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## Availability of calcium in dairy and other human foods

### Abstract

In 1985 the annual sales of dairy products on the average grew 3.3%, and is expected to grow 6.4% in 1986, according to the U.S. Department of Commerce. This positive growth was attributed in part to increased consumer awareness on the reported role of calcium in combating hypertension (high blood pressure) and osteoporosis (a brittle bone disease common in older women). A recent report suggested that many consumers are seeing the publicity that many cases of hypertension may be the result of too little calcium intake, not too much sodium. Consumers are also well aware that a calcium-deficient diet can result in the development of osteoporosis, a progressive loss of bone mass that leaves the skeleton fragile and vulnerable to fractures. The gradual loss in bone mass begins in the mid-30's but the damage is not apparent until at least 20 years later, when a significant amount of loss has occurred.; Dairy Day, 1986, Kansas State University, Manhattan, KS, 1986;

### Keywords

Kansas Agricultural Experiment Station contribution; no. 87-88-S; Report of progress (Kansas Agricultural Experiment Station); 506; Dairy; Calcium; Dairy products

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AVAILABILITY OF CALCIUM IN DAIRY  
AND OTHER HUMAN FOODS

Ike J. Jeon

## Introduction

In 1985 the annual sales of dairy products on the average grew 3.3%, and is expected to grow 6.4% in 1986, according to the U.S. Department of Commerce. This positive growth was attributed in part to increased consumer awareness on the reported role of calcium in combating hypertension (high blood pressure) and osteoporosis (a brittle bone disease common in older women). A recent report suggested that many consumers are seeing the publicity that many cases of hypertension may be the result of too little calcium intake, not too much sodium. Consumers are also well aware that a calcium-deficient diet can result in the development of osteoporosis, a progressive loss of bone mass that leaves the skeleton fragile and vulnerable to fractures. The gradual loss in bone mass begins in the mid-30's but the damage is not apparent until at least 20 years later, when a significant amount of loss has occurred.

## Needed Calcium Intake and Amount in Food

The current recommended daily allowance (RDA) for calcium, set by the Food and Nutrition Board of the National Academy of Sciences, is 800 milligrams for adults. However, some nutritionists believe that a daily intake of 1,000 to 1,200 milligrams would be appropriate for women who have not yet reached menopause and 1,500 milligrams for post-menopausal women. A careful selection of diet is required to provide such an intake of calcium. As shown in Table 1, milk

Table 1. Calcium Content in Selected Foods

Food	Calcium, mg
Sardines, with bones, canned in oil (3 oz.)	401
Milk, whole or skim (1 cup)	298
Yogurt, plain and low fat (1 cup)	293
Cheese, Swiss (1 oz)	270
Cheese, American Cheddar (1 oz)	211
Collard greens, cooked (1/2 cup)	152
Cottage cheese, lowfat (1 cup)	138
Broccoli, cooked (5 1/2 in stalk)	103
Ice cream (1/2 cup)	90
Spinach, cooked (1/2 cup)	83
Green beans (1 cup)	62
Bread, whole wheat or white (1 slice)	35

and dairy products are among the best sources of calcium in the American diet. For example, one cup of whole milk contains about 300 milligrams of calcium, so drinking two to three cups of milk a day would meet the RDA calcium requirement.

### Calcium-fortified Foods

Although dairy products are already good sources of calcium, some companies are currently test marketing calcium-fortified dairy products. For example, Borden Incorporated is test marketing "Hi-Calcium Milk", which is fortified with tricalcium phosphate. The milk contains 1,000 milligrams of calcium per serving of whole milk; a low-fat version provides approximately two-thirds that amount. The California Milk Advisory Board, meanwhile, is testing "Vital 15", a calcium-enriched milk. The product, to be made available to all California processors, provides 400 milligrams of calcium per serving. There are also several calcium-fortified, non-dairy foods currently on the market. These include soft drinks, drink mixes, bread, and flour. Most are prominently labeled and advertised as having added calcium. However, some nutritionists caution that when dairy products are replaced with calcium-fortified foods, other important nutrients may be lost from a balanced diet. This may be particularly true with the oral administration of calcium pills.

It should be noted that taking in plenty of calcium does not necessarily mean that the body is absorbing enough calcium. Many factors are known to affect calcium absorption into the body. For example, consuming too much phosphorus may interfere with calcium absorption. Cigarette smoking may affect calcium absorption as well. Vitamin D, commonly added to milk, is known to be necessary for calcium absorption. Therefore, a balanced diet is essential not only for an adequate calcium intake but also for proper absorption of calcium and keeping the body nutritionally sound.

### Read More About It

1. News from the National Dairy Council, Media Memo, Spring, 1984. p. 2-17.
2. Dairymen's Digest. Calcium may be the key to blood pressure control. January, 1985. p. 24.
3. Dairy Record. Keeping the calcium message alive. July, 1984. p. 9.
4. Prepared Foods. Consumer attitudes and health concerns impact dairy sales. August, 1986. p. 49.