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SCHOOL BREAKFAST: IMPROVING STUDENTS' MINDS & BODIES

SUMMARY

A positive link between nutrition and learning has long been recognized. In fact, this concept underlies the federally-supported School Breakfast Program (SBP). Unfortunately for many children, consuming a healthful breakfast is not part of their usual morning routine. Skipping breakfast increases as children age and appears to be more common among certain minority or low socioeconomic groups. Limited family income, time constraints, and lack of appetite in the morning are some of the reasons children skip breakfast. For many children, the SBP is an important alternative to breakfast at home.

The SBP offers students breakfast either free, or at a reduced-price, or at full-price depending on family income. Currently, 80% of the breakfasts offered are free or reduced-price. School breakfasts are required to provide one-fourth or more of the key nutrients children need each day and contain no more than 30% of calories from fat and less than 10% of calories from saturated fat. Although participation in the SBP has increased over the years, this program is underutilized. Fewer than half of eligible low-income children participating in the National School Lunch Program also participate in the SBP.

Missing breakfast puts children's health and academic performance at risk. Research shows that consuming breakfast, particularly school breakfast, improves the nutritional quality of children's diets. Consuming breakfast can help children and adolescents increase their intake of the five "nutrients of concern" (i.e., nutrients limited in their diets) identified by the 2005 Dietary Guidelines for Americans. Dairy products (milk, yogurt, cheese) provide three (i.e., calcium, magnesium, potassium) of these five nutrients, while fruits, vegetables, and whole grains provide the other two (i.e., vitamin E and fiber).

Short-term studies, particularly among undernourished or hungry children, suggest that participation in the SBP has beneficial effects on cognitive function (e.g., memory), academic performance, school attendance, punctuality, and psychosocial function. In addition, breakfast may help children achieve a healthy weight and establish lifelong healthful habits.

Many schools are implementing strategies to increase the availability of the SBP, make breakfast more accessible to students, and expand food options and/or make nutritious food choices more appealing. Providing all students with a universal free school breakfast increases the availability of the SBP by reducing the stigma and eliminating fee barriers for many low-income students. Innovative breakfast service methods, such as providing breakfast in the classroom and "grab and go" breakfast service, make breakfast more accessible.

The *New Look of School Milk* program is an example of a strategy to increase the appeal of a nutritious food choice, in this case milk. This program offers ice-cold milk served in 8-ounce kid-friendly, plastic re-sealable containers in multiple flavors. Also, school wellness policies provide an opportunity to promote and expand SBPs. By increasing participation in the SBP, these various strategies can help ensure that all children have the opportunity to start the school day well-nourished and ready to learn.

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INTRODUCTION

Breakfast is given the well-deserved title as the most important meal of the day (1-3). Research has found that consuming a nutritious breakfast is associated with increased nutrient intake, improved cognition and academic performance, and a healthy body weight (1-4). In addition, regular breakfast consumption in the early years may help establish life-long healthful habits (1-3). This is important considering that unhealthy eating habits (e.g., low consumption of dairy foods and high intake of low-nutrient density foods) have been linked to poor school performance in students (5).

Unfortunately, many children and adolescents do not eat a nutritious breakfast every morning (1-4,6-10). Breakfast consumption by children and adolescents has declined over the years (1,7). Moreover, skipping breakfast increases with age and may be more common among certain minority or low socioeconomic groups (1,6-8). According to data from the National Health and Nutrition Examination Survey (NHANES) 2001-2002, breakfast consumption declined from 95% for two to five year olds, to 87% for children ages 6 to 11, to 70% for those 12 to 19 years of age (8). African American girls are more likely to skip breakfast than white girls, although this racial difference decreases with increasing age (6).

Reasons for skipping breakfast include families' economic constraints, insufficient time in the morning, lack of hunger, and unhealthy weight management strategies (1,3,4,9,10). Millions of families in the U.S. cannot afford to provide their children with healthful breakfasts every day (3,4). In 2006, approximately 12.8 million American children, or one in six, lived below the poverty guideline, and among households with children, 10.9% (12.6 million households) were food insecure (3). For millions of other children, lack of time is a barrier to consuming breakfast. Many of today's parents find it difficult to prepare a nutritious breakfast due to early morning school bus schedules, long commutes to jobs, and nontraditional work hours (3,4). Also, some children, especially adolescents, are not hungry when they wake up (3,4).

The federally-supported School Breakfast Program has grown over the years and currently serves more than 10 million children. However, this program continues to be underutilized.

