Dairy Fact Sheet

PHYSICIANS COMMITTEE FOR RESPONSIBLE MEDICINE

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Many Americans, including some vegetarians, still consume substantial amounts of dairy products—and government policies still promote them—despite scientific evidence that questions their health benefits and indicates their potential health risks.

Bone Health

Calcium is an important mineral that helps to keep bones strong. Our bones are constantly remodeling, meaning the body takes small amounts of calcium from the bones and replaces it with new calcium. Therefore, it is essential to have enough calcium so that the body doesn't decrease bone density in this remodeling process. Though calcium is necessary for ensuring bone health, the actual benefits of calcium intake do not exist after consumption passes a certain threshold. Consuming more than approximately 600 milligrams per day—easily achieved without dairy products or calcium supplements—does not improve bone integrity.[1]

Clinical research shows that dairy products have little or no benefit for bones. A 2005 review published in *Pediatrics* showed that milk consumption does not improve bone integrity in children.[2] In a more recent study, researchers tracked the diets, physical activity, and stress fracture incidences of adolescent girls for seven years, and concluded that dairy products and calcium do not prevent stress fractures in adolescent girls.[3] Similarly, the Harvard Nurses' Health Study, which followed more than 72,000 women for 18 years, showed no protective effect of increased milk consumption on fracture risk.[1]

It is possible to decrease the risk of osteoporosis by reducing sodium intake in the diet,[4,5] increasing intake of fruits and vegetables,[5,6] and ensuring adequate calcium intake from plant foods such as kale, broccoli, other leafy green vegetables, and beans. You can also use calcium-fortified products such as breakfast cereals and juices. Soybeans and fortified orange juice are two examples of products which provide about the same amount of calcium per serving as milk or other dairy products.[7]

Exercise is one of the most effective ways to increase bone density and decrease the risk of osteoporosis,[8,9] and its benefits have been observed in studies of both children and adults.[8,10,11]

Individuals often drink milk in order to obtain vitamin D in their diets, unaware that they can receive vitamin D through other sources. Without vitamin D, only 10-15 percent of dietary calcium is absorbed.[12]

The best natural source of vitamin D is sunlight. Five to 15 minutes of sun exposure to the arms and legs or the hands, face, and arms can be enough to meet the body's requirements for vitamin D, depending on the individual's skin tone.[13] Darker skin requires longer exposure to the sun in order to obtain adequate levels of vitamin D. At higher latitudes and during the winter months, the sun may not be able to provide adequate vitamin D; a supplement may be needed.

Few foods naturally contain vitamin D, and no dairy products naturally contain this vitamin. Therefore, fortified cereals, grains, bread, orange juice, and soy or rice milk exist as options for providing vitamin D through the diet.[14] Supplements are also available.

Fat Content and Cardiovascular Disease

Dairy products—including cheese, ice cream, milk, butter, and yogurt—contribute significant amounts of cholesterol and saturated fat to the diet.[15] Diets high in fat and especially in saturated fat can increase the risk of heart disease and can cause other serious health problems.

A low-fat, plant-based diet that eliminates dairy products, in combination with exercise, smoking cessation, and stress management, can not only prevent heart disease, but may also reverse it.[16,17]

Cancer

Consumption of dairy products has also been linked to higher risk for various cancers, especially to cancers of the reproductive system. Most significantly, dairy product consumption has been linked to increased risk for prostate[18-20] and breast cancers.[21]

The danger of dairy product consumption as it relates to prostate and breast cancers is most likely related to increases in insulin-like growth factor (IGF-1), which is found in cow's milk.[22] Consumption of milk and dairy products on a regular basis has been shown to increase circulating levels of IGF-1.[23,24] Perhaps the most convincing association between IGF-1 levels and cancer risk is seen in studies of prostate cancer. Case-control studies in diverse populations have shown a strong and consistent association between serum IGF-1 concentrations and prostate cancer risk.[25] One study showed that men with the highest levels of IGF-1 had more than four times the risk of prostate cancer, compared with those who had the lowest levels.[26] In the Physicians Health Study, tracking 21,660 participants for 28 years, researchers found an increased risk of prostate cancer for those who consumed ≥2.5 servings of dairy products per day as compared with those who consumed ≤0.5 servings a day.[19] This study, which is supported by other findings,[27,28] also shows that prostate cancer risk was elevated with increased consumption of low-fat milk, suggesting that too much dairy calcium, and not just the fat associated with dairy products, could be a potential threat to prostate health.

In addition to increased levels of IGF-1, estrogen metabolites are considered risk factors for cancers of the reproductive system, including cancers of the breasts, ovaries, and prostate.

These metabolites can affect cellular proliferation such that cells grow rapidly and aberrantly,[29] which can lead to cancer growth. Consumption of milk and dairy products contributes to the majority (60-70 percent) of estrogen intake in the human diet.

