



Dairy MAX

YOUR Local Dairy Council

milk

Providing high-quality protein,
vitamins and other minerals

MILK has long been a popular beverage - not only for its flavor, but because of its unique nutritional package.



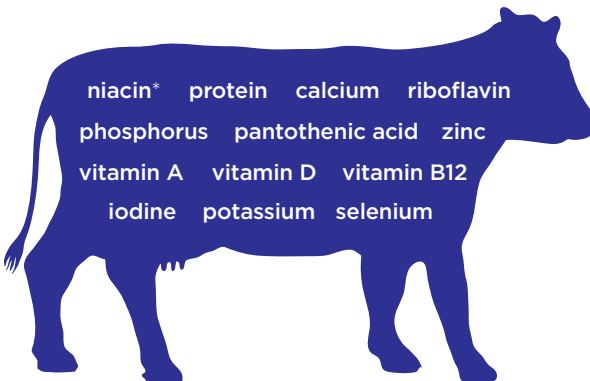
What Is Milk?

Milk from a dairy cow is composed of the following:

**87.5%
Water**

**12.5%
Milk Solids**

- 3.7% Milk Fat
- 4.8% Lactose
- 0.7% Minerals
- 3.4% Quality Protein
(contains all essential amino acid "building blocks" for protein)
 - 2.8% Casein
 - 0.6% Whey



Milk is also a good source of 13 essential nutrients.

*niacin equivalents

Nutrition Information

REFRIGERATED

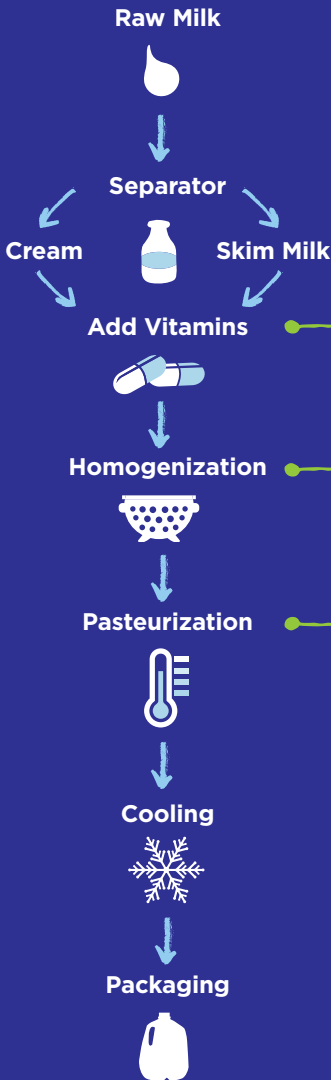
	Percent Fat	Supplemented With Vitamin D	Supplemented With Vitamin A
Raw Unpasteurized product. Illegal for sale in many U.S. states	~3.7%	No	No
Whole Milk	3.25%	Not required	Not required
Reduced-Fat Milk	2%	Yes	Yes
Low-Fat Milk	1%	Yes	Yes
Fat-Free Milk Skim	0%	Yes	Yes
Chocolate Milk Cocoa, sugar and stabilizers commonly added	Varies	Yes	Yes
Lactose-Free Has lactase enzyme added	Varies	Yes	Yes
Organic	Varies	Yes	Yes

SHELF STABLE

	Percent Fat	Supplemented With Vitamin D	Supplemented With Vitamin A
Sweetened Condensed Milk Has sugar added	8%	N/A	N/A
Evaporated Milk Water is removed from whole milk	6.5%	Yes	Optional
Evaporated Fat-Free Milk	0.5%	Yes	Yes
Dry Milk Nutritionally similar to fat-free milk. Vitamin levels may be reduced	Varies	Optional	Optional

How Milk is Made

Raw milk from a dairy cow is processed (pasteurized, homogenized and bottled) for safety and ease of use.