An unhealthy preoccupation with weight and drastic weight-loss behaviors are associated with skipping breakfast among children and adolescents (1,9,10). Skipping breakfast appears to be associated with other unhealthful lifestyle factors (e.g., smoking, infrequent exercise) (1).

Although participation in the federally-supported School Breakfast Program (SBP) has increased in recent decades, this program continues to be underutilized (3,4,11). Recognizing the importance of breakfast for children's health and academic performance, efforts are underway to expand this program into more schools and to increase participation within schools.

This *Digest* provides an overview of the SBP, reviews the importance of a healthful breakfast for children, and identifies efforts being made to increase participation in the SBP.

ABOUT THE SCHOOL BREAKFAST PROGRAM

The U.S. Congress, recognizing the link between food and good nutrition and children's ability to develop and learn, authorized the creation of the SBP as a pilot program in 1966 and then as a permanent entitlement program in 1975 (3,11). The U.S. Department of Agriculture, through its Food and Nutrition Service, funds and administers the SBP at the federal level. At the state level, state education agencies operating through agreements with school food authorities usually administer the SBP. Household income determines whether students receive school breakfast free, or at a reduced-price, or pay full-price (3,11). School breakfasts must provide one-fourth of the dietary recommendations for protein, calcium, iron, vitamin A, vitamin C, and calories and no more than 30% of calories from fat, and less than 10% of calories from saturated fat (11).

Over the past 40 years, the SBP has grown from serving 80,000 children to a record 10.14 million in 2007, with 8.14 million (80.6%) of these children receiving free or reduced-price breakfasts (3,11). The percentage of schools offering the SBP as compared to lunch has also grown – from 48.8% in 1991 to 84.8% in 2006-07 (3).

Despite record SBP participation, there is room for improvement. The SBP reaches less than half (45.5%) of the eligible low-income children participating in the National School Lunch Program (11). It therefore is essential to expand the SBP into more schools and increase participation within schools (3). According to the Center for Disease Control's 2006 School Health Policies and Programs Study (SHPPS), 18.0% of states and 74.1% of districts nationwide have adopted a policy specifying that all schools offer breakfast to students (12). An additional 44.0% of states and 8.7% of districts have adopted a policy indicating that some categories of schools (e.g., those with a certain percentage of students eligible for free or reduced price meals) will offer breakfast to students (12).

WHY BREAKFAST IS IMPORTANT FOR CHILDREN

There is substantial evidence that consuming breakfast, particularly school breakfast, as part of a healthful lifestyle, is positively associated with children's health and academic performance (1-4,7).

Nutritional Benefits. Research has shown that breakfast consumption reduces hunger and contributes to the nutritional quality of children's and adolescents' diets (1-4,6,7,13-18). In contrast, children who skip breakfast generally have lower intakes of nutrients than those who regularly consume breakfast and these low intakes are not compensated for at other meals (2,7,14,19). A review of nine studies examining the association between breakfast consumption and nutritional adequacy in children and adolescents found that breakfast eaters had higher daily intakes of micronutrients (e.g., vitamins A and C, riboflavin, calcium, zinc, iron) and were more likely to meet nutrient intake recommendations compared to breakfast skippers (1).

Higher intakes of milk and several nutrients (e.g., calcium, phosphorus, magnesium, protein, thiamin, riboflavin) at breakfast and over a 24-hour period have been shown in children who participate in the SBP than in nonparticipants who consume breakfast at home or skip this meal (16,20). When researchers examined the effect of the SBP on nutritional outcome in NHANES III participants, they found that consuming the SBP improved children's overall diet quality, reduced the percentage of calories from fat, and decreased the prevalence of vitamin and mineral deficiencies (17). In a study of multiethnic children and adolescents participating in the Bogalusa Heart Study, only 3% of those who ate breakfast at school had inadequate daily calcium intakes, whereas half of the children who skipped breakfast and a quarter of those who ate breakfast at home consumed less than two-thirds of recommended calcium intakes (7).

Consuming school breakfast can reduce children's hunger, contribute to their nutritional intake, enhance their ability to learn, help them achieve a healthy body weight, and may provide the foundation for lifelong healthful eating habits.

