

Improving preterm babies' health . . . . . 2  
 Volunteer opportunities . . . . . 2



**CNRC FOOD DRIVE BENEFITS LOCAL FAMILIES**

The USDA/ARS, Children's Nutrition Research Center at Baylor College of Medicine participated in the 2010 Feds, Farmers & Friends Feed Families Food Drive. A collection box was set up in the lobby of the CNRC during the summer, and many employees dropped off food as well as monetary donations. In addition, some CNRC research participants donated food items. CNRC's participation in the 2010 Feds, Farmers & Friends Feed Families Food Drive supported the Houston Food Bank. The food drive was held at USDA sites across the country, and was targeted during the summer months, when many families struggle to feed their families because free and reduced-price school lunch and breakfast programs are no longer available. This year in particular, USDA's involvement was truly phenomenal. USDA collection sites from all across the country gathered 432,384 pounds of food. "We're very pleased that so many of our employees and families participating in research studies joined in this worthwhile effort to assist those in need by donating food," said Dr. Dennis Bier, director of the CNRC.



*Fruit and vegetable availability*  
**AND CONSUMPTION AMONG LOW-INCOME HISPANIC FAMILIES**

Having fruit and vegetables available in the home and ensuring that they are easily accessible and ready-to-eat (i.e., washed, peeled, and cut) are a major influence on consumption. But what is not known is what factors influence the availability and accessibility of fruits and vegetables in the homes of low-income Hispanic families, according to Dr. Jayna Dave, instructor of pediatrics at the USDA/ARS Children's Nutrition Research Center at Baylor College of Medicine. Dave and colleagues conducted a study to look at factors that affect availability. They sent questionnaires home with low-income Hispanic students in  
*(Continued on page 3)*



*Healthy breakfast*  
**STILL THE BEST WAY TO START THE DAY**

New research shows that skipping breakfast can cause children and adolescents to fall short of recommended intakes of important nutrients. Dr. Theresa Nicklas, professor of pediatrics at Baylor College of Medicine and a researcher at the USDA/ARS Children's Nutrition Research Center at BCM, and her colleagues analyzed data from the 1999-2006 National Health and Nutrition Examination Survey to determine

whether skipping breakfast and eating certain types of breakfast relate to nutrient intake, nutrient adequacy and weight status in children and adolescents. The report appeared in the *Journal of the American Dietetic Association*. The investigators divided children between the ages of 9 and 13 years and adolescents between the ages of 14 and 18 years into three groups: breakfast skippers, ready-to-eat or boxed  
*(Continued on page 2)*



## HEALTHY BREAKFAST (continued from page 1)

cereal consumers and other breakfast consumers. Among those surveyed, 20 percent of children and 32 percent of adolescents were breakfast skippers, while 36 percent of children and 25 percent of adolescents consumed ready-to-eat cereal for breakfast and 44 percent of children and 43 percent of adolescents consumed other breakfast types.

Over the course of each day, those who consumed ready-to-eat cereal had lower intakes of total fat and cholesterol and higher intakes of total carbohydrate, dietary fiber and micronutrients than those who skipped breakfast or consumed other types of breakfast.

Both children and adolescents who skipped breakfast had higher body mass index scores and higher waist circumference than those who ate ready-to-eat cereal or other types of breakfast. The prevalence of obesity was higher in breakfast skippers and other breakfast consumers than those who ate ready-to-eat cereals.

"This reinforces the importance of eating a healthy breakfast in the morning," said Nicklas. "It provides nutrients and may contribute to weight management."

Others who took part in the study included Priya Deshmukh-Taskar of BCM, Dr. Carol O'Neill of the Louisiana State University Agricultural Center, Dr. Debra Keast of Food and Nutrition Database Research Consulting, Dr. John Radcliffe of Texas Women's University and Dr. Susan Cho of NutraSource Inc.

Funding for the study came from the USDA/Agricultural Research Service and the Kellogg's Corporate Citizenship Fund.

## IMPROVING PRETERM BABIES' HEALTH BY UNDERSTANDING FEEDING INTOLERANCE

Preterm infants frequently have trouble tolerating feedings, and reliable methods do not exist as to when they can accept full feedings. These infants gradually move from receiving nutrition intravenously (IV) to feedings of formula or breast milk through a tube that goes from the mouth or nose directly to the stomach. Eventually, preterm babies move to regular feedings from a bottle or breast.

"Being able to predict when a preterm infant will reach full feedings is important so that we can develop a better care plan for premature babies and perhaps design better ways of feeding them to improve their health," said Dr. Robert Shulman, professor of pediatrics at BCM, and lead author of the USDA/ARS Children's Nutrition Research Center study that appeared in the June issue of the journal *Neonatology*.

