

## Examine the Science for Yourself

In one study, funded by the National Dairy Council, a group of postmenopausal women were given three 8-ounce glasses of skim milk every day for two years, and their bones were compared to those of a control group of women not given the milk. The dairy group consumed 1,400 mg of calcium per day and lost bone at twice the rate of the control group. According to the researchers, "this may have been due to the average 30 percent increase in protein intake during milk supplementation. ... The adverse effect of increases in protein intake on calcium balance has been reported from several laboratories, including our own" (they then cite 10 other studies). Says McDougall, "Needless to say, this finding did not reach the six o'clock news." This is one study that the dairy industry won't be repeating any time soon.

*"Milk, it now seems clear, is not the solution to poor bone density. To the contrary, it's part of the problem."*  
**Dr. Charles Attwood**

After looking at 34 published studies in 16 countries, researchers at Yale University found that the countries with the highest rates of osteoporosis—including the United States, Sweden, and Finland—were those in which people consumed the most meat, milk, and other animal foods. This study also showed that African-Americans, who consume, on average, more than 1,000 mg of calcium per day, are nine times more likely to experience hip fractures than are South African blacks, whose daily calcium intake is only about 196 mg. Says McDougall, "On a nation-by-nation basis, people who consume the most calcium have the weakest bones and the highest rates of osteoporosis. ... Only in those places where calcium and protein are eaten in relatively high quantities does a deficiency of bone calcium exist, due to an excess of animal protein."

Harvard University's landmark *Nurses Health Study*, which followed 78,000 women over a 12-year period, found that the women who consumed the most calcium from dairy foods broke more bones than those who rarely drank milk. Summarizing this study, the *Lunar Osteoporosis Update* (November 1997) explained: "This increased risk of hip fracture was associated with dairy calcium. ... If this were any agent other than milk, which has been so aggressively marketed by dairy interests, it undoubtedly would be considered a major risk factor."

A National Institutes of Health study at the University of California, published in the *American Journal of Clinical Nutrition* (2001), found that "women who ate most of their protein from animal sources had three times the rate of bone loss and 3.7 times the rate of hip fractures as women who ate most of their protein from vegetable sources." Even though the researchers adjusted "for everything we could think of that might otherwise explain the relationship ... it didn't change the results." The study's conclusion: "[A]n increase in vegetable protein intake and a decrease in animal protein intake may decrease bone loss and the risk of hip fracture."

*"The association between the intake of animal protein and fracture rates appears to be as strong as the association between cigarette smoking and lung cancer."*  
**Dr. T. Colin Campbell**

Another study published in the *American Journal of Clinical Nutrition* (2000) looked at all aspects of diet and bone health and found that high consumption of fruits and vegetables positively affected bone health and that dairy consumption did not. Such findings do not surprise nutritional researchers: The calcium absorption rate from milk is approximately 30 percent, while figures for broccoli, Brussels sprouts, mustard greens, turnip greens, kale, and some other green leafy vegetables range from 40 percent to 64 percent.

After reviewing studies on the link between protein intake and urinary calcium loss, dairy industry researcher Dr. Robert P. Heaney found that as consumption of protein increases, so does the amount of calcium lost in the urine (*Journal of the American Dietetic Association*, 1993): "This effect has been documented in several different study designs for more than 70 years," he writes, adding, "The net effect


is such that, if protein intake is doubled without changing intake of other nutrients, urinary calcium content increases by about 50 percent."

Researchers from the University of Sydney and Westmead Hospital discovered that consumption of dairy foods, especially early in life, is associated with increased risk of hip fractures in old age (*American Journal of Epidemiology*, 1994).

In *Pediatrics* (2000), published by the American Academy of Pediatrics, Pennsylvania State University researchers showed that calcium intake, which ranged from 500 to 1,500 mg per day, had no lasting effect on the bone health of girls in their teens. "We (had) hypothesized that increased calcium intake would result in better adolescent bone gain. Needless to say, we were surprised to find our hypothesis refuted," one researcher explained.

Finally, a review of all research conducted since 1985, published in the *American Journal of Clinical Nutrition* (2000), concluded: "If dairy food intakes confer bone health, one might expect this to have been apparent from the 57 outcomes, which included randomized, controlled trials and longitudinal cohort studies involving 645,000 person-years." The researchers go on to lament that "there have been few carefully designed studies of the effects of dairy foods on bone health" and then to conclude that "the body of scientific evidence appears inadequate to support a recommendation for daily intake of dairy foods to promote bone health in the general U.S. population."

