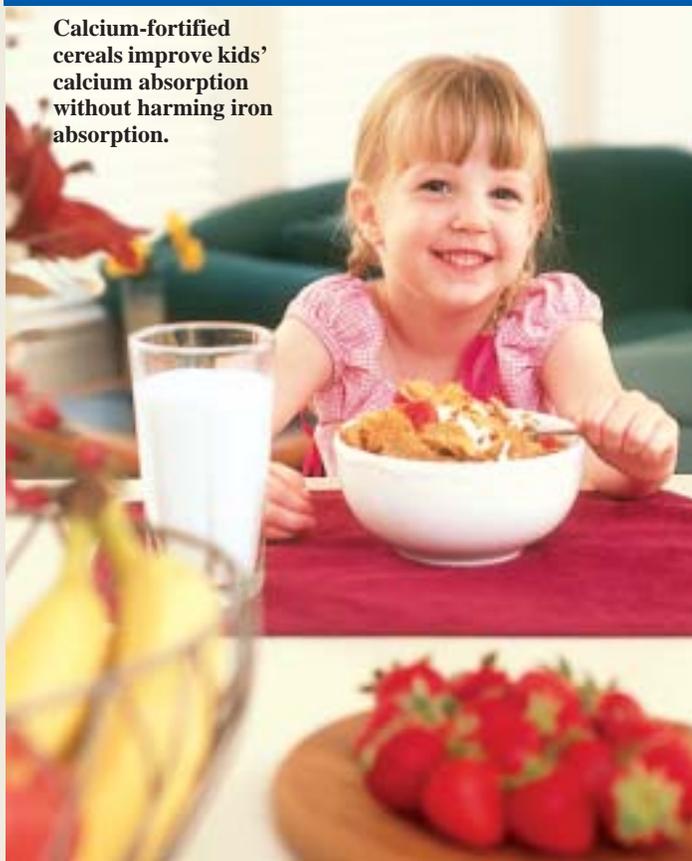


# Fortified Cereal Can Up Kids' Calcium

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Calcium-fortified cereals improve kids' calcium absorption without harming iron absorption.



I ncreasing a child's calcium intake can be as simple as reaching for a box of cereal.

Scientists at the ARS Children's Nutrition Research Center (CNRC) at Baylor College of Medicine have completed a study involving 27 Houston-area children, ages 6 to 9. They found that ready-to-eat cereals fortified with a moderate amount of calcium can help kids meet their calcium needs without decreasing iron absorption.

"We've been interested in strategies to evaluate the effects of adding specific nutrients to foods, because that's a major approach used in the United States and globally these days," says Dr. Steven A. Abrams, who led the study. "Children often don't take in enough calcium, so identifying and fortifying foods that kids commonly eat, such as breakfast cereals, can be helpful in meeting intake requirements. We're looking at whether or not this is an effective approach."

In 1997, the Food and Nutrition Board of the Institute of Medicine evaluated dietary requirements for calcium and related nutrients. In general, the board recommended higher intakes than previous standards.

Fortifying food products with additional calcium has become a widespread practice. It's now commonplace for many foods—especially beverages, like orange juice, and grain products, like cereal—to be fortified so that each serving provides at least 100 milligrams (mg) of calcium.

During the CNRC study, which was published in the *Journal of Pediatrics*, children were given two 1-ounce servings of cereal each day for 2 weeks. One of the servings was eaten at breakfast with milk; the other was eaten at lunch, as a snack, without milk. Half the children received cereal fortified with 156 mg of calcium per ounce, while the others were given a nonfortified cereal containing 39 mg per ounce. Calcium fortification was done by adding calcium carbonate to the dry-mix cereal before cooking.

At the end of the study, Abrams concluded that all the children absorbed about the same amount of iron per day. But those who ate the fortified cereal also absorbed about 50 mg more calcium, which is about equivalent to drinking an extra 2 ounces of milk.

"Breakfast is obviously a key meal, in terms of both children's school performance and their intake of important micronutrients. A nutritious breakfast cereal with milk can contribute a tremendous part of the vitamins and minerals a child needs," says Abrams. "A cereal-and-milk breakfast represents a major portion of a child's micronutrient intake for a day."

According to Dr. Abrams, increasing the amount of one nutrient in the diet can sometimes work against the absorption of others, but not in this case.

"We were pleased that increasing calcium absorption did not harm iron absorption," says Abrams. Adequate calcium intake is thought to be essential to reducing the risk of bone fractures among children and preventing osteoporosis, or brittle bones, later in life.

"Many scientists consider osteoporosis to be a 'pediatric-preventable' disease, so achieving maximum calcium absorption during childhood and adolescence is a key public health goal," says Abrams. "Anything we can do to enhance that in childhood and adolescence may be valuable."—By **Alfredo Flores**, ARS.

*This research is part of Human Nutrition, an ARS National Program (#107) described on the World Wide Web at <http://www.nps.ars.usda.gov>.*

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