"One of the difficulties from a clinical standpoint is knowing when babies are not tolerating feedings. If an adult has a problem eating something, we can say 'This made my stomach hurt.' Babies can't directly express this," Shulman said.

The typical indicators of feeding intolerance—a distended, or bloated, abdomen and throwing up—could point to the development of a major gastrointestinal complication in preterm infants—necrotizing enterocolitis, a serious gastrointestinal disease of preterm infants. But they could also be related to other common health issues in preterm infants, like an infection or a heart problem.

"For many years, a number of methods have been used to determine whether an infant is having feeding intolerance, but most are arbitrary. The goal of our study was to look at these methods and try to develop some more objective methods to help guide neonatologists in the care of preterm babies," Shulman said.

The study followed 50 infants that were born 8 to 15 weeks prematurely from birth until they were released from the hospital. Researchers

(Continued on page 4)

## CHILDHOOD AND ADOLESCENT GROWTH AND DEVELOPMENT STUDIES

### HOW TO GET 3- to 5-YEAR-OLDS TO EAT VEGETABLES? **NEW!**

Parents of 3- to 5-year-old children needed to answer survey about getting their child to eat vegetables. Log on to [www.parentingandfood.com](http://www.parentingandfood.com) to complete survey, or e-mail [foodkids@bcm.edu](mailto:foodkids@bcm.edu).

## Volunteers

Houston-area residents are invited to participate in the following nutrition research projects designed to help CNRC scientists learn more about the nutritional needs of children. For most studies, financial compensation and free parking are provided, and transportation may be available.



### VITAMIN D STUDY

Healthy 4- to 8-year-old home-schoolers or children available for overnight visits with blood specimens taken at Texas Children's Hospital for a nutrient absorption study on calcium and vitamin D. Call Marilyn, 713-798-7002.

### BELLY PAIN AND FOOD INTOLERANCES **NEW!**

7- to 17-year-olds with stomach pain believed to be related to diet for two studies to learn more about the role of diet in chronic stomach pain. Call Francis, 832-822-3602.

### EXERCISE STUDIES **NEW!**

13- to 17-year-old overweight Hispanic teens who are not involved in any school or after school sports for a study on the effects of a 12-week exercise or exercise plus diet program. Call Marilyn, 713-798-7002, or e-mail [jg16@bcm.edu](mailto:jg16@bcm.edu).

### INTERNET SURVEY FOR PARENTS

Parents who have a cell phone and a 3- to 5-year-old child to answer a 10-minute anonymous survey about their child's reaction to different situations. Log onto [www.parentingyourchild.com](http://www.parentingyourchild.com). Drawing for two \$100 local department store gift certificates from all completed entries.

### GIRLS ONLY

5- to 17-year-old healthy girls for a research project on female hormones. Free physical exam and labs provided. Call Betty, 832-824-1257, or e-mail [baw@bcm.edu](mailto:baw@bcm.edu).

### LACTATION STUDY

Healthy, pregnant mothers between 13 and 35 years of age, planning to exclusively breast feed and deliver at St. Luke's or Ben Taub Hospital to investigate factors that affect breast milk production. Call Janelle, 713-798-7003, or e-mail [jg16@bcm.edu](mailto:jg16@bcm.edu).

San Antonio-area schools. The questionnaires assessed the family demographics and language spoken at home to measure acculturation (the level in which these families had adapted to the American lifestyle), food insecurity (limited or uncertain availability of nutritionally adequate foods) and the children's fruit and vegetable consumption at home.

In general, home fruit and vegetable consumption was low among Hispanic children. The researchers found that children who were less acculturated had a higher rate of fruit and vegetable consumption. An additional finding showed that children who had greater food security consumed higher amounts of fruits and vegetables than those who were food insecure.

"One interesting finding was that fruit and vegetable cost was not found to be an important factor in their consumption level, which is a contrasting result compared to other studies that have found that cost is one of the major issues when it comes to low-income families getting enough fruits and vegetables," said Dave. "This could be due to the abundant availability of low-price fruits and vegetables in the San Antonio area."

Dave also found that parents, most of whom worked full time or several part-time jobs, perceived fast food restaurants as beneficial because they provided easy access and large food portions for their cost. This consumption of fast foods negatively impacted the consumption of fruits and vegetables at home, said Dave.



