Making Yogurt at Home

Yogurt

Yogurt is a fermented dairy product. Most yogurt in the United States uses cow's milk, but other animal and plant milk yogurts are available.

Nutrition and Health

When made from cow's milk, yogurt is a source of protein, carbohydrates, and minerals, including calcium and phosphorus. If made with milk that has fat, either 1% low fat, 2% reduced fat, or whole milk, the yogurt will contain fat. With fermentation, yogurt also contains strains of helpful bacteria that can benefit gut and immune health.

Chemistry

Bacteria from the yogurt starter will digest lactose - a sugar in milk - to form lactic acid. Lactic acid reduces the pH of the milk, making it more acidic. This causes proteins to coagulate or pull together, producing a thick milk that becomes yogurt.

Yogurt Starter

Yogurt starters have the bacteria needed to start the yogurt-making process. If using purchased yogurt as a starter, use before the "best by" or "sell by" date. If using a previous batch of homemade yogurt, use it as a starter within 5 to 7 days from when the yogurt was made. In either case, fresher is better, so the starter has more active bacteria.

Online stores and natural food stores also may have bacterial cultures for yogurt. For purchased bacterial cultures, follow directions from the manufacturer.

Terminology

Inoculate: To add bacteria to milk through a starter culture.
Incubate: To keep milk under favorable conditions after adding a starter culture to develop into yogurt.
Fermentation: The activities of microorganisms, including bacteria, to change a food product through chemical reactions. Examples include milk becoming yogurt, cabbage becoming sauerkraut, or soybeans becoming miso.

Live cultures: Living bacteria are needed to start the yogurt-making process. Starter cultures with dead bacteria will not make yogurt.
Whey: The liquid drained from yogurt if making thickened yogurt; the watery part of milk left over from cheesemaking.

Basic Yogurt Recipe

Servings: 8 (½ cup) servings

Ingredients:

- 1 quart 1% low-fat milk (Tip 1)
- 2 tablespoons plain non-fat yogurt

Directions:

1. Wash hands with soap and water.
2. Add milk to a 2-quart saucepan or pot. Place the pot on a stovetop and heat slowly to 180-185 F, occasionally stirring to prevent milk from burning on the bottom. Use a food thermometer or candy thermometer to monitor the temperature. The milk will start to steam and form small bubbles on the pot's side.
3. Turn off the heat when the milk reaches 180-185 F. Remove milk from the stovetop and leave it at room temperature. Cool milk to between 108-115 F.
4. Remove 1 cup of milk into a small bowl with a ladle. Stir yogurt starter into 1 cup of milk until smooth. Pour mixture back into pot and stir to combine.
5. Pour milk into the desired container (Tip 2). Add a lid to cover.
6. Incubate yogurt between 108-115 F for 6 to 10 hours, undisturbed. See incubator options below.
7. Store the yogurt in the refrigerator at 40 F or lower once it is gelled. This will stop bacteria from making more lactic acid, which can make yogurt taste increasingly sour. Eat within 14 days.

Nutrition information per serving:
50 calories; 1 g fat (1 g saturated); 50 mg sodium; 7 g carbohydrate; 0 g added sugar; 0 g fiber; 4 g protein.

