



Tips for Homemade Ice Cream

If your favorite ice cream recipes use uncooked eggs, it's time to replace or revise them. Those raw eggs may contain salmonella bacteria that can cause foodborne illness. Freezing doesn't kill bacteria but cooking does.

What do we know about salmonella?

Usually, salmonella food poisoning (salmonellosis) results from contaminated food that has been improperly handled or not cooked thoroughly. *Salmonella enteritidis*, however, is an unusual strain of salmonella that has been found in the ovaries of infected laying hens. Because the hens transmit the organism to the egg yolk before the shell forms, we can no longer assume that a clean, uncracked egg is safe to eat.

What's the danger in ice cream?

Since thorough cooking is necessary to destroy the salmonella bacteria, foods that contain raw or lightly cooked eggs—such as ice cream, eggnog, undercooked scrambled or soft boiled eggs, and homemade mayonnaise—are risky and should be avoided.

Although the risk of getting salmonellosis is relatively small, the infection can be life threatening for certain people, especially the very young, the elderly, pregnant women, and people weakened by illness.

Eggs are used in ice cream to add a rich flavor and color, inhibit ice crystallization, and also to help stabilize or emulsify the fat and liquid so the resulting product is smooth and creamy. Commercial manufacturers use pasteurized eggs, stabilizers, and other ingredients to produce a safe and acceptable product.

What recipes are safe to use?

Although salmonella bacteria will not grow below 40°F, freezing does not destroy those organisms already present in the raw egg. Only recipes that call for cooking the egg mixture are safe to use. These are sometimes referred to as cooked custard ice creams.

Another option is to use pasteurized eggs in recipes that call for raw eggs. Commercial pasteurization destroys salmonella bacteria, but does not cook the eggs or affect their color, flavor, nutritional value, or functional properties.

Whole liquid pasteurized eggs are available at some supermarkets. They are packaged in containers that resemble a small milk carton and are in the refrigerator case. Use them just as you would fresh, whole eggs.

Light ice creams that use no eggs or have gelatin added are good choices for consumers concerned about cholesterol.

How can I adjust the calories in homemade ice cream?

The type of milk or cream used in homemade ice cream determines the fat and calorie content. Using whole milk and cream produces an ice cream with more fat and calories than one made with skim milk, as shown in the table on the next page.

The recipe on the next page uses whole milk and light cream and has 170 calories per half-cup serving. Substituting a lower fat milk product for all or part of the total 8 cups of milk/cream gives a lower calorie product that is less rich and creamy.

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Vanilla Ice Cream

This basic cooked custard recipe makes about one gallon in a standard ice cream freezer.

- 2 cups sugar
- $\frac{1}{4}$ cup cornstarch
- $\frac{1}{4}$ teaspoon salt
- 4 cups milk
- 4 eggs, beaten
- 2 tablespoons vanilla
- 4 cups light cream

1. Mix sugar, cornstarch, and salt in the top of a double boiler. Gradually blend in 4 cups milk. Cook over hot water, stirring occasionally until thickened, 12 to 15 minutes.
2. Stir a small amount of the hot cornstarch mixture into the beaten eggs, then stir the eggs into the remaining cornstarch mixture.
3. Continue cooking, stirring constantly 4 to 5 minutes more or until the mixture is about the consistency of pudding.
4. Chill thoroughly. This step is essential for smooth ice cream.
5. Stir in vanilla and remaining milk or cream.
6. Pour into a 1 gallon ice cream freezer and freeze according to the manufacturer's directions.
7. Remove dasher, add mixture of ice and salt to freezer, if needed, cover with heavy blanket, and allow ice cream to harden about 2 hours.

Fruit variation

Stir in 2 cups crushed or pureed fruit after removing dasher.

Chocolate swirl variation

Swirl 2 cups chocolate sauce through ice cream after removing dasher.

Calorie and fat comparison of milk and cream

Milk or cream	Calories per cup	Grams of fat per cup
Heavy whipping cream	821	88
Light cream (coffee/table)	469	46
Half and half (half milk, half cream)	315	28
Whole milk	150	8
2 percent milk	121	5
1 percent milk	102	3
Skim milk (nonfat)	86	trace
Evaporated whole milk	339	19
Evaporated skim milk	199	1

Reference: *Nutritive Value of Foods*, H&G 72. 2002
www.nal.usda.gov/fnic/foodcomp/Data/HG72/hg72_2002.pdf

Providing a safe food supply is everyone's responsibility—

Producers are working with the U. S. Department of Agriculture to control *Salmonella enteritidis* in poultry flocks and reduce the number of infected eggs.

Food processors, retailers, and consumers also must practice safe food handling to control microbiological contamination.

Everyone must handle eggs and egg-containing foods carefully and cook them thoroughly to avoid the risk of salmonella food poisoning.

Check these Web sites for more food safety information

Iowa State University Extension Food Safety Project—
www.extension.iastate.edu/foodsafety

Iowa State University Extension Answer Line—
www.extension.iastate.edu/answerline

Iowa State University Extension Distribution Center—
www.extension.iastate.edu/store

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