

A Guide to Plant-Based Dairy Alternatives



Dairy alternatives have risen in popularity, becoming a staple in many people's diets. People may reach for dairy alternatives because of dietary restrictions like lactose intolerance or allergies. They might like them for personal reasons related to health or the environment. As the variety and quality of plant-based products continue to grow, more people are exploring alternatives to traditional dairy foods and drinks. The sources of these dairy alternatives play a role in the nutrition, taste, and texture of the products. This also influences how these products are used in meals and recipes.

What are dairy alternatives?

Dairy alternatives, commonly referred to as plant-based dairy items, are foods that come from nuts, seeds, or other parts of plants. They are created to mimic the taste, texture, and function of traditional dairy items. They come in many forms, providing alternatives to dairy milk, butter, cheese, yogurt, cream cheese, and more.

Although marketed as alternatives to cow's milk, these options do not have the same nutrition. The *Dietary Guidelines for Americans* considers cow's milk, yogurt, and cheese to make up the dairy group for healthy dietary patterns. Fortified soy products, including soy milk and soy yogurt, are included in the dairy group because their nutrition is similar to cow's milk and yogurt. Other alternatives differ in protein, vitamins, and minerals and are not considered a nutritionally adequate alternative.

Is it milk?

Plant-based drinks are commonly marketed using the word "milk," but they do not meet the traditional definition of milk. This publication refers to them by their plant source and the word "milk"—for example, soy milk or almond milk—to be consistent with the common identifiers seen at food markets and referred to in the *Dietary Guidelines for Americans*.

Consumers can often find many options for dairy alternatives at their local food markets:

- **Milk alternatives** include soy, almond, and oat milk. There are also other alternatives, like coconut, rice, pea, or hemp milk, but these options are not as widely available on store shelves.
- **Butter alternatives** are often made from a blend of plant oils like palm, coconut, avocado, or olive oil. They can be used similarly in cooking and baking.
- **Cheese alternatives** range from nut-based spreads to soy or coconut oil-based varieties designed to melt and stretch like dairy cheese.
- **Cream cheese alternatives** are typically made from nuts, like cashews, or tofu with a bit of acid.
- **Yogurt alternatives** made from soy, almond, coconut, or oat milk are cultured to offer probiotics and come in a variety of textures and flavors.

Nutritional comparison of milk and milk alternatives

Cow’s milk is a good source of important nutrients. Cow’s milk is naturally high in some nutrients, and others are added to it to increase the nutritional value. This process of adding nutrients to a product is called fortification. Cow’s milk is fortified, most commonly, with vitamins A and D. The *Dietary Guidelines for Americans* recommends cow’s milk, yogurt, and cheese make up the dairy group for a healthy dietary pattern. For individuals who choose dairy alternatives, fortified soy milk and soy yogurt are appropriate options because they are nutritionally similar to the cow’s milk option.

Milk alternatives have their own unique nutritional profiles. They often are fortified with nutrients to mimic the profile of traditional dairy or contribute to the recommended daily intake of certain nutrients. Because of the processing required to make dairy alternatives from plant foods, they fit into the category of ultra-processed foods.

When choosing a dairy alternative, it might be helpful to consider its nutrient profile to make the best choice for your personal needs. These nutrients are important and benefit health.

Vitamins and minerals

- **Calcium** and **vitamin D** support bone and teeth health.
- **Vitamin E** acts like an antioxidant and supports immune health.
- **Vitamin B₁₂** is essential for protein metabolism in the body and for supporting the nervous system. Individuals who follow a vegetarian or vegan diet may want to consider how much B₁₂ they take in because it is only naturally found in animal foods. It is sometimes added to some plant foods.

