

## Calcium Supplements

In a new study that appeared in the *Archives of Internal Medicine* last month, researchers at the University of Western Australia recruited 1,460 women over the age of 70. Half were given calcium supplements: 600 mg, two times each day. The other half received placebo.

Over a 5-year test period, researchers recorded osteoporotic fractures, deformity of the vertebrae, and bone structure measurements. But their efforts were compromised by study subjects who didn't really give it their all. More than 40 percent of the subjects reported that they took their supplements less than 80 percent of the time. Results showed that women who DID take their supplements as directed were far less likely to suffer bone fractures compared to women who took a placebo.

In their conclusions, the authors of the study state that supplementing with 1,200 mg of calcium per day is ineffective in preventing fractures when there's "poor long-term compliance."

I'm not sure we really needed a study to demonstrate that result. But fortunately a little over half of the subjects did their part to help confirm previous studies that have shown a fracture-prevention benefit associated with sufficient calcium intake.

So ... if you've decided to use a calcium supplement, and you've discussed it with your doctor, what calcium form should you choose'?

The supplement used in the Australian study was calcium carbonate - the most common form of calcium supplementation. But there are a couple of drawbacks to the carbonate form: 1) It's poorly absorbed, and 2) It binds to stomach acids, so a steady intake may prompt malabsorption of proteins and indigestion.

In the e-Alert "Absorbing it All" (4/19/04), HSI Panelist Allan Spreen, M.D., offered a detailed look at the pros and cons of different calcium forms. He noted that the best absorbed of the commercially available forms are calcium orotate (90 to 95 percent absorbed), closely followed by calcium aspartate (85 percent absorbed). But there's a drawback: "These are not only the most expensive, but they're also the hardest to find."

Dr. Spreen lists calcium ascorbate (which includes vitamin C) and amino acid chelates as forms that deliver high absorption at a slightly lower cost than orotate and aspartate. But for the best compromise of price, percentage of elemental calcium, and absorption, Dr. Spreen recommends calcium citrate. The absorption is 30 to 35 percent, and the citric acid reduces the amount of stomach acids required for absorption.

### **Mineral and vitamin helpers:**

Dr. Spreen notes that calcium is not found in nature (in edible form) without magnesium, so they should always be taken together. But to be truly effective, calcium also needs phosphorous, manganese, silica, boron, strontium and vitamins D, C and B-12. And Dr. Spreen adds that most people will need vitamin D in high doses.

One obvious way to support the effectiveness of calcium supplements is to make sure you include plenty of calcium-rich foods in your diet, such as cabbage, kale, yellow, green, or waxed beans, and salmon. Foods that are high in magnesium include leafy green vegetables, whole grains, bananas, apricots, meat, beans, and nuts.