DAIRY'S ROLE IN BONE HEALTH

New Perspectives on Dietary Protein and Bone Health

According to the USDA's Calcium and Bone Metabolism Laboratory[1], "bone mineral density (BMD) may actually benefit from high-protein diets" if "the diet also meet[s] the recommended dietary allowance of calcium and vitamin D."

Today there are 10 million Americans with osteoporosis and an additional 18 million with low bone mass – putting them at risk for osteoporosis. Women are four times more likely to develop the disease, but older men get it too. Although more research is needed to understand the role of dietary protein on bone health, studies show that protein, in addition to calcium, may play a critical role in bone health, thereby decreasing the risk for osteoporosis.

- Postmenopausal women who consumed a diet low in protein were associated with having a 44 percent increase in the risk of osteoporotic fractures and women who consumed a diet low in calcium were associated with having a 29 percent increase in osteoporotic fractures.
  Melton LJ, et al. Relative Contributions of Bone Density, Bone Turnover, and Clinical Risk Factors to Long-Term Fracture Prediction. *Journal of Bone and Mineral Research.* 2003; 18: 312-318.

- Research shows that eating foods rich in calcium may offset a possible protein-calcium loss relationship.
  Dawson-Hughes B. Interaction of Dietary Calcium and Protein in Bone Health in Humans. *The Journal of Nutrition.* 2003; 133: 852S-854S.

- Low protein diets may decrease intestinal calcium absorption – and are associated with reduced bone mass in most observational studies.
  Kerstetter JE, et al. Low Protein Intake: The Impact on Calcium and Bone Homeostasis. *The Journal of Nutrition.* 2003; 133: 855S-861S.

- Eating protein-rich foods from animal or plant sources may cause the body to lose calcium. However, the high amount of calcium in milk compensates for urinary calcium losses that may be generated by milk protein.
  Massey LK. Dietary Animal and Plant Protein and Human Bone Health: A Whole Foods Approach. *The Journal of Nutrition.* 2003; 133: 862S-865S.

- Protein and calcium together can result in good bone health. However, much of the existing research on protein and bone health focuses on an older population; further research is needed to understand the role of protein on bone health for all populations and age groups.
  Roughead ZK. Is the Interaction between Dietary Protein and Calcium Destructive or Constructive for Bone?: Summary. *The Journal of Nutrition.* 2003; 133: 866S-869S.

- A prospective study of dietary protein intake and risk of hip fracture in postmenopausal women found that higher intake of dietary protein from animal sources was associated with a significantly reduced incidence of hip fractures.
  Munger RG, et al. Prospective study of dietary protein intake and risk of hip fracture in postmenopausal women. *American Journal of Clinical Nutrition.* 1999; 69: 147-152.

- In a cross-sectional study of post-menopausal women, a high protein diet was associated with higher bone mineral density in the spine, midradius and total body for women whose calcium intake was greater than 400 mg/day.
  Rapuri PB. Protein Intake: effects on bone mineral density and the rate of bone loss in elderly women[1-4]. *American Journal of Clinical Nutrition.* 2003; 77:1517-25.