and maintain a mother culture to preserve the health of the yogurt culture when used with raw milk; generally makes yogurt with a thinner consistency than the direct-set thermophilic cultures.

Available Varieties. We currently carry several varieties of perpetuating thermophilic yogurt starters: [Greek Yogurt Starter](#) and [Bulgarian Yogurt Starter](#).



Option 3: Perpetuating Mesophilic Yogurt

Starter

A perpetuating mesophilic yogurt starter is another popular culture for making raw yogurt due to two distinct advantages. First, mesophilic yogurt starters culture at room temperature (70° to 77°F) so they do not require a yogurt maker or any heating device. This is often seen as particularly desirable when working with raw milk. Second, the culture perpetuates so there is no need to buy new packets of yogurt starter on a regular basis. As stated above, we strongly recommend using a mother culture to inoculate each batch of raw milk yogurt to preserve the integrity of the culture. One potential drawback to this type of culture is that mesophilic cultures tend to make yogurt with a much thinner consistency than thermophilic cultures. If a thicker consistency mesophilic yogurt is desired, we recommend straining the finished yogurt of some of the whey prior to eating.

Instructions. To make a batch of raw milk yogurt, add 1 tablespoon of the pure mother culture to each cup of raw milk. You can make larger batches of yogurt by adhering to the same ratio of 1 tablespoon of yogurt to 1 cup of milk. Cover the jar with a towel or coffee filter and secure the cover with a rubber band. You can culture with or without a lid. Let the mixture culture undisturbed at 70° to 77°F for 12 to 18 hours. Once the yogurt is set (when the jar is tipped, the yogurt shouldn't run up the side of the jar and should move away from the side of the jar as a single mass), cover the jar with a lid and place the yogurt in the refrigerator for 6 hours to halt the culturing process. Each batch of raw milk yogurt must use the pure mother culture as the starter culture. Do not try to culture a new batch of yogurt using a previous batch of raw milk yogurt. This will result in a compromised culture and over time your yogurt will no longer culture properly.

Advantages. Cultures at room temperature (70° to 77°F) leaving the raw milk bacteria fully intact; if the mother culture procedure is used, the yogurt culture can be perpetuated from batch-to-batch via the mother culture; no need to continually purchase yogurt starter.

Disadvantages. Need to create and maintain a mother culture to preserve the health of the yogurt culture when used with raw milk; this type of yogurt culture makes the thinnest consistency yogurt.

Available Varieties. We currently carry several varieties of perpetuating mesophilic yogurt starters: [viili](#), [filmjök](#), [matsoni](#), and [piimä](#).

Maintaining Temperatures for Culturing Yogurt (Thermophilic)

One of the most important things to consider when you are making yogurt is the temperature at which it cultures.

Thermophilic yogurt cultures require a temperature in the range of 110°F to reproduce properly. Anywhere in a range of 105° to 112°F will be adequate, but under 105°F or over 112°F can weaken or damage the bacteria, and will cause the milk to not set up at all, or to curdle without culturing. Temperatures over 118°F will kill the culture, and just heat the milk without culturing it or providing any probiotic benefit.



There are a variety of yogurt makers on the market that are designed specifically to keep milk at a constant temperature of around 110°F. They come with plastic or glass inserts that will hold the milk+culture, and either a timer that will turn off the machine at the end of the culturing time, or a “reminder” dial that you can set to remind you to turn off the machine yourself.

To verify that a yogurt maker is running at the right temperature, fill the container(s) with water that has been heated to 110°F, turn on the machine, and check the temperature of the water every half hour. It should be fairly constant, and within the range of 105° to 112°F. This is the correct temperature for culturing any brand of thermophilic yogurt and any type of milk.

Making Yogurt without a Yogurt Maker

You actually do not *need* a yogurt maker to make good, homemade cultured yogurt. And while a yogurt maker may be nice, it can also be very pricey and maybe even disappointing if it doesn't work as well as you'd hoped.

Furthermore, yogurt makers require energy resources that some do-it-yourselfers may not want to devote to simply making yogurt.

So making yogurt without a yogurt maker can save you not just money, but also the time and energy resources a maker takes to find and run. But how does one make yogurt without a yogurt maker?

How to Mimic a Yogurt Maker's Environment



The environment needed to culture yogurt includes:

- a consistent temperature between 105° and 112°F
- a place free of drafts
- the ability to culture without being shaken or disturbed.

There are many ways in which to culture yogurt with the above conditions in today's home kitchen. Remember that for many years, yogurt was made traditionally before electricity was available.

If you don't have a yogurt maker, there are many ways you can maintain the proper temperature for culturing. In each case you can verify the culturing temperature by heating some water to 110°F, putting it in a jar such as you would use for making yogurt, then

checking the temperature of the water at the end of what would be the normal culturing time.

Food Dehydrator. A cabinet-style food dehydrator, with the shelves removed, makes a perfect warm box for culturing yogurt. The dehydrator must have a setting low enough for the yogurt, as most do. The door of the dehydrator can be left open or closed, to get just the right temperature for the yogurt.

Crock Pot. Using [this crock pot yogurt method](#) you can heat the milk, cool the milk, and incubate the milk all in the same vessel. It is a very simple method that mimics the yogurt maker.



Insulated Container. You can make an insulated yogurt incubator with a small crockpot and some 1-inch foam. Cut two circles of foam to fit the bottom of the crockpot. Then cut another strip of foam about two inches narrower than the inside height of the crockpot, and as long as the inside circumference of the pot. Put one circle on the bottom of the pot, and wrap the long strip around the inside of the pot. Put the yogurt inside the foam-lined pot, put a lid on it, put the other circle on top of it, and put the crockpot lid on top of that. You can use any sort of enclosed container with foam to make a good insulated yogurt incubator.

Warm Oven. If you turn the light on inside your oven and close the door, the inside of the oven should stay at around 105° to 110°F. Wrap the jar of yogurt in a clean dishtowel secured by a rubber band, and set it on a cookie sheet or in a shallow pan in the oven with the light on. Or, if you have a gas oven, the pilot light alone should keep the oven at a constant culturing temperature.

Appliance Boost. Many people have appliances in their homes such as DVRs that are “always on”. You can wrap the covered jar of yogurt in a clean dishtowel secured by a rubber band, and set it on top of the appliance to culture. With electronic equipment, it is strongly advised that you put the yogurt in or on a dish or pan to protect against accidental spills.

Seedling Mat. Nurseries and greenhouses often sell seedling mats (or can tell you where to buy one), which are small flat heating pads that can be set to produce heat from around 68°F to around 108°F. This is a little on the cool side for a thermophilic yogurt, but if your environment is quite cold, it could be a good option.

Open Insulation. If your house is warm enough, or if you have a counter that is in a warm place in your kitchen, it may be sufficient to simply wrap your covered jar of yogurt in a clean dishtowel secured by a rubber band, and set it in that warm place.

Hot Water Bath. In a pinch, you can use a hot water bath to keep your yogurt warm enough to culture. Set the covered yogurt jar in a larger bowl, and fill the bowl with heated water, to anywhere from an inch or two up from the bottom of the jar, to an inch or two from the top of the jar. You can use a thermometer to measure the temperature of the water. 110°F is like a very hot bath, but still cool enough to put your finger in easily. As the water cools, you can pour it out and replace it with more. (Lift the yogurt out very gently, being careful not to disturb it, then pour the water out of the larger bowl and replace the yogurt, then the heated water.) This is pretty labor- and time-intensive, and really only useful as an emergency measure when there are no other options.

Insulated Cooler with a Heating Pad. Place the culturing jars, in an insulated cooler. Place a heating pad on top of the jars in the cooler. Close the cooler lid as well as you can with the heating pad cord sticking through. Plug in the heating pad and turn to low for the 8- to 24-hour incubation period. You can also wrap the cooler in a blanket or towel if necessary.

In a Cooler Set in the Sun. Simply set your cooler filled with jars full of warm milk+cultures in the full sun of the day, assuming it isn't too hot.

In a Coffee Thermos. Pour your warmed milk and cultures into a coffee thermos. Cover tightly, wrap in a towel, and incubate for the desired number of hours.

Maintaining Temperatures for Culturing Yogurt (Mesophilic)

Yogurt cultures that work at room temperature must also work within a certain range. Below 68°F, a mesophilic culture will go dormant, and may cease to reproduce. When a mesophilic culture stops working after having been activated, it is unlikely to start working again, although the bacteria are still viable, and any probiotic benefit that is already in the yogurt will still be there.

Mesophilic bacteria will be killed at 85°, and will not have any probiotic benefit, nor will they reproduce. These yogurts work best between 70° and 80°, with the ideal temperature being around 75°F.

It is a little easier to keep a mesophilic yogurt within culturing range, but summer temperatures can be too warm, causing overculturing and curdling, and winter or nighttime temperatures can be too cool, causing the culture to halt.

Yogurt makers, dehydrators, and ovens are generally too warm for mesophilic cultures. Some of the other methods for warming thermophilic yogurts can also be used for mesophilic varieties.

Appliance Boost. Many people have appliances in their homes such as DVRs that are “always on”. Wrapping a dishtowel around the yogurt may make it too warm, but you can simply set the jar on top of the appliance to culture. With electronic equipment, it is strongly advised that you put the yogurt in or on a dish or pan to protect against accidental spills.

Seedling Mat. A seedling mat from a nursery or greenhouse can be set to around 75°F which is perfect for a mesophilic yogurt.

Elevation. It may be sufficient to simply set the yogurt in a high place in your kitchen, where the air is a little warmer than at counter height.

Hot Water Bath. In a pinch, you can use a hot water bath to keep the yogurt warm enough to culture. Set the covered yogurt jar in a larger bowl, and fill the bowl with heated water, to anywhere from an inch or two up from the bottom of the jar, to an inch or two from the top of the jar. You can use a thermometer to measure the temperature of the water. 75°F will feel

lukewarm. As the water cools, you can pour it out and replace it with more. (Lift the yogurt out very gently, being careful not to disturb it, then pour the water out of the larger bowl and replace the yogurt, then the heated water.) This is pretty labor- and time-intensive, and really only useful as an emergency measure when there are no other options.

Insulated Cooler. You may be able to maintain a “room temperature” environment by just putting your yogurt inside a food cooler along with a jar of hot water. Check the cooler occasionally and replace the hot water if necessary to maintain a temperature inside the cooler of at least 70°F.

Keeping it Cool

In the summer, it can be a challenge to keep yogurt cool enough to culture! There are a few tricks that can help you here too.

Culturing Box. Just as you can use a food cooler to keep yogurt warm in winter, you can use it to create a cool environment as well. In very hot weather, a cooler with an icepack inside will usually provide just the right temperature for mesophilic yogurt to culture successfully. Experiment with this to find the right size icepack and cooler combination.

Cooling Surface. Marble tends to stay cooler than the surrounding environment. If you have marble countertops, or a marble slab, you can place the yogurt there and it will keep the culturing temperature down.

Evaporational Cooling. Place the jar of yogurt in shallow bowl of cool water. (A pie plate or cake pan can work.) As the water in the bowl evaporates, it provides a cooling effect. You don't need to change out the water, as it will stay fairly cool, but replace it if it evaporates away. The water should be tepid, not cold.

How to Make Yogurt in a Crock Pot

If you own a crock pot then you are well aware of the help it can be in the kitchen. You can make dinner at 8:00am and be eating a hot meal at 5:00pm. Most people think of it for one-pot-wonder meals like chili, soup, stew, and more.

An additional wonder is that the crock pot can act as a one-pot container for heating and incubating the milk when making yogurt. And it really couldn't be much simpler.

The only caution to this method is that if the crock pot reaches temperatures greater than 115°F it will pasteurize raw milk, killing the raw milk's ambient bacteria. Also, if your crock pot does not maintain a consistent temperature, you may not get consistent results. Make sure to [check your crock pot's temperature](#) for consistent results.

Crock Pot Yogurt



Recipe notes: This recipe uses a 2-quart crock. If you are using a 4- or 4.5-quart crock the yogurt may have a bit of a "springy" texture. You may be able to alleviate this by heating the milk an additional 15 minutes for a total of 2 hours and 45 minutes.

- Turn your crock pot to low and pour in **1/2 gallon of milk**.
- Heat on low for **2 hours and 30 minutes**.
- Once 2 hours and 30 minutes have elapsed turn your crock pot off and unplug it. Let the milk cool in the crock with the lid on for **3 hours**.

- After 3 hours remove 1 to 2 cups of the warmed milk and place in a bowl. To that add one of the following:
 - **1/8 teaspoon direct-set yogurt starter** (powdered, dried culture) *OR*
 - **1/2 cup of yogurt** with live active cultures
- Thoroughly combine the milk and yogurt or starter culture, mixing very well.
- Pour the yogurt-milk mixture back into the crockpot with the rest of the milk and whisk thoroughly.
- Place the cover back on the crock and wrap the entire crock pot in a thick bath towel or two.
- Let it culture overnight, 8 to 12 hours.
- In the morning stir yogurt (if desired) and store in glass quart jars or a container of your choice.
- For optimum texture, refrigerate for at least 6 hours before using.