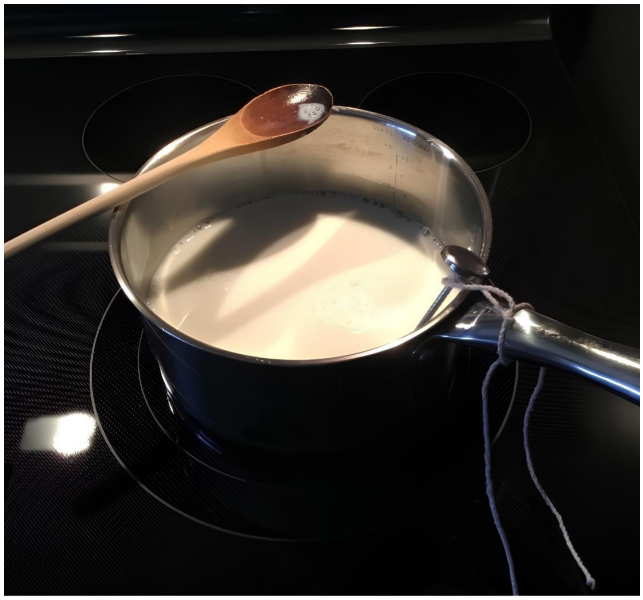
Tip 1: To use nonfat skim milk, stir ¼ cup of nonfat milk powder into cold milk before starting Step 2. This will produce a thicker yogurt.
Tip 2: Use glass, food-safe plastic, or metal containers with lids. Pour milk into eight, 1 cup small containers or one 1.5-quart large container. Small containers will incubate faster and can be used to make pre portioned yogurt. A larger container will take longer to incubate and make a single yogurt container.

Incubator Options

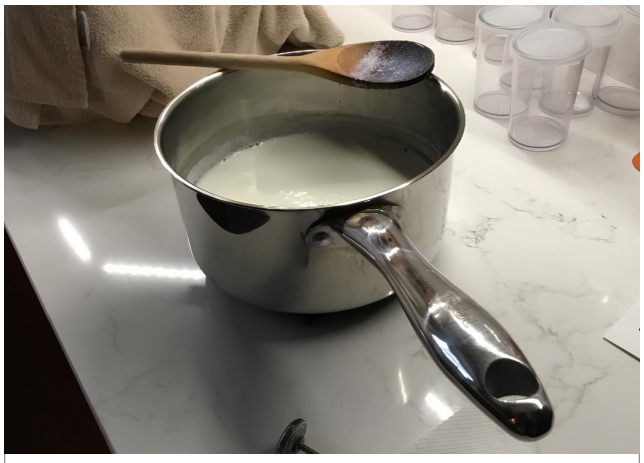
Oven: Preheat oven to 200 F. Turn off the heat. Add inoculated milk in desired containers to oven. Turn the oven on for short periods to keep the temperature around 100 F.

Insulated cooler or slow cooker: Fill a clean cooler or slow cooker halfway with warm water, around 120 F, and place the covered container(s) of yogurt inside. Add more warm water if needed so water comes up the sides but does not cover the container(s). Close the cooler or add a lid to the slow cooker. Wrap cooler or slow cooker in a clean towel.

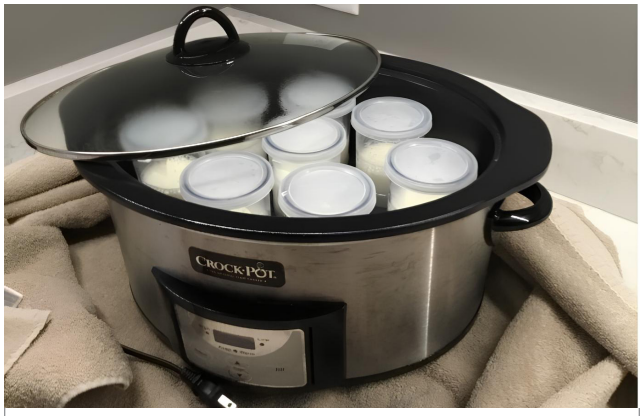
Other options: Follow yogurt-making instructions from manufacturer when using commercial yogurt makers, electric pressure cookers, or electric dehydrators.



Milk heating on a stove.



Milk cooling.



Slow cooker incubator option.

Troubleshooting: Problems and Causes

Separation	Not Firm
Yogurt incubated for too long.	Yogurt starter did not contain live cultures.
Yogurt was not refrigerated soon after incubation.	Temperature too hot or cold during incubation.
Milk was not heated enough before adding a yogurt starter.	Equipment not clean.