When only the demographic information of the families was considered, the researchers discovered that families with food insecurity had less fruits and vegetables in their homes than their food secure counterparts. However, when they included information on factors such as parental role modeling and practices, they found that food insecurity did not play a significant role in the availability of fruits and vegetables at home. These parental practices and role modeling were the strongest influences on availability and accessibility of fruit and vegetables at home.

Results of this study show that acculturation and food insecurity play a significant role in the consumption of fruits and vegetables among children in low-income Hispanic families. Dave emphasizes that

parental involvement and the home food environment play important roles in the development of a child's eating behavior. Ways to help food insecure and more acculturated low-income Hispanic families follow healthy dietary patterns that lead to consuming more fruits and vegetables need to be established through intervention programs, said Dave.

Others who took part in the study include Dr. Alexandra Evans from the University of Texas School of Public Health, Drs. Ruth Saunders and Ken Watkins from the University of South Carolina and Dr. Karin Pfeiffer from Michigan State University.

Dave and colleagues published the findings of the study in two separate publications, the *Journal of the American Dietetic Association* and the journal *Health Education Research*.

Funding for this study came from the Michael and Susan Dell Center for Advancement of Healthy Living.

### SUGAR AND FAT METABOLISM

Normal weight Hispanic females, 13 to 17 years old for a study on sugar and fat metabolism. Participants must not have a parent or sibling with diabetes or high blood sugar. Call Marilyn, 713-798-7002.

### FAMILY EATS

African-American families with children between 8 and 12 years of age for an 8-week Internet program on healthy eating. Must have Internet access. Call Mamie, 713-798-0501, or e-mail mawhite@bcm.edu.

### TEEN CHOICE: FOOD AND FITNESS

12- to 17-year-old boys and girls for an 8-week web-based program on healthy eating and physical activity. Must have Internet access. Call Mamie, 713-798-0501, or e-mail mawhite@bcm.edu.

### CELL PHONE SURVEY

Cell phone users who are also parents of 3- to 5-year-old children to complete quick survey. Answers will guide design of a cell phone game to help parents learn how to get their children to eat vegetables. Just log on to [www.cnrqparentsurvey.com](http://www.cnrqparentsurvey.com).

## PRETERM BABIES *(continued from page 2)*

reviewed their hospital records daily and recorded whether they had vomited, whether their bellies were distended (swollen) and whether they had gastric residuals—residuals that remain in the stomach after feedings.

They also conducted more objective, non-invasive tests that measured the rate of stomach emptying, the activity level of the enzyme that helps digest the sugar in formula and breast milk, the integrity of the intestine and the amount of inflammation in the intestinal tract.

"We found that the traditional measurements that neonatologists make on a daily basis really were not helpful in determining when the babies were going to be able to receive all nutrition orally as opposed to some portion through IV feedings. And, of the objective tests we performed, only the measurement of the digestive enzymes was predictive of when babies would get to full feedings."

Understanding feeding intolerance and predicting the attainment of full

feedings are important in determining whether the distress of a baby is a feeding issue or something else. Knowing that could impact the immediate, bedside decision-making of physicians.

"In the long term, it is important in developing a care plan for preterm babies," he said. "One thing we know is that babies, born at the same gestational age, and at the same weight, can differ in how they respond to feedings. If we have a better idea of which of the babies would lag in their gastrointestinal development, those babies could potentially be cared for in a way that would minimize their health risks."

Others involved in the study were Ching-Nan Ou and E. O'Brian Smith of BCM.

The research was supported by the Gerber Foundation, the USDA/ARS and Daffy's Foundation.

**Nutrition & Your Child** is published quarterly by Baylor College of Medicine as a research and information update for the general public and Center volunteers and supporters.

Send comments or change of address information to Nutrition Research Center, 1100 Bates Street, Houston, TX 77030-2600.

E-mail: [cnrc@bcm.edu](mailto:cnrc@bcm.edu) [www.kidsnutrition.org](http://www.kidsnutrition.org)

### **Center Director**

Dennis M. Bier, M.D.

### **Publication Advisors**

Janice C. Baranowski, M.P.H., R.D.

Karen W. Cullen, Dr.P.H., R.D.

Michael A. Grusak, Ph.D.

Bill C. Heird, M.D.

Jason A. Mendoza, M.D., M.P.H.

Teresia Margareta O'Connor, M.D., M.P.H.

Janice E. Stuff, Ph.D., R.D.

Robert A. Waterland, Ph.D.

### **Editors**

Dipali Pathak and Dana Benson

Office of Communications, Baylor College of Medicine

The Children's Nutrition Research Center is operated by Baylor College of Medicine, in cooperation with Texas Children's Hospital, for the Agricultural Research Service of the United States Department of Agriculture.

