



NATIONAL DAIRY COUNCIL®

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Kathryn McMurry, M.S., R.D.  
Office of Disease Prevention and Health Promotion  
Department of Health and Human Services  
Room 738-G  
200 Independence Ave., S.W.  
Washington, DC 20201

Dear Ms. McMurry:

During the January meeting of the Dietary Guidelines Advisory Committee, the Committee identified a need to research **dairy's role in bone health and the prevention of osteoporosis**.

To supplement the Committee's activities in this area, the National Dairy Council has conducted a literature review of research relating to the importance of dairy and calcium to bone growth and the prevention of fractures.

Over the last decade, several bone studies conducted in various age groups from pre-adolescents to the elderly have demonstrated the bone-building effect of dietary calcium and other nutrients in dairy foods. Just this year, two studies on the importance of dairy products for the prevention of fractures among children were released.

Goulding et al. found that boys and girls ages 3 to 13 who avoided drinking cow's milk for prolonged periods had low bone mineral density, reported more fractures and experienced more total fractures than the comparison group.<sup>1</sup> In addition, osteopenia and overweight were more prevalent in the study population, leading researchers to believe that low bone densities and high body weights from milk avoidance led to a large number of fracture risks during growth. The authors concluded that avoidance of cow's milk leaves young children prone to fractures and overweight.

Matkovic et al. showed that both dairy products and calcium supplements positively influence bone mineral density of the hip and forearm among adolescent females.<sup>2</sup> Moreover, dairy product consumption also was associated with higher bone mineral density of the spine, while calcium supplements did not have that effect.

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<sup>1</sup> Goulding A, et al. Children who avoid drinking cow's milk are at increased risk for prepubertal bone fractures. *J Am Diet Assoc.* 104(2): 250-3, 2004.

<sup>2</sup> Matkovic V, et al. Nutrition influences skeletal development from childhood to adulthood: a study of hip, spine, and forearm in adolescent females. *J Nutr.* 134(3): 701S-705S, 2004.

Other studies have shown similar results – that dairy calcium and the other nutrients in dairy foods provide bone-building effects and help prevent bone loss and therefore, fracture.

Baran et al. concluded that dairy product consumption among pre-menopausal women (ages 30-42) retards vertebral bone loss.<sup>3</sup> In addition, although there was an increase in full-fat dairy product intake, no statistically significant changes in serum cholesterol, LDL or HDL were observed.

Prince et al. studied milk powder supplementation among women more than 10 years postmenopausal.<sup>4</sup> The researchers concluded that calcium intake completely prevents bone loss in some important areas of the hip and recommended a milk powder supplement as an effective way to prevent bone loss in women more than 10 years away from the rapid bone loss associated with menopause.

The Milk Matters campaign from the National Institute of Child Health and Human Development states that: “Calcium needs are highest during the childhood and teen years, because bones are growing fast then and take in calcium to make them strong. Most of the calcium that makes bones strong is added by the age of 17. By eating and drinking foods that are good sources of calcium, children and teens can help store this important nutrient in their bones for later in life.”

NDC respectfully requests that the results of our research be distributed to the Committee members as soon as possible for their review. Hard copies of the research list and highlighted studies are being forwarded separately.

As you work toward improving the diet and physical activity of Americans, please do not hesitate to contact us if you would like additional information.

Sincerely,



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<sup>3</sup> Baran D, et al. Dietary modification with dairy products for preventing vertebral bone loss in premenopausal women: a three-year prospective study. *J Clin Endocrinol Metab.* 70: 264-270, 1989.

<sup>4</sup> Prince R, et al. The effects of calcium supplementation (milk powder or tablets) and exercise on bone density in postmenopausal women. *J Bone Miner Res.* 10: 1068-1075, 1995.

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