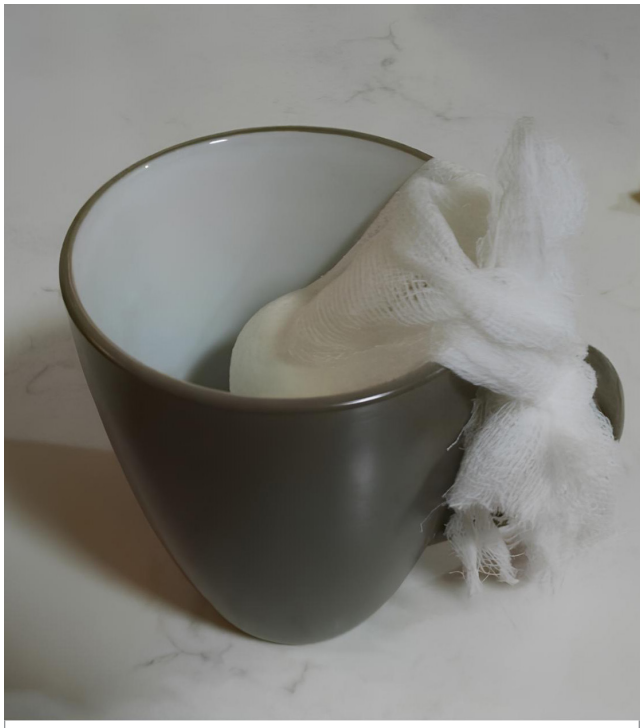
Off-Flavors	Thin Yogurt
Milk was not fresh.	Nonfat dried milk powder was not added to cold milk before starting.
Yogurt starter was not fresh.	
Equipment was not clean.	Yogurt was too cold before incubating.
Yogurt was not covered while incubating.	Yogurt was made from goat's milk.

Other Styles of Yogurt

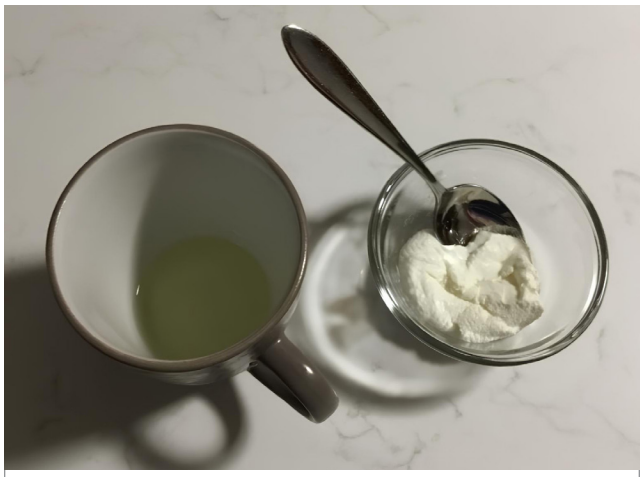
Yogurt Cheese and Greek-style Yogurt

Draining whey from the yogurt thickens the mixture and produces a consistency like pudding or spreadable cheese.

1. Cut a piece of cheesecloth twice as wide as the bowl or container used to drain the yogurt. Fold the cheesecloth in half to make a double layer.
2. Carefully spoon the desired amount of yogurt into the cheesecloth and place it over the draining bowl. Secure the cheesecloth so it hangs above the bottom of the bowl, tie it to a handle, or put a strainer between the bowl and the cheesecloth with yogurt.
3. Cover the container and refrigerate. For yogurt cheese, drain for 8 to 24 hours. For Greek-style yogurt, drain for 2 to 4 hours.



Yogurt and cheesecloth inside a mug before being refrigerated. Cheesecloth is tied to the mug handle.



After 12 hours, the whey remains in the mug on the left, and the drained yogurt on the right is ready to eat or use in recipes.

