

Calcium: It's Not Just for Bones Anymore

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Calcium is an essential mineral in the body and is a very popular dietary supplement in the U.S. Results from a National Health Interview Survey (NHIS) in 1986 show that almost 25 percent of women in the United States took supplements containing calcium (4). While sufficient calcium can be obtained exclusively from food (from dairy products and other foods, including green leafy vegetables), many people do not get the recommended daily amounts of calcium from their diet (4,7).

Calcium is critical for building and maintaining strong bones and teeth, where 99% of the mineral is found in the body. The rest is present in the blood, extracellular fluid, muscle, and other tissues, where it plays a role in vasoconstriction and vasodilation, muscle contraction, nerve transmission, and glandular secretions (4). Calcium can slow bone loss in postmenopausal women (4), may reduce PMS symptoms (6), and lower one's risk of colorectal cancer (4). Calcium can also reduce hypertension caused by a calcium deficiency (1). Most recently, athletes and the general public have been looking to calcium as a means of improving body composition.

Several clinical trials have found a significant relationship between calcium/dairy product intake and reduced body weight and/or fat in overweight and obese adults. The studies report that dairy foods exert a significantly greater effect on body weight, fat, and inches around the waist compared to calcium supplements or a low-dairy diet (2,5,8). While longer term studies on a larger number of participants are needed, it is safe to assume that adequate calcium from low fat dairy may help to promote a healthy weight. For those athletes that exercise a great deal and eat a nutritious diet, this may give them just a little added boost to score better on the body composition scale. Note that all studies involved adequate calcium rather than amounts above the Recommended

Dietary Allowances (RDA's) set by the Institute of Medicine.

Further complicating the calcium question is the fact that athletes lose calcium in sweat. A lack of specific research on this subject makes it difficult to know whether athletes, especially those who exercise in the heat or sweat heavily, have a higher requirement for calcium than sedentary adults. Currently, there is insufficient evidence to justify different calcium intake recommendations for people with different levels of physical activity (4). Based on available information, an athlete should strive to consume calcium at levels between the RDA and the upper level (UL) of 2500mg (3). Use table 1 to determine your daily calcium requirement (RDA).

Table 1. Calcium Recommendations

Age	Daily Calcium Requirement in Mg.
0 to 6 months	210 Milligrams
6 to 12 months	270
1 to 3 years	500
4 to 8 years	800
9 to 18 years	1,300
18 to 50 years	1,000
Over 50 years	1,200
Upper Level	2,500

Adapted from U.S. Department of Health and Human Services

References

1. Allender PS, Cutler JA, Follmann D, Cappuccio FP, Pryer J and Elliott P (1996) Dietary calcium and blood pressure: a meta-analysis of randomized clinical trials, *Annals of Internal Medicine*, 124:825 – 831.

2. Davies KM, Heaney RP, Recker RR, Lappe JM, Barger-Lux MJ, Rafferty K, Hinders S. (2000). Calcium intake and body weight. *Journal of Clinical Endocrinology & Metabolism*, 85(12): 4635 – 4638.

3. Dunford M. (2003). Sports Nutrition: A Practice Manual for Professionals, 4th edition. Chicago: American Dietetic Association.

4. Institute of Medicine, Food and Nutrition Board. (1997). Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride. Washington DC: National Academy Press.

5. Lin YC, Lyle RM, McCabe LD, McCabe GP, Weaver CM, Teegarden D. (2000). 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*, 19(6):754 – 760.

6. Sarubin-Fragakis A. (2003). *The Health Professional's Guide to Popular Dietary Supplements, 2nd edition*. Chicago: American Dietetic Association.

7. U.S. Department of Health and Human Services. (2004). *The 2004 Surgeon General's Report on Bone Health and Osteoporosis: What It Means to You*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General.

8. Zemel MB, Richards J, Russel J, Milstead A, Gehardt L, Silva E. (2005). Dairy augmentation of total and central fat loss in obese subjects. *International Journal of Obesity*, 29(4):341 – 347.

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