Milk is one of the most commonly consumed foods by children at breakfast (1). Also, including ready-to-eat cereals at breakfast is associated with increased milk and calcium intakes (7,21). Consuming a healthful breakfast every day is especially important given children's low dairy and calcium intakes (22) and the critical role of calcium and other dairy nutrients in bone health during the growing years (23,24). According to a study which used data from NHANES 1999-2000 and 2001-2002, dairy and calcium intakes are inadequate for 4- to 18-year olds (22). USDA's MyPyramid recommends two cups of milk or milk equivalents (yogurt and cheese) per day for children aged 2 to 8 and three cups per day for those aged 9 to 18 years (25). The American Academy of Pediatrics recommends three servings of milk or equivalent (flavored milk, cheese, or yogurt) per day for children aged 4 to 8 and four servings of milk or equivalent per day for adolescents (24).

Consuming breakfast can help increase children's and adolescents' intake of five nutrients of concern identified by the 2005 *Dietary Guidelines for Americans*. Dairy foods provide three of these five nutrients of concern (calcium, magnesium, and potassium), while fruits, vegetables and whole grains can provide the other two (vitamin E and fiber) (26).

Cognitive and Academic Benefits. A number of studies report that breakfast consumption is positively associated with children's cognition (particularly memory), academic performance, school attendance, psychosocial function, and mood (1-4,27-34). The benefits

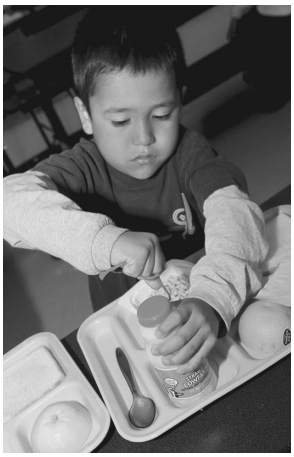
of breakfast consumption on children's cognition and school performance are most pronounced in short-term studies and in undernourished or hungry children (1,7,30-32). Determination of the long-term effects of breakfast on children's cognition and academic performance are complicated by various confounding social, family, and academic factors that affect school performance (1).

Breakfast consumption may enhance cognitive and academic performance by alleviating hunger or food insufficiency (1). Hunger and food insufficiency are associated with poor emotional, behavioral and academic functioning in children (35,36). Breakfast's positive effects on cognition and academic performance may also be explained by the provision of nutrients to the central nervous system.

Weight Management Benefits. An estimated 17% of children and adolescents aged 2 to 19 years are overweight (37). Growing evidence indicates a link between breakfast consumption and a healthy body weight (1-3). Some studies show that children and adolescents who consume breakfast are less likely to be overweight than breakfast skippers or those who infrequently consume this meal (38-40). A longitudinal study of more than 2,500 ethnically and socioeconomically diverse adolescents in Minnesota found that eating breakfast more often was protective against overweight (39). According to an investigation in more than 4,000 middle school students in Kentucky, students with healthy body weights were significantly more likely to consume breakfast than overweight students (40).

Other studies associate skipping or low intake of breakfast with increased risk of overweight in children and adolescents (41,42). A prospective study of adolescents found that breakfast skipping increased during the transition from adolescence to young adulthood and that breakfast skipping contributed to weight gain during this period (41). An investigation in New Zealand children found that after controlling for confounding factors skipping breakfast was associated with a higher body mass index (42).

Efforts are being made in schools nationwide to increase student participation in the school breakfast program by offering breakfasts free of charge to all students and providing breakfasts in the classroom and/or "grab and go" service.



Other studies in adolescents demonstrate that breakfast consumption is not associated with body mass index after adjusting for confounding factors (6,43). A review of 16 studies, mostly cross-sectional, found that some, but not all, studies indicate that breakfast eaters are less likely to be overweight than breakfast skippers (1).

The inclusion of foods in breakfast such as cereals and milk may contribute to breakfast's beneficial effect on body weight (43-45). A growing body of research demonstrates that consuming three servings of dairy products (milk, cheese or yogurt) a day as part of a nutrient-rich, balanced diet promotes a healthy weight and has a favorable effect on body composition (44,45). Breakfast consumption may also contribute indirectly to a healthy body weight through its association with a healthful lifestyle (e.g., regular eating and exercise patterns, healthful food choices) (1,6,40,43). Studies have shown that children and adolescents who consume breakfast make more healthful food choices throughout the day (1,6,46,47), whereas those who skip this morning meal practice less healthful dietary behaviors (1,2,19,48).