Once you are ready to serve and eat the yogurt, top it with fruit or mix in jam, honey, or maple syrup. For vanilla-flavored yogurt just add a few drops of vanilla extract and sweetener to taste.

Enhancing Yogurt: Thickening & Flavoring

Yogurt can be a refreshing treat, a delicious condiment, or a nourishing ingredient in a variety of foods. While many people enjoy yogurt fresh from culturing, some like to improve it by thickening or flavoring.

Thickening



Depending on the type of milk and the culture you use, yogurt can be as thin and runny as cream, or as thick and solid as sour cream. Raw milk will usually produce a thinner yogurt than pasteurized milk. Here are some ways to produce a thicker yogurt.

Use milk with a higher fat content. The fat in yogurt is part of what makes it thick, so obviously whole milk will result in a thicker yogurt than skim milk. You can even use cream to make yogurt, or add cream to the milk to make a rich, thick, yummy yogurt.

Add milk solids. The coagulation of milk proteins is what produces the typical gelatinous texture of yogurt, so by increasing the proportion of milk solids, you will get a thicker yogurt. Powdered milk solids usually come in cow, goat, and soy varieties. You can add powdered (instant or non-instant) milk to the yogurt before adding the culture. For easy mixing, use a small amount of milk or water to reconstitute the powdered milk before adding it to the fresh milk. Using powdered milk alone, without fresh milk, may give you poor results because the powdered milk is highly processed. As a general rule of thumb, for every 3 to 4 cups fresh cow milk use 1/2 to 1 cup powdered milk solids. If using fresh goat

milk or soy milk, add 1/4 cup to 1/2 cup powdered milk solids. Please note: when adding milk solids to yogurt, it is important not to mix protein sources as doing so can lead to unpredictable and often undesirable results. For example, when using fresh cow milk, use cow-based milk solids; when using fresh goat milk, use goat-based milk solids.

Add thickeners. These can be added to the milk just before you add the culture. This is a process that's most successful with direct-set cultures, or yogurt where you are maintaining a separate mother culture, since the thickeners may interfere with the yogurt's ability to reproduce over successive generations. If you are using a re-culturing yogurt, another way to add thickeners is to wait until just after the yogurt has set up. Take out some of the finished yogurt to use for inoculating the next batch, then add the thickener to the larger batch before you refrigerate it.

- *Tapioca starch:* For 3 to 4 cups of milk, dissolve 2 tablespoons tapioca starch into a small amount of heated milk. Add the small amount of milk to the larger portion of milk and mix well.
- *Ultra-gel (modified corn starch):* For 3 to 4 cups heated milk, add 3/8 cups Ultra-gel and mix well to combine. While regular corn starch can be used, it's not particularly stable and can yield an odd consistency.
- *Gelatin:* For every 3 to 4 cups milk, sprinkle 1 teaspoon of gelatin into the milk as it is getting close to 110°F. Mix well to combine. Please note: the effects of the gelatin will not be noticeable until after the yogurt has set and chilled in the refrigerator.
- *Agar:* For every 3 to 4 cups milk, dissolve 1/2 teaspoon agar into 1/2 cup of water. Bring the agar and water mixture to a boil. Allow the mixture to cool sufficiently prior to adding it to the heated milk.
- *Guar gum:* For every 3 to 4 cups of milk, add 1 teaspoon of guar gum to a small amount of heated milk, mix well, then combine the small amount of milk with the larger portion of milk.
- *Pectin:* For 1 quart of yogurt, pour 2 cups of heated milk into a blender. Add 1 teaspoon of pectin to the blender, and mix for a couple of minutes to incorporate the pectin. Now add the rest of the heated milk, then the starter. Blend at low speed just a little more (or mix by hand), then pour the blended mixture into your yogurt maker. You may find that you need to adjust the amount of pectin depending on your milk.

Hold the milk at high temperature. When you are preparing the milk, heat it to 160°F or more (no higher than 180°F), and hold it at that temperature for 20 to 30 minutes before letting it cool to culturing temperature. The additional heating time denatures (breaks down) the milk proteins more so they will coagulate better.

Strain the yogurt. Make the yogurt as usual, including refrigeration to stop the culturing. Then strain it through a cheese bag or coffee filter, which will let a good deal of the whey drip out, leaving you with a thicker yogurt. (This is how traditional Greek yogurt is made.) Straining should be done in a cool place so the yogurt doesn't spoil as it strains. (It can take a while!) Save the whey for culturing vegetables or adding to baked goods. You can also freeze the whey in ice cube trays and add to smoothies for extra flavor and protein!

Flavoring



There is no end to the different ways you can flavor yogurt! Many people find that the addition of fruit or other flavorings turns yogurt into a delightful snack or dessert that can be enjoyed by the whole family.

Remember to remove any yogurt you need for reculturing *before* you add sweeteners or flavorings.

Since yogurt is tart by nature, plain sweeteners are a popular addition to yogurt. If you prefer not to use plain sugar, there are a number of alternatives.

- Raw or pasteurized honey
- Maple syrup

- Natural non-caloric sweeteners such as stevia, xylitol, or erythritol
- Chemical sweeteners such as Splenda, aspartame, or saccharine
- Sweet ingredients like jam, fruit juice, or fruit syrup

Many types of flavorings are also compatible with yogurt, like vanilla, almond, chocolate, or other flavoring extracts.

Yogurt can also be flavored with non-sweet or even savory ingredients. Mint, lemon juice, garlic, and cucumber are common enhancements to yogurt. Saffron, cardamom, and nutmeg are also popular in some Middle Eastern countries. Other savory options include kimchi, truffles, and curry.

Fruit Flavorings	Nuts and Grains	Flavor Extracts, Spices, etc.
Fresh Fruit Frozen berries (add sweetener) Preserves or puree (grape jelly doesn't combine well) Applesauce Pureed banana Organic baby puree Canned tart cherries Canned berries Pumpkin butter Lemon curd Lemon zest Lime zest Orange zest Lemon juice Frozen orange juice concentrate Dried Fruits Raisins Coconut	Crushed nuts (almonds, pecans, walnuts, etc.) Trail Mix Almond butter Peanut butter Wheat germ Granola Crunchy cereal	Vanilla extract Almond extract Coconut extract Hazelnut extract Vanilla beans Ground spices (e.g. cinnamon, nutmeg, mace, ginger) Mint Chocolate syrup Instant coffee Liquid coffee flavorings Drink flavoring mixes Pudding mix

How to Make Greek-style Yogurt



Thick, creamy, and decadent Greek-style yogurt is easy to make at home for a fraction of the cost of commercial varieties. Beyond the superior consistency, Greek-style yogurt contains more protein per ounce (due to the removal of a large portion of the whey) and can be used in place of sour cream in most recipes.

Step 1: Make Yogurt

Although Greek yogurt is traditionally made with a thermophilic yogurt culture such as our [Traditional Greek Yogurt Starter](#), Greek-style yogurt can actually be made with virtually any variety of yogurt. Follow the instructions for the yogurt culture you are working with. Once the yogurt is fully set and chilled for at least 6 hours to halt the fermentation process, proceed to step 2.

Step 2: Strain the Yogurt

What makes Greek-style yogurt unique is the thick and creamy texture that is achieved through straining off a significant portion of the whey.

1. Place a colander in a bowl. Place a tight-weave towel, multi-layered cheesecloth, or large paper coffee filter in the colander. A cloth will generally strain more efficiently than a coffee filter.
2. Pour the yogurt into the cloth or filter. If using a cloth, gather the corners of the cloth together. Knot the corners together hanging the cloth over the handle of a kitchen

cabinet so it hangs over the bowl allowing the whey (clear or slightly cloudy liquid) to drip off.

3. Allow the yogurt to drip for 2 or more hours until the desired consistency has been achieved.
4. Once the process is complete, store the yogurt in the refrigerator.
5. The resulting whey can be used to ferment vegetables like cabbage. The purpose of the whey is to get the lacto-fermentation to start up a little faster. For instance, most recipes for sauerkraut recommend about 4 tablespoons of whey to a quart of cabbage. You can also add whey to your soaking grains or to smoothies for extra protein, either as liquid, or frozen in ice cubes. Refrigerated, your whey should stay good for up to 6 months.

How to Make Coconut Milk Yogurt



Step 1: Choose the Coconut Milk

Coconut milk yogurt can be made with canned, boxed, or homemade coconut milk. We recommend choosing an unflavored variety with the least number of additives possible.

Step 2: Choose the Thickening Agent

Coconut milk is not particularly thick when made without a thickening agent such as tapioca starch or gelatin. Since it has a different chemical structure than dairy milk, it behaves differently when cultured. Without the added thickening agent, coconut milk yogurt will generally be rather runny and more similar to the consistency of kefir. If using a thickening agent isn't an option but you still prefer thick yogurt, it is also possible to strain some of the liquid from the coconut milk yogurt by placing the finished yogurt in a tea towel or similar tight-weave fabric and allowing the mixture to hang over a bowl to drain some of the liquid, resulting in thicker yogurt.

Step 3: Choose the Yogurt Starter

Some varieties of yogurt starter culture at 110°F using a yogurt maker or similar device. These are known as *thermophilic* yogurt cultures. Examples of *thermophilic* cultures include direct-set (a.k.a. one-time use) variety yogurt starters, some heirloom-variety cultures such as Greek and Bulgarian, and commercial yogurt with live active cultures from the grocery store used as a starter culture.

Other varieties culture at room temperature on the counter without a yogurt maker. These are known as *mesophilic* yogurt cultures. Viili, filmjölök, matsoni, and piimä are all examples of *mesophilic* yogurt cultures.

Please note: if using an heirloom-variety (perpetuating) yogurt as the starter culture (Greek, Bulgarian, viili, matsoni, filmjölök, piimä), be sure the yogurt used as the starter culture for making the coconut yogurt was made with cow or goat milk. Yogurt made with coconut milk using an heirloom-variety starter cannot be used as a starter culture for future batches of coconut milk yogurt. The structure of coconut milk is too different from animal-based milk and the bacteria will not be strong enough to perpetuate effectively.

Click here for more [information on the various types of yogurt starters](#).

Step 4: Make Yogurt

There are several ways to make coconut milk yogurt at home. Which method you choose will depend on the type of yogurt starter you are working with.

[Click here to jump to instructions for making coconut yogurt using a thermophilic culture.](#)

[Click here to jump to instructions for making coconut yogurt with a mesophilic culture.](#)



Making Coconut Milk Yogurt with a Thermophilic (heated) Yogurt Culture



Ingredients:

- 3 to 4 cups coconut milk (approximately 2 cans)
- Thickening agent (choose one):
 - 3 tablespoons tapioca starch (or tapioca flour) *OR*
 - 1 to 2 teaspoons gelatin
- Yogurt starter, choose one:
 - One packet (1/8 teaspoon) direct-set yogurt starter such as Traditional-flavored, Mild-flavored, or Vegan, *OR*
 - 3 tablespoons heirloom-style yogurt starter such as Greek or Bulgarian, *OR*
 - 3 tablespoons yogurt containing live active cultures purchased from the grocery store (ideally an unflavored variety)

Heat the coconut milk to approximately 115°F. As the milk cools to 110 °F, mix in the thickening agent of your choice. If adding tapioca starch or flour, whisk the starch into a small amount of milk, then mix that portion of milk into the larger portion of milk and mix well to combine. If adding gelatin, sprinkle the gelatin into the milk and mix well.

Once the milk has reached 110°F, add the yogurt starter and mix well to combine.

Incubate the mixture at 108° to 112 °F for 8 to 24 hours. Please note: coconut milk generally takes a few hours longer to culture than yogurt made with dairy milk. If a more sour yogurt is

desired, culture for a longer period. While a yogurt maker is generally the easiest way to culture thermophilic varieties of yogurt, if you do not own a yogurt maker, here are a few alternative ways to keep the yogurt at the right temperature:

- Wrap the jar in a dishtowel and put it in an insulated cooler with the cover on.
- Make an insulated incubator out of a small crock pot by lining it with foam. Put the jar of yogurt inside, put a piece of foam on top, and put the lid on.
- Turn on the light in an electric oven, then wrap the yogurt in a dishtowel and put it *inside* the oven.
- Set the yogurt inside a food dehydrator that has the trays taken out, and that is set for no higher than 110°F.

Once the yogurt has set (solidified), allow it to cool for an hour or two until it reaches room temperature. Place the yogurt in the refrigerator for 6+ hours to halt the culturing process. The yogurt will also thicken further as it chills.

Making Coconut Milk Yogurt with a Mesophilic (non-heated) Yogurt Culture

Ingredients:

- 3 to 4 cups coconut milk (approximately two cans)
- Thickening agent (choose one):
 - 3 tablespoons tapioca starch (or tapioca flour) *OR*
 - 1 to 2 teaspoons gelatin
- 4 tablespoons yogurt from a previous batch of mesophilic-variety yogurt

Measure out the milk. If adding tapioca starch or flour, whisk the starch into a small amount of milk, then mix that portion of milk into the larger portion of milk and mix well to combine. If adding gelatin, sprinkle the gelatin into the milk and mix well.

Add the yogurt starter and mix well.

Incubate the mixture at 70° to 78°F for 18 to 24 hours. (Some people have good luck with 36 to 48 hours for a more sour yogurt.) Please note: coconut milk generally takes a few hours longer to culture than yogurt made with dairy milk.

