

## February 2017 Health Notes by Evelyn Ames

### Comparing Milk and non-Dairy “milk” products

The old college song, ‘99 bottles of beer on the wall’ could be retitled to ‘99 cartons of ‘milk’ on the shelves.’ A few years ago, the only decision most of us made when shopping for a carton of milk was whether to choose skim, low fat, or whole milk. Then came organic milk. Soy milk gained popularity. Now grocery shelves are lined with such varieties of non-dairy milk as coconut, almond, cashew, hazelnut, oat, rice, as well as soy and even hemp! Some are unsweetened but many are sweetened with added ingredients (e.g., chocolate, vanilla) as well as emulsifiers, vitamins, and protein. Whatever product one chooses to buy, it is important to read the label to set a better table!

An August 2016 study, reported in the *Journal of Pediatric Gastroenterology and Nutrition*, compared the protein quality of non-dairy beverages and cow's milk. Results showed that cow's milk had higher protein content and quality compared to most of the non-daily products. Also noted in the study was that most of the non-dairy beverages are fortified with calcium and vitamin D but the bioavailability of these substances after fortification is not available. Current reporting suggests that plant-based beverages vary widely in their nutritional profiles. “An eight-ounce glass of cow’s milk naturally contains about eight grams of protein and almost a third of the recommended Percent Daily Value of calcium. Cow’s milk also naturally contains nutrients like potassium and vitamin B12. Cow's milk is also usually fortified with vitamins A and D.” Of the non-dairy milks reviewed (almond, coconut, cashew, and soy) none of the non-daily milks except for soy milk, contain more than a gram of protein unless fortified. Soy beverages often contain as much protein as cow’s milk but no calcium (though many soy beverages are artificially fortified with calcium).

**How nut milk is made:** “Nuts are first shelled, often lightly toasted, soaked in filtered water, ground into a paste, and then blended with water. The “milk” is the liquid that is then strained from the nut solids, or pulp. Some manufacturers then add thickeners or gums, sugar, salt, and flavors. Most of the calories, fat, fiber, protein, vitamins, and minerals are left in the pulp.”

Nutritionists generally report that coconut milks may be the least nutritious, with no protein or one gram of protein and typically only small amounts of added calcium. For sure whole nuts like almonds and cashews have considerable amounts of protein and almonds are rich in calcium. But these nutrients are generally lost during the processing (which contains a lot of water) of these nut beverages. A look at the list of ingredients on product labels shows water as the first or second ingredient. To boost the nutrient profile of these beverages, some manufacturers fortify them, adding pea protein or rice protein to raise the protein count and add vitamins and calcium phosphate or calcium carbonate to increase the calcium. These added ingredients are listed on the label at the bottom of the nutrition facts box. Nutrition scientists debate whether these added nutrients are absorbed and used as efficiently by the body as nutrients that are naturally present in foods.

The calcium in cow’s milk is inherent to the milk and may be better absorbed. “Cow’s milk contains lactose and casein, which help increase the absorption of calcium, and calcium helps absorb vitamin D,” according to S. Gallo, an assistant professor of nutrition and food studies at George Mason University. “There’s synergy between all the nutrients; they all work together.” The amount of vitamin D in plant beverages varies. A testing of children who drank non-cow’s milk beverages had lower blood levels of vitamin D than those who drank cow’s milk.

Fat content, sugar and other sweeteners and caloric counts vary considerably from product to product and may be quite high in flavored plant-based beverages. Fat and calorie count also rise when chocolate is added to full-fat cow's milk. The fats in coconut oil contain more saturated fatty acids than any other non-hydrogenated oil; are stable and have a long shelf life; are used in movie theaters to pop popcorn; are used in South Asian cuisine for dishes like curries; and the hydrogenated version of coconut oil is an ingredient in non-dairy creamers.

“There are other additives in plant-based beverages to consider as well. Ingredients like guar gum, xanthan gum or carrageenan are often added to enhance palatability and give the plant-based beverages a creamier, more velvety ‘mouth feel.’ Some of these additives have been tied to allergic reactions or digestive problems.”

Comparing soy milk and cow's milk: Both are good sources of protein and essential vitamins and minerals. Cow's milk is a better source of calcium. Dairy foods contain vitamins A, B12 and D and other essential nutrients. Unfortunately full-fat dairy also contains a lot of saturated fat, which is one reason why some people make the decision to switch to soy. Soy is a good alternative if a person is lactose intolerant or allergic to dairy. It is also a good alternative, as long as it is calcium fortified, for those with ethical issues around consumption of animal products. **Two other non-dairy milks:** Rice Milk is made from water and brown rice but lacks in nutrients; texture is watery and the taste somewhat bland. Hemp Milk is made from hemp nuts and water and sweetened with brown rice syrup; has a grassy and nutty flavor that is different from cow's milk.

**Milk Aisle Breakdown (per cup)** (compiled by Jenn LaVardera, nutrition intern, master's degree candidate in nutrition communication at Tufts University)

Milk	Calories	Fat (g)	Saturated Fat (g)	Protein (g)	Calcium (%DV)	Vitamin D (%D'
Dairy nonfat	90	0	0	8	30%	25%
Dairy 1%	110	2.5	1.5	8	30%	25%
<u>Dairy 2%</u>	130	5	3	8	30%	25%
Soy (Silk Original)	90	3.5	0.5	6	45%	30%
Vanilla Soy (Silk)	100	3.5	0.5	6	45%	30%
Rice (Rice Dream)	120	2.5	0	1	2%	---
Almond (Silk)	60	2.5	0	1	45%	25%
Unsweetened Almond (Silk)	30	2.5	0	1	45%	25%
Coconut (SoDelicious)	80	5	5	1	10%	30%
Hemp (Pacific)	140	5	0.5	3	50%	30%

**Resources:** <https://www.ncbi.nlm.nih.gov/pubmed/?term=singhal%2C+baker%2C+milk>

<http://www.abc.net.au/health/talkinghealth/factbuster/stories/2011/11/10/3358951.htm>  
<http://www.goodhousekeeping.com/institute/a24493/non-dairy-milk/>  
<https://sciencebasedmedicine.org/coconut-oil/>  
<http://www.cookinglight.com/eating-smart/smart-choices/what-is-cashew-milk>  
<http://healthyeating.sfgate.com/healthy-almond-milk-3883.html>  
<http://www.medicaldaily.com/dairy-aisle-dilemma-are-almond-coconut-and-other-milks-actually-any-healthier-322866>      <http://healthyeating.sfgate.com/health-benefits-coconut-milk-2031.html>