INSIDE THIS ISSUE

USDA/ARS
Children's Nutrition Research Center
at Baylor College of Medicine

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AMERICANS NOT CONSUMING ENOUGH DAIRY TO MEET NUTRITION REQUIREMENTS

Dairy products are an essential part of the daily diet because they are an important source of nutrients. However, according to experts at the USDA/ARS Children's Nutrition Research Center at Baylor College of Medicine, few people are consuming the recommended amount of dairy products.

Dr. Theresa Nicklas, professor of pediatrics at BCM, explored why people are not getting enough milk by reviewing collected data related to dairy consumption and lactose intolerance. The results provide some insights on why there is a gap between actual dairy product consumption and the recommended amounts.

Lactose intolerance has been estimated to occur in approximately 15 percent in European Americans, 50 percent of Mexican Americans and 80 percent of African Americans. It is believed that these percentages are greatly overestimated. A national multiethnic sample of 1,084 adults (486 European Americans, 355 African Americans and 243 Hispanic Americans) completed a survey that was conducted using Computer-Assisted Telephone Interviewing Techniques. In a study published in *Nutrition Today*, Nicklas and colleagues examined the prevalence of self-reported lactose intolerance in adult European Americans, African Americans and Hispanics. The study showed that the prevalence of lactose intolerance among these groups was significantly lower than what was previously reported. The perceived lactose intolerance prevalence estimates were 7.7 percent for European Americans, 19.5 percent in African Americans and 10.1 percent in Hispanic Americans.

"Even individuals who are lactose intolerant can incorporate dairy products into their diet, without noticeable symptoms, to help meet key

(Continued on page 4)

Understanding parents' role
IN INCREASING PHYSICAL ACTIVITY IN YOUTH

Although the benefits of physical activity for children are well known, very little is known about how to best involve parents in physical activity interventions to help youngsters be more active.

A review of 35 youth intervention programs that included a parental component and whose goal was to increase children's physical activity offered little evidence on how to best involve parents in this effort, said Teresia O'Connor, M.D., M.P.H., a researcher at the USDA/ARS Children's Nutrition Research Center at Baylor College of Medicine and lead author of the study that appeared in the *American Journal of Preventive Medicine*.

The review examined intervention programs to determine if certain ways of involving parents may lead to better outcomes than others. Programs included in the review involved parents in one of five ways:

- Face-to-face educational programs or parent training on increasing kids' physical activity
- Structured exercise programs in which the parent and child both participated
- Telephone communication with parents on how to get their children to be active
- Organized activities, such as family fun nights and health fairs
- Educational material such as newsletters that were sent home to parents

O'Connor, who is also assistant professor of pediatrics at BCM, cautioned that there was no strong evidence that one particular method to involve parents was likely to increase children's physical activity

(Continued on page 3)

Research defines
CELLULAR PROTEIN'S ROLE IN FAT CELL FORMATION

While some adventure hunters seek the fountain of youth, researchers at the USDA/ARS Children's Nutrition Research Center at Baylor College of Medicine are doing their part by studying the science behind lