

Counseling Patients About Calcium Requirements for Their Teenage Daughters

PREVENT OSTEOPOROSIS DOWN THE ROAD

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The Osteoporosis Society tells us that one in four women over the age of 50 develops osteoporosis, which leads us to believe it's a condition that requires attention once we are in our 40s or 50s. We couldn't be more wrong. The truth is that the nutrition, supplementation and lifestyle habits of young women between the ages of 13 and 20 are the most important factors that determine risk of developing osteoporosis in later years. As 25 percent of women who experience an osteoporotic hip fracture die within the first year from pneumonia and other complications, it becomes the obligation of responsible parents to initiate a proper osteoporosis prevention program in the lives of their teenage daughters. The good news is that researchers have now given us an exact blueprint to follow.

Bone Calcium Accumulation During the Teen Years

It's not as if you feel this happening to you, but between ages 13 and 20 (the full range is 11-24 years), our bodies have the ability to absorb calcium from the intestinal tract with a very high degree of efficiency but this absorption capacity declines with age. As such, teenage girls provided with ideal amounts of calcium are known to drive calcium into their bones at a rate of 400-500 mg per day (while prior to puberty, the rate is a mere 140-165 mg per day). If they do this day after day, year after year, throughout their teenage years, they end up with optimal bone density by age 20-24. This is important because later in life, when estrogen and other hormones decline, calcium leaks out of bone into the bloodstream, is filtered by the kidneys and excreted in the urine. In other words, the calcium that was once part of their bone structure gets excreted in urine as they get older.

Sure, they can take extra calcium later in life to slow down the rate of calcium loss from bone. With resistance exercise and 1,400-2,000 IU of vitamin D, they may even help stabilize their bone density. But many women simply didn't get enough calcium when they were younger and end up paying a very dear price for it as early as age 45, when osteopenia or osteoporosis is often discovered upon bone density testing.

What's a Girl to Do?

There is no need to tell me how hard it is to convince teenagers to subscribe to a healthy diet and exercise program for the sake of preventing diseases that may occur in their 50s or 60s. In your teens, conditions like osteoporosis, heart disease, cancer and dementia just don't seem that imminent - these are things that happen to people who are ancient. It's impossible for them to understand how quickly life ticks away and the years pass.

Fortunately, research has shown that the teenage version of an osteoporosis prevention program is very, very simple, yet highly effective. So, they really don't have to make any major adjustments to get the benefit you want for them.

In 2003, Rozen¹ showed that teenage girls achieved optimal calcium accretion (accumulation) in bone at a daily calcium intake of 1,200 mg per day. As the average teenage girl consumes only 500 mg of calcium from her diet, Rozen found that providing an additional 700 mg per day of calcium from a calcium supplement worked like a charm to enable teenage girls to maximize their bone density during those important teenage years.

In 2008, Lambert and fellow researchers² confirmed what Rozen found. In a placebo-controlled study, they showed that teenage girls given an additional 555 mg of supplemental calcium achieved significantly greater gains in their total body density, compared to the teenage girls given the placebo pill.

The Take-Home Message

In an ideal world, teenage girls would consume 1,200-1,500 mg of calcium a day from food, go to the gym and lift weights three times per week, perform aerobic exercise regularly, avoid foods, beverages and behaviors that rob the body of calcium (such as soda pop, salty foods and drinks, alcohol, caffeine and cigarettes), and get the full gambit of other bone support nutrients, including vitamin D, magnesium, zinc, copper, B vitamins, silicon and protein.

At the very least, I suggest you speak to patients who have teenage girls about putting them on a high-potency multiple vitamin and mineral that contains 500 mg of elemental calcium and 400 IU of vitamin D, along with some zinc, copper and magnesium. In many cases, it's also a good idea to add one caplet of a bone support supplement that can provide an additional 250 mg of calcium and 200 IU of vitamin D, along with silicon, ipriflavone and other bone support nutrients.

Why is this so important for girls? Later in life, the decline in estrogen (around menopause) is the major trigger that promotes calcium loss from bone. This is the reason more women than men get osteoporosis. However, one in eight men over the age of 50 now develops osteoporosis, and thus, the same prevention program is suitable for teenage boys.

Men are living longer and osteoporosis is becoming a major health condition that really starts to be a factor over the age of 65. Once again, optimal calcium and vitamin D intake during the teenage years is a critical determinant of one's risk for osteoporosis later in life - whether female or a male.

References

1. Rozen G, Renneri G, Dodiuk-Gad R, et al. Calcium supplementation provides an extended window of opportunity for bone mass accretion after menarche. *Am J Clin Nutr*, 2003;78:993-8.
2. Lambert HL, Eastell R, Karnik K, et al. Calcium supplementation and bone mineral accretion in adolescent girls: an 18-mo randomized controlled trial with 2-y follow-up. *Am J Clin Nutr*, 2008;87(2):455-62.

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