

# THE CHILDREN'S HEALTH PARADOX OVERWEIGHT, YET UNDERNOURISHED

Overweight and obesity have reached epidemic proportions in the United States. An estimated 13% of children ages 6-11 years and 14% of adolescents ages 12-19 are overweight. Today, there are twice as many overweight children and almost three times as many overweight adolescents as in 1980.<sup>1,2</sup> It is estimated that 70 to 80% of obese adolescents will remain so as adults.<sup>3</sup> Childhood overweight continues to increase rapidly in the United States, particularly among African Americans and Hispanics.<sup>4</sup> The emerging epidemic of type 2 diabetes in children and adolescents is a likely consequence of today's obesity epidemic.<sup>5</sup>

Yet, despite the growing girth of America's youth, there's a corresponding nutrient shortage among this generation. Children consume almost 20% of their calories from the tip of the Food Guide Pyramid, which is devoid of essential nutrients but high in fat and calories.<sup>6</sup> Only 2% of school-age children meet the Food Guide Pyramid recommendations for the five food groups,<sup>7</sup> which contributes to their insufficient intake of a variety of nutrients — including iron, vitamin A, vitamin B6 and, most significantly, calcium.<sup>8</sup>



Intake of calcium declines as children get older and, at all ages, females consume less calcium than do males.<sup>8</sup>

- USDA data indicate that 71% of females and 62% of males ages 6-11 fail to meet calcium recommendations.
- Among adolescents 12-19 years, 88% of females and 68% of males do not meet calcium recommendations.

Milk and other dairy foods, such as cheese and yogurt, contribute only 9% of the calories available in the food supply, yet provide 73% of the calcium.<sup>9</sup> Low intake of milk and other dairy foods by many children and adolescents is the primary reason for their low calcium intake:<sup>10,11</sup>

- Only 36% of females and 47% of males ages

6-11 years consume the recommended number of servings of Milk Group foods.

- Among adolescents 12-19 years, only 11% of females and 28% of males consume the recommended number of servings of Milk Group foods.
- Low dairy intake among adults may contribute to low dairy intake among children. Research suggests children who see their moms drink milk are more likely to make the same choice.<sup>12</sup>

Calcium and Milk Recommendations		
Age	Calcium (mg/day)	Milk Group (servings/day)
1-3 years	500	2
4-8 years	800	3
9-18 years	1,300	4

Source: Institute of Medicine, National Academy of Sciences.<sup>13</sup>

## Dairy's Role In Weight Management

While significant numbers of children and adolescents fall short of the calcium they need, emerging research suggests that consuming just three servings a day of milk, cheese or yogurt may help reduce body weight and body fat.<sup>14-16</sup>

- Several studies in mice indicate that dairy foods accelerate weight and fat loss — an effect only partly explained by calcium.<sup>17,18</sup>
- A five-year study of preschool children found those children who followed a diet rich in calcium from dairy foods had lower body fat than children with lower dairy calcium intakes.<sup>14</sup>
- An analysis of data from NHANES III demonstrates a reduction in the risk of overweight in women with increases in calcium and dairy food intake.<sup>15</sup>
- In a randomized exercise intervention trial of normal weight young women, those who consumed high calcium intakes, corrected by total energy intake, gained less weight and body fat over two years than women on low calcium intakes.<sup>16</sup>
- A recent multi-center population-based study found that overweight young adults who consumed the most dairy foods over a 10-year period were at lower risk of becoming obese and developing insulin resistance syndrome than those who consumed few dairy foods.<sup>19</sup> Obesity and insulin resistance syndrome are risk factors for heart disease and type 2 diabetes. The researchers suggest that the decline in consumption of milk and dairy foods, accompanied by an increase in soda

intake and snacking among children and adolescents, may be an important factor contributing to the current epidemics of obesity and type 2 diabetes.

## Milk In Schools

Many schools teach children about health and nutrition and provide an environment that reinforces these teachings. However, recent studies have found that more than 65% of schools allow students to buy food and beverages (such as soft drinks, sports drinks and fruit drinks) from vending machines or school stores during the lunch period — which directly competes with milk consumption.<sup>20,21</sup> Contracts with school districts for exclusive soda rights may contribute to increased consumption of soft drinks among children.<sup>22</sup>

- Not choosing milk at lunch can compromise children's calcium intake. A recent investigation of children ages 5-17 found that only those who drank milk at the noon meal met or exceeded recommended dietary calcium intakes for that meal, or for the entire day.<sup>23</sup> In contrast, children who drank soft drinks, juice, tea, or fruit drinks at lunch did not meet daily calcium recommendations.
  - During recent decades, children's intake of soft drinks has risen dramatically, whereas their intake of milk has declined.<sup>8,22</sup> Intake of soft drinks at the expense of milk may compromise children's calcium intake and increase their risk of fracture.<sup>24,25</sup>
  - Choosing soft drinks and non-citrus juices over milk also may reduce the overall nutritional quality of children's diets.<sup>26-28</sup>
  - A recent investigation of 548 children found that each additional serving of a sugar-sweetened beverage like soft drinks significantly increased the chance of becoming obese.<sup>29</sup>
  - Another recent study revealed that milk contributed the most calcium and protein per 100 calories and per penny — making milk a nutrient dense and cost-effective component for school lunch.<sup>30</sup>
- ## Flavored Milk And Schools
- Offering flavored milk as part of school meal programs has been shown to increase milk and nutrient intake.<sup>31-33</sup> When approximately 400 elementary school children in Pennsylvania were provided with an option of chocolate milk in school meals, more milk was consumed and intake of nutrients such as calcium and riboflavin increased.<sup>31</sup> Likewise, when 6th grade students in an elementary school in New York City were provided with 1% chocolate milk as part of their school lunch, the students' milk and nutrient intakes increased.<sup>33</sup>

