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# Got Milk? Might Not Be Doing You Much Good

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Almost no one will dispute that when a baby is born, breast milk is the best nutrition a mother can provide. All mammals nurse their young, and breast milk benefits a newborn infant in ways above and beyond nutrition. In fact, until 1 to 2 years of age, the American Academy of Pediatrics, the World Health Organization, the Institute of Medicine and more promote breast-feeding as optimal.

Unfortunately, breast-feeding until that age is often difficult, if not impossible, because mothers have to return to work, and children go off to preschool or day care. So we often replace human milk with the milk of cows or other animals. But at a certain point, we have to acknowledge that we are the only mammals on the planet that continue to consume milk after childhood, often in great amounts.

More and more evidence is surfacing, however, that milk consumption

may not only be unhelpful, it might also be detrimental. This is in spite of the fact that the United States Department of Agriculture and other organizations advocate that even adults should drink at least three cups a day.

More than 10,000 years ago, when human beings began to domesticate animals, no adults or older children consumed milk. Many people don't drink it today because they are lactose intolerant. They do just fine.

But if you believe the advertising of the dairy industry, and the recommendations of many scientific bodies, they are missing out on some fantastic benefits to milk consumption: that milk is good for bones, contains calcium and vitamin D, and "does a body good."

There's not a lot of evidence for these types of claims. In 2011, The Journal of Bone and Mineral Research published a meta-analysis examining whether milk consumption might protect against hip fracture in middle-aged and older adults. Six studies containing almost 200,000 women could find no association between drinking milk and lower rates of fractures.

More recent research confirms these findings. A study published in JAMA Pediatrics this year followed almost 100,000 men and women for more than two decades. Subjects were asked to report on how much milk they had consumed as teenagers, and then they were followed to see if that was associated with a reduced chance of hip fractures later in life. It wasn't.

A just-released study in The BMJ that followed more than 45,000 men and 61,000 women in Sweden age 39 and older had similar results. Milk consumption as adults was associated with no protection for men, and an increased risk of fractures in women. It was also associated with an increased risk of death in both sexes.

This wasn't a randomized controlled trial, and no one should assume causality here. But there's no association with benefits, and a significant association with harms.

Even studies that examine the nutrients in milk, trying to look for protective effects, often come up short. A 2007 meta-analysis in the American Journal of Clinical Nutrition examined high-quality studies of

how calcium intake was related to fractures. The many studies of more than 200,000 people age 34 to 79 could find no link between total calcium intake and the risk of bone fractures.

This meta-analysis also reviewed randomized controlled trials that examined if calcium supplements could lower the risk of fracture. More than 6,000 middle-aged and older adults participated in these studies, where subjects were randomly assigned to get extra calcium or a placebo. Not only did the extra calcium not reduce the rate of fractures, the researchers were concerned that it may have increased the risk of hip fractures.

In the United States, milk is often fortified with vitamin D, which many believe also lends the drink bone-friendly properties. But the evidence behind this assumption is sketchy as well. It is true that vitamin D is necessary for calcium absorption, and for bone health, but that doesn't mean that most people need to consume more. A meta-analysis published this year in *The Lancet* examined the effect of vitamin D supplementation on bone mineral density in middle-aged and older adults. It found that, for the most part, consuming extra vitamin D did not improve the bones of the spine, hip or forearm. It did result in a statistically significant, but less clinically meaningful, increase in bone density at the top of the thighbone. Taken as a whole, however, vitamin D had no effect on overall total body bone mineral density.

None of this should be taken to mean that people with actual vitamin D or calcium deficiencies shouldn't be treated by supplementation. They absolutely should. But the majority of people in the United States are not clinically deficient in these nutrients, and that's whom milk is pitched to.

In addition, milk is not a low-calorie beverage. Even if people drink nonfat milk, three cups a day can mean an additional 250 calories consumed. Low-fat or whole milk has even more calories. In an era when every other caloric beverage is being marginalized because of obesity concerns, it's odd that milk continues to get a pass.

Yes, it's full of protein. Most Americans aren't protein deficient, though. Even people who avoid animal milk are worried they're missing something.

Rather than acknowledge that they get along just fine without it, many seek out “milk” substitutes, like soy milk, around which whole industries have been built.

Politics are certainly at play here. Organizations like Dairy Management Inc., a nonprofit organization created by the United States government in 1994, exist to “increase dairy consumption.” Dairy Management created the popular “Got Milk?” campaign. Today, the vast majority of Dairy Management’s funding for its marketing strategies comes from the producers themselves. The U.S.D.A.’s role in promoting dairy was firmly established in the 1983 Dairy Production and Stabilization Act, which made it the business of the government to carry out a “coordinated program of promotion designed to strengthen the dairy industry’s position in the marketplace and to maintain and expand domestic and foreign markets and uses for fluid milk and dairy products.”

As I tell patients, almost everything is perfectly good in moderation, milk included. What else would you put on cereal? Cookies without milk would be unthinkable. There’s nothing wrong with a periodic glass because you like it. But there’s very little evidence that most adults need it. There’s also very little evidence that it’s doing them much good.

Aaron E. Carroll is a professor of pediatrics at Indiana University School of Medicine. He blogs on health research and policy at The Incidental Economist, and you can follow him on Twitter at @aaronecarroll.

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