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# Research Summary: Dairy and Bone Health

Building and maintaining a healthy skeleton throughout life are essential to overall health and quality of life. The U.S. Surgeon General's Report on Bone Health and Osteoporosis (2004) recognizes the role of nutrients in dairy foods, including calcium, magnesium, phosphorus, potassium, protein and vitamin D, that work together to help protect bones.

Childhood and adolescence is a critical period for establishing healthful dietary practices and lifestyle behaviors that, if maintained, can support skeletal health. Adolescence and young adulthood are critical times for building bone mass, as well as for establishing lifelong healthy eating habits. Increasing calcium intake during childhood and adolescence appears to result in a heavier and denser skeleton and, consequently, a higher peak bone mass.

Adults don't outgrow their need for this mineral. Ninety-nine percent of the body's calcium is stored in bones where it contributes to their strength and structure. Throughout life, bone is constantly being broken down and rebuilt, a process called remodeling. Inadequate calcium intake can adversely affect this process, leading to weak, porous bones and eventually osteoporosis.

Prevention of osteoporosis, which is a debilitating disease characterized by low bone mass and increased risk of fractures is a public health priority. Osteoporosis is a major health concern among many Americans today. According to the 2004 report from the Surgeon General, an estimated 52.4 million people are projected to have osteoporosis or low bone mass in 2010. It is estimated that an astonishing 1.5 million adults will suffer an osteoporosis-related fracture each year.

There is overwhelming scientific evidence that consuming adequate amounts of calcium or foods naturally rich in calcium such as milk, cheese and yogurt throughout life may delay or minimize age-related bone loss and thereby decrease the risk for osteoporosis. According to analyses, all but two of 70 randomized, controlled intervention studies demonstrated that calcium intake increases bone gain during growth, reduces bone loss with age, and/or reduces fracture risk. Also, more than three-quarters of 110 observational studies supported calcium's beneficial role in bone health. Calcium intake to meet daily recommendations continues to be a critical concern. Milk and milk products provide nearly 75 percent of the calcium available in the food supply. The 2005 Dietary Guidelines for Americans recognizes that people who consume more dairy foods have better overall diets, consume more nutrients and have improved bone health.

## Scientific support:

Miller, G.D., J.K. Jarvis, and L.D. McBean. Handbook of Dairy Foods and Nutrition. Boca Raton, FL: CRC Press, 3rd edition. 2007, pp. 181-244.

Cashman, K.D. Milk minerals (including trace elements) and bone health. *Int. Dairy J.* 16: 1389-1398, 2006.

Heaney, R.P. Calcium, dairy products, and osteoporosis. *J. Am. Coll. Nutr.* 19(suppl): 83s-99s, 2000.

Heaney, R.P. The importance of calcium intake for lifelong skeletal health. *Calcif. Tissue Int.* 70: 70-73, 2002.

In an effort to reduce the large toll that osteoporosis is inflicting on the nation, National Dairy Council and "3-Every-Day™ of Dairy", with support from leading health professional organizations including the American Academy of Family Physicians (AAFP), American Academy of Pediatrics (AAP), American Dietetic Association (ADA), National Hispanic Medical Association (NHMA), National Medical Association (NMA), and School Nutrition Association (SNA) are working together to increase awareness of the importance of achieving and maintaining healthy bones throughout life by eating a healthy diet that includes the recommended three servings a day of nutrient-rich low-fat or fat-free dairy foods.