Once the yogurt has set (solidified), place the yogurt in the fridge for 6+ hours to halt the culturing process. The yogurt will also thicken further as it chills.



BITS AND BOBS

tips for making yogurt in your kitchen

How to Store Yogurt and Yogurt Cultures



Unless you are making yogurt daily and eating it all up, there are times you will want to store yogurt or the cultures for days, weeks, or even months.

The reusable cultures we send to you are freeze-dried in our commercial kitchen, and vacuum-sealed for shipping. They should be viable in the box for about a month at room temperature. Since they are freeze-dried, additional cold storage will not harm them and they will be good in the refrigerator or freezer for about 9 months.

Direct-set cultures should remain viable for about 6 to 12 months in the refrigerator, and for at least 12 months in the freezer.

Once your yogurt has been made, you can keep it in the refrigerator for a couple of weeks at least, just like store-bought yogurt. There may be some separation, and whey can appear at the top of the yogurt. This is not a problem, and you can pour it off and either save it for cooking or throw it away, or you can stir it back in to the yogurt.

If you are going to use some of the yogurt for making another batch, we recommend doing so within 5 to 7 days to ensure the cultures remain viable.

If you want to take a break from making yogurt, you can preserve some active cultures by freezing or drying. Neither method is completely reliable, but our customers report a fair amount of success with either.

Freezing Yogurt Cultures

Put some fresh, active yogurt in clean ice cube trays. For each cube, use the amount of yogurt that it will take to culture 1 cup of milk. When the cubes are frozen, put them in an airtight container in the freezer. When you're ready to make yogurt, take out as many cubes as you'll need (1 cube per cup of milk), and let them thaw before adding them to the prepared milk. It's best to use these within a month for best results.

Drying Yogurt Cultures

Spread a small amount of starter on a piece of unbleached parchment paper. Leave the yogurt or buttermilk to dry in a warm, safe spot no more than 80°F. Once it is completely dry, store in a zipper-style bag in the refrigerator. Under ideal conditions, the starter will keep for up to a few months. To rehydrate the yogurt or buttermilk, grind up the dried starter and place one teaspoon dried yogurt in a cup of milk that has been prepared according to the instructions for activation for the type of culture you're using. Mix well to fully incorporate. Culture as you normally would but keep in mind that this rehydrated batch will generally take twice as long to culture: 8 to 12 hours for thermophilic (heated) yogurts and 24 to 48 hours for mesophilic (counter-top) varieties.

Using Previously Frozen Milk for Culturing

Whenever a food product is produced, whether through bringing ingredients together into a composed dish or using a single-ingredient cultured food, there is one factor that affects the end result above all else: the quality of the ingredients.

This applies just as strongly in the world of single-food cultured products as it does with a fresh vegetable salad: the fresher the ingredients, the better the flavor.

So, when it comes to cultured dairy products, the fresher your milk is, the better your end product will be, all other factors being equal. And because so many people who culture their own dairy already know this, they often will seek out locally produced milk and freeze it to keep it as fresh as possible or because they will only have access to it for a season.

The good news is that this is fine. The bad news is that freezing will not keep milk forever and it can change some of its properties, which thereby can change the cultured dairy products that are produced from it.



Negative Effects of Freezing

Some alterations of the milk you may find from freezing include:

Separation. Depending on how you went about milking and freezing your milk, you may notice a separation of the fat globules from the rest of the milk in both cow and goat milk.

This is often more pronounced in cow milk as goat milk is naturally homogenized. The separation can be caused by a few factors:

- a natural separation in cow milk due to the time it takes the milk to freeze;
- a weakening of the membrane surrounding the fat globules, which causes an easier separation;
- a freezer with an automatic defrost cycle that causes the milk to thaw and freeze again;
- thawing the milk too rapidly or too slowly, especially cow milk.

Vitamin Loss. The freezing process, like many other food preservation techniques, can lower the vitamin content of the milk. The numbers aren't staggering enough to worry about, but rather a result of the natural degradation of any food product. Although that degradation is slowed down by the freezing process, it does occur.

Off Flavors. All food products that are frozen can develop off flavors. This may be due to coming into contact with other flavors or odors of the foods surrounding your milk, if the container hasn't been sealed properly. This could also occur because of any odors or flavors left in the vessel you froze the milk in in the first place. Finally, exposure to air during the process of freezing or moving the milk from jar to jar can cause off flavors.

How This Affects Your Cultured Dairy Products

If any of the above alterations have occurred to your milk then they may affect the flavor of your cultured dairy products. For this reason you may want to consider the following:

- Always taste the thawed milk after it has been frozen to determine if it will have a negative effect on your end product. If the off flavor is subtle it may go undetected in a strongly flavored ferment like kefir.
- Consider using only fresh milk for cheesemaking. Cheesemaking tends to be a more finicky process than making other cultured dairy products. Aged cheeses, in particular, may be affected by any fat separation. You may experience a difficulty in getting your milk to produce curds properly or to age and flavor properly with

previously frozen milk. For this reason you may want to reserve previously frozen milk for cultured foods like yogurt or kefir.

While freezing milk can affect the flavor, vitamin content, and texture of the milk, you should be able to use it for some cultured dairy products more successfully than others.

The Benefits and Perils of a Long Culturing Time for Yogurt

Most people agree that yogurt is a great food to have in your diet. From mainstream doctors to everyday consumers, yogurt has caught the eye of just about everyone in the western world.

But not all yogurts are made alike. Cultured foods are living foods and as such are rarely the same from one batch to the next. Time, temperature, and microorganisms all play a part in determining what this particular batch of yogurt will be like.

What Makes Long-cultured Yogurt Different

You may notice that the directions given for making yogurt often include a culturing time frame like “6 to 24 hours”. That’s a big window and you will end up with a slightly different product if you culture 6 hours versus 24 hours.

As soon as you combine the warmed milk with your yogurt starter an organic process begins. The culture begins to feast on the lactose in the milk and produces organic acids, namely lactic acid, and the culture proliferates and spreads throughout the milk.

The longer the culturing process goes on, the longer the culture has time to multiply, thereby increasing the amount of bacteria and acids in the yogurt while decreasing the lactose content of the milk.

Why 24 Hours?

Some people promote a 24-hour culturing period for yogurt. Specifically, those following the GAPS or SCD diets are told that they should allow their yogurt to culture the full 24 hours.

This may be due to the lower lactose content of the yogurt after a longer culturing time. Lactose is the milk sugar that many people have trouble digesting in milk. This longer culturing time helps to eliminate most of the lactose in the milk, which some people feel makes it easier to digest.

Another benefit to the longer culturing time is the increased quantity of bacteria and beneficial acids. These two elements of yogurt are often why yogurt is touted as a beneficial part of the diet.

Concerns

While some find the longer culturing period of yogurt helpful, there may be a concern for the health of the yogurt culture itself.

Because the yogurt culture feeds off the lactose in the milk, and because the lactose dwindles to almost nothing at the end of 24 hours, your culture may be on the verge of starving toward the end of the long culturing period. This can stress the culture or even kill it if you aren't careful.

Of course this isn't an issue if you are using a direct-set culture, which is used only once. But if you are using a self-perpetuating culture, that is, you use your new batch of yogurt to make your next batch of yogurt, your culture might grow weak or unhealthy over time and would have to be replaced.

Conclusions

Because of the risks involved to the culture, we recommend that if you are doing an extra-long ferment, you use a direct-set yogurt variety. If you do choose to use a reculturing variety of yogurt, remove and refrigerate enough to start your next batch at the end of the regular culturing period, then let the rest continue for the longer time.

Frequently Asked Questions

Q. What ingredients are in your yogurt starters?

A. Our viili, filmjölök, matsoni, piimä, Greek, and Bulgarian yogurt starters are grown in our own facility using locally sourced pasteurized organic whole milk and live active cultures. The direct-set dairy cultures contain milk and live active cultures. The Vegan Yogurt Starter contains rice maltodextrin (non-GMO) and live active bacteria.

Q. What is the difference between different varieties of yogurt cultures?

A. The specific bacteria strains each have certain properties that will affect the finished yogurt. Some produce more lactic acid, making a more tart yogurt; some cause the milk proteins to coagulate in different configurations, making the finished yogurt gluier, or ropier, or more solid; some produce distinctive flavors, making the yogurt astringent, or cheesy.

Which bacteria strains do your yogurt starters contain?

- Traditional Flavor Direct-set: *Bifidobacterium lactis*, *Lactobacillus acidophilus*, *Lactobacillus delbrueckii subsp. bulgaricus*, *Streptococcus thermophilus*
- Mild Flavor Direct-Set: *Bifidobacterium lactis*, *Lactobacillus acidophilus*, *Lactobacillus delbrueckii subsp. bulgaricus*, *Lactobacillus delbrueckii subsp lactis*, *Streptococcus thermophilus*
- Viili: *Lactococcus lactis subsp. cremoris*, *Lactococcus lactis subsp. lactis biovar. diacetyllactis*, *Leuconostoc mesenteroides subsp. cremoris*
- Filmjölök: *Lactococcus lactis*, *Leuconostoc mesenteroides*
- Matsoni: *Lactobacillus lactis subsp. cremoris*, *Acetobacter orientalis*
- Piimä: *Streptococcus lactis var. bollandicus*, *Streptococcus taette*
- Greek: *Lactobacillus bulgaricus*, *Streptococcus thermophilus*
- Bulgarian: *Lactobacillus bulgaricus*, *Streptococcus thermophilus*

- Vegan Direct-set: *Bifidobacterium bifidum*, *Lactobacillus acidophilus*, *Lactobacillus casei*, *Lactobacillus delbrueckii subsp bulgaricus*, *Lactobacillus rhamnosus*, *Streptococcus thermophilus*
 - Kosher Traditional: *Bifidobacterium lactis*, *Lactobacillus acidophilus*, *Lactobacillus delbrueckii subsp. bulgaricus*, *Streptococcus thermophilus*
 - Kosher Mild: *Bifidobacterium lactis*, *Lactobacillus acidophilus*, *Lactobacillus delbrueckii subsp. bulgaricus*, *Lactobacillus delbrueckii subsp. lactis*, *Streptococcus thermophilus*
-

Q. What is a direct-set yogurt starter and how is it different from a reusable yogurt starter?

A. Direct-set yogurt starters are one-time-use cultures. The powdered starter is added to milk and allowed to incubate producing yogurt. It may be possible to use some yogurt made with a direct-set starter to make a new batch of yogurt, but after a few batches, a new dose of direct-set starter is needed. With yogurt made from a reusable yogurt starter, a small amount of each batch is used to make the next batch. With proper care, a reusable yogurt starter can be perpetuated indefinitely. Reusable cultures must be cared for and perpetuated at least once a week to maintain their ability to culture milk.

Q. Which starter is best for goat milk?

A. Any of our starters will work equally well for cow milk, goat milk, or any other dairy milk, and with raw milk or pasteurized milk.

Q. If I want a thicker yogurt, can I use more starter?

A. Do not use more starter than recommended. If you use too much starter, the bacteria can become crowded, and may run out of food before the yogurt completes setting up. The result is a thinner yogurt, not a thicker one!

Q. Can I mix starters together or add a probiotic capsule to get a different kind of yogurt?

A. Yogurt cultures are a carefully balanced combination of bacteria that will produce a particular kind of yogurt. If you mix different cultures or bacteria together, the bacteria may compete and weaken or die.

Q. Once I start using the starter culture, how long will the bacteria stay viable enough for re-culturing?

A. We recommend that you use the yogurt from an heirloom culture within 5 to 7 days for re-culturing, to ensure the bacteria are strong enough to reproduce. You may be able to re-culture a yogurt from a direct-set starter a few times, but each batch will become thinner than the last, until you need a new direct-set starter.

Q. How long will the starter culture stay good in the package?

A. Our freeze-dried cultures are shelf-stable for at least a month at room temperature, but we recommend refrigerating them if you are not going to use them right away, to extend their viability. Unopened, the culture is stable for 9 to 12 months in the refrigerator, and at least 12 months in the freezer.

Q. If I'm going on vacation, how can I preserve my yogurt starter?

A. If you are using a reusable variety of yogurt starter, ideally you should make a new batch of yogurt every 7 days. Occasionally you may be able to stretch that period out by another day or two. If you will be gone longer than a week, the best solution is to find a friend who can care for your yogurt culture. You can also try freezing a small amount of yogurt in ice cube trays to thaw later and use as starter yogurt. Freezing is not a perfect solution but it will usually work as long as the yogurt is only frozen for a short period of time (no more than a few weeks).

Making Yogurt

Q. Can I switch back and forth between raw milk and pasteurized milk for making yogurt? Can I switch back and forth between cow milk and goat milk? How about between low-fat milk and whole milk?

A. Yes, you can use any sort of milk for each batch of yogurt. Don't forget, if you are using raw milk with a mesophilic yogurt, you will need to maintain a mother culture made with sterilized or pasteurized milk to preserve the viability of the culture.

