

## High Milk Intake Associated With Mortality Risk?

Larry Hand | October 29, 2014

Swedish researchers have found that a high intake of milk may be associated with higher mortality and fracture risks in women and higher mortality risk in men, but they caution against basing any dietary recommendations on their findings, which were published online October 28 in *BMJ*.

Karl Michaëlsson, MD, PhD, professor in medical epidemiology and senior consultant in orthopedic surgery at Uppsala University in Sweden, and colleagues analyzed data on two large Swedish cohorts: one with 61,433 women aged 39 to 74 years and another with 45,339 men aged 45 to 79 years. Through food frequency questionnaires, the researchers obtained data on common foods and beverages consumed on a daily and weekly basis.

They analyzed outcomes from enrollment (from 1987 to 1990 for the women and January 1998 for the men) through December 2010. During a median of 22 years of follow-up, 15,541 women died and 17,252 women had a fracture. During a median of 13 years of follow-up, 10,112 men died and 5379 men had a fracture.

The researchers found that women who drank three or more glasses (680 g) of milk a day had almost twice the risk for death compared with women who drank less than one glass a day (hazard ratio [HR], 1.93, 95% confidence interval [CI], 1.80 - 2.06). Women who drank more milk also had a higher risk for any type of fracture (HR, 1.16; 95% CI, 1.08 - 1.25) and for hip fracture specifically (HR, 1.60; 95% CI, 1.39 - 1.84).

Although the researchers found that men who drank three or more glasses of milk had a slightly higher risk for death compared with those who drank less than one glass (HR, 1.10, 95% CI, 1.03 - 1.17), men did not have the excess risk for fracture seen in women.

The researchers adjusted the hazard ratio calculations for a wide variety of covariates, including but not limited to age, smoking status, body mass index, height, educational level, calcium and vitamin D supplementation, ever use of cortisone, physical activity, and Charlson's comorbidity index.

In a sensitivity analysis, adjusting for nutrients associated with osteoporosis or fracture risk, the researchers found an even stronger association between high milk intake and outcomes. They also found an association between high milk intake and oxidative stress and inflammation.

### Not Yogurt and Cheese

In contrast, the authors found no similar association between fermented milk products, including yogurt and cheese, and adverse outcomes.

The researchers did not distinguish among fat levels in milk, such as skim and whole, but lumped all milk consumption into one category.

"One potential candidate for the discrepant results for different types of dairy products is D-galactose content," the researchers write. "The intake of D-galactose from non-fermented milk is considerably higher than that from other food sources, including cheese and fermented milk products." They cite animal studies that have linked D-galactose to premature aging.

"Our results may question the validity of recommendations to consume high amounts of milk to prevent fragility fractures. The results should, however, be interpreted cautiously given the observational design of our study," they conclude.

In an accompanying editorial, C. Mary Schooling, PhD, a professor of epidemiology at Hunter College in New York City, writes that Dr Michaëlsson and colleagues "raise a fascinating possibility," but she too urges caution in interpreting the findings.

"As milk consumption may rise globally with economic development and increasing consumption of animal source foods, the role of milk in mortality needs to be established definitively now," she says.

#### **A Far Reach?**

Kasia Ciaston, MS, RD, LDN, a clinical dietitian at Loyola University Medical Center in Maywood, Illinois, however, characterizes the study findings as "a little bit of a far reach."

"I think some of the most important things mentioned in the article are that randomized controlled trials and meta-analyses already studied...milk intake and relation to mortality [and] have displayed no clear pattern of risk, and that the evidence to make this relationship is lacking," she told *Medscape Medical News* in a telephone interview.

Missing from the study, she said, was a discussion of bone density and family history of osteoporosis as potential factors, as well as any discussion of activity levels.

She added that it should not be concluded that the same thing occurs in humans that is seen animal studies.

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