Drinkable Yogurt

Ingredients

- 1 quart 1% low-fat milk
- 1 packet yogurt culture or 2 tablespoons plain non-fat yogurt with live culture
- Fruit; see Pick a Fruit Flavor chart

Directions

1. Wash hands with soap and water.
2. Add milk to a 2-quart saucepan or pot. Place the pot on the stovetop and heat slowly to 175-180 F, stirring occasionally to prevent milk from burning on the bottom. Use a food thermometer or candy thermometer to monitor the temperature. The milk will start to steam and form small bubbles on the pot's side.
3. Turn off the heat when milk reaches 175-180 F. Remove milk from the stovetop and leave it at room temperature. Cool milk to between 112-114 F.
4. Add starter culture.
    - If using purchased culture, sprinkle culture over the surface of the milk. Let it sit without stirring for 2 minutes, then stir into the mixture.
    - If using plain yogurt, carefully remove 1 cup of milk into a small bowl. Stir yogurt starter into milk until smooth. Pour mixture back into pot and stir to combine.
5. Pour inoculated milk into a food-safe container larger than 1 quart. Cover the container and incubate as directed in Basic Yogurt Recipe for 3 hours.

6. Test if the yogurt is thick enough; see Testing for Consistency below. When thick enough, cover and refrigerate the container for 1 hour. Yogurt should be between 68-77 F.
7. Pick a fruit flavor; see chart for quantities. In a food processor, puree fruit ingredients until smooth. Gently stir fruit into cooled yogurt. Cover and store in refrigerator at 40 F or lower.
8. Consume within 14 days. Yogurt may start to separate; stir to recombine.

Testing for Consistency
Dip a clean spoon into the mixture. Move the spoon gently moved back and forth; if yogurt still has the consistency of milk, continue to incubate for another 2 hours. Test again. Yogurt is ready to move into the refrigerator when it is lightly gelled and has the consistency of thin pudding.

Pick a Fruit Flavor

Mixed Berry	Peach	Strawberry-Banana
1 cup frozen (thawed) or fresh, unsweetened mixed berries.	2 fresh peaches, pit removed.	½ cup fresh strawberries with stems removed.
1 tablespoon honey or granulated sugar.	1 tablespoon honey or granulated sugar.	1 small banana.
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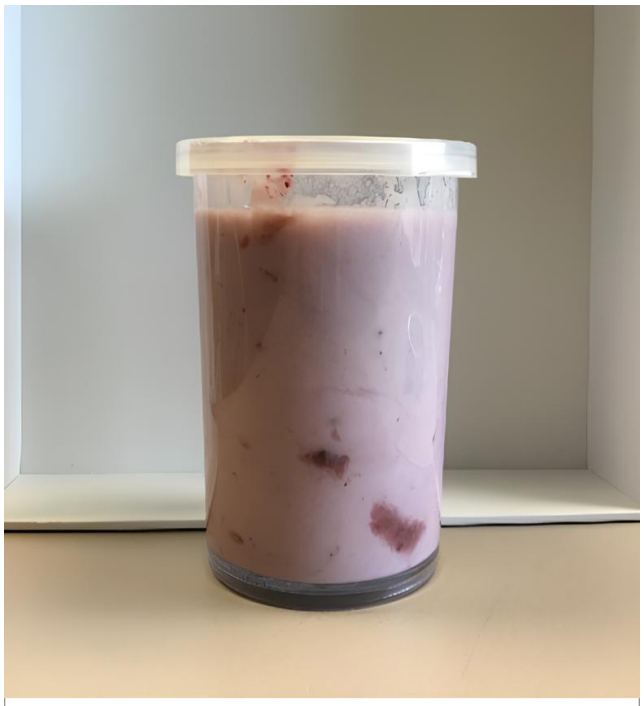

Mixed berry drinkable yogurt.

Resources

Cascio, J, & Rogers Dinstil, R. (2015). Making yogurt at home. University of Alaska Cooperative Extension.

Hadjimbei, E., Botsaris, G., & Chrysostomou, S. (2022). Beneficial effects of yoghurts and probiotic fermented milks and their functional food potential. *Foods*, 11(17), 2691. doi.org/10.3390/foods11172691.

New England Cheesemaking Company. (2024, January 24). Yogurt making instructions. cheesemaking.com.

Smith, D.K. (2015). Yogurt made simple. Washington State University Extension.

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