Q. Can I add cream to the milk to make a thicker yogurt?

A. The more milk fat (cream) there is in the milk, the thicker the yogurt will be. However, if you use whole cream, the bacteria may not remain viable enough to re-use for a second batch, since the culture uses milk sugar (lactose) for food. Whole cream has very little lactose. Adding half-and-half or cream to whole milk would result in a very rich, thick yogurt.

Q. Can I make yogurt with lactose-free milk?

A. Lactose-free milk is usually made from cow milk with lactase added. Lactase is the enzyme missing in the gut of lactose-intolerant individuals. It breaks the lactose down into two simple sugars: glucose and galactose. The yogurt culture also consumes the lactose, and uses it to produce lactic acid, which makes the milk proteins coagulate. So if the milk does not have any lactose to start with, the yogurt culture will not work easily, if at all.

However, since the lactose *is* broken down in the culturing process, there is not much lactose left in the finished yogurt even when you use regular milk. As a result, many lactose-intolerant individuals can enjoy yogurt. You might want to try a small amount of good quality plain yogurt, and if all goes well, start making your own. If you have concerns about your ability to tolerate yogurt, you should consult with your health-care practitioner.

(The Vegan Starter is designed to work with non-dairy milks, which do not contain lactose.)

Q. How long does it take for a mesophilic culture to set up?

A. The amount of time it takes for a culture to set up properly depends on many things: The type of milk, how fresh the milk is, the temperature of the room, the freshness of the culture, the humidity of the environment, etc. A brand-new starter culture can set up as quickly as 10 hours, or it may take 48 hours. After you've made the starter culture, the subsequent batches can take anywhere from 10 to 24 hours.

Q. How long does it take for a thermophilic culture to set up?

A. Ordinarily a thermophilic (heat-set) culture will take around 5 to 7 hours to set up, assuming it is culturing at a steady temperature of about 110°F. If the temperature is a little warmer or a little cooler, the time could vary.

Q. How many batches of yogurt can I make with each packet of yogurt starter?

A. With a direct-set starter, you can generally make around eight 1- to 2-quart batches of yogurt per packet, or up to 10 gallons if you make larger batches each time. Using proper care with our reusable yogurt starters, you can make an unlimited amount of yogurt by taking a small amount from each batch of yogurt to make the next batch.

Q. What's up with the quantities of direct-set starter? The instructions say it can make either 8 quarts or 20 gallons.

A. Depending on how you divide up the starter, you can make eight small batches of yogurt, or two very large batches, or anything in between. The point is that you must have at least 1/8 teaspoon of starter for it to work properly in a quantity of milk, and you must have enough milk for the starter to grow and flourish.

The proportions of starter to milk that will successfully make yogurt are as follows:

1/8 teaspoon (one packet): cultures 1 to 2 quarts at one time

1/4 teaspoon (two packets): cultures 2 to 8 quarts at one time

1/2 teaspoon (four packets): cultures 8 to 40 quarts at one time

Q. How important is temperature when making yogurt?

A. Temperature is very important for the proper development of the yogurt bacteria. At the proper temperature, the yogurt bacteria will consume the lactose in the milk, multiply quickly, and make yogurt. If the temperature is too cold, a race develops between the yogurt bacteria, which are slowed down due to the cooler temperature, and the milk bacteria, which are multiplying quickly due to a warmer (than the refrigerator) temperature. If the milk bacteria win, they will kill the yogurt bacteria. Even if the yogurt bacteria prevail, the fight with the milk bacteria can damage the culture making long-term use problematic.

For our direct-set cultures and our Greek and Bulgarian starters, the ideal culturing temperature is 110°F. For our viili, matsoni, filmjölkk, and piimä starters, the proper culturing temperature is 70° to 78°F.

Q. How will I know when my yogurt has set?

A. Yogurt that has set will be more or less uniform in appearance: one solid mass. There should not be a clear separation of curds and whey (white solid portion on top and clear liquid on the bottom). The yogurt should appear more or less smooth, not lumpy. If you gently tip the container, the yogurt should pull away from the side of the container. Sometimes a bit of whey will separate from the yogurt during the culturing process.

Q. What should I do with the extra yogurt starter?

A. Extra yogurt starter should be sealed up (a zipper-style bag works well) and stored in a cool dry place such as a freezer.

Q. How do I know what temperature my yogurt maker operates at?

A. Yogurt-making appliances can be used with direct-set yogurt starters as well as with our Greek and Bulgarian yogurt starters. It's a good idea to test the temperature of your yogurt maker before using it to make yogurt. To test your yogurt maker, fill the interior container with water (the same quantity and temperature you would use with milk to make yogurt), then operate the yogurt maker per the manufacturer's instructions. Test the water with a thermometer after an hour and then again after 3 or 4 hours. The temperature should stay between 105° and 112°F. Do not use a yogurt-making appliance with the viili, filmjölök, matsoni, or piimä yogurt starters as it will keep them too warm and kill the yogurt culture.

Q. I want to use my crock pot to make yogurt. Is there anything I need to know?

A. Slow cookers (a.k.a. crock pots) can be a great way to culture direct-set, Greek, or Bulgarian yogurts but the main concern is ensuring they are not too warm for the culture. Use the method above for testing a yogurt-making machine to determine if your crock pot can maintain the proper temperature.

Do not use a slow cooker with the viili, filmjölök, matsoni, or piimä yogurt starters as it will keep them too warm and kill the yogurt culture.

Q. When can I flavor my yogurt?

A. Yogurt can be flavored and sweetened after the 6-hour refrigeration period. Be sure to reserve some yogurt for making the next batch prior to flavoring or sweetening. (If using raw milk and a pure starter, keep the pure starter unflavored.)

Q. How do I make the yogurt thicker?

A. There are generally four ways to improve the thickness of the yogurt:

Increase the fat content. By using whole milk or a mixture of milk and cream, you increase the fat content of the milk, which naturally increases the thickness to the yogurt.

Strain the finished yogurt and remove some of the whey. Using cheesecloth over a bowl or jar allows whey to drain from the yogurt resulting in thicker yogurt. Allow the yogurt to drain for as little as 30 minutes but up to several hours until the desired consistency is achieved. Or, use a yogurt cheese maker to strain the yogurt. As an alternative to using cheesecloth, commercially available yogurt cheese makers allow you to strain some of the whey from the yogurt resulting in thicker yogurt.

Heat the milk and hold the temperature. Heating the milk to 180°F and holding the temperature for 30 minutes prior to letting the milk cool to 110°F can also increase the thickness of the final yogurt.

Add dry milk powder to the yogurt. 1/2 cup dry milk powder can generally be added to several quarts of milk prior to the milk being heated.

Q. If I strain my yogurt, how long is the whey good for? What can I do with it?

A. Refrigerated, your whey should stay good for up to six months. You can use it to ferment vegetables like cabbage. The purpose of the whey is to get the lacto-fermentation to start up a little faster, For instance, most recipes for sauerkraut recommend about 4 tablespoons of whey to a quart of cabbage. You can also add whey to smoothies for extra protein, either as liquid, or frozen in ice cubes.

Yogurt Troubleshooting

Q. I followed all the instructions exactly, and my yogurt did not turn out. What did I do wrong?

A. We get this question a lot! There are three possibilities: either you misunderstood a step or two in the instructions, or the milk was not culturable, or the starter you received was not working properly in the first place. Be sure to rule out the first two possibilities before assuming the last. Our [customer support representatives](#) can help you figure it out. The most common errors are:

The culturing temperature was not right. You can test the temperature of the environment you're culturing in, whether it's a yogurt maker or a countertop, by preparing some water the same way you would prepare the milk for the yogurt, and taking the temperature of the water at intervals throughout the culturing time.

You used the wrong quantity of milk, or the wrong quantity of culture. The activation batch (mother culture) is only 1 to 2 cups. It's important to let the culture come back to operating strength in this small amount of milk before trying to culture a larger batch. Also, you must use at least 1/8 teaspoon of culture, as a smaller amount may not have enough strength to work. Do not use too much culture for the amount of milk. A culture that is crowded can't work properly, and can weaken or die before it finishes setting up the yogurt.

You just didn't wait long enough. A new yogurt culture can take longer than you expect to set up properly. Be sure to allow enough time for the culture to fully awaken and start working.

The milk was not culturable. Milk that is not "clean" enough can present competition for the yogurt culture. This would include raw milk that is more than a few days old, or that was not chilled immediately after milking. It can also include pasteurized milk that is not very fresh and has not been properly heated, or milk that has been contaminated by food or soap residue on the jar or utensils you use. On the other hand, milk that is "too clean," such as ultra-pasteurized milk, or milk that has been heated by microwave, may be too sterile for the yogurt culture to use as nourishment.

Q. My first batch of yogurt (using the freeze-dried starter) has been culturing for a number of hours but is still the consistency of milk. What should I do?

A. Greek and Bulgarian yogurt starters: Generally speaking, the first batch (from the dried starter) can take anywhere from 5 to 12 hours to set properly. The length of time is due to the hibernated state the yogurt is in as a powdered starter. Subsequent batches will generally set much more quickly. We do recommend checking your yogurt every 30 to 60 minutes after about 6 hours so the process can be stopped as soon as the yogurt is set. Be sure to double-check the temperature at which the yogurt is culturing. The most common culprit for long-culturing yogurt is too low a temperature (under 110°F). If your yogurt is staying at 110°F consistently, just give it a bit longer. Up to 12 hours is fine.

Viili, matsoni, filmjölkk, and piimä yogurt starters: The amount of time necessary for our counter-top yogurt starters to culture is very dependent on room temperature. These starters do require a room temperature of no less than 68°F with 70° to 78°F being preferred. (Be sure to take into account possible temperature fluctuations at night and whether the culture could possibly be in a draft, affected by an air conditioning unit, etc.) Generally speaking, the first batch (from the dried culture) will take anywhere from 12 to 48 hours to set with 48 hours being more common during colder months of the year. Occasionally it can even take a bit longer than 48 hours. As long as the mixture is still the consistency of milk or thicker (and has not separated into curds and whey), you can continue to let it culture past 48 hours for up to 60 hours until it appears to be fully set.

Q. My yogurt didn't set properly. It separated into two layers: solid on top and liquid underneath (curds and whey). What should I do?

A. Separation is generally a sign that the yogurt has cultured too quickly or too long overcultured. It may indicate that the culture has died. There are several factors that can cause this problem. The most common is exposure to heat. If culturing yogurt is exposed to a temperature higher than the proper range (80°F for mesophilic cultures; 115°F for thermophilic cultures), the yogurt starter is likely to die. Contamination is also a potential issue. In particular a bit of soap or food residue the dishwasher may have missed can be harmful to the culture.

If your yogurt has separated, try mixing the curds and whey together, then make a new batch, being careful to control the time and temperature. If that fails to produce a good yogurt, then the culture has died. If you are just starting with a new culture, discard the failed yogurt, and start over using the backup packet of starter culture.

If for some reason this second attempt produces the same curds and whey result, please contact us. With a live culture, we find that in about 1% of cases, a starter culture will fail for an unknown reason. We suspect in many of these cases the culture may have been exposed to a source of high heat during transit but ultimately we will never know. We are happy to immediately replace the culture.

If this has happened with an established culture, and you don't have a backup, you will have to procure a new starter.

Q. My yogurt seems to have set but there's a little clear liquid floating on the top and the sides. Is this okay?

A. Yes, some separation of whey from the yogurt is fine and is a natural variation within the culturing process. Sometimes it happens, sometimes it doesn't. A full separation where the top half the jar is a white mass and the bottom half is clear liquid is a problem, however (see above).

Yogurt around the World

There are many cultured milk products, kefir and cheese among them, but yogurt-type dishes are characterized by a gelatinous texture, and a fairly limited number of bacteria strains, usually between two and six. Yogurt is also something that can be made fairly quickly.

Many cultures have traditional cultured milk dishes based on yogurt or yogurt-like cultured milks. Additionally, there are a variety of traditional yogurts from different parts of the world. Cultures for Health sells a few such traditional yogurts, such as matsoni (from Georgia), viili (from Finland), filmjölök (from Sweden), and piimä (from Finland).

Labneh is a strained yogurt used for sandwiches, popular in Arab countries. Olive oil, cucumber slices, olives, and various green herbs may be added. It can be thickened further and rolled into balls, preserved in olive oil, and fermented for a few more weeks. It is sometimes used with onions, meat, and nuts as a stuffing for a variety of pies or kebbeh balls.

Mishti dahi is an East Indian dessert made by boiling strained yogurts in open vats so that the liquid content is reduced. This makes a thick, custard-like consistency, usually sweeter than western yogurts.

Tzatziki is a yogurt sauce or dip made with strained (Greek) yogurt by adding grated cucumber, olive oil, salt, and, optionally, mashed garlic. It is a well-known accompaniment to gyros and souvlaki pita sandwiches.

Lassi is a traditional drink from India, made by blending yogurt, water, and spices. Salted lassi can be blended with cumin or turmeric, while sweet lassi is blended with sweeteners, fruit juices or pulps, rosewater, saffron, butter, or other sweet substances.

Chaos is similar to lassi, but has more water and less butterfat. Seasonings include salt, coriander, ginger, and green chilis.