Carbohydrates, fats, and protein

- **Carbohydrates** include sugar, both natural and added. Milk alternatives from plants, like oat milk, may naturally have a higher amount of carbohydrates, or they may be sweetened to make them appealing. Higher levels of carbohydrates might affect those with diabetes. It may be necessary to keep an eye out for the carbohydrate amount in dairy alternatives. Consider pairing alternative milks with protein and fat options to manage blood glucose levels.
- **Fats** can be categorized into saturated and unsaturated fats. Diets with high levels of saturated fat are linked to conditions like heart disease. Animal milk, such as cow’s milk, primarily contains saturated fat. Whole milk has more fat than low-fat or skim milk. Plant-based milk-like products are usually lower in saturated fat and have more unsaturated fat.
- **Protein** is important to consider when choosing dairy or dairy alternatives. Protein is vital in the body for many functions including cell and muscle building. Cow’s milk is a good source of protein, compared to plant-based options.

Dietary guidelines encourage cow’s milk or fortified soy milk for everyone one year of age and older because of the nutrient profile. The nutrients in soy milk are most like those in cow’s milk and should be chosen when cow’s milk is not tolerated.

Use the Nutrition Facts label to check the amount of key nutrients in different dairy alternatives.

Nutrition Facts	
4 servings per container	
Serving size	1 cup (8 fl oz)
Amount per serving	
Calories	30
% Daily Value*	
Total Fat 3g	5%
Saturated Fat 0g	0%
Trans Fat 0g	
Polyunsaturated Fat 0.5g	
Monounsaturated Fat 2g	
Cholesterol 0mg	0%
Sodium 190mg	8%
Total Carbohydrate 2g	1%
Dietary Fiber 1g	4%
Soluble Fiber <1g	
Insoluble Fiber 1g	
Total Sugars <1g	
Includes 0g Added Sugars	0%
Protein 1g	
Vitamin D 5mcg (80 IU)	25%
Calcium 390mg	30%
Iron 0.4mg	2%
Potassium 35mg	1%
Vitamin A 90mcg	10%
Vitamin E 7mg	50%
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

Source: Plant rEvolution Unsweetened Vanilla Almond Milk

Typically dairy alternatives, especially plant-based milks, are fortified with vitamins A, D, E, and B₁₂, as well as calcium. These nutrients and their amounts can be found on the Nutrition Facts label. There are also differences between the carbohydrate, protein, and fat content of dairy milk and dairy alternatives. Table 1 compares the nutrient values of common dairy alternatives—specifically almond, soy, and oat milk—to those in low-fat cow’s milk. People with certain health conditions may have specific dietary needs. Use the Nutrition Facts label to find a dairy product or dairy alternative that works for you. For individuals who can tolerate dairy, it is recommended to choose cow’s milk because of the balance of protein, fat, carbohydrates, vitamins, and minerals present.

Table 1. Nutrients in cow's milk and common plant-based alternatives.

Nutrients found in about 1 cup (8 fl oz)	1% milk (low- fat)	Unsweetened almond milk	Unsweetened soy milk	Unsweetened oat milk
Calories	103	46	91	115
Carbohydrates	12.4 g	1.6 g	8.5 g	12.2 g
Fats	2 g	3.7 g	5 g	6.6 g
Protein	8 g	1.58 g	4.5 g	1.9 g
Vitamin A	139 mcg	146 mcg	139 mcg	204 mcg
Vitamin D	2.5 mcg	3.8 mcg	1.6 mcg	4 mcg
Vitamin E	0.05 mg	7.9 mg	.38 mg	--
Vitamin B12	1.5 mcg	1 mcg	0.9 mcg	1.5 mcg
Calcium	302 mg	379 mg	242 mg	355 mg

g = grams; mcg = micrograms; mg = milligrams

Source: U.S. Department of Agriculture. FoodData Central. (n.d.) <https://fdc.nal.usda.gov/>

Why would someone choose dairy alternatives?

People choose dairy alternatives for a variety of reasons ranging from health concerns, like lactose intolerance and allergies, to personal beliefs. Some of the most common are listed in this publication.

Lactose intolerance

Lactose intolerance is a result of the body not making enough lactase. Lactase is the enzyme needed to digest lactose, which is the sugar naturally found in dairy. Lactose intolerance affects more than half of the population. An individual with lactose intolerance who consumes dairy products may experience symptoms like bloating, gas, stomach pain, and diarrhea. Because of this, many people avoid dairy. There are a growing number of lactose-free dairy options that are nutritionally equivalent to milk, cheese, and yogurt.