Vitamins A and D are added to milk to enhance its nutritional profile. Since milk is a common food in most Americans' diets, supplementation of vitamin D has helped to reduce the prevalence of rickets and other bone weakening conditions since supplementation began. Whole milk naturally contains vitamin A and some vitamin D, but must be supplemented in low-fat products.

Homogenization is a mechanical process; milk is pumped through fine holes under high pressure to decrease milk fat globule size. Because fat is less dense than water, fat separates and rises to the top of milk that is not homogenized. Breaking milk fat into smaller globules helps create a smooth, uniform and appealing texture. This process has no effect on the nutritional quality of milk.

Pasteurization is the process of heating raw milk at a high enough temperature for a sufficient length of time to make milk bacteriologically safe – destroying dangerous microorganisms which can grow in milk. Pasteurization has little to no effect on milk's nutritive value.



Pasteurization

Pasteurization

Pasteurization destroys bacteria which can cause serious illnesses, as well as yeasts and molds, and breaks down enzymes which can cause the milk to become rancid.

Uses: All fluid milk products

Process: Milk is heated to 161° F for 15 seconds

Ultra-Pasteurization

Ultrapasteurized milk stays fresher longer under refrigeration than pasteurized milk. May have a cooked taste.

Uses: Extended shelf life products commonly used for cream and eggnog

Process: Milk is heated to 280° F for 2 seconds

Ultra High Temperature (UHT)

UHT milk is packaged in sterilized containers which allows it to be stored for up to three months at room temperature. Once opened, it should be refrigerated. It cannot be turned into cheese.

Uses: Aseptic products

Process: Milk is heated to 280°-300° F for 2-6 seconds

Sterilization

Used to make canned or packed milk.

Uses: Evaporated milk

Process: Milk is heated to 239°-248° F for 20-30 minutes

Did You Know?

Palmitic acid is commonly combined with Vitamin A to make it stable.

How Should Milk *Be* Stored?

Milk is perishable. To preserve its safety and quality, the following tips are recommended:

- **Refrigerate milk at 40° F or less** as soon as possible after purchase and store in the original container.
- **Return milk to the refrigerator** immediately after serving.
- **Never return used milk to the original container.**
- **Keep milk containers closed** to prevent the absorption of other flavors. An absorbed flavor changes the taste, but the milk is still safe.
- **Protect milk from exposure to light.** Light can reduce the riboflavin content of milk and cause off-flavors.
- If properly cared for, milk generally stays **fresh two to three days after the “sell-by” or “pull-by” date.**
- **Freezing milk is safe but not recommended.** Freezing milk causes undesirable changes to the texture and appearance of milk and its container.
- **Keep canned milk in a cool, dry place and invert cans every two months.** Evaporated and sweetened condensed milks generally keep for about a year at room temperature. Once opened, canned milk should be poured into a separate container, refrigerated and used within a few days.
- **Store dry milk in a cool, dry place** and keep in an air-tight container after opening. Once reconstituted, dry milk should be refrigerated and handled like other fluid milks.

MANGO & MINT Smoothie



Recipe

INGREDIENTS

2 mangoes, very ripe, peeled & sliced, seeds removed

12 mint leaves, fresh (not sprigs)

8 ounces strawberries, stem end removed

1 cup Greek yogurt, plain, fat-free

1 cup milk

2 tablespoons honey

Ice, crushed

DIRECTIONS

Place all ingredients in a blender, pulse until smooth, pour into cups.

About This Recipe

Colorado chef Jeremy Glas participated in the White House Chefs Move to Schools launch. He's an active participant in the popular Fuel Up to Play 60 program which encourages students to make healthy changes at their schools.

For more delicious recipes, visit our website
DairyDiscoveryZone.com

References

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- Brown, Amy. Understanding Food Principles & Preparation Fourth Edition. Belmont: Wadsworth, Cengage Learning, 2011. Print.
- U.S. Department of Health and Human Services. Public Health Service. Food and Drug Administration. Grade “A” Pasteurized Milk Ordinance. 2011 Revision.
- Adapted from: Milk Fact Sheet, Copyright 2000, National Dairy Council, Rosemont, IL.



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