

## **Promoting a Calcium Initiative in School Cafeterias**

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### **ABSTRACT**

Milk is an important source of calcium, and child nutrition programs are well positioned to promote its consumption and thus have a salutary effect on the nutritional status of schoolchildren. The purpose of this commentary is to identify factors that influence milk-drinking behaviors from the perspective of both elementary students and school foodservice managers.

Results of a national survey of managers were compared to those obtained from elementary schoolchildren who participated in focus group meetings. Social Learning Theory (SLT) was used to interpret these results as either environmental or personal factors that influenced milk drinking and suggest strategies for positively influencing perceptions of milk as a desirable beverage. Environmental factors that influenced elementary students were flavor, product packaging, cafeteria rules, shared experiences, and modeling by adults, while managers' factors were choice, product packaging, cleanliness, freshness, and modeling by adults. In particular, managers focused on quality control, while children described cafeteria rules and procedures. Personal factors reported by the children included milk preference and health beliefs. Managers' personal factors were milk desirability and health beliefs.

Preferences are based on sensory qualities, personal drinking strategies, and food associations. Managers indicated that the presence of competing drinks and variety in flavor modified desirability. Managers also heard children voice concerns about allergies, stomach problems, and diarrhea; however, these issues need not curtail consumption. Research suggests that lactose maldigestion is compatible with enjoyment of dairy foods. As demonstrated by the Child and Adolescent Trial for Cardiovascular Health (CATCH), a school-based program designed to evaluate the effectiveness of a multifaceted school health promotion in the reduction of cardiovascular disease in elementary schoolchildren, child nutrition programs can participate in such health promotion efforts. Greater awareness of the potential to positively influence behavior suggests ways to impact milk consumption and improve the calcium status of the nation's children.

### **INTRODUCTION**

Adequate calcium consumption during childhood is critical to long-term health and disease prevention. Historically, Americans relied on milk and dairy products to supply daily calcium needs. More recently, competing beverages lacking the nutritional strengths of milk have challenged it as the beverage of choice, especially among children (Frazao, 1999; Albertson, Tobelmann, Engstrom, & Asps, 1992; Albertson, Tobelmann, & Marquart, 1997). While calcium is found in green vegetables, calcium-fortified tofu, legumes, and fortified breads and cereals, most Americans do not consume enough of these foods to offset what is lost when milk

consumption drops (Fenster, 1994). Through the inclusion of dairy foods in school meals, child nutrition programs are well positioned to improve calcium consumption and, thus, can have a salutary effect on the nutritional status of the nation's children.

Since its inception, the National School Lunch Program (NSLP) has helped children meet daily nutritional needs while fostering balanced eating habits that promote health (American School Food Service Association, 1989). For example, a 1998 study of the food consumption patterns of elementary students concluded that children participating in the NSLP ate a wider variety of foods and consumed more of the recommended nutrients than did non-participating children (Melnik, Rhodes, Wales, Cowell, & Wolfe, 1998). Participation in the NSLP and enjoyment of all meal components, particularly milk, makes good nutritional sense. A better understanding of how children view milk served at school enables school nutrition managers to support positive perceptions and encourage consumption. The purpose of this commentary is to compare these factors that influence milk drinking at school as described by children to those perceived by school foodservice managers as important to children.

## METHODOLOGY

The results from a national survey of elementary school foodservice managers were compared to those obtained from children participating in focus group meetings. The survey, concerning milk use and handling in elementary schools, was mailed to 1,000 members of the American School Food Service Association. This research tool included open-ended questions encouraging managers to share children's comments about milk, as well their own perceptions of what influenced drinking behaviors. Collected over a three-month period, the survey generated a response rate of 25.8%. The majority of respondents were experienced professionals, with 86.7% employed in school foodservice for more than 10 years (Connors, Bednar, Imhran, & Czajka-Narins, 1999).

In a subsequent study, 41 elementary students were recruited from after-school recreation programs at six elementary schools in a North Texas urban area. The children participated in structured group meetings and shared their perspectives on such topics as milk characteristics, likes and dislikes, and what they would tell a new student about milk. Meetings were moderated by the same investigator and lasted for approximately 30 minutes. Group sizes varied from four to six children. Four groups were all boys and six were all girls. Meetings were audiotaped and transcribed (Connors, Bednar, & Klammer, 2001).

Interpretation of data from both studies was done using Spradley's method of memo writing and analysis (Spradley, 1980). The same investigator coded data, noting semantic relationships (Miles & Huberman, 1994). Emerging themes were designated as factors, based upon their ability to inform about milk-drinking behaviors. Finally, Social Learning Theory (SLT) was used to categorize descriptive factors as environmental or personal.

SLT proposes that behavior is dynamic and interacts reciprocally with environmental and personal factors to create habits and generate incentives for change (Glaz, Lewis, & Rimer, 1990). Environmental factors influence behavior, but are less immediate than personal ones. They are external to the person, characterized by limited self-control, and derived from the world

around. Foodservice managers directly impact environmental factors by controlling the cafeteria environment. Managers establish cafeteria rules ("Take the carton on top"), purchase products (types of milk available), and interact with students ("Milk is good for you").

Personal factors are self-determined expectancies bounded by culture and built on associations and preferences. Managers indirectly influence personal factors by creating context. If, for example, milk frequently is served too cold or too warm, children develop expectations about the effects of drinking it. If straws are not provided, children develop drinking strategies that minimize personal embarrassment from dribbling in public. Conversely, foodservice staff members who portray a positive attitude about drinking milk reinforce general nutrition principles taught elsewhere.

## RESULTS AND DISCUSSION

To better understand the milk-drinking behaviors of elementary schoolchildren, SLT was used to model results from the aforementioned studies. In terms of *environmental* influences, elementary students' factors were flavor, product packaging, cafeteria rules, shared experiences, and modeling by adults, while managers' factors were choice, product packaging, cleanliness, freshness, and modeling by adults. Flavor and choice are similar concepts, yet children focused on flavor alone (chocolate), while managers emphasized availability and variety, reflecting their sensitivity to supply limits ("Don't run out of chocolate") and awareness of the possibilities ("Wish I had strawberry milk").

Children and managers agreed that product packaging also was important and that color, graphics, and expiration date were influential in decisionmaking. Managers emphasized problems with gable-top cardboard cartons that discouraged consumption, due to leaks, odors, and difficulty in opening the containers. Cafeteria rules, an environmental factor in the schoolchildren model, are similar in concept to the managers' factors of cleanliness and freshness. The principal distinction was that managers focused on quality control while children focused on procedures; for example: How to exchange a soiled carton rather than how to prevent one.

Modeling by adults includes informational messages, creating opportunities for repeated exposure and demonstrations of behavior. For instance, the children reported adults creating a supportive context ("Milk makes strong bones") and encouraging exposure ("Don't forget your milk"). Interestingly, managers put more emphasis on adult *discouragement* ("My mom says I can drink tea instead") and lack of support ("The teacher says don't drink chocolate") than did the children. Regrettably, neither children nor managers reported adult demonstration of milk-drinking behaviors at school. Researchers have shown that observation of adult conduct continues to influence behavior throughout childhood (Birch, Zimmerman, & Hind, 1980). When adults drink milk they create a visual presence that supports positive perceptions. In fact, adult demonstration of desirable behaviors by teachers, parents, and members of the foodservice staff may represent an underutilized instructional opportunity in the school cafeteria.

At a *personal* level, elementary schoolchildren's factors included milk preferences and health beliefs, while managers' factors included milk desirability and health beliefs. Preferences and

desirability are aligned closely, yet differences remain. Preferences are based in sensory qualities, personal drinking strategies, and food associations. The children were concerned about temperature and flavor, the social acceptability of drinking milk, and foods that taste good with milk, such as cookies. The managers agreed that sensory qualities were important but stressed vulnerability to competing drinks and a lack of variety in flavors as influencing the desirability of milk.

Managers heard children voice concerns about allergies, stomach problems, and diarrhea associated with milk consumption. Milk allergies are rare, but lactose maldigestion, a common hereditary condition that causes gastrointestinal problems when lactose is consumed in excess, is not (Inman-Felton, 1999). Elimination of milk, however, should not be the solution. Researchers have clearly established that eating solid foods before drinking milk improves tolerance, and a gradual introduction to milk over a 10-day period increased amounts tolerated (McBean & Miller, 1998). These are strategies that staff can share with children who dine in their cafeterias.

## CONCLUSIONS AND APPLICATIONS

The Child and Adolescent Trial for Cardiovascular Health (CATCH) demonstrated that a school foodservice intervention might have a positive impact on the nutritional status of participating children (Luepker, Perry, Osganjan, Nader, Parcel, Stone & Webber, 1998). Eat Smart, the foodservice component of CATCH, provided yearly training sessions that successfully reduced the amount of fat and saturated fat in school meals, thereby reducing overall fat content in children's diets. Adequate calcium consumption is equally important to long-term health (American Academy of Pediatrics Committee on Nutrition, 1999).

School foodservice staff can successfully participate in a calcium initiative, just as they did in a fat reduction intervention in CATCH. While managers are sensitive to issues of milk quality and availability, they may be unaware of the instructive role of cafeteria rules and adult modeling. A sense of fairness is promoted by allowing children to exchange an expired carton of milk for a new one, and when high quality milk is served, a decision to drink it can be made with confidence. Even more critically, a foodservice staff armed with accurate facts deflects misinformation, thereby projecting positive attitudes that reinforce consumption.

Managers often focus on their role as service providers, while underestimating a very real potential to influence behavior. For elementary students, the cafeteria environment is a neighborhood where they share experiences, create expectations about foods, and develop lifelong eating habits. The interaction between children and foodservice staff is a unique one that is long remembered after school days are over. Despite a growing awareness of the importance of calcium in long-term health, a problem of adequacy persists. Child nutrition programs are in a position to challenge the status quo. Expanded awareness of how children view the milk served at school can be used to create a milk-friendly cafeteria that positively impacts calcium consumption.

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