

Soy milk and Cow's Milk: New Evidence to Consider

Author : Dr. Mark Messina

Date : May 20, 2020

The health effects of cow's milk have been hotly debated over the past couple of decades. Two recent publications call into question current dietary milk recommendations,^{1,2} one of which also highlights the benefits of replacing cow's milk with soymilk in relation to breast cancer risk.²

In a review on milk and health published in the *New England Journal of Medicine*, Walter C. Willett and David S, Ludwig, concluded that in contrast to the current recommendations, dietary guidelines for milk and equivalent dairy foods ideally should designate an acceptable intake (such as 0 to 2 servings per day for adults).¹ The 2015-2020 Dietary Guidelines recommendation is 2 cups (or the equivalent in yogurt or cheese) for children ages 2 to 3 years, 2½ cups for children ages 4 to 8 years, and 3 cups for teens 9 to 18 years of age, and for adults. Calcium-fortified soymilk is the only plant milk listed as an alternative to dairy.

Willett and Ludwig base their conclusion on several observations, some of which are highlighted below:

- 1) Weak evidence in support of the value of milk for fracture prevention
- 2) Lack of association between milk intake and body weight
- 3) Higher mortality associated with milk intake in comparison to plant-based protein sources
- 4) Effect of dairy on greenhouse gas emissions

The authors note that the optimal intake of milk for an individual person will depend on overall diet quality. According to Willett and Ludwig, "if diet quality is low, especially for children in low-income environments, dairy foods can improve nutrition, whereas if diet quality is high, increased intake is unlikely to provide substantial benefits, and harms are possible."

Willett and Ludwig are internationally recognized nutrition experts but in the interest of fairness, it would be remiss not to point out that their views on milk don't necessarily reflect the views of the nutrition community overall. For opposing views, see references.³⁻⁵

The second milk-related publication, which also involves soymilk, found that cow's milk was associated with a statistically significant increased risk of developing breast cancer.² More specifically, when Fraser et al.² compared extremes of intake (90th vs 10th percentile intake), the adjusted relative risk (95% confidence interval) for postmenopausal breast cancer was 1.54 (1.22,

1.93). These results come from the Adventist Health Study 2. This analysis involved 52,795 women, 70% of whom were Caucasian. During the 7.9 year follow up period, 906 postmenopausal breast cancer cases were identified.

In this study, full-fat and reduced-fat milk produced similar associations. Furthermore, there was a non-linear positive association between cow's milk intake and risk as the correlation was most robust at low intakes, indicating that if causal, the biological pathway responsible for the increased risk might become relatively saturated at around 2/3 of an 8-ounce cup of milk each day. In other words, the consumption of relatively little milk may markedly increase risk. Fraser et al.² concluded that "current guidelines for dairy milk consumption could be viewed with some caution."

Neither total soy nor isoflavone intake was related to breast cancer risk but when the median intake for cow's milk (47.5 kcal/d) was replaced by the median intake for soymilk (34.2 kcal/d), the relative risk (95% confidence interval) was 0.68 (0.54, 0.87) for postmenopausal breast cancer. As to why neither total soy nor isoflavone intake was related to risk isn't clear, but it is notable that the 90th percentile isoflavone intake was only 41 mg/d, which is the amount provided by less than two servings of a traditional Asian soyfood. Also, much evidence indicates for soy to reduce breast cancer risk, consumption must occur early in life.^{2,6,7} The extent to which the adult soy intake of Seventh-day Adventist women reflects intake earlier in life hasn't been determined.

In conclusion, two recent publications call into question current milk recommendations.^{1,2} One of these highlights the value of consuming soymilk.^{6,7} Since soymilk provides similar amounts of protein as cow's milk⁸ and calcium absorption from calcium-fortified soymilk is similar to the absorption of calcium from cow's milk,⁹ consuming soymilk is worth considering.

References

1. Willett WC, Ludwig DS. Milk and health. *N Engl J Med*. 2020;382(7):644-54.
2. Fraser GE, Jaceldo-Siegl K, Orlich M, et al. Dairy, soy, and risk of breast cancer: those confounded milks. *Int J Epidemiol*. 2020.
3. Drewnowski A. Measures and metrics of sustainable diets with a focus on milk, yogurt, and dairy products. *Nutr Rev*. 2018;76(1):21-8.
4. Hirahatake KM, Astrup A, Hill JO, et al. Potential cardiometabolic health benefits of full-fat dairy: The evidence base. *Adv Nutr*. 2020.
5. Ebbeling CB. Confusion at the milk cooler: opportunity to bolster the evidence base for preventive nutrition. *Am J Clin Nutr*. 2020;111(2):240-1.
6. Messina M, Hilakivi-Clarke L. Early intake appears to be the key to the proposed protective effects of soy intake against breast cancer. *Nutr Cancer*. 2009;61(6):792-8.
7. Messina M, Wu AH. Perspectives on the soy-breast cancer relation. *Am J Clin Nutr*. 2009;89(5):1673S-9S.
8. Vanga SK, Raghavan V. How well do plant based alternatives fare nutritionally compared to cow's milk? *Journal of food science and technology*. 2018;55(1):10-20.

9. Zhao Y, Martin BR, Weaver CM. Calcium bioavailability of calcium carbonate fortified soymilk is equivalent to cow's milk in young women. *J Nutr.* 2005;135(10):2379-82.