Clabber is a naturally fermented milk, made by letting raw milk sit at room temperature for several days. The bacteria present in the milk acts much like yogurt bacteria, but more slowly, to produce a thick, slightly sour product similar to yogurt but without yogurt's

characteristic astringent flavor. It used to be popular in the southern United States as a food eaten with brown sugar, nutmeg, cinnamon, or molasses.

Amasi (maas in Afrikaans) is an African yogurt with a mild, almost cheesy flavor. It's made by allowing raw milk to ferment naturally in a calabash (squash) container or a container made from hide. It can also be produced very much like yogurt, with *Lactococcus lactis subsp. lactis* and *Lactococcus lactis subsp. cremoris* bacteria in pasteurized milk.

Dadiah/Dadih, from Indonesia, is made by letting unpasteurized buffalo milk ferment at room temperature in a bamboo tube capped by a banana leaf.



USING YOGURT

additional information on using yogurt

Ways to Use Yogurt



Base for creamy salad dressing. Instead of milk or mayonnaise, use yogurt as the base for your favorite creamy salad dressing recipe.

Base for smoothies. Yogurt makes an excellent base for smoothies. Add fruit, flavor extracts, nutritional yeast, wheat germ, etc. Let your imagination run wild!

In place of buttermilk or kefir in recipes. Yogurt can generally be substituted in recipes calling for buttermilk or kefir including baked goods.

In place of milk in recipes. Yogurt can generally be substituted for milk in recipes. This works particularly well with yogurt varieties having a thin consistency.

In place of sour cream. Make a [Greek-style yogurt by straining any variety of yogurt](#). Makes a wonderful substitute for sour cream as both a topping for dishes such as nachos and baked potatoes as well as a base for dips.

In place of whipped cream. Pies, fruit, and other desserts can be topped with [Greek-style yogurt](#).

In place of cream cheese. Make [labneh](#) (a.k.a. yogurt cheese) and use it as substitute for cream cheese. Keep in mind that labneh tends to be a bit more tart than commercial cream cheese.

Add beneficial bacteria to pasteurized milk. Pasteurizing milk removes much of the beneficial bacteria. Using a thin consistency yogurt such as piimä to culture the milk can yield a mild-flavored, drinkable beverage that can be consumed in place of milk.

Baby formula. Yogurt makes a wholesome and easy baby formula if mother's milk is not available, or must be supplemented. Use whole milk or goat milk for better texture and flavor, and choose a mild-flavored culture. Yogurt that is cultured for a shorter time will be thinner and sweeter, which is usually more attractive for a baby. You can mix the yogurt with boiled water to make it thin enough to go through a nipple, and add just a few drops of unsulfured blackstrap molasses for additional vitamins and flavor. (Do not feed raw honey to infants under 1 year of age.)

Baby food. Yogurt also makes a simple base for baby's first foods. Puree or mash the food and mix it with yogurt. It's easy and nutritious, and tastes great! You can also freeze the yogurt-food mix in ice cube trays, then store the cubes in small containers for quick and easy snacks-to-go.

Some foods should be cooked first (like sweet potatoes or squash); some can be either raw or cooked (carrots, green beans); and some can be raw (fruits). All of them should be mashed or pureed for very young children. Some foods that can be mixed with yogurt for babies and toddlers include: sweet potatoes, squash, carrots, green beans, sweet peas, pumpkin, bananas, apples, pears, berries, cherries, prunes, apricots, peaches, mango, brown rice, oatmeal, chicken, ground beef, liver, turkey, ground lamb, scrambled egg.

Facial. Using yogurt as a facial is purported to tighten pores and clean the skin. Be sure to rinse thoroughly. Yogurt can also be mixed with a mild abrasive (finely ground nuts, sugar, etc.) to create a facial scrub.

On sunburns. Yogurt can be used to soothe sunburns. Unflavored is best.

Finger paint. Mix yogurt with food coloring or unsweetened powdered drink mix for an easy non-toxic DIY finger paint.

Encourage moss growth. Combine one part yogurt, one part water, and one half part lawn moss in a blender. Paint the mixture anywhere you want moss to grow such as between stones, on the side of planters, etc.

Make Extra for Popsicles



Because smoothies are creamy and sweet they are excellent when made into probiotic popsicles. Simply take your leftover smoothie liquid (or make up a batch just for the occasion) and freeze into popsicle molds or small paper cups with popsicle sticks.

Children love these as probiotic-rich alternatives to store-bought popsicles.

So grab your blender, some yogurt, and some tasty ingredients and play around with some delicious cold drinks for breakfast, a snack, or dessert.

Ways to Use Whey



Many people think of whey as something to throw out, when in reality it is a superb ingredient (or food) in its own right.

Whey is the acidic by-product of naturally soured or cultured milk. There are several sources of whey that are easily achieved in the home kitchen:

- Let raw milk sour and clabber. Strain using cheesecloth or a clean towel. Please note: this only works with raw milk; do not try this method with pasteurized milk.
- Strain cultured yogurt using cheesecloth or a clean towel.
- Strain cultured kefir using cheesecloth or a clean towel.
- Strain cultured buttermilk using cheesecloth or a clean towel.

In all of these instances you will have a liquid that drains into a bowl. It is usually an opaque yellow. This is fresh whey. It can be stored for months in a refrigerator and used for many things. The health benefits of whey are many as it contains proteins, vitamins, minerals, and small amounts of carbohydrates (if there is lactose remaining after the culturing process).

Whey was once considered a food in its own right, with historical accounts in which people refer to drinking, cooking, or baking with whey. Here are a few ideas for using whey:

Use whey as a culture starter. The whey found in cultured foods like yogurt and kefir contain the active bacteria in these foods. You can use a small amount of whey as a culture starter in vegetables, cultured beverages, and a host of other fermented foods.

Use whey to soak grains. If you are soaking whole grains like oatmeal or rice in order to reduce the anti-nutrients then you might want to consider adding a bit of whey. The acidity of the whey helps to break down hard-to-digest grains and introduces beneficial organisms that will help to make the grains easier to digest.

Use whey in baked goods. Many refer to whey as a “dough conditioner” in baked goods. That means that in baking breads or pastries the whey can create a better-textured final product. This is especially helpful in baking with whole-grain flours. Simply replace the water or milk product in your baked goods with whey.

Use whey in smoothies. You can replace the liquid in your smoothies with whey for a tangy, fortifying treat.

Use whey on the skin and hair. Some folks claim that whey has excellent toning qualities for the skin and hair. This makes sense in that whey contains cultured acids, vitamins, and minerals. You could try some on a cotton ball and apply to your face as a toning agent.

Whey can be added to pet food or animal food. Dogs, cats, and even chickens may enjoy the extra flavor of whey added to their regular feed!

So there’s no need to throw that whey away. It is an excellent food and preservation agent that has been prized over the centuries for its nutritive qualities.



Recipes

Recipes

ways to use yogurt as an ingredient

Recipes

Baked Goods

Apple Spice Yogurt Bread



Ingredients:

- 4 cups flour: white flour, whole wheat pastry flour, or combination
- 2 cups oats
- 1 cup brown sugar
- 2 teaspoons baking powder
- 1 teaspoon baking soda
- 1 teaspoon sea salt
- 1 teaspoon cinnamon
- 1/2 teaspoon nutmeg
- 6 large apples, peeled, cored, and diced
- 3 eggs, beaten
- 2-1/4 cups yogurt
- 1/4 cup melted butter, ghee or coconut oil
- 2 teaspoons vanilla
- 1/2 cup pecans or walnuts, chopped

Directions:

12 hours prior to baking, combine the flour, oats, and yogurt. Cover the bowl and allow the flour to soak. When ready to bake muffins, preheat the oven to 375°F. Add the other ingredients except the apples. Do not over-mix. Gently fold in the apples and nuts. Grease a 9x5-inch loaf pan. Pour the batter in the pan. Bake one hour or until a wooden toothpick comes out clean.

Blueberry Yogurt Muffins



Ingredients:

- 2 cups sifted flour: white flour, whole wheat pastry flour, or combination
- 1/2 cup organic sugar
- 1 teaspoon salt
- 1/4 teaspoon baking soda
- 2-1/4 teaspoon baking powder
- 1/4 cup melted butter or coconut oil
- 1 egg, beaten
- 1 cup yogurt
- 1 cup blueberries (frozen or fresh)

Directions:

12 hours prior to baking, combine the flour and yogurt. Cover the bowl and allow the flour to soak. When ready to bake muffins, preheat the oven to 425°F. Add the other ingredients except the blueberries and stir to combine. Do not over-mix. Gently fold in the blueberries. Fill muffin tins 2/3 full. Bake 20 to 25 minutes. Makes 12 muffins.

Oatmeal Yogurt Muffins



Ingredients:

- 1 cup rolled oats
- 1 cup white flour or whole wheat pastry flour (or combination)
- 1 cup yogurt
- 1 egg
- 1/4 cup honey
- 1/2 teaspoon salt
- 1 teaspoon baking soda
- 1/3 cup melted butter, ghee, or coconut oil

Directions:

12 hours prior to baking, combine the oats, flour, and yogurt. Cover the bowl and allow the grains to soak. When ready to bake muffins, preheat the oven to 425°F. Add the other ingredients and stir to combine. Do not over-mix. Fill muffin tins 2/3 full. Bake 15 to 20 minutes until the muffins are set and lightly browned. Makes 12 muffins.

Variation: Add 1/4 cup dried cranberries and 1/4 cup chopped pecans.

Whole Wheat Cinnamon Waffles



Ingredients:

- 2-1/2 cups finely ground wheat flour
- 2 cups yogurt
- 3 eggs, beaten
- 3 tablespoons honey
- 2 tablespoons butter, melted
- 1 teaspoon salt
- 2 teaspoons cinnamon

Directions:

1. Mix the flour and yogurt the night before. Place covered in a warm area overnight.
2. Stir in the eggs, honey, butter, salt and cinnamon. Mix well.
3. Cook in a hot, well-oiled waffle iron until golden on both sides.
4. Serve with butter and honey or syrup, jam, peanut butter, or fresh fruit.

* These waffles tend to be softer than the white flour version.

Butter, Cream, and Cheese

Crème Fraîche

Crème fraîche makes a delicious topping for soups, main dishes and even desserts. The decadent texture is rich, creamy, and very satisfying. Not only is making crème fraîche at home easy, it also allows you the option of choosing high-quality ingredients such as organic milk or cream.

Method 1: Use a Crème Fraîche Starter Culture

Heat 1 quart light cream, half-and-half, or heavy cream to 86°F. Add 1 packet of [Crème Fraîche Starter Culture](#) and mix gently but thoroughly, then let set for 12 hours in a warm spot (70° to 80°F) until it thickens to the consistency of yogurt. Drain in a tight-weave tea towel or very tight-weave cheese cloth such as [butter muslin](#) for 6 to 12 hours. Refrigerate and enjoy. The finished crème fraîche can be stored in the refrigerator for up to a week.

Method 2: Use Yogurt or Buttermilk as a Starter Culture

Add 1 to 2 tablespoons of buttermilk or yogurt per cup of heavy whipping cream at room temperature, cover lightly, and allow to culture for 12 to 18 hours in a warm spot (70° to 80°F). If a thicker consistency is desired, the crème fraîche can be strained through a tight-weave tea towel or a tight-weave cheese cloth such as [butter muslin](#). When the process is complete, place the finished crème fraîche in the refrigerator to chill and halt the culturing process. It will generally keep for up to a week.

Method 3: Use Flora Danica or Mesophilic Aromatic Starter Culture

Use a direct-set aromatic cheese starter culture such as [Flora Danica](#) or [Mesophilic Aromatic Type B](#). If you are a cheesemaker and have either of these cultures on hand, they can be added to room-temperature cream and cultured for around 18 hours in a warm spot (70° to 80°F). Once the process is complete, place the finished crème fraîche in the refrigerator to chill. If a thicker consistency is desired, the crème fraîche can be strained through a tight-weave tea towel or a tight-weave cheese cloth such as [butter muslin](#). Can be kept in the refrigerator for up to a week.



Cultured Butter

Making cultured butter at home can be easy and rewarding. While most recipes call for simply agitating cream until it turns into butter, culturing the cream first yields an even tastier butter.

Step 1: Culture the Cream

Use one of the following options to culture the cream:

- Add a tablespoon or two of [piimä yogurt](#) or [cultured buttermilk](#) (homemade or store-bought) to a pint of room-temperature heavy cream. Stir and cover with a towel. Allow the mixture to sit at room temperature for 12 to 24 hours. You can make larger quantities, using the same ratio of 1 to 2 tablespoons culture to 1 pint of cream.

