

The multi-purpose mineral: calcium plays more roles in health than building strong bones

Karen Ansel

What if someone told you a nutrient existed that could lower blood pressure, relieve PMS symptoms, prevent colon cancer as well as osteoporosis and even help you lose weight? You'd want to get your hands on it, right? While it sounds too good to be true, finding this nutrient is a lot simpler than you might think. In fact, you probably don't have to look any further than your refrigerator. This supernutrient is calcium, the mineral usually associated with bone health, and it's taking on a whole new look.

Our bodies need lots of calcium and not only for building strong bones. Calcium plays several roles, such as conducting nerve impulses, contracting muscles, secreting hormones, aiding blood clotting and activating enzymes. While scientists have known about calcium's many critical functions for some time, they have recently begun to uncover its disease-fighting potential.

High Blood Pressure--Not Just a Salty Issue

One in four Americans has hypertension (i.e., high blood pressure), which, if left untreated, can increase stroke and heart disease risk. Traditionally, people with hypertension have been advised to follow a low-salt diet. However, recent research indicates a diet high in calcium, potassium, magnesium and dietary fiber may be equally effective at lowering blood pressure. In 1997, the National Heart, Lung, and Blood Institute conducted the Dietary Approaches to Stop Hypertension (DASH) trial to test this theory. Compared to the average American diet, DASH is substantially lower in saturated fat, total fat and cholesterol, with fewer sweets, sugary drinks and red meat. Instead, it consists of plentiful amounts of fruits, vegetables, legumes, whole grains and low-fat dairy products, specifically two to three servings of low or non-fat dairy products daily. After two weeks on this diet, participants decreased their blood pressure without any salt restriction.

Why is the DASH plan so effective at lowering blood pressure? Frank Sacks, M.D., chair of the DASH-Sodium Steering Committee and associate professor of medicine at Harvard Medical School, credits DASH's success to its overall dietary pattern. While calcium is certainly an integral part of the DASH diet, Sacks recommends a whole food approach. Instead of relying on supplements, dairy products supply calcium as well as other key nutrients, like potassium and magnesium, which work synergistically to lower blood pressure.

Some Calcium Each Day Keeps PMS Away

You know the monthly routine--cramps, bloating, mood swings and food cravings. Premenstrual syndrome includes an array of symptoms that affect as many as 40 percent of childbearing-age women. While various experimental treatments exist for this disorder, calcium is one of the most promising. Fluctuations in several female hormones, particularly estrogen, influence calcium absorption and metabolism. As a result, researchers hypothesize PMS may be a manifestation of calcium deficiency.

A 1998 study in the American Journal of Obstetrics and Gynecology tested this theory by giving women with PMS a daily placebo or 1,200mg of supplemental calcium for three months. By the end of the study, participants who received calcium reported a significant reduction in monthly pain, food cravings, mood swings and water retention associated with PMS, pointing to a promising treatment for this disorder.

The Calcium/ Colon Cancer Link

Colon cancer prevention is one of the most exciting uses for calcium. A high-fat diet is thought to encourage cancerous cell growth in the colon because fat increases the production of bile salts (i.e., compounds which can act as carcinogens). According to Dr. Michael Thun, vice president of cancer epidemiology at the American Cancer Society, "One possible mechanism by which calcium can reduce colon cancer risk is that it may complex with bile salts and form insoluble soaps." These insoluble soaps are then excreted, preventing bile salts from harming the colon.

A 1999 study in the New England Journal of Medicine examined the effects of calcium supplements on individuals with colon cancer and found that a daily 1,200mg dose moderately decreased recurrent adenomas. In 1998, a similar study in the Journal of the American Medical Association also targeted calcium's ability to reduce colon cancer risk in people with a prior history of the disease. However, instead of using calcium supplements, this study relied on low-fat dairy products to supply 1,200mg calcium per day. Investigators found this amount of calcium decreased the incidence of changes in the cells lining the colon, which is often seen in the initial stages of colon cancer.

Losing Weight Never Tasted so Good

If calcium's potential to alleviate PMS symptoms and decrease risk for certain chronic diseases isn't enough, the latest research regarding this super-mineral points to its role in promoting weight loss. In a study examining calcium's blood pressure-reducing potential, experts at the University of Tennessee noticed participants who received additional calcium lost weight. This prompted a follow-up study on calcium's role in weight regulation. Lead researcher Michael Zemel, Ph.D., chairman of the Department of Nutrition at the University of Tennessee, and his team found low calcium levels in the diet promote fat storage while a generous intake increases fat burning. Although the study identified 1,200mg to 1,600mg per day optimal for weight loss, greater quantities provided no additional benefit. Since dairy products supplied the calcium used in his research, Zemel encourages a "food first" strategy, suggesting there may be additional components in dairy products that spur weight loss. "The best studies show dairy exerts a more consistent effect and a greater magnitude" than calcium supplements, says Zemel.

How Much Calcium Is Enough?

Unfortunately, most of us don't consume enough of this critical mineral. In fact, the rate of osteoporosis in the United States is skyrocketing, affecting more than 28 million people, with women four to five times more likely than men to develop this disabling disease. Since bones constantly change, calcium needs vary with each stage of life. Three to four daily servings of calcium-rich foods is a reasonable goal.

Low- or non-fat dairy products are not only high in calcium, but also contain other vitamins and minerals that help the body absorb and use it. However, if you suffer from a cow's milk allergy or are lactose intolerant, don't miss out on the disease-preventing benefits of this supernutrient--speak with your doctor about supplementation.

AGE GROUP	CALCIUM INTAKE
Adolescents/Young Adults: 11-24	1,200mg-1,500mg
Males:	
25-65	1,000mg
65+	1,500mg
Women:	
25-50	1,000mg
51-65 (on HRT)	1,000mg
51-65 (not on HRT)	1,500mg
65+	1,200mg-1,500mg

Pregnant or breastfeeding women

Source: National Institutes of Health, NIH Consensus Statement:
Optimal Calcium Intake, 1994

FOOD	CALCIUM
Non-fat yogurt, 1 cup	452mg
Cheddar cheese, 1 1/2 ounces	306mg
1% Milk, 1 cup	303mg
Calcium-fortified orange juice, 1 cup	300mg
Tofu, raw, firm 1/2 cup	258mg
Parmesan cheese, 3 tablespoons	207mg
Soymilk, 1 cup	80mg
Black beans, cooked, 1 cup	80mg
Broccoli, cooked, 1 cup	72mg

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