

healthline

What Is Fortified Milk? Benefits and Uses

Fortified milk is widely used around the world to help people get nutrients that may otherwise be lacking in their diets.

It offers several benefits compared with unfortified milk.

This article reviews how fortified milk is made, as well as its nutrition, benefits, and downsides.

How it's made

Fortified milk is [cow's milk](#) that contains extra vitamins and minerals that are not naturally found in milk in significant amounts.

Typically, vitamins D and A are added to milk sold in the United States ([1Trusted Source](#)).

However, milk can be fortified with various other nutrients, including zinc, iron, and folic acid ([2Trusted Source](#)).

How or if milk is fortified depends on where you live and what nutrients may be lacking in the typical diet of your country. While some countries require fortification of milk by law, this is not the case in the United States ([3Trusted Source](#)).

Still, fortified milk is much more common than unfortified milk in the United States.

In terms of uses, fortified milk is utilized in the same way as unfortified varieties, such as for drinking or cooking.

To fortify milk, [vitamin A](#) palmitate and vitamin D3 are added. These are the most active and absorbable forms of these nutrients ([4Trusted Source](#), [5Trusted Source](#)).

As they're heat resistant, these compounds can be added to milk before pasteurization and homogenization, which are heat processes that kill harmful bacteria and improve shelf life ([2Trusted Source](#), [6](#), [7](#)).

Other nutrients like B vitamins must be added later, as heat can destroy them. However, milk is not typically fortified with B vitamins in the United States ([2Trusted Source](#)).

SUMMARY

Fortified milk is milk that contains added nutrients. In the United States, milk is often fortified with vitamins A and D, though it's not required by law.

Fortified vs. unfortified milk

Fortified milk is a good source of vitamins A and D. Plus, milk is naturally high in several other vitamins and minerals.

The chart below compares the nutrient contents of 8 ounces (240 ml) of fortified and unfortified 2% milk ([8](#), [9](#)):

	Fortified 2% milk	Unfortified 2% milk
Calories	122	123
Protein	8 grams	8 grams
Fat	5 grams	5 grams
Carbs	12 grams	12 grams
Vitamin A	15% of the Daily Value (DV)	8% of the DV
Vitamin B12	54% of the DV	54% of the DV
Vitamin D	15% of the DV	0% of the DV
Riboflavin	35% of the DV	35% of the DV
Calcium	23% of the DV	23% of the DV
Phosphorus	18% of the DV	18% of the DV

Selenium	11% of the DV	11% of the DV
Zinc	11% of the DV	11% of the DV

Both fortified and unfortified milks are highly nutritious.

They also promote bone health due to their high content of calcium and phosphorus, the two primary minerals that comprise bones. In addition, vitamin D in fortified milk boosts your body's absorption of calcium ([10Trusted Source](#), [11Trusted Source](#)).

What's more, nearly 30% of the calories in milk come from [protein](#), which your body needs to build healthy muscles and create compounds that help direct bodily processes ([12](#), [13](#)).

SUMMARY

Fortified and unfortified milks are highly nutritious and particularly rich in vitamin B12, calcium, and phosphorus. Fortified milk in the United States is also high in vitamins A and D.

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Benefits of fortified milk

Compared with unfortified milk, fortified milk offers several benefits.

Fills nutrient gaps in your diet

Fortification (adding nutrients that a food lacks) and enrichment (reintroducing nutrients lost during processing) were first developed to prevent [nutrient deficiency](#) diseases like rickets, a weakening of bones due to vitamin D deficiency ([3Trusted Source](#)).

The fortification and enrichment of flour and milk have helped almost eradicate deficiency diseases in developed countries ([14Trusted Source](#)).

In addition, fortification is a useful strategy to correct other micronutrient deficiencies that may not be as serious but can still be harmful ([15Trusted Source](#)).

For instance, most people around the world get enough vitamin D to prevent rickets but not other harmful side effects of [vitamin D deficiency](#), such as decreased immunity ([16Trusted Source](#), [17Trusted Source](#), [18Trusted Source](#)).

