

# Nutrition Fact Sheet

Up-to-date nutrition information  
for the health care professional

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## Calcium Recommendations: Healthy Choices for Children and Adolescents

**Problem:** The quality of the diet eaten by children and adolescents has been declining in the United States, and the incidence of overweight and related diseases among children and adolescents has been increasing.

Common medical consequences of overweight in youth include hyperlipidemia, glucose intolerance, hepatic steatosis, and cholelithiasis (1). The psychosocial impact in youth and the risk for various chronic diseases later in life is significant. A recent study found that nearly 60 percent of overweight children have at least one cardiovascular risk factor; 25 percent of overweight children have two or more risk factors (2). Diets low in calcium and vitamin D can contribute to bone fractures in youth and osteoporosis in later adulthood.

The average national intakes of milk and other dairy foods by children and adolescents are below the dietary recommendations for all age groups. Intakes range from 76% of dietary recommendations for children ages 7 to 10 years to only 42% of dietary recommendations for girls ages 15 to 18 years. Percentages of children meeting the dietary recommendations for calcium are: 49% for ages 7 to 10 years, 28% for boys age 15 to 18, and 12% for girls age 15 to 18 years (3).

Preoccupation with being thin, especially among females, as well as the misconception that all dairy foods are fattening may be a substantial barrier to adequate calcium intake. Optimal calcium and vitamin D intake is most important during early childhood and adolescence when bones grow and incorporate calcium most rapidly. By age 17, approximately 90% of adult bone mass has been established. Calcium also plays an important role in the proper functioning of the heart, muscles, and nerves.

Recent data obtained on African American adolescents suggest a link between lower diastolic blood pressure and increased calcium intake (4). The concern for children with low calcium intakes has been highlighted by a 1999 statement by the American Academy of Pediatrics committee on Nutrition; "it is reasonable to conclude that low calcium intakes may be an important risk factor for fractures in adolescents" (5).

However, some calcium sources such as whole milk and full-fat dairy products are significant sources of saturated fat and cholesterol. Atherosclerosis begins in childhood, and elevated serum levels of total cholesterol and low-density lipoprotein cholesterol (LDL-C) are associated with fatty streaks and fibrous plaques in adolescents and young adults. Reducing dietary saturated fat and cholesterol reduces blood total cholesterol and LDL-C (6).

**Recommendations:** Two or three servings of dairy products are recommended on a daily basis. The new federal nutrient guidelines recommend the following intakes for calcium and vitamin D: Ages 1-3 years: 500 mg Ca<sup>++</sup>; 400 IU vit. D  
Ages 4-8 years: 800 mg Ca<sup>++</sup>; 400 IU vit. D  
Ages 9-18 years: 1,300 mg Ca<sup>++</sup>; 400 IU vit. D (7). An 8-oz. serving of milk contains about 300 mg of calcium and 100 IU of vitamin D. Yogurt and cheese do not usually contain vitamin D.

Parents need consistent advice about the kind of milk to choose for their children. The year 2000 Dietary Guidelines for Americans, intended for healthy Americans age 2 and older, contains the following advice: "Choose a diet that is low in saturated fat and cholesterol and moderate in total fat" and "choose low-fat and fat-free milk products most often."(6).

### **Food Choices for Adequate Calcium Intake and Good Health:**

Dairy foods provide approximately 73% of the calcium in the U.S. food supply. Children under 2 years of age need adequate dietary fat to assure optimal growth and brain development; recommendations about the type of milk should be based on the child's overall dietary pattern. Beginning at 24 months of age, children can join the rest of the family in drinking 1% or fat-free milk. This is an important step in achieving a dietary intake that is moderate in total fat and low in saturated fat and cholesterol.

In addition, offering and encouraging food choices that are non-dairy sources of calcium can increase calcium intake and help to lower saturated fat and cholesterol intake. These foods include the following:

- Calcium-fortified fruit juices, cereals, and breads (check labels for calcium and vitamin D content).
- Mustard greens, turnip greens, broccoli, and brussels sprouts.
- Foods with dried beans, for example chili and bean soup.
- Calcium-fortified tofu, ricemilk, and soymilk (check labels for calcium and vitamin D content).
- Canned fish with edible soft bones such as salmon, sardines, and mackerel.

Many children and parents are unaware of these calcium sources, and that low-fat milk contains at least as much calcium, vitamin D, and protein as whole milk while helping to prevent overweight and related diseases in children and adolescents.

**What About Children and Adolescents with Lactose Intolerance or Milk Allergy?** It is important to communicate that lactose intolerance does not mean that one is allergic to milk or dairy products. Dairy foods that provide key nutrients, in addition to calcium, such as vitamins A and D, riboflavin, phosphorus, and protein need not be eliminated. Including milk and other lactose containing dairy food in the daily diet may

actually improve tolerance to lactose (9).

Most children and adolescents can consume small amounts of milk without symptoms. Drinking 1 cup or less of milk with meals is usually tolerated. Cheeses and yogurt are generally tolerated better than milk. Lactose-reduced and lactose-free milk and milk products and lactase tablets are other options to consider.

Milk allergy is rare and is usually identified early in life. When present, severe, life-threatening reactions may occur. These children need cow's milk replacements such as soymilk, ricemilk, and juices that are calcium-fortified.

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