In a large study including 1,893 women from the Life After Cancer Epidemiology Study who had been diagnosed with early-stage invasive breast cancer, higher amounts of high-fat dairy product consumption were associated with higher mortality rates. As little as 0.5 servings a day increased risk significantly. This is probably due to the fact that estrogenic hormones reside primarily in fat, making the concern most pronounced for consumption of high-fat dairy products. The consumption of dairy products may also contribute to development of ovarian cancer. The relation between dairy products and ovarian cancer may be caused by the breakdown of the milk sugar lactose into galactose, a sugar which may be toxic to ovarian cells.[30] In a study conducted in Sweden, consumption of lactose and dairy products was positively linked to ovarian cancer.[31] A similar study, the Iowa Women's Health Study, found that women who consumed more than one glass of milk per day had a 73 percent greater chance of developing ovarian cancer than women who drank less than one glass per day.[32]

Lactose Intolerance

Lactose intolerance is common among many populations, affecting approximately 95 percent of Asian-Americans, 74 percent of Native Americans, 70 percent of African-Americans, 53 percent of Mexican-Americans, and 15 percent of Caucasians.[33] Symptoms, which include gastrointestinal distress, diarrhea, and flatulence, occur because these individuals do not have the enzyme lactase to digest the milk sugar lactose. When digested, the breakdown products of lactose are two simple sugars: glucose and galactose. Nursing children have active enzymes that break down galactose, but as we age, many of us lose much of this capacity.[34] Due to the common nature of this condition, and in order to avoid these uncomfortable side effects, milk consumption is not recommended.

Contaminants

Milk contains contaminants that range from hormones to pesticides. Milk naturally contains hormones and growth factors produced within a cow's body. In addition, synthetic hormones such as recombinant bovine growth hormone are commonly used in cows to increase the production of milk.[35] Once introduced into the human body, these hormones may affect normal hormonal function.

When treating cows for conditions such as mastitis, or inflammation, of the mammary glands, antibiotics are used, and traces of these antibiotics have occasionally been found in samples of milk and dairy products. This treatment is used frequently, because mastitis is a very common condition in cows, due to dairy product practices which have cows producing more milk than nature intended.

Pesticides, polychlorinated biphenyls

(PCBs), and dioxins are other examples of contaminants found in milk. Dairy products contribute to one-fourth to one-half of the dietary intake of total dioxins.[36] All of these toxins do not readily leave the body and can eventually build to harmful levels that may affect the immune, reproductive, and the central nervous systems. Moreover, PCBs and dioxins have also been linked to cancer.[37]

Other contaminants often introduced during processing of milk products include melamine, often found in plastics, which negatively affects the kidneys and urinary tract due to their high nitrogen content,[38] and carcinogenic toxins including aflatoxins. These are additionally dangerous because they are not destroyed in pasteurization.[39]

Milk Proteins and Diabetes

Insulin-dependent (type 1 or childhood-onset) diabetes is linked to consumption of dairy products in infancy.[40] A 2001 Finnish study of 3,000 infants with genetically increased risk for developing diabetes showed that early introduction of cow's milk increased susceptibility to type 1 diabetes.[41] In addition, the American Academy of Pediatrics observed up to a 30 percent reduction in the incidence of type 1 diabetes in infants who avoid exposure to cow's milk protein for at least the first three months of their lives.[42]

Health Concerns for Children and Infants

Milk proteins, milk sugar, fat, and saturated fat in dairy products pose health risks for children and encourage the development of obesity, diabetes, and heart disease. While low-fat milk is often recommended for decreasing obesity risk, a study published in the *Archives of Disease in Childhood* showed that children who drank 1 percent or skim milk, compared with those who drank full-fat milk, were not any less likely to be obese.[43] Moreover, a current meta-analysis found no support for the argument that increasing dairy product intake will decrease body fat and weight over the long term (>1 year).[44]

For infants, the consumption of cow's milk is not recommended. The American Academy of Pediatrics recommends that infants below 1 year of age not be given whole cow's milk,[45] as iron deficiency is more likely due to the low amount of iron found in cow's milk as compared with human breast milk.[46] Colic is an additional concern with milk consumption. Up to 28 percent of infants suffer from colic during the first month of life.[47] Pediatricians learned long ago that cow's milk was often the reason. We now know that breastfeeding mothers can have colicky babies if the mothers consume cow's milk. The cow's antibodies can pass through the mother's bloodstream, into her breast milk, and to the baby.[48,49]

Additionally, food allergies appear to be common results of cow's milk consumption, particularly in children.[50,51] Cow's milk consumption has also been linked to chronic constipation in children.[52]

Conclusions

Milk and dairy products are not necessary in the diet and can, in fact, be harmful to health. It is best to consume a healthful diet of grains, fruits, vegetables, legumes, and fortified foods including cereals and juices. These nutrient-dense foods can help you meet your calcium, potassium, riboflavin, and vitamin D requirements with ease—and without facing the health risks associated with dairy product consumption.

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