

## Milk and Healthy Weight

Millions of overweight Americans are cutting calories in an effort to achieve a healthy weight. However, there can be undesirable effects from drastic diet plans – including weakened bones, loss of muscle and inadequate nutrient intakes. Drinking the recommended three glasses of lowfat or fat free milk when you're trying to achieve a healthy weight offers multiple benefits.

- **Studies suggest the nutrients in three glasses of lowfat or fat free milk a day help maintain a healthy weight. Research indicates that people with higher intakes of milk tend to be leaner and are less likely to gain excess weight compared to those who drink little or no milk.**

The Women's Health Initiative, one of the largest ongoing studies in the country, found that postmenopausal women with higher intakes of calcium and vitamin D were less likely to gain weight than those with lower intakes. The study monitored 36,282 postmenopausal women, aged 50 to 79 years, over a three-year period.

Caan B, Neuhouser M, Aragaki A, Lewis CB, Jackson R, Leboff MS, Margolis KL, Powell L, Uwaifo G, Whitlock E, Wylie-Rosett J, Lacroix A. Calcium plus vitamin D supplementation and the risk of postmenopausal weight gain. *Archives of Internal Medicine*. 2007;167:893-902.

Higher calcium intakes, mostly from milk and other milk products and not supplements, were linked to less weight gain in overweight or obese women after a significant weight loss. Researchers found that a 100 milligram-increase in daily calcium intake from food was associated with nearly 3.5 pounds less weight regain at 18 months, when holding calories constant. The same effect was not found with calcium supplements.

Ochner CN, Lowe MR. Self-reported changes in dietary calcium and energy intake predict weight regain following a weight loss diet in obese women. *Journal of Nutrition*. 2007;137:2324-2328.

Researchers looked at five clinical studies originally designed to evaluate women's bone health and found that higher calcium intakes (primarily from dairy foods) was associated with a lower BMI and body weight. Women in the study weighed an average of 18 pounds less for every 1,000 mg of calcium consumed.

Davies KM, Heaney RP, Recker RR, Lappe JM, Barger-Lux MJ, Rafferty K, Hinders S. Calcium intake and body weight. *Journal of Clinical Endocrinology and Metabolism*. 2000; 85:4635-4638

Young, normal-weight women who consumed at least three servings of dairy a day gained less body fat over 18 months compared to women who ate fewer servings. The authors concluded that increasing dietary calcium through dairy products may prevent fat mass accumulation in young, healthy, normal-weight women. Women continued to eat more dairy foods (mainly lowfat and fat free) for at least six months after they had established this dietary habit during the previous 12 months.

Eagan MS, Lyle RM, Gunther CW, Peacock M, Teegarden D. Effect of 1-year dairy product intervention on fat mass in young women: 6-month follow-up. *Obesity*. 2006;14:2242-2248.

In young adult women enrolled in a two-year exercise program, calcium from dairy foods was associated with lower body weight and body fat in women consuming fewer than 1,900 calories per day. The researchers concluded that the effect of calcium was specific to dairy calcium because total calcium and dairy, when adjusted for calories, predicted changes on body weight and body fat, whereas non-dairy calcium did not.

Lin YC, Lyle RM, McCabe LD, McCabe GP, Weaver CM, Teegarden D. Dairy calcium is related to changes in body composition during a two-year exercise intervention in young women. *Journal of the American College of Nutrition*. 2000;19:754-760.

Researchers at Creighton University reanalyzed data to assess the effects of calcium on weight gain. While calcium is only one factor that potentially affects obesity, the researchers suggest that increasing calcium intakes to recommended levels may reduce the incidence of overweight and obesity by 60-80 percent in a population.

Heaney RP. Normalizing calcium intake: Projected population effects for body weight. *Journal of Nutrition*. 2003;133:268S-270S.

- **Milk supplies calcium to keep bones strong, and protein, that along with exercise, can help build lean muscle, which are especially important when cutting calories.**

Dieters with adequate calcium intakes did not lose bone mass while losing weight. Premenopausal overweight women who consumed at least 1,000 mg of calcium daily did not experience a loss of bone mineral density, which has been observed among dieters who do not get adequate calcium. Researchers found that the women who lost weight and consumed a high calcium diet had small but significant increases in total body bone mineral density, a measure of bone strength.

Riedt CS, Schlussek Y, Von Thun N, Amiba-Sobhan H, Stahl T, Field MP, Sherrell RM, Shapses SA. Premenopausal overweight women do not lose bone during moderate weight loss with adequate or higher calcium intake. *American Journal of Clinical Nutrition*. 2007;85:972-980.