- Heat cream to 77°F, add 1/8 teaspoon of [Direct-set Buttermilk and Sour Cream Starter Culture](#) to up to 4 gallons of cream. (Do not use less than 1/8 teaspoon even if you are culturing only a pint of cream.) Mix well to evenly distribute the starter culture in the cream. Incubate the mixture at 74° to 77°F for 16 to 18 hours.
- Heat cream to 77°, Add 1/8 teaspoon of [Flora Danica Culture](#) or [Mesophilic Aromatic Type B Culture](#) to up to a gallon of cream. (Do not use less than 1/8 teaspoon even if you are culturing only a pint of cream.) Mix well to evenly distribute the starter culture in the cream. Incubate the mixture at 74° to 77°F for 12 hours.
- Add [Milk Kefir Grains](#) or [Powdered Kefir Starter Culture](#) to cream. Allow the cream to culture for 12 to 24 hours if using kefir grains (until desired taste is achieved) or 12 hours if using a powdered starter culture. If using kefir grains, be sure to remove the kefir grains from the cream prior to agitating the cream to make butter.
- If using raw cream, allow the cream to sit on the counter for 12 to 48 hours. Please note: allowing raw cream to culture naturally does not normally yield as desirable a taste as using a starter culture, but it is a traditional method of making cultured butter. Starter cultures can be used with raw cream if a more consistent flavor is desired. *Do not attempt this method using pasteurized cream!*

Whichever method you use, when the cream is cultured, put it in the refrigerator for at least 5 hours to halt the culturing process.

Step 2: Turn the Cream into Butter

- Remove the cream from the refrigerator and allow it to come to room temperature. Culture the cream if desired (see above).
- If using a Kitchen Aid mixer, place the bowl in the freezer for a few hours prior to making butter.
- Place the cream in the bowl and turn the mixer on as high as you can without splattering the cream. Watch the mixture carefully. Within a minute or two, the cream will have thickened a bit and you should be able to increase the mixer speed.
- Continue to watch the cream carefully as a cold bowl and room-temperature cream should set to butter quickly. Once this happens, it's very easy to spray the remaining liquid (traditional buttermilk) all over the kitchen so be sure to turn the mixer down

when needed. Once chunks of butter form, slow the mixture down to allow the chunks to come together.

- If making butter by hand, simply pour the pint of cream into a quart-size jar with a lid. Shake the cream vigorously (good job for kids) until small balls of butter form. Then slow down the shaking so the balls of butter can clump together.
- Remove the butter to a small bowl (or just your hands). Wash the butter with filtered water, pressing out any remaining buttermilk with a spoon. When the water runs clear, the butter should be free of buttermilk. This portion of the process is very important as leaving buttermilk in the butter will cause the butter to spoil quickly.
- Salt the butter if desired (Tip: if you accidentally over-salt the butter, just rinse it under water to remove the excess salt.) You can also add herbs if desired.
- Wrap the butter in wax paper and store in the freezer or refrigerator, or on the counter. (Butter will spoil at room temperature within a few days so use it quickly.)

Labneh (a.k.a. Yogurt Cheese)



Ingredients:

- Yogurt
- Cotton cheese bag, butter muslin (tight-weave cheesecloth) or tight-weave dish towel

Directions:

Pour the yogurt into the cotton bag, cheesecloth, or tight-weave towel. If you are using a cloth, tie the corners of the cloth together to make a bag. Hang the bag above a bowl or jar and allow the whey to drain off for 2 to 12 hours depending on the thickness desired. Once the draining process is complete, add herbs and seasoning to taste. Refrigerate for two or more hours prior to eating to allow the flavor of the herbs and seasoning to fully develop. Delicious when spread on crackers or as a dip for fresh vegetables. Please note: labneh can be a bit more challenging to make at higher altitudes so some adjustments to the process may be necessary to get the whey to drain properly off the yogurt.

Flavoring Ideas:

- Walnuts and Raisins: For each 1/4 cup of labneh, add 1 to 2 tablespoons walnuts, 1 to 2 tablespoons dried fruit such as cranberries or raisins, 1/2 to 1 teaspoon honey, maple syrup, or fruit jelly.

- **Basil, Hazelnut, and Sun-dried Tomatoes:** Add a small handful of toasted finely chopped hazelnuts (filberts), a handful of finely chopped basil, and a handful of finely chopped sun-dried tomatoes.
- **Spicy Chili and Olives:** For each 1/4 cup of labneh, add 3 to 4 chopped fresh green chilies and 3 to 4 chopped green olives. Add a bit of lemon juice if desired to thin the consistency of the labneh.
- **Fruit:** Add canned fruit, jam, jellies, or preserves to the labneh. You can also add a bit of honey if desired for added sweetness.
- **Vegetable:** For each 2 cups of labneh add 2 tablespoons each minced scallions, minced carrot, minced celery, and two minced radishes. Mix in 1/4 teaspoon salt and 1/8 teaspoon pepper to taste.

Piimä Cream



Ingredients:

- 2 tablespoons piimä yogurt
- 2 cups heavy whipping cream or half-and-half

Directions:

Add the piimä yogurt to the room-temperature cream. Mix to combine. Cover the container with a loose lid (a coffee filter or tight-weave towel with a tight rubber band also works well) and allow the mixture to sit at room temperature for 12 to 18 hours or until the cream has thickened. Allow the piimä cream to sit in the refrigerator for at least 6 hours before serving to halt the culturing process.

Piimä cream can be used in place of sour cream in recipes and makes a delicious topping to almost any dish.

Please note: heavy whipping cream will produce thicker piimä cream than will half-and-half or raw cream.

Sour Cream



Sometimes it seems difficult to find a quality sour cream at the local grocery store. Organic sour cream is rare in many parts of the country and even if you can find an organic option, often it has been ultra-pasteurized or has added stabilizers to thicken the product.

Thankfully, making sour cream at home is easy. To make sour cream you will need cream and a starter culture. While there are a variety of options for souring cream (direct-set sour cream starter culture, direct-set aromatic cheese starter culture, milk kefir grains, etc.), you can make sour cream with only a few minutes of prep time and a little yogurt that you have on hand. Allow a full 24 hours for the sour cream to culture and cool prior to serving.

Choosing a Cream

The first step to making sour cream is choosing an appropriate cream for the project. There are several factors to consider:

- Whipping cream will yield the thickest sour cream.
- Half-and-half can be used but the sour cream will have a thinner consistency than if whipping cream is used. Dry milk powder can be added to improve the consistency if desired.
- Raw cream can be used but will yield a thinner consistency than if pasteurized whipping cream is used.

- Avoid ultra-pasteurized (i.e., ultra-high temperature, UHT) cream as it tends to yield inconsistent results when used for making cultured foods.

Making Sour Cream

You will need 1 to 2 tablespoons of yogurt per cup of cream

Mix the cream and starter culture together. Cover the container lightly to allow any gas created during the process to escape. (A towel or loose lid both work well.) Place the mixture in a warm spot (generally between 70° and 80°F works best) for 12 to 18 hours. The mixture should thicken and when tipped should not run up the sides of the jar but rather pull away from the side of the jar.

Once the mixture has set, cover the jar with a lid and place it in the refrigerator for 6 or more hours to halt the culturing process and cool the sour cream. If a thicker sour cream is desired, a small amount of dry milk powder can be added before culturing. Alternatively, prior to mixing in the culture, the cream can be heated to 180°F and held at that temperature for 30 minutes. Be sure to allow the cream to cool completely prior to adding the starter culture. This heating process will generally yield a thicker sour cream.

Desserts

Dairy-Free Pink Gelatin Hearts



For those who choose to avoid dairy this is a great alternative to sugary gelatin desserts. The coconut yogurt supplies a healthy dose of probiotics.

Ingredients:

- 1-1/2 cups coconut milk yogurt (homemade)
- 1 cup frozen strawberries, thawed (organic if possible)
- 1/4 cup juice from defrosted strawberries or 1/4 cup coconut juice (could use coconut milk instead)
- 1 tablespoon raw honey
- 1 teaspoon pure vanilla extract
- 2 tablespoons gelatin

Directions:

1. Pour strawberry (or coconut) juice into a small saucepan. Sprinkle gelatin over and let sit 5 minutes until gelatin has softened. Slowly heat juice, stirring constantly, just until gelatin dissolves. Set aside.

2. Blend yogurt, berries, honey, and vanilla in a blender until smooth. Pour gelatin mixture in and blend again very briefly.
3. Pour mixture into a 9-inch square pan. Refrigerate until firm. Use a heart-shaped cookie cutter to cut into hearts and lift each heart out of pan with a spatula.

Note: To make coconut milk yogurt use two cans of full-fat coconut milk. (Try to find a brand with no additives like guar gum, etc.) Heat the milk to 110°F and add 1/8 teaspoon [Vegan Yogurt Culture](#). Culture at 105°F for 8 hours, then refrigerate until completely chilled. The coconut milk yogurt may separate into two layers, but you can shake it up before using it for this recipe.

Greek-style Frozen Yogurt



Ingredients:

- 3 cups Greek yogurt, strained for 2 to 4 hours
- 1 tablespoon fresh lemon juice
- 1/3 cup raw honey
- Chopped mint leaves to taste

Directions:

Thoroughly mix the yogurt, lemon juice, and honey. Pour the mixture into an ice cream maker and follow the manufacturer's instructions to freeze the yogurt. Top with the mint leaves prior to serving.

Cultured Enzyme-rich Parfait



A parfait, by definition, is a dessert made of layers of various components: usually something creamy and something fruity or sweet. But, if made with the right ingredients, a parfait can be a full-on breakfast, containing protein, fat, long-lasting carbs, and loads of enzymes.

A tasty breakfast with these components can leave you satisfied for hours and full of nutritious energy to start your day.

Layering the ingredients can make this breakfast fun and attractive!

Creamy Layer

This is the bulk of your breakfast calories. For an enzyme-rich cultured breakfast use cultured dairy. Make sure that you are using a whole-milk kefir or yogurt, or that you combine a lower-fat ingredient with a higher-fat ingredient for staying power.

Try any combination of the following:

- [Whole-milk yogurt](#)
- [Whole-milk kefir](#)
- [Sour cream](#)
- [Yogurt cheese](#)
- [Kefir cheese](#)

A serving of 1 to 2 cups of this cultured dairy base should be used for each parfait.

Fruit Layer

Nothing complements cultured dairy quite like delicious, fresh fruit. Lower-glycemic fruits like berries give you all the flavor and sweetness with less sugar content than higher-glycemic fruits like bananas.

Choose your favorites, including:

- berries
- bananas
- apple
- mango

If you want an extra boost of cultures and enzymes mix your fresh fruit with a cultured fruit chutney. Using fruit chutney alone might be a bit too much tang for your taste buds, but when mixed with sweet fresh fruit will give you a lovely balance.

Nutty/Crunchy Layer

Adding a third layer will give you not only a texture contrast, but an added boost of protein, fats, and nutrients. There are some obvious choices, and some surprises:

- Chopped nuts of all kinds
- Nut butters: peanut, almond, sunflower seed
- Chocolate or peanut butter chips
- Crumbled plain sourdough crackers
- Homemade or store-bought granola

Any of the above can be used in any combination with whatever you happen to have on hand.

Making the Parfait

In a tall glass, layer one-third of the cultured dairy, one-third of the fruit, and one-third of the toppings. Repeat, ending with toppings. You'll have a breakfast easy enough for any day of

the week but special enough for brunch with guests; nutrient-dense, energy-sustaining, and made of pure nourishment.

Composed Parfait Ideas

Add some additional flavors like vanilla or cinnamon along with some sweetness like a drizzle of raw honey. Whip up one of the following combinations for a delicious cultured breakfast:

- Cultured dairy base + apples + cinnamon + walnuts
- Cultured dairy base + mango + pistachios
- Cultured dairy base + banana + crumbled sourdough crackers + peanut butter
- Cultured dairy base + raspberries + vanilla + almonds
- Cultured dairy base + strawberries + vanilla + almonds and chocolate chips
- Cultured dairy base + peaches + cinnamon + granola
- Cultured dairy base + blueberries + lemon zest + walnuts

Raw and Cultured Pumpkin Cheesecake



This is one of those dessert recipes that adapts easily to using cultured foods. And, because of the healthy fats in the recipe, the sweetener is kept to a minimum.

This dessert is perfect for Thanksgiving or anytime throughout the fall or winter. With a hint of pumpkin and a dash of warming fall spices, this is sure to be a hit at your Thanksgiving table.

Crust:

- 1 cup graham cracker crumbs, preferably sprouted or sourdough
- 4 tablespoons unsalted butter, melted and cooled slightly
- 1/4 teaspoon ground ginger

Filling:

- 1 cup pumpkin purée (plain)
- 4 tablespoons [cultured butter](#), softened
- 16 ounces [cultured cream cheese](#) (or well-drained [kefir cheese](#) or [yogurt cheese](#))
- 1 teaspoon pure vanilla extract
- 1-1/2 teaspoons pumpkin pie spice
- 1/4 teaspoon salt

- 1/2 cup powdered Sucanat (granulated Sucanat that has been powdered in a blender)

Directions:

1. Preheat oven to 400°F. Line a 9-inch springform pan with parchment paper or grease a 9-inch pie pan.
2. In a medium bowl, combine graham cracker crumbs and melted butter. Press mixture into bottom of prepared pan and about 1/4 inch up the sides. Bake 7 to 8 minutes or until golden brown. Set aside to cool.
3. In a medium bowl, beat pumpkin purée, softened butter, cream cheese, vanilla, spices, and salt until smooth. Mix sugar in, 1/4 cup at a time, and then beat until smooth. Transfer pumpkin mixture to prepared pan, spreading it out evenly over the crust. Cover and chill until set, about 6 hours, or overnight. Remove outer ring of pan and peel off parchment paper. Cut into slices and serve.

