

# **Milk Intake and Risk of Mortality and Fractures in Women and Men**

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## **KEY POINTS FROM THIS STUDY:**

- 1) A diet rich in milk products is promoted to reduce the likelihood of osteoporotic fractures.
- 2) The objective of this study was to examine whether high milk consumption is associated with mortality and fractures in women and men. The authors evaluated 2 large Swedish cohorts, one with 61,433 women and one with 45,339 men. The mean follow-up for the women was 20.1 years. The mean follow-up for the men was 11.2 years.
- 3) Women who consumed 3 or more glasses of milk a day increased their risk of mortality (relative) by 93% compared to those who consumed less than one glass a day.
- 4) For every daily glass of milk, the increased risk of all cause mortality went up by 15% for women and 3% for men.
- 5) High milk intake is associated with higher mortality in both women and men, and with higher fracture incidence in women.
- 6) "A high intake of milk might have undesirable effects because milk is the main dietary source of D-galactose."
- 7) Chronic exposure to D-galactose is deleterious to health and is an established accelerator of aging in animals.
- 8) D-galactose is an established driver for premature aging, shortened life span caused by oxidative stress and chronic inflammation.
- 9) Patients with higher circulating levels of galactose have an increased risk for chronic diseases in adulthood, including osteoporosis.
- 10) "Even a low dose of D-galactose induces changes that resemble natural aging in animals, including shortened life span caused by oxidative stress damage, chronic inflammation, neurodegeneration, decreased immune response, and gene transcriptional changes."
- 11) One glass of milk comprises about 5 g of D-galactose. The D-galactose found in 1-2 glasses of milk accelerates cell death.

12) "The high amount of lactose and therefore D-galactose in milk with theoretical influences on processes such as oxidative stress and inflammation makes the recommendations to increase milk intake for prevention of fractures a conceivable contradiction." "The increase of oxidative stress with aging and chronic low grade inflammation is not only a pathogenetic mechanism of cardiovascular disease and cancer in humans but also a mechanism of age related bone loss and sarcopenia."

13) These authors suggest that the high content of lactose in milk "may increase oxidative stress, which in turn affects the risk of mortality and fracture."

14) Milk intake increases oxidative stress (free radical damage) and increases interleukin-6, a main inflammatory biomarker.

15) The consumption of other dairy products such as cheese and fermented dairy products (yogurt) does not increase the risk of mortality and fractures, because:

- they have lower or non-existent lactose and galactose content
- they have less pronounced induction of oxidative stress and inflammation
- they have positive probiotic, antioxidant and anti-inflammatory effects
- they have positive effects on effects on gut microbiota

"Particularly noteworthy is that intake of fermented milk products such as yogurt and soured milk and cheese were associated with lower rates of fracture and mortality."

16) D-galactose supplementation in animals has been shown to increase oxidative stress and inflammation.

17) For women who consumed three or more glasses of milk a day the hazard ratio for any fracture was increased 16% and for hip fracture was increased by 60%.

18) "We observed a dose dependent higher rate of both mortality and fracture in women and a higher rate of mortality in men with milk intake, a pattern not discerned with other dairy products."

19) There are "higher mortality rates from fracture and ischemic heart disease in countries with high milk consumption."

20) Higher milk consumption may increase the risk of certain cancers and cardiovascular disease.

21) "A higher consumption of milk in women and men is not accompanied by a lower risk of fracture and instead may be associated with a higher rate of death."

22) "Our results may question the validity of recommendations to consume high amounts of milk to prevent fragility fractures."