Milk allergy

Another cause for concern is milk allergy. This is an immune reaction to proteins found in cow's milk, especially casein and whey proteins. With this allergy, the immune system mistakenly identifies milk proteins as harmful. This triggers a variety of symptoms, some of which can be life-threatening. Because of the risk of allergic reactions, those with milk allergy must avoid all dairy products. This includes cow's milk but can also include milk and milk products from other mammals like buffalo, goats, and sheep.

Alpha-gal syndrome

Those with alpha-gal syndrome may avoid dairy. This is a type of food allergy caused by a reaction to a sugar molecule called alpha-gal. It is found in red meat and other products from mammals, including dairy. It is triggered after a person is bitten by certain ticks, like the lone star tick in the United States. Some people develop the allergy, which leads the immune system to fight against alpha-gal. Symptoms can range from stomach pain and skin reactions to life-threatening anaphylaxis. For some people, dairy can cause these severe reactions, making it necessary to avoid dairy completely.

Vegan or vegetarian diets

Dietary patterns like veganism or vegetarianism may impact dairy intake. People who follow a vegetarian diet limit their intake of animal products, which may include dairy. People who follow a vegan diet avoid all animal products. Dairy products are not included in a vegan diet, and individuals might choose to consume plant-based dairy alternatives.

Other reasons

People might choose a dietary pattern without dairy for ethical, religious, or cultural reasons, or for perceived health benefits. Some might choose to avoid dairy products because of personal concerns related to industrial farming or the welfare of animals.

Uses of dairy alternatives in cooking

Dairy-free alternatives are versatile, making it easy to adapt recipes without compromising taste or texture. If a recipe calls for cow's milk, soy and oat milk work well as a substitute in cooking, baking, coffee, cereal, or smoothies. Oat milk has a mild flavor and is lighter in texture, resembling low-fat and fat-free milk. These qualities make it a more appropriate alternative for some recipes, especially baked goods. Soy milk has a thicker mouthfeel, resembling whole milk. Almond milk can work for some recipes but has a thinner consistency. It may not be the most appropriate choice for a creamy ingredient substitution. These characteristics may play a role in deciding which alternative to use in your recipe.

If a recipe calls for evaporated milk or sweetened condensed milk, you can make your own from these milk alternatives. To make dairy-free evaporated milk, gently simmer your chosen plant-based milk until it is reduced to about a third of the starting volume. To make dairy-free sweetened condensed milk, add sugar to the evaporated milk. Another option is substituting coconut milk in the recipe, which naturally has a thicker texture. It will add a coconut flavor to the product, so it works for some recipes, but not others. Coconut milk is also a good substitute for heavy cream in a recipe.

A simple and accessible swap for butter in any recipe is to use a plant-based margarine. When baking, it's best to choose a dairy-free margarine that's lower in water and higher in fat. Using margarine with too much water could affect your product.

Cheese replacements are more technical because of the different roles of cheese in recipes. There are several brands that make cheese alternatives that are free from dairy. These come in forms like shreds, blocks, and slices, and have a similar taste, texture, and feel to dairy cheese.

For yogurt, plant-based options made from coconut, almond, or soy milk are excellent in parfaits and for baking, or as sour cream substitutes. Similarly, plant-based cream cheeses are usually made from the same ingredients as yogurts and can be used in recipes. It may be helpful to test out different brands to find one that best fits your recipe and preferred taste and texture.

Balancing dairy recommendations with individual needs

While cow's milk and its products are recommended for a healthy dietary pattern, they may not be appropriate for all individuals. For individuals who cannot drink cow's milk, fortified soy milk is the most similar when it comes to nutrition. Some people choose to enjoy both dairy and alternatives in different ways as part of their balanced diets. Many dairy alternatives are accessible and affordable to fit health needs or personal values. With so many choices, it's easier than ever to enjoy meals with or without dairy while still getting the nutrition you need.

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