Building Better Bones

BY JANICE ARENOFSKY

THERE'S MORE TO OSTEOPOROSIS PREVENTION THAN JUST ADEQUATE CALCIUM CONSUMPTION.

Every day, nutrition researchers discover new foods we should eat to prevent osteoporosis. These findings often lead to dietary changes, but the goal remains the same: to encourage people of all ages—not just older women—to strengthen their bones.

For years we have been told that in order to prevent osteoporosis, an adequate amount of natural or fortified calcium in the diet—with an emphasis on low-fat dairy foods such as yogurt, milk and cheese—is key. That is why the United States Department of Agriculture's *Dietary Guidelines for Americans 2005* recommends three daily servings of fat-free or low-fat milk or dairy products.

The Current Controversy

In recent years, dairy proponents and vegetarians have been going head-to-head over the benefits of animal-based calcium as opposed to plant-based calcium. Earlier this year, members of the Physicians Committee for Responsible Medicine (PCRM)—a pro-vegetarian group—published a study in *Pediatrics*.[1] After evaluating 58 studies of children and young adults under age 25 (14 studies were eliminated due to the disregard of such variables as weight, menstruation,

exercise and added vitamin D in fortified milk), researchers concluded that 15 studies showed only small benefits of dairy-based calcium. Not surprisingly, however, researchers also noted that the majority of studies "...found no relationship between dairy or dietary calcium intake and the measure of bone health."

Still, Nancy Clark, MS, RD, internationally known sports nutritionist and nutrition author and consulting editor to *American Fitness*, sides with the American Dietetic Association. She recommends dairy due to its dense concentration of calcium. "One study doesn't make science," she says about the PCRM study. "You have to look for trends instead."

PCRM researchers also found no evidence indicating that any increases in bone density remain with people through adulthood. This may explain why the Harvard Nurses' Health Study of 75,000 American women showed that a higher calcium intake does not protect elderly women from fractures.[2]

In fact, higher calcium intake appears, paradoxically, to increase the number of fractures. The explanation, says Andrea Z. LaCroix, PhD, of the Center for Health Studies, Group Health Cooperative of Puget Sound, Wash., may be a high salt content in dairy products such as cottage cheese and a Western diet that is high in protein. Salt and protein tend to cause calcium loss, which is excreted through urine. "Overconsuming protein," writes LaCroix, "creates an acidic condition that the body attempts to bring back into balance by leaching calcium—an alkaline mineral—from the bones."

Go Green

But it's not simply a matter of choosing veggies over milk—even if you're lactose intolerant. When it comes to calcium, all vegetables are not created equal, say experts. The best choices are leafy green ones (e.g. broccoli, Brussels sprouts, collards, Swiss chard and mustard greens), kale, leeks and sea veggies. Adding the right dressing (e.g. apple vinegar) can increase the calcium content.

Other calcium-packed foods are vegetables such as sprouts, beans and chickpeas; alkalizing foods such as watermelon and sweet potatoes; and foods high in boron, which include apples, grapes, pears, nuts and carrots. The newest kid on the block is the onion, according to the *Journal of Agricultural and Food Chemistry*.[3] Lab studies have shown that a peptide found in onions, called GPCS, appears to decrease bone loss.

And vegetables don't have to be dull side dishes. Rutabaga, combined with turnips, parsnips, orange juice and brown sugar, makes for a tasty meal.

Fortified Foods

Of course, you can always opt for calcium-fortified foods such as orange juice, breads and cereals, right? That depends on their absorbability, says Robert P. Heaney, MD, professor and researcher at Creighton University Medical Center in Omaha, Neb. When Heaney studied 25 young women who sampled two name brand calcium-fortified orange juices, he found they did not absorb all the calcium indicated on the product label. Heaney's tests, using soy and rice beverages, also revealed similar discrepancies. "I encourage manufacturers to evaluate the absorption of their calcium-fortified products," says Heaney. "This will ensure their greater effectiveness."

But disagreement persists. Many experts tout the absorbability of plant-based products, claiming

SNACK YOUR WAY TO MORE CALCIUM

1. Munch on broccoli, baby carrots, dried fruits and hard cheeses.
2. Drink fruit and vegetable juices.
3. Add blackstrap molasses to beverages, cereals and home-baked breads and cakes.
4. Snack on ricotta instead of (salt-heavy) cottage cheese.
5. Enjoy fresh fruits.
6. Use a low-fat yogurt dip with fruits and vegetables.
7. Make yogurt-fruit smoothies.

Adapted from www.MyPyramid.gov and *Strong Women, Strong Bones* by Miriam E. Nelson, PhD (Putnam's, 2000).

fewer vegetarians develop osteoporosis than non-vegetarians. In contrast, Clark says food surveys indicate that people who swear off dairy rarely compensate for the lost calcium by eating enough alternative foods. "You've got to eat a whole lot of almonds to get the same amount of calcium in yogurt," says Clark.

And how much *is* enough? Experts vary as to their recommendation. The National Institutes for Health advises 500 to 1,300 milligrams a day, while the World Health Organization states that elderly Americans require 400 to 500 milligrams. In *Strong Women, Strong Bones* (Putnam's, 2000), Tufts University Nutritionist Miriam E. Nelson, PhD, suggests 1,000 milligrams of calcium for people under age 50 and 1,200 milligrams for people over 50. Recently, the Food and Drug Administration's (FDA) new food pyramid prescribed 1,000 milligrams for adults, but cautions Americans that "the large quantity of plant foods ... needed to provide as much calcium as in a glass of milk may be unachievable for many."

Exercise and Sunshine

Calcium is important, but osteoporosis prevention requires so much more. You need weight-bearing, muscle-strengthening exercise in the form of aerobics, walking and sports. Nelson suggests a program of weight training.

Furthermore, you must get 15 minutes of sunlight (vitamin D) every day and eat a varied diet so your body takes in enough vitamins K, B6 and C, folic acid, manganese, zinc, copper, silicon and strontium to regulate calcium metabolism and absorption. "You need the whole package," says Clark. "Nutrients from whole foods, regular activity and a healthy lifestyle."

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Stay Tuned

Although bias has insinuated its way into osteoporosis research, other studies suggest the squabbling may be for nothing. Calcium may actually play a less important role than lifestyle, say experts. In one study, experts found no significant difference in fracture rates between elderly women who received vitamin D, calcium tablets and educational information, and women who received only educational information.[4] Similarly, when people with histories of fractures took vitamin D and/or calcium supplements, they sustained as many fractures as the group taking placebos (i.e. sugar pills).[5]

So, where does that leave us? With the jury still out on the causes of and cures for osteoporosis, it's wise to follow the basics. Aim for a balanced diet, cut down on salt and get enough exercise and sunlight. It doesn't matter if you're 26 or 86—stronger bones means better health. **AF**

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