*"It is hard to turn on the television without hearing commercials suggesting that milk promotes strong bones. The commercials do not point out that **only 30 percent of milk's calcium is absorbed by the body** or that osteoporosis is common among milk drinkers. Nor do they help you correct the real causes of bone loss."*



**Dr. Neal Barnard**

What we do know is that osteoporosis rates decline markedly as body weight, exercise, and caloric intake rise. Corroborating the researchers' concerns about poorly controlled studies, only three studies have factored caloric intake into the analysis. Two of these studies found no correlation between dairy intake and osteoporosis, but the other found a positive link; that is, the more milk, the higher the fracture risk (*Harvard Nurses Study*, above). The *American Journal of Clinical Nutrition* (2000) study cited above argued that since it's clear that total caloric intake and body weight are positively associated with bone mass, such factors are "particularly important" in any study of osteoporosis and bone mass.

Is the dairy industry ignoring these factors by design in its clinical studies, perhaps because dairy-product consumers tend to be heavier and have a higher caloric intake than those consuming fewer (or no) dairy products? Despite the fact that so many dairy researchers ignore this information, most studies still show no correlation between cow's milk consumption and a lower risk for osteoporosis, and some actually indicate that milk is associated with an increased risk. Perhaps if these factors were taken into account, the studies indicating no link would instead show, in fact, that dairy-product intake is linked to an increased risk of osteoporosis, as does the Harvard School of Public Health study. That would bring clinical analysis in line with the population analysis, which clearly states that increased dairy-product consumption is linked to increased risk for osteoporosis.

## Conclusion

Drinking milk builds dairy producers' profits, but it is not likely to build your bones and may even harm them. Dairy foods are linked to all sorts of other problems, too, including obesity, heart disease, and cancer, and are likely to be contaminated with antibiotics, hormones, and other chemicals, including dioxin, one of the most toxic substances in the world. (On April 12, 2001, *The Washington Post* reported that "the latest EPA study concludes that people who consume even small amounts of dioxin in fatty

foods and dairy products face a cancer risk of one in 100." These consumers may develop other problems, too, including learning disabilities and susceptibility to infections.)

Of course, calcium is an essential mineral. According to [Dr. Neal Barnard](#), president of the Physicians Committee for Responsible Medicine, "Milk, in particular, is poor insurance against bone breaks ... the healthiest calcium sources are green leafy vegetables and legumes. ... You don't need to eat huge servings of vegetables or beans to get enough calcium, but do include both in your regular menu planning."

## So what can I do to maintain strong bones?

Although the evidence is strong that dairy-product consumption doesn't prevent osteoporosis, simply eliminating dairy products does not ensure strong bones.

It pays to put some thought into keeping your bones healthy. Studies have shown that the following factors are helpful in building and maintaining strong bones:

- **Getting plenty of exercise.** Studies have concluded that physical exercise is the key to building strong bones (it's more important than any other factor). For example, a study published in the British Medical Journal that followed 1,400 men and women over a 15-year period found that exercise may be the best protection against hip fractures and that "reduced intake of dietary calcium does not seem to be a risk factor." And Penn State University researchers found that bone density is significantly affected by how much exercise girls get during their teen years, when 40 to 50 percent of their skeletal mass is formed.
- **Getting enough vitamin D.** If you don't spend any time in the sun (about 15 minutes on the face and arms each day is enough), be sure to take a supplement or eat fortified foods.
- **Eliminating animal protein.** For a variety of reasons, animal protein causes severe bone deterioration.
- **Limiting salt intake.** Sodium leaches calcium out of the bones.
- **Eating plenty of fruits and vegetables.** They contain vitamin C, which is essential for building collagen, the underlying bonematrix.
- **Not smoking.** Studies have shown that women who smoke one pack of cigarettes a day have 5 to 10 percent less bone density at menopause than nonsmokers.

And More:

Cow's milk is suited to the nutritional needs of calves, animals who, unlike you or your child, have four stomachs and gain hundreds of pounds in a matter of months, sometimes weighing more than 1,000 pounds before their second birthday. Cow's milk contains about three times as much protein as human milk (we eat too much protein, not too little, in this country, and that results in kidney stress). Despite the clever advertising of the dairy industry, it is about as far from "natural" as you can get for humans to drink cow's milk. No other species drinks milk beyond infancy, and no other species drinks the milk of another species. After 2 years of age, most people begin to produce less lactase, the enzyme that helps with the digestion of milk. This reduction can lead to lactose intolerance—the inability to digest lactose—and, in turn, tummy trouble, sinus problems, and "colic."