One study found that countries with widespread use of fortified milk had populations with higher vitamin D intake and blood vitamin D levels than countries that didn't widely use fortified milk ([19Trusted Source](#)).

Promotes healthy growth in children

Fortified milk helps prevent [iron deficiency](#) anemia in children, a common problem, especially in developing countries. In these regions, milk is often fortified with iron and other nutrients, such as zinc and B vitamins.

One review of studies in over 5,000 children found that milk and grain foods fortified with iron, zinc, and vitamin A decreased the occurrence of anemia by over 50% in children younger than 5 years old ([20Trusted Source](#)).

In another study conducted in Pakistan, folic-acid-fortified milk helped improve the iron status of toddlers, compared with unfortified cow's milk ([21Trusted Source](#)).

A similar study in the United Kingdom noted that toddlers who drank fortified milk consumed more iron, zinc, vitamin A, and vitamin D and had higher vitamin D and iron levels than those drinking unfortified cow's milk ([22Trusted Source](#)).

Additionally, fortified milk may improve brain function in older children ([23Trusted Source](#)).

In one study in 296 Chinese middle school students, those who drank fortified milk were less likely to have riboflavin and iron deficiency. Plus, they showed improved academic performance and motivation, compared with those drinking unfortified milk ([23Trusted Source](#)).

However, keep in mind that the nutrients milk is fortified with depend on the regional needs of certain populations. Typically, milk in the United States is not fortified with iron, [folic acid](#), zinc, or riboflavin.

Improves bone health

Fortified milk may help [improve bone health](#). Consuming milk and dairy foods, which are often fortified, is associated with higher bone mineral density, or stronger, thicker bones ([24Trusted Source](#), [25Trusted Source](#)).

Milk is naturally [high in calcium](#) and phosphorus, and bone is made of a matrix of these two nutrients ([11Trusted Source](#)).

Therefore, even unfortified milk may promote bone health by providing the raw materials needed to create and strengthen your bones ([11Trusted Source](#)).

However, vitamin-D-fortified milk, in particular, is excellent for bone health, as this nutrient helps your body absorb more calcium ([10Trusted Source](#)).

Proper calcium intake is essential for preventing osteoporosis, a disease characterized by weak and brittle bones. Fortified milk is a low-cost and easily accessible way to get enough calcium and boost your absorption of this important mineral ([26Trusted Source](#)).

SUMMARY

Fortified milk helps prevent nutrient deficiencies, promote healthy development in children, and increase bone mass and strength.

Potential downsides

Though fortified milk is very beneficial, there are some potential downsides to consider.

Researchers estimate that about two-thirds of the world's population is lactose intolerant and thus unable to properly digest the sugar found in dairy. People with this condition often experience diarrhea and other intestinal issues after consuming milk or dairy ([27Trusted Source](#)).

If you're lactose intolerant or react badly to dairy products, you should avoid fortified milk or choose lactose-free products. If you have a milk allergy, you should avoid dairy products completely.

However, you can choose fortified [nondairy milk alternatives](#), such as soy or almond milk.

In addition, fortification does not necessarily mean that a food is healthy.

For example, [chocolate milk](#) can be fortified with vitamins A and D just like white milk. Yet, it's often loaded with sugar and additives and should be enjoyed in moderation ([28](#)).

Finally, choosing fat-free fortified milks may hinder the absorption of vitamins A and D. These vitamins are fat-soluble and need fat while they're being digested to be fully absorbed ([4Trusted Source](#), [5Trusted Source](#)).

SUMMARY

Many people are lactose intolerant and should either avoid dairy or choose lactose-free products. Plus, fortified foods may not necessarily be healthy, and consuming fat-free milk may prevent your body from adequately absorbing fat-soluble vitamins.

The bottom line

Fortified milk contains added nutrients.

In the United States, milk is commonly fortified with vitamins A and D. However, depending on where you live, milk may be fortified with other nutrients or left unfortified.

Fortification may help fill nutrient gaps, prevent iron deficiencies in children, and increase bone density and strength.

Still, if you're [lactose intolerant](#) or have a dairy allergy, you should choose lactose-free or nondairy alternatives.