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- ▶ A study by researchers at the University of Vermont suggests that flavored milk may be one solution to help children boost calcium intake.<sup>34</sup> They found that children who consumed flavored milk drank more milk overall, including unflavored, and fewer soft drinks and fruit drinks, than did children who did not drink flavored milk. Flavored milk drinkers also achieved higher calcium levels without increasing total added sugar or fat in their diets. Soft drinks contain more than twice the amount of added sugar than that found in flavored milk.
- ▶ Flavored milk in school vending machines is another approach that may help increase milk consumption. A school vending study found that students will eagerly buy vended milk if it is available in well-chilled, single-serve resealable packaging, in a variety of flavors and fat levels and in conveniently located areas.<sup>35</sup>
- ▶ Flavored milks are as nutritious as unflavored milks. Both types of milks contain a high proportion of nutrients in relation to calories. Chocolate milk, for example, provides the same essential nutrients as white milk, including calcium, protein, vitamin D, vitamin A, vitamin B12, potassium, phosphorus, riboflavin and niacin. Like unflavored milks, all versions of flavored milks provide 300 mg calcium per serving or about one-third to one-fourth of children's daily calcium recommendation.<sup>36</sup>

## Healthy School Environments

Schools are in a unique position to help children develop healthy behaviors. The National Dairy Council has long recognized the role of the school as a "hands-on learning environment" for good nutrition and has been dedicated to nutrition education and research since 1915. Recently, the National Dairy Council spearheaded the collaboration of a diverse group of organizations, including the American Academy of Pediatrics (AAP), to map out an action plan to develop a healthy school environment.

***"The school is an ideal place to implement health initiatives to tackle problems such as obesity and poor nutrition. However, it requires cooperation of health professionals and educators to succeed."***

— Robert Murray, MD, AAP Committee on School Health

The "Healthy Schools Summit: Taking Action for Better Nutrition and Fitness," held on October 7-8, 2002 in Washington, DC, was chaired by the former Surgeon General David Satcher, MD, PhD. The ongoing goal of the Summit is to build on the school-based recommendations from the recent Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity.<sup>37</sup>

- ▶ Ensure that schools provide healthful foods and beverages on school campuses and at school events by:
  - ✓ Enforcing existing U.S. Department of Agriculture regulations that prohibit serving foods of minimal nutritional value during mealtimes in school food service areas, including in vending machines.
  - ✓ Adopting policies specifying that all foods and beverages available at schools contribute toward eating patterns that are consistent with the Dietary Guidelines for Americans.
  - ✓ Providing more food options that are low in fat, calories and added sugars such as fruits, vegetables, whole grains and lowfat or nonfat dairy foods.
  - ✓ Reducing access to foods high in fat, calories and added sugars and to excessive portion sizes.
- ▶ A Web site has been established at [www.actionforhealthykids.org](http://www.actionforhealthykids.org) where pediatricians can identify how to take part in creating a healthy school environment at the local level.

***"This Call to Action seeks to recruit your talent and inspiration in promoting healthy eating habits and adequate physical activity, beginning in childhood and continuing across the lifespan."***

— David Satcher, MD, PhD

## The Pediatrician's Role

A recent policy statement from AAP's Committee on Nutrition outlined the steps a pediatrician can take to help close the current calcium gap.<sup>38</sup>

- ▶ Pediatricians should actively support the goal of achieving calcium intakes in children and adolescents comparable to those in recently recommended guidelines.
- ▶ To emphasize the importance of calcium, pediatricians should consider including the following questions about dietary calcium intake as a part of well-check exams:
  - ✓ What do you drink with your meals?
  - ✓ How many servings of white or flavored milk do you consume each day?
  - ✓ How many servings of other dairy foods, such as cheese or yogurt, do you eat each day?
  - ✓ Do you drink calcium-fortified juices or eat any calcium-fortified foods?
  - ✓ Do you eat any of the following: broccoli, tofu, oranges or legumes (dried beans and peas)?

- ✓ Do you take any mineral or vitamin supplements?

***"Pediatricians should actively support the goal of achieving calcium intakes in children and adolescents..."***

— AAP Committee on Nutrition

- ▶ For children and adolescents whose calcium intake seems deficient, specific information about the sources of dietary calcium should be provided. Adolescents may need to be reminded that lowfat dairy products, including fat free milk and lowfat yogurt, provide the same amount of vitamins and minerals as whole products.

## For More Information

Visit [www.nationaldairycouncil.org](http://www.nationaldairycouncil.org) for a copy of the proceedings from the Healthy Schools Summit or FREE nutrition education materials to help your patients increase their calcium intake and enhance their diets.

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