Strawberry Frozen Yogurt



Ingredients:

- 9 ounces strawberries or other frozen berries
- 3 ounces milk
- 2/3 cup + 4 tablespoons sugar
- 1-1/2 tablespoons vanilla extract
- 2 cups yogurt

Directions:

If using frozen strawberries, thaw the berries. Mash with a mortar and pestle and or puree with a blender.

Use a hand mixer to dissolve the sugar in the milk. Add the strawberries and mix. Mix vanilla and yogurt into milk mixture.

Pour into an ice cream maker and follow the manufacturer's instructions.

Variations:

- **Honey Frozen Yogurt:** Substitute approximately 1/3 cup honey (preferably raw) for sugar in recipe. It will take a bit longer to dissolve the honey in the milk and you may need to adjust the amount to taste.

- **Raw Milk Frozen Yogurt:** Substitute raw milk for conventional milk and use our counter-top yogurt starter (a.k.a. room-temperature yogurt starter) to make raw milk yogurt. Our [Matsoni Yogurt Starter](#) makes a particularly tasty frozen yogurt.

Fluffy Fruit Cobbler



One of the joys of summer is eating wholesome fresh fruit, and how better to enjoy it than with a nice fluffy pastry topping and a dollop of cultured cream on top?

You can make this with any type of fruit or berry, and even used canned fruit during the winter. By using a little cultured milk in the crust, and topping it with another cultured milk product, you have a double dose of probiotic goodness!

Filling Ingredients:

- Approximately six cups of fruit, enough to fill a 9x12-inch baking pan about halfway. Use any combination of fresh, frozen, or preserved fruit:
 - blueberries
 - apples
 - peaches
 - nectarines
 - strawberries
 - raspberries
 - blackberries
 - mangoes
 - cherries

Filling Directions:

Wash and cut up the fruit (if it is whole). If it's frozen, thaw it and drain off the juices. (Save them for flavoring kombucha or water kefir!) If it's preserved, drain off the syrup and save it for waffles or pancakes. Mix up the fruit in the baking pan.

Fluffy Biscuit Topping Ingredients:

- 2 cups all-purpose flour (or gluten-free flour or blanched almond meal)
- 1-1/2 teaspoons double-acting baking powder
- 1 teaspoon salt
- 1 tablespoons sugar or 1 packet of stevia powder
- 1/4 cup butter
- 1 cup yogurt or milk kefir or buttermilk
- cinnamon

Fluffy Biscuit Topping Directions:

Mix all the dry ingredients together.

Cut the butter up into little chunks and add to the flour. Mix in with a pastry cutter, or two knives, or a food processor, or a fork, until the butter is incorporated and the mixture is uniformly crumbly.

Add the yogurt or other milk product, and stir into the mixture with a fork until it is all moist. It will now be a soft loose dough. Add more yogurt if necessary.

Plop the dough on top of the fruit mixture, and spread it gently with the fork or your fingers so it more-or-less covers the fruit. Sprinkle with a little cinnamon.

Bake for about 20 minutes at 450°F, or until the dough is lightly browned. (It's a good idea to put the baking pan on top of a cookie sheet or larger baking pan, because sometimes the fruit bubbles over.)

Serve with crème fraîche, sour cream, whipped cultured cream, or ice cream.

Whipped Cultured Cream to Top Your Dessert



A great way to add enzymes and probiotics to any dessert is with a cultured whipped cream topping. Most people are familiar with the process of whipping heavy cream to aerate and lighten it. Add a touch of maple syrup or honey and a dash of vanilla and you've got something that cannot be beat by a frozen "whipped topping" that might not even contain real cream!

By using cultured cream you'll also add a nuttiness, in the case of crème fraîche, or a tang in the case of sour cream or kefir cream. It is quite common in European countries to top a sweet dessert with the unique taste of cultured cream.

There are several options for making whipped cultured cream:

- [Sour cream](#)
- [Kefir cream](#)
- [Crème fraîche](#)

Each of these will produce a rich, flavorful topping when whipped, but each has a slightly different flavor. Try one of the cultures you already have, or experiment with all three!

Ingredients:

- 2 cups cultured cream ([sour cream](#) or [kefir cream](#) or [crème fraîche](#) made with heavy cream)
- 4 tablespoons maple syrup (more or less to taste)
- Dash of vanilla extract, cinnamon, nutmeg, or other flavorings

Directions:

Place cultured cream, maple syrup, and flavoring in a large bowl and beat using a hand-held mixer or a whisk until soft peaks form.

Dips



Most of us have eaten onion dip either at a family function, potluck, or picnic. It is often made simply with a packet of seasonings and either sour cream or mayonnaise, or a combination of the two. But many packet seasonings contain additives like monosodium glutamate (MSG), maltodextrin, cellulose, sugars, or other chemicals and fillers that you might not want in your fresh, homemade food.

Walk through the dairy aisle and you'll notice tub after tub of dips. It's tempting to stop and pick them up, but when you do you'll notice all sorts of ingredients that you may not even be able to pronounce.

But all the chemicals, additives, preservatives, and sodium aside, the base of the dip is almost guaranteed not to contain the enzymes and probiotics that you'll find in a dip made from cultured dairy products.

When you make a dip, versus a dressing, you want something thick and rich. The obvious first choice for this might be sour cream. If you do not have sour cream you can combine [sour cream](#) with [yogurt](#) or [kefir](#). Or, you can use any combination of [sour cream](#), [yogurt](#), [kefir](#), [yogurt cheese](#), or [kefir cheese](#) that you have as long as the end result is fairly thick.

Fortunately you can make a delicious onion dip with simple ingredients you probably already have in your pantry. Using cultured dairy as the base will provide probiotic nutrition you won't find in store-bought sour cream or mayonnaise.

Cultured Dairy Onion Dip



Ingredients:

- 2 cups yogurt
- 2 tablespoons olive oil or butter
- 1 large onion, chopped
- 2 garlic cloves, minced
- 1/2 teaspoon sea salt (or more to taste)
- 1/4 teaspoon pepper

Directions:

Heat a skillet over medium heat and add oil or butter. Sauté for 10 to 20 minutes, or until the onions have caramelized. Add garlic and sauté one more minute.

Remove from heat and allow onions to cool to room temperature. Once they are cooled, combine with all other ingredients. Taste for seasoning and add salt if necessary.

Refrigerate for several hours and then serve, stirring before serving if any separation occurs.

Cultured Dairy Dill Dip



Try a fresh herbaceous dips chock full of healthy ingredients like garlic, onion, and lemon juice.

Ingredients:

- 2 cups yogurt
- 3 tablespoons minced dill
- 1 garlic clove, minced finely
- Juice of 1/2 lemon
- Sea salt to taste
- 1/8 teaspoon black pepper

Directions:

Combine all ingredients in a small bowl. Place in refrigerator and allow to set for 30 minutes before serving.

Cultured Dairy Ranch Dip



Ingredients:

- 2 cups yogurt
- 2 tablespoons finely minced parsley
- 1 garlic clove, minced finely
- 1 tablespoon finely minced onion
- Juice of 1 lemon
- Sea salt to taste
- 1/8 teaspoon black pepper

Directions:

Combine all ingredients in a small bowl. Place in refrigerator and allow to set for 30 minutes before serving.

Mast Va Khiar (Iranian Yogurt and Herbs)



Ingredients:

- 1 large cucumber, shredded
- 1/4 cup red bell pepper, minced
- 2 green onions, minced
- 1 tablespoon fresh dill, minced or 1 teaspoon dried dill
- 1 tablespoon fresh cilantro, minced
- 1/2 teaspoon raw honey
- 1 tablespoon fresh lime juice
- 1 cup yogurt
- Dill or cilantro for garnish

Directions:

Mix all ingredients together well. Place in a freezer-safe container, cover, and place in the freezer. Take out of the freezer and stir every 10 minutes for about an hour. Do not allow the mixture to freeze solid. The Mast Va Khiar is ready when ice crystals just start to form.

Dressings

Creamy Garlic Salad Dressing



Ingredients:

- 2 cups [lacto-fermented mayonnaise](#)
- 1/3 cup yogurt
- 1/3 cup sunflower oil or grapeseed oil
- 1/4 cup water or milk
- 2 tablespoons sour kombucha, apple cider vinegar, or white wine vinegar
- 1-1/2 teaspoons fresh lemon juice
- 1-1/2 teaspoons raw honey
- 3/4 teaspoons mustard
- 1/2 teaspoon sea salt
- 1/2 teaspoon pepper, freshly ground
- 4 or 5 garlic cloves, minced

Directions:

Whisk together mayonnaise and yogurt. Whisk in remaining ingredients. Let rest covered in the refrigerator for 2 or more hours prior to serving to allow the flavors to meld properly.

Easy Probiotic-rich Creamy Caesar Dressing



Ingredients:

- 1/2 cup full-fat homemade yogurt
- 1/4 cup [lacto-fermented mayonnaise](#)
- 2 tablespoons grated fresh Parmesan cheese
- 1 large clove garlic, pressed or minced fine
- 1/8 each teaspoon salt and pepper

Directions:

Whisk all ingredients together until thoroughly blended. If dressing is too thick, thin with a small amount of milk.

For Caesar salad, pour dressing over pieces of torn romaine lettuce and top with sourdough croutons and more Parmesan cheese.

Piimä Ranch Dressing



Ingredients:

- 1-1/2 cup piimä yogurt*, strained for 2 to 4 hours
- 1 cucumber
- 4 teaspoons olive oil
- 2 to 3 tablespoons fresh lemon juice
- 2 garlic cloves, peeled
- 1 tablespoon fresh dill or 1-1/2 teaspoon dried dill
- Salt and pepper to taste
- 1/2 cup mayonnaise
- 1 teaspoon dill
- 2 teaspoon parsley
- 1/4 teaspoon garlic salt
- 1/4 teaspoon onion salt
- 1/4 teaspoon ground pepper

Directions:

Whisk all ingredients together and chill for several hours to fully develop the flavor prior to serving.

*While the mild flavor of piimä makes a fabulous base for this dressing recipe, if you do not have piimä on hand, another yogurt variety may be substituted.

Drinks

Piimä Chai



Ingredients:

- 3/4 cup piimä yogurt
- 1/4 cup liquid chai
- Sweetener if desired (raw honey, maple syrup, stevia, sugar, etc.)

Directions:

Blend together and serve cold.

Lassi



Lassi is a simple beverage made from yogurt and water or ice, to which you can add sweet or savory ingredients. Mango lassi is well-known and is simply the sweeter version of lassi combined with the mango fruit.

Lassi most likely originated from the need for a cooling, restorative beverage in the Indian heat. Fermented foods are known to aid in hydration and by combining yogurt with ice or water you create a tasty, hydrating beverage. Adding a pinch of salt to your sweet or savory lassi will also aid in keeping you hydrated

Best of all, there is no blender required for many of the lassi recipes. Of course you could use a blender to make a blended version, but simply combining yogurt, water, ice, and flavorings in a jar and shaking will give you a cool, frothy treat in just minutes.

Sweet Lassi:

- 1 cup yogurt
- 1 cup ice water (or some combination of ice and water)
- 3 tablespoons sugar or other sweetener
- Fruit puree, jam, herbs, or extracts for flavorings

Savory Lassi:

- 1 cup yogurt

- 1 cup ice water (or some combination of ice and water)
- Salt to taste
- Flavorings such as minced chili, cilantro, mint, or spices such as cumin.

Directions:

Combine yogurt, ice and/or water, salt or sugar, and flavorings in a quart jar. Shake well for 1 to 2 minutes until beverage is frothy and cold. Serve immediately.

Snacks

Nori Poppers



Ingredients:

- [Cream cheese](#)
- [Yogurt](#) or [sour cream](#)
- Pickled jalapeno peppers
- Sushi nori (seaweed wrappers)
- Bamboo sushi roller (optional)

Directions:

You will need about 2 to 4 tablespoons of cream cheese per nori wrapper, and one or two small jalapenos.

Add a little yogurt or sour cream to the cream cheese, and mix well to make the cream cheese spreadable.

Slice the jalapenos into thin strips.

Spread a thin layer of cream cheese mix — about 1/4 inch — on a nori wrapper, leaving about 1/2 inch of the wrapper free of spread on one end. Along the center of the roll, and

parallel to the un-dressed end, make a line of jalapeno strips. Make another line of jalapeno strips halfway between the first strip and the end of the nori wrapper opposite the un-dressed end.

Starting at the end away from the un-dressed end, roll up the nori fairly tightly, making sure to keep the jalapeno strips from sliding around. You can use a sushi roller for this, or just do it by hand. Run a wet finger (can use jalapeno juice) along the un-dressed end of the nori to close up the roll.

Cut the roll crossways, into about 1/2-inch sections and serve as bite-size snacks.

Sauces

Tzatziki Sauce



Ingredients:

- 1 cup yogurt, strained for 2 to 4 hours
- 1 cucumber
- 4 teaspoons olive oil
- 2 to 3 tablespoons fresh lemon juice
- 2 garlic cloves, peeled
- 1 tablespoons fresh dill or 1-1/2 teaspoons dried dill
- Salt and pepper to taste

Directions:

Peel the cucumber and remove the seeds and soft portion (to keep the sauce from being too watery). Use a food processor to puree the ingredients and mix well. Transfer to a serving dish, cover, and chill for several hours prior to serving so the flavors can fully develop.