A study of 38 adults found that overweight people who restrict calories to lose weight experience greater loss of bone mineral density than those who exercise for weight loss.

Villareal DT, Fontana L, Weiss EP, Racette SB, Steger-May K, Schechtman KB, Klein S, Holloszy JO. Bone mineral density response to caloric restriction-induced weight loss or exercise-induced weight loss: a randomized controlled trial. *Archives of Internal Medicine*. 2006;166:2502-2510.

Researchers suggest that decreased bone density and decrease in lean muscle from diet-induced weight loss could be compensated by the increased intake of milk, vitamin D and calcium.

Hirota T, Kawasaki I, Ikeda H, Aoe T, Hirota K. Intake of vitamin D and milk was associated with increase in muscle mass and decrease in body fat during dieting in young women. *American Society for Bone and Mineral Research*. 2005;M272.

The high-quality protein in milk can help promote muscle synthesis and maintenance of lean body mass.

Hoffman, JR, Falvo MJ. Protein – which is best? *Journal of Sports Science and Medicine*. 2004;3:118-130.  
Ha E, Zemel MB. Functional properties of whey, whey components, and essential amino acids: mechanisms underlying health benefits for active people (review). *Journal of Nutritional Biochemistry*. 2003;14:251–258.

Consumption of milk protein after resistance exercise increases lean muscle mass more rapidly compared to post-exercise consumption of soy protein.

Wilkinson SB, Tarnopolsky MA, MacDonald MJ, MacDonald JR, Armstrong D, Phillips SM. Consumption of fluid skim milk promotes greater muscle protein accretion after resistance exercise than does consumption of an isonitrogenous and isoenergetic soy-protein beverage. *American Journal of Clinical Nutrition*. 2007;85:1031-40.

- **When cutting calories, it's particularly important to make every calorie count. Drinking milk is an easy and convenient way to keep your diet nutrient-rich. Studies suggest that consuming the recommended 3 glasses of milk a day can enhance the overall quality of the diet by providing essential nutrients.**

Milk contains nine essential nutrients, including calcium, vitamin D and other nutrients, that are often lacking in the diets of Americans. According to the Dietary Guidelines for Americans, "milk product consumption has been associated with overall diet quality and adequacy of intake of many nutrients."

2005 Dietary Guidelines for Americans.

Milk was the primary beverage source of calcium, vitamin A, protein, potassium, phosphorus, magnesium and zinc in the diets of Americans ages 4 and older, according to data from NHANES 1999-2002. Children, teenagers and adults who consumed lower amounts of milk and higher amounts of sweetened beverages had diets that were significantly lower in several essential nutrients, particularly calcium. Only those with high milk intakes and low intakes of sweetened beverages met their calcium recommendation.

Douglass J, Murphy M, Barr S, Johnson R, Frye C. Associations between patterns of beverage consumption and nutrient intakes and BMI in the U.S. *FASEB Journal*. 2007: A833.5.

African Americans in all age groups did not meet the 2005 Dietary Guidelines recommendation for three daily servings of lowfat or fat-free milk. All African Americans had inadequate intakes of calcium and magnesium and young African American women did not meet recommendations for phosphorus.

Fulgoni V, Nicholls J, Reed A, Buckley R, Kafer K, Huth P, DiRienzo D, Miller GD. Dairy consumption and related nutrient intake in African-American adults and children in the United States: Continuing Survey of Food Intakes by Individuals 1994-1996, 1998, and the National Health and Nutrition Examination Survey 1999-2000. *Journal of the American Dietetic Association*. 2007;107:256-264.

Total dairy and milk intakes were associated with higher micronutrient intakes without adverse impact on fat or dietary cholesterol.

Weinberg LG, Berner LA, Groves JE. Nutrient contributions of dairy foods in the United States, Continuing Survey of Food Intakes by Individuals, 1994-1996, 1998. *Journal of the American Dietetic Association*. 2004;104:895-902.

Healthy older adults who received no dietary advice other than increasing their milk consumption improved their nutrient intakes more than adults who did not drink more milk and maintained their usual diet.

Barr SI, McCarron DA, Heaney RP, Dawson-Hughes B, Berga SL, Stern JS, Oparil S. Effect of increased consumption of fluid milk on energy and nutrient intake, body weight, and cardiovascular risk factors in healthy older adults. *Journal of the American Dietetic Association*. 2000;100:810-817.

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