

MILK VS. PLANT-BASED BEVERAGES: HOW DO THEY COMPARE?

There are many different plant-based beverages (PBB) available in the grocery store and it is important to know how these beverages compare to milk on a nutritional basis so you can help your patients make informed choices.

NUTRIENT COMPARISON

MILK CONTAINS 15 ESSENTIAL NUTRIENTS:		
Protein	Niacin	Magnesium
Vitamin A	Thiamine	Phosphorus
Vitamin B12	Pantothenic acid	Potassium
Vitamin B6	Vitamin D	Zinc
Riboflavin	Calcium	Selenium

There are over 20 PBBs to choose from, which are made from almonds, cashews, coconut, oats, soy hemp, rice or other plants.¹ The nutrient content of PBBs have a huge range and are highly variable – some are fortified, some are not, and they all have vastly different panels of Nutrition Facts.²

CONSUMER CONFUSION

PBBs are often sold in the dairy section of stores in similar packaging to milk, and some consumers mistakenly think milk and PBBs are interchangeable. They are not, for two main reasons:

1 Milk is considered a whole food; many PBBs are ultra-processed. The only ingredients in 3.25% milk is milk and vitamin D (which is required by law). Some PBBs only contain water, vitamins and the plant they are named for (almond, soy, etc). But buyer beware. Studies show that 90% of PBBs meet the criteria for ultra-processed foods, meaning they contain sweeteners, hydrogenated oils, flavour enhancers, emulsifiers, or thickeners.³ Dietary guidelines recommend eating more whole foods and cutting back on ultra-processed foods to help lower the risk of chronic disease.^{4,5}

2 Milk has more protein and a wider variety of vitamins and minerals compared to PBBs. Consumers are not aware that most PBBs are low in protein, and don't contain the same array of 15 vitamins and minerals found in milk. PBBs nutrients range based on what's naturally occurring and how much they are fortified. Overall, milk contains more potassium, phosphorus and zinc compared to PBBs.⁶

¹ <https://www.mdpi.com/2072-6643/13/3/842/htm>

² <https://pubmed.ncbi.nlm.nih.gov/34746213/>

³ <https://academic.oup.com/advances/article-abstract/12/6/2068/6325326?redirectedFrom=fulltext&login=false>

⁴ <https://food-guide.canada.ca/en/healthy-eating-recommendations/limit-highly-processed-foods/>

⁵ <https://food-guide.canada.ca/en/healthy-eating-recommendations/make-it-a-habit-to-eat-vegetables-fruit-whole-grains-and-protein-foods/>

⁶ <https://www.frontiersin.org/articles/10.3389/fnut.2022.957486/full>



HERE'S A GUIDE TO HELP YOUR CLIENTS MAKE INFORMED CHOICES:



	Calories	Fat (g)	Carbohydrate (g)	Protein (g)	Sodium (mg)	Potassium (%DV)	Calcium (%DV)	Vitamin A (%DV)	Vitamin D (%DV)	Vitamin B12 (%DV)
Skim milk	90	0	13	9	105	12	30	15	13	45
1% milk	110	2.5	12	9	100	12	30	10	13	45
2% milk	130	5	12	9	100	12	30	10	13	45
3.25% milk	160	8	12	9	100	12	30	10	13	45
Lactose free skim milk	70	0	7	9	60	5	23	11	13	38
Lactose free 1% milk	90	2.5	7	9	60	5	23	11	13	38
Lactose free 2% milk	110	5	7	9	60	5	23	11	13	38
Lactose free 3.25% milk	140	8	7	9	60	5	23	11	13	38

Health Canada has increased the vitamin D fortification level required in milk which will come into effect in 2026. During this transitional period, on the Nutrition Facts Table of your package of milk, you may notice some milk manufacturers will have the current fortification level, which is equivalent to 13% of the recommended daily value (%DV) of vitamin D in a glass of milk, while others may have already adopted the new level of vitamin D fortification level which is equivalent to 25% of the DV% value.

Plant-based beverages



	Calories	Fat (g)	Carbohydrate (g)	Protein (g)	Sodium (mg)	Potassium (%DV)	Calcium (%DV)	Vitamin A (%DV)	Vitamin D (%DV)	Vitamin B12 (%DV)
Almond (original)	60	2.5	8	1	150	1	23	11	10	42
Almond (unsweetened)	30	2.5	1	1	130	4	23	11	10	42
Cashew (original)	60	2.5	9	1	160	1	23	11	10	42
Cashew (unsweetened)	25	2	1	1	160	1	23	11	10	42
Soy (original)	100	4	8	6	90	8	30	10	45	50
Soy (unsweetened)	80	3.5	4	8	40	9	30	10	45	50
Oat (original)	80	3.5	12	1	100	4	23	11	10	42
Oat (unsweetened)	70	4.5	8	1	90	4	23	11	10	42
Macadamia (original)	70	4.5	7	1	115	0	35	25	20	N/A
Macadamia (unsweetened)	55	6	1	1	110	0	38	25	20	N/A

PROTEIN QUALITY AND QUANTITY

As the chart above shows, none of the PBBs have the same amount of protein as milk. Soy is a close second, but most PBBs have only one gram of protein per cup (compared to nine grams in milk).

In addition to having more protein, milk also has a higher quality of protein compared to PBBs. Per the Digestible Indispensable Amino Acid Score (DIAAS), milk scores a 1.18, compared to 0.94–0.97 for soy protein isolate, 0.54 for oats, 0.4 for almonds, and 0.37 for rice protein.⁷

Several studies have compared the protein in milk and PBBs. One study found that one cup of milk provides a greater contribution toward the recommended daily intake (RDI) of all amino acids considered (29–61% contribution to each amino acid except histidine), while PBBs provide 11% or less.⁸

CALCIUM SEDIMENT

Calcium in milk is naturally occurring, and one cup of milk provides 30% of your required daily value (DV). Calcium is added to PBBs via fortification, and the amount added can range from 23–38% DV. But there's one catch. Added calcium sinks to the bottom of the beverage container as sediment. So, the nutrient content of PBBs depends on whether the product has been shaken.⁹

In a study comparing the calcium content of PBBs based on shaking, researchers learned that unshaken almond and soy samples had 14 and 18% lower calcium contents than their well-mixed samples, while rice and oat samples had 96 and 97% lower calcium contents than the well-mixed samples.¹⁰ While there may be comparable amounts of calcium on Nutrition Facts panels, you get more calcium from milk because it doesn't separate from the beverage and settle on the bottom of the container.¹¹

The bottom line? Milk is a whole food with 15 essential vitamins and minerals. PBBs are not nutritionally comparable as they are lower in protein, vitamins and minerals, and are often ultra-processed.

For more information, visit milk.org.



⁷ <https://www.frontiersin.org/articles/10.3389/fnut.2021.761442/full>
⁸ <https://www.frontiersin.org/articles/10.3389/fnut.2022.957486/full>
⁹ <https://www.frontiersin.org/articles/10.3389/fnut.2022.957486/full>
¹⁰ <https://www.frontiersin.org/articles/10.3389/fnut.2022.957486/full>
¹¹ <https://www.sciencedirect.com/science/article/abs/pii/S0958694618301900>