Yogurt-Dill Sauce for Salmon



This smooth, rich sauce transforms a plain piece of poached fish into a gourmet delight.

Ingredients:

- 1 cup plain full-fat homemade yogurt
- 1 tablespoon fresh lemon juice
- 3 egg yolks
- 1/2 teaspoon salt
- A few grinds of black pepper
- 1 teaspoon Dijon mustard
- 1 tablespoon chopped fresh dill

Directions:

1. Mix yogurt, lemon juice, egg yolks, salt, pepper, and mustard in the top of a double boiler. Be sure it is not an aluminum pan or the egg yolks may discolor.
2. Whisk together and heat over simmering water, stirring constantly, until mixture thickens. This should take about 10 to 15 minutes.
3. Remove from heat, stir in dill, and let cool slightly before serving over poached salmon or other fish.

Salads

Tomato Raita with Greek Yogurt



Raita is a kind of East Indian salad that pairs well with curries or any spicy dish. It is traditionally made with only cucumbers, but this version adds a lot of versatility. It can also be eaten alone or served over meats and vegetables. Try some over scrambled eggs for a probiotic-rich breakfast treat.

Ingredients:

- 1 large cucumber, peeled, seeded, and diced (about 1 to 1-1/2 cups)
- 2 medium Roma tomatoes (about 1/2 to 3/4 cups)
- 1/4 cup finely chopped red or yellow onion
- 1/4 cup chopped flat leaf parsley
- 1/4 cup finely chopped cilantro leaves
- 1 clove garlic, minced or pressed
- 1 cup homemade Greek yogurt (should be thick: drain if necessary)
- 1 teaspoon ground cumin
- 1/2 teaspoon Celtic sea salt

Directions:

1. Taste the diced cucumber to see if it is at all bitter. If so, sprinkle it with 1 teaspoon of salt and set aside for 20 minutes to drain out some of the bitter juices. Rinse before using.
2. Mix chopped tomato and cucumber together. Stir in chopped herbs and garlic; sprinkle cumin over, then stir together until combined.
3. Fold in Greek yogurt and refrigerate until ready to serve.

Simple Cumin-spiked Cucumber Raita



You can flavor raitas with all sorts of things – fresh mint or cilantro, chili peppers, warm spices – but in this one we keep it simple. The only variation is the garlic and onion. Using one or the other creates a very different flavor profile and we recommend that you play with it and see which one you prefer.

Ingredients:

- 2 medium cucumbers, peeled, and diced
- 2 cups plain whole milk yogurt
- 1 teaspoon cumin seeds, preferably toasted
- 1 clove of garlic, minced or 2 tablespoons minced red onion
- 2 teaspoons lemon juice
- Salt, as needed

Directions:

Place cucumbers in a colander over a bowl or sink and add salt. Allow to sit for several hours to draw the moisture out.

Add these drained cucumbers to a small bowl and mix in yogurt, cumin seeds, garlic or onion, and lemon juice. Taste and add salt if necessary.

Chill for at least 30 minutes before serving.

A Complete Guide to Cultured Smoothies



Many people find that blending up a smoothie provides an opportunity to pack a nutritional punch with various nutrient-dense and cultured foods. Often the pickiest of eaters will gladly sip down a big frothy glass of kefir or yogurt if it is mixed with the right ingredients.

But it is too easy to get stuck in a smoothie rut. Be creative and explore all of the smoothie ideas!

The Smoothie Base

The base of every smoothie is some type of liquid. If you want your smoothie to pack a wallop in terms of both nutrition and calories, then you want your smoothie base to contain some good protein, fat, and preferably cultures.

Yogurt makes a tart, thick, and rich base. Use whole-milk yogurt for added thickness; choose different yogurts for different flavor profiles; use coconut-milk yogurt for a non-dairy base. The possibilities are endless!

Add-Ins

This is where you can add nutrition, calories, and some yumminess to your smoothies to keep them varied and interesting.

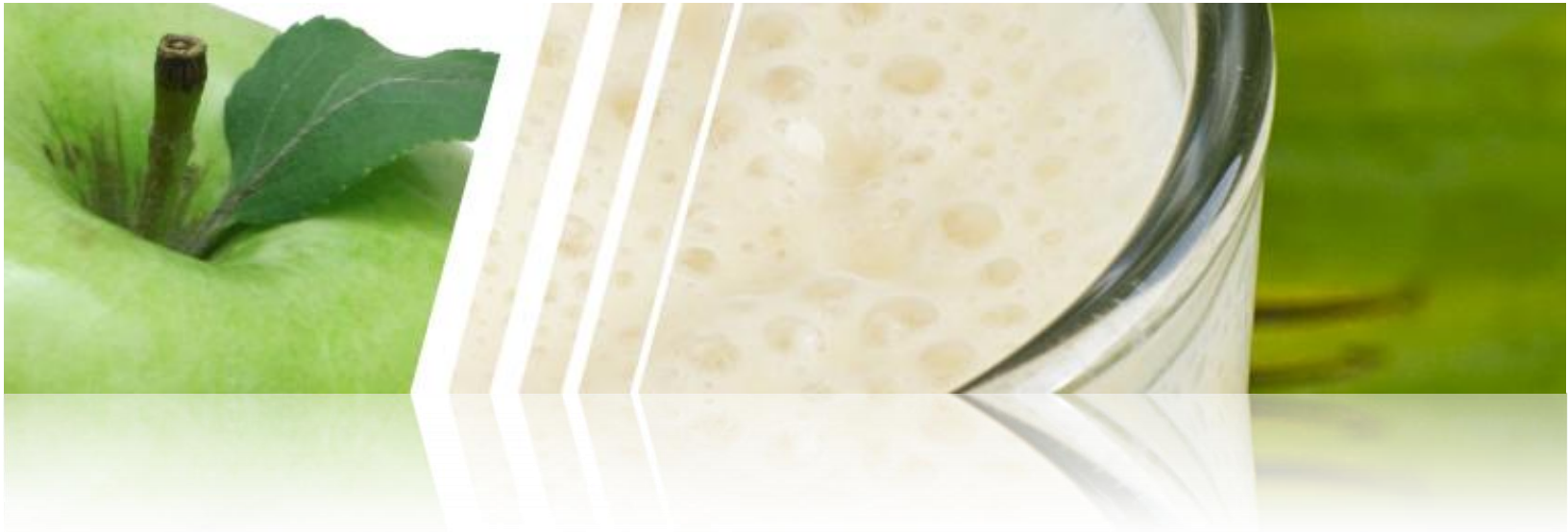
Herbal Boosters. Because smoothies usually contain a sweet component like fruit or sweetener, the sometimes grassy flavors of herbs can go undetected while adding a bit of extra nutrition. A few options are maca or Siberian ginseng powder for energy or oatstraw for calcium.

Egg Yolks. Many people add egg yolks to their smoothies for both health and flavor reasons. Egg yolks from pastured chickens add vitamins, minerals, and good fats. They also make smoothies rich and creamy in flavor. (Exercise caution when consuming raw egg yolks.)

Nutrient-dense Fats. Adding coconut oil, raw butter, or cod liver oil to smoothies is a good way to add some extra nourishing fats for your family. Coconut oil provides essential medium-chain fatty acids, raw butter contains fat-soluble vitamins, and cod liver oil contains vitamins A and D.

By making things interesting with various fruits, flavors, and combinations you can keep your family begging for more of those cultured smoothies.

Apple Pie Smoothie



Ingredients:

- 1/4 cup unsweetened applesauce (best if frozen or chilled)
- 3/4 cup yogurt
- Dash of vanilla extract
- Dash of cinnamon
- Dash of nutmeg

Directions:

Add all ingredients to a blender and process until smooth. Serve chilled or at room temperature.

Banana Smoothie



Ingredients:

- 1 cup yogurt
- 1 banana
- 1 teaspoon vanilla
- Sweetener to taste (1 tablespoon raw honey or maple syrup, or a little stevia)

Directions:

Add ingredients to a blender and process until smooth. Serve chilled or at room temperature. Makes one serving.

Basic Fruit Smoothie



Ingredients:

- 1 cup yogurt
- 1/2 cup frozen fruit (berries work well)
- 1/2 banana
- Ice cubes (can reduce amount or omit if banana is frozen)

Directions:

Add all ingredients to a blender and process until smooth. Serve chilled or at room temperature. Makes one serving.

Blueberry Smoothie



Ingredients:

- 3/4 cup yogurt
- 1/2 cup juice (orange and grapefruit work well)
- 1 cup blueberries
- 1 banana

Directions:

Add all ingredients to a blender and process until smooth. Serve chilled. Makes one serving.

Cranberry Smoothie



Ingredients:

- 1/4 cup frozen cranberries
- 2 tablespoons frozen blueberries
- 1 to 2 teaspoons lemon juice (fresh is best)
- 1/4 cup cranberry juice
- 1/2 cup yogurt
- Dash of vanilla extract (optional)

Directions:

Add fruit, juice, and vanilla to a blender and process until smooth. Blend in kefir and serve chilled or at room temperature. Makes one serving.

Cantaloupe Smoothie



When you've got cantaloupes coming in from the garden or market and simply can't eat enough of them, it is time to look past the berries and throw the cantaloupe into the blender.

This smoothie is icy cold and refreshing for the hottest of days. The yogurt packs a nutritional punch, and the pinch of salt really brings out the flavor of the cantaloupe.

Ingredients:

- 4 cups yogurt
- 3 to 4 cups ice
- 1 small cantaloupe, peeled, seeded, and chopped
- 1 tablespoon raw honey
- Pinch of sea salt

Directions:

1. To a large (at least 8-cup) blender add the yogurt followed by the ice followed by the chopped cantaloupe, blending after each addition. Squeeze in the honey and add the pinch of salt. Blend for 20 to 30 seconds until all is combined and smooth.
2. Taste and add more sweetener if desired. Serve on a hot summer day.

Healthy Smoothie



Ingredients:

- 2 cups yogurt
- 1 cup fresh or frozen fruit
- 1 to 3 tablespoon coconut oil (melted and allowed to cool a bit)
- Pinch of stevia or small amount of raw honey (if desired for sweetness)

Directions:

Combine in a blender and serve cold. Makes 1 or 2 servings

Additional ingredients that can be added:

- Fresh egg yolk from pastured chickens (exercise caution when consuming raw egg)
- Handful of spinach or other greens
- Bee pollen
- Brewer's yeast

Instant Probiotic Smoothie



If you are at the last of your yogurt, and haven't cultured that next batch yet, or simply aren't in the mood for a dairy-heavy smoothie this is a great way to add probiotics to any fruit- or vegetable-based smoothie.

Simply freeze the whey left over from cultured dairying into ice cubes. You can then use those ice cubes blended with fruit, juice, more cultured dairy, or other flavorings for a delicious, probiotic-rich smoothie. You can use whey ice cubes in a smoothie with this very simple recipe formula:

Ingredients:

- 4 cups liquid (milk, juice, water, dairy-free milk, or any combination)
- 10 to 12 whey ice cubes
- Fresh fruit (berries, bananas, pineapple, mango, etc.)
- Flavorings (vanilla, cinnamon, nutmeg, cocoa powder, etc.)
- Sweeteners (raw honey, sucanat, maple syrup, etc.) to taste

Directions:

Pour liquid into blender. Add ice cubes and pulse a few times or until ice has been broken up a bit. Add fruit and flavorings and blend until completely smooth.

Mango Smoothie



Ingredients:

- 1/4 cup banana
- 1/4 cup mango, papaya, or guava
- 1/2 cup yogurt
- Sweetener (1 tablespoon raw honey, maple syrup, or small amount of stevia)

Directions:

Add all ingredients to a blender and process until smooth. Best served chilled. Makes one serving.

Orange Smoothie



Ingredients:

- 2 to 3 tablespoons frozen orange juice concentrate
- 3/4 cup yogurt
- 1/4 teaspoon vanilla extract
- 1 cup ice cubes

Directions:

Add all ingredients to a blender and process until smooth.

Pumpkin Smoothie



Ingredients:

- 1 cup yogurt
- 2 tablespoons organic pureed pumpkin
- Dash of vanilla extract
- Pinch of cinnamon and nutmeg or pumpkin pie spice (to taste)

Directions:

Add ingredients to a blender and process until smooth. Serve chilled or at room temperature. Can be served topped with a dash of cinnamon-sugar. Makes one serving.

Tropical Smoothie



Ingredients:

- 1 frozen banana
- 1 cup fresh pineapple
- 2 tablespoons coconut milk (optional)
- 3/4 cup yogurt
- Sweetener to taste (1 tablespoon raw honey, maple syrup, or sugar, or a small amount of stevia)

Directions:

Add all ingredients to a blender and process until smooth. Best served chilled. Makes two servings.

Watermelon Smoothie



Ingredients:

- 3/4 cup seedless watermelon chunks
- 1/2 cup yogurt
- 3 tablespoons orange juice

Directions:

Use blender to puree watermelon until smooth. Add juice and kefir, yogurt, or buttermilk. Process until blended completely. Makes one serving.