Summary: Presentations from the Kellogg-Sponsored Symposium at the Academy of Nutrition and Dietetics Kids Eat Right Summit

Presentations included:

Breakfast at School: Benefits, Regulations, and Operations
Benefits of Fiber Intake in Children and Adolescents: Why Kids Need Fiber and How to Get it
Research on Breakfast Habits, Nutrition Status and Health Outcomes

By: Dayle Hayes, MS, RD, Sibylle Kranz, RD, PhD, DeAnn Liska, PhD, Kevin B. Miller, PhD

See Continuing Education Information and Quiz at the end of this article

Article Highlights

- Breakfast consumption declines as children get older; only 5.5 percent of young children ages 2-5 skip breakfast, with that number increasing to 13.5 percent for 6-11 year-olds and more than 25 percent for 12-19 year-olds. And breakfast consumption continues its decline as adolescents enter young adulthood.

- Ready-to-eat-cereal promotes milk intake, is the number one or two source of many key nutrients and is a low-calorie food.

- Consuming ready-to-eat-cereal and milk together can contribute the four nutrients of concern (fiber, potassium, vitamin D, calcium) as identified by the 2010 Dietary Guidelines for Americans report.

- A high-fiber diet is associated with a better overall dietary quality; however, little is known about fiber recommendations for children and more research needs to be conducted to close the knowledge gap.

- Fortification plays a crucial role in nutrient intake for ready-to-eat-cereal; without it, four million additional kids in the United States are predicted to fall below the adequate intake for vitamin D.

- Schools need to foster an environment where breakfast is readily available to all students, by overcoming obstacles to food service, offering fortified food options and helping all children start their day right.

Breakfast Consumption

Breakfast Consumption Declines as Children Grow Older

It is often said that breakfast is the most important meal of the day. Unfortunately, nutrition professionals have long known that breakfast is frequently skipped among people of all ages, but
research shows a significant drop-off in breakfast consumption as children get older. Specifically, only 5.5 percent of young children ages 2-5 skip breakfast, with that number increasing to 13.5 percent for 6-11 year-olds and more than 25 percent for 12-19 year-olds. Of note, significantly more African-American children do not eat breakfast all of the time (59%) compared to white and Hispanic children (42%). When looking at income, even higher numbers of low-income whites and medium-income African Americans (both at 67%) do not eat breakfast all of the time. Also of great concern is the increased prevalence of skipping breakfast as adolescents enter young adulthood. This behavior, which appears to happen in most countries globally, has been associated with unhealthy weight gain. And while many kids are skipping breakfast, the truth is that they are overfed and undernourished overall.

**Breakfast and Ready-to-Eat-Cereal**

*RTEC Promotes Nutrients of Concern for Kids: Vitamin D, Calcium, Potassium and Dietary Fiber*

The 2010 Dietary Guidelines for Americans (DGA) names four nutrients of concern for Americans. Childhood consumption of vitamin D, calcium, potassium and dietary fiber is actually so low that it may compromise our children’s health today and tomorrow. Consuming ready-to-eat-cereal and milk together in the mornings can contribute a portion of the recommended Daily Value of the four nutrients of concern (fiber, potassium, vitamin D, calcium) as identified by the 2010 DGA. Many of the reasons that are offered for breakfast skipping— including rushed morning routines, inability to afford food and lack of hunger before early morning departures— could be addressed if more students would make the most of school breakfast opportunities. In fact, many of the millions of students missing this important meal are eligible for free or reduced price school breakfast, which can provide many key nutrients otherwise missing in their diet.

Breakfast provides a natural opportunity to incorporate whole grains, fiber, fruit and low-fat dairy into children’s diets. One breakfast option, cereal, can be low in calories, with the average serving of ready-to-eat cereal (RTEC) with nonfat milk providing less than 200 calories. It is typically a low-fat and cholesterol-free food, and RTEC can often help contribute fiber to the diet. RTEC with milk is the number one or two source of key nutrients vitamin A, thiamin, vitamin D, riboflavin, niacin, vitamin B6, calcium, iron, zinc, folate and vitamin B12.
Research into the impact of fortification on nutrient intakes by children who eat cereal shows that without fortification, more RTEC consuming kids would fail to meet nutritional recommendations. For example, with fortification, almost no children are below recommended iron intakes (<0.04% of children 4-18 years old below estimated average requirements (EAR)); but without fortification, the predicted gap in iron intake is significant, especially 14-18 year-olds (>18% below EAR). Without fortification of RTEC teenagers would drop from 18 to 65 percent below vitamin A recommendations. Additionally, approximately four million additional kids are predicted to fall below the adequate intake (AI) for vitamin D if fortification was removed.6

RTEC is also considered a driver of milk consumption, as 95 percent of RTEC in developed markets is eaten with milk. It is also a gateway to calcium, vitamin D and protein intake.7 Cereal offers a variety of flavors and textures to help avoid taste fatigue in children. And at the same time, cereal consumption is associated with reduced risk factors for disease, with improved nutrient status, lowered risk of being overweight or obese and healthier BMIs.6