EFFORTS TO INCREASE PARTICIPATION IN THE SCHOOL BREAKFAST PROGRAM

Despite the importance of breakfast for children's nutritional status, health, and ability to learn, many children go without this morning meal. The SBP is an effective way to reduce children's hunger, improve their nutrition, enhance their ability to learn, and possibly curb overweight (3). However, fewer than half of eligible needy children who participate in the National School Lunch Program also participate in the SBP (3). According to the Food Research and Action Center (FRAC)'s "Breakfast in America's Big

Cities" survey of 23 large school districts, only two out of the 23 districts served at least two-thirds as many low-income students at breakfast as they served at lunch (4). Recognizing the need to increase participation in the SBP, many school districts across the nation are implementing strategies to increase the availability of the SBP (e.g., through universal free breakfast programs), make breakfast more accessible to students (e.g., through initiatives such as breakfast in the classroom and "grab and go" programs), and expand food options and/or make nutritious food choices more appealing (e.g., through the *New Look of School Milk* program) (4).

Offering Universal Free School Breakfast Programs. The universal free school breakfast program is a program where all students, regardless of free or reduced-price meal eligibility status, are provided with a breakfast free of charge. This program reduces the stigma and eliminates fee barriers for many low-income students. Numerous studies have shown that when schools offer a universally free SBP, daily participation in the program increases (4,9,29,33,34,49). Also, studies, including pilot studies in several states such as Maryland, Minnesota, Wisconsin, and New York, indicate that providing a universal free school breakfast to students results in many academic and behavioral benefits (4,15,29,33,34).

Making Breakfast Part of the School Day. Innovative breakfast service outlets – such as providing breakfast in the classroom, "grab and go" breakfast service from carts or kiosks in school hallways or cafeterias or in the classroom, and breakfasts after first period for middle- and high-school students – increase school breakfast participation (4,50). FRAC's recent survey of 23 urban school districts found that SBP participation rates were higher when universal free school breakfast programs were implemented and when schools provided alternative service methods such as breakfast in the classroom and "grab and go" breakfasts (4). According to the 2006 SHPPS, 26.0% of states and 20.3% of school districts adopted a policy indicating that schools will encourage breakfast consumption by allowing students to eat in locations other than the cafeteria (12).

Offering the New Look of School Milk program can help fulfill school wellness goals by making a nutritious food option – in this case, milk with calcium and eight other essential nutrients – more appealing to children.

Expanding Nutritious Food Options and Increasing their Appeal. National Dairy Council's *New Look of School Milk* (NLSM) program is an example of a strategy to enhance the appeal of nutritious foods, in this case, milk, offered in the SBP (51). The NLSM program features ice-cold milk served in 8-ounce kid-friendly, plastic re-sealable containers, in multiple flavors (e.g., strawberry in addition to chocolate). This innovative program is based on the results of the year-long School Milk Pilot Test conducted in 2001 and sponsored by National Dairy Council and the School Nutrition Association. The pilot test, which was conducted in 146 schools with 100,000 students, found that milk consumption increased 38%, milk sales increased 18%, and lunch participation increased 5% in secondary schools as a result of this enhanced milk program. Today, the NLSM is offered in more than 9,200 schools serving more than 5.5 million children (51). School nutrition directors at schools offering the NLSM report increased lunch and breakfast participation, as well as increased milk sales (www.nutritionexplorations.org/sfs/schoolmilk_success.asp).

Integrating School Breakfast Programs into School Wellness Policies. School wellness policies provide an opportunity to promote and expand the SBP. As part of the Child Nutrition and WIC Reauthorization Act of 2004, each school district participating in federal meal programs was required to establish local school wellness policies that promote students' health beginning in the 2006-07 school year (52). A number of school districts have included breakfast expansion in their wellness policies (4). Nutrition education related to the benefits of consuming a healthful breakfast can be provided as part of local school wellness policies, which in turn may increase participation in the SBP.

CONCLUSION

For many children who do not eat a nutritious breakfast at home, participation in the SBP helps to improve their nutritional status, well-being, and ability to learn. Although participation in the SBP has increased over the years, this program continues to be underutilized, particularly by eligible low-income children.

Recognizing that the lack of a healthful breakfast puts children's health and academic performance at risk, many school districts and schools are implementing strategies to increase student participation in the SBP. Effective strategies include offering the SBP at no cost to all students regardless of family income; in-classroom breakfast or other alternative serving methods (e.g., "grab and go"); and increasing the appeal of nutritious foods, for example, by offering milk ice-cold, in kid-friendly, plastic re-sealable containers, and in multiple flavors. To ensure that all children are ready to learn, more schools nationwide need to offer the SBP and implement effective strategies to help increase participation in this program. D

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