Benefits of Fiber Intake in Children

More Research Needed to Help Close Fiber Knowledge Gap Concerning Children

Many breakfast menu options can front-load the day by providing a good start to the day’s fiber requirements. But what are the requirements and what do they mean for children? Interestingly, with all of the research on the health benefits of increased dietary fiber – including improved prevention of diabetes, reduced obesity and improved weight maintenance – the majority of it has been done on adults. In fact, very little is known about the relationship between dietary fiber and chronic disease risk in children.6,9,10 Furthermore, existing fiber recommendations for children are conflicting, despite the fact that health benefits associated with higher dietary fiber intake are well established in adults. Data providing conclusive evidence to either support or refute some, if not all, of the current pediatric fiber intake recommendations are lacking.10

Experts do agree that a low-fiber diet is associated with being overweight and that a higher-fiber diet is associated with better overall diet quality.12 Research also shows that even some of the highest contributors of fiber in kids’ diets these days are low fiber foods.12 To further our understanding of the role that dietary fiber plays in human health, the Kellogg Company has taken a lead supporting science
as it relates both to fiber and whole grains. What more should the research reveal? It should demonstrate how to help kids get more fiber from foods they love, including high-fiber snacks and entrées. It should help close the knowledge gap on fiber intake in children while also helping people better understand the benefits of fiber in helping to address obesity, digestive health and heart health.

**Breakfast at School: Benefits, Regulations, and Operations**

**School Breakfast Can Provide What Students Need to Help Get Their Day Started Right**

The USDA’s 2012 Nutrition Standards for School Meals mandate several changes for School Breakfast Programs, most beginning in July 2013. Like the new School Lunch meal pattern, requirements are now specified for three grade groupings: K-5, 6-8 and 9-12. Major required changes include: minimum and maximum calories; minimum and maximum grain servings; and increase in fruit serving size to 1 cup per day for all age groups. Starting in July 2013, half of all grains must be whole grain-rich and by July 2014 all grains must be whole grain-rich.

Schools face many challenges in serving a critically important morning meal. Concerns include the most appropriate places and ways to serve school breakfast, as well as potential plate waste. Implementing a variety of service options, including grab-and-go in the cafeteria, grab-and-go in the hallway, vended breakfast and breakfast in the classroom, can help overcome obstacles and increase children’s nutrient consumption. In fact, recognizing the importance of morning nutrition to learning and performance on standardized tests, several State Departments of Education, including California, Michigan, and Pennsylvania, have established policies allowing breakfast in the classroom to be counted as instructional time.

“Food isn’t nutrition until it is eaten” is a common phrase among nutrition researchers and school professionals. To this end, research has shown that children’s diets do not currently meet nutrition needs, especially those for vitamin D, calcium, potassium and dietary fiber. If we are to help American children improve their nutrition profile, we need to provide nutrient-rich foods they will choose to eat – with appropriate calories and more nutrient density – such as fortified ready-to-eat cereal as part of a healthful breakfast. By serving and promoting breakfast, schools can help bridge the health, nutrition and academic gaps for youth of all income levels and demographics.
Please visit www.kelloggnutrition.com or read the “Cereal: The Complete Story” Research Compendium for more information.

This article has been sponsored by Kellogg Company. Kellogg's has helped American families improve their diets by 12+ billion good servings of fiber and 8+ billion servings of whole grains. Kellogg has more cereals that include both a good source of fiber (3 grams) and at least one-half serving (8 grams) of whole grains than any other U.S. food company.

About the Authors

Dayle Hayes, MS, RD, is an award-winning author and educator. In 2008, she co-authored the Position of the American Dietetic Association: Nutrition Guidance for Healthy Children Ages 2 to 11 Years.

Sibylle Kranz, RD, PhD is the Associate Professor and Director of the Coordinated Program in Dietetics at Purdue University. She is a Nutrition Epidemiologist with research focus on diet quality and childhood obesity prevention.

DeAnn Liska, PhD is the Senior Director Global Nutrition Science and Research at Kellogg Company, responsible for research on the health benefits of products and product ingredients.

Kevin Miller, PhD is the Senior Scientist in Nutrition Science and Research at Kellogg Company, responsible for research on the health benefits of products ingredients related to children’s health.

Continuing Education

This article and accompanying quiz has been approved for 1.5 CE credits for Registered Dietitians and Registered Dietetic Technicians by the Commission on Dietetic Registration, the credentialing agency for the Academy of Nutrition and Dietetics.

QUIZ QUESTIONS/ANSWERS:

1. There is one standard fiber intake recommendation for children.
   a) True
   b) False
2. A school that wants to offer a school breakfast program must have a cafeteria to serve the children.  
   a) True  
   b) False

3. Fortified ready-to-eat cereal with milk can improve a child’s intake of which of the following nutrients?  
   a) Vitamin A  
   b) Vitamin D  
   c) Calcium  
   d) Iron  
   e) Folate  
   f) All of the above

4. Please identify one positive effect associated with American children who eat ready-to-eat cereal, compared to American children who skip breakfast.  
   a) Improved nutrient status  
   b) Lower weight  
   c) Lower Body Mass index  
   d) All of the above  
   e) None of the above

5. Please identify which of the following is not considered a nutrient of concern according to Dietary Guidelines for Americans, 2010.  
   a) Fiber  
   b) Potassium  
   c) Vitamin C  
   d) Vitamin D  
   e) None of the above

---

1 What We Eat In America, NHANES, 2007-2008. Age and Breakfast Skipper Rate U.S. Department of Agriculture  
2 2010 Kids Eat Right Survey *The State of Family Nutrition and Physical Activity: Are We Making Progress?*  
5 Kellogg Company Breakfast in America Survey, 2011  
12 Huang T-K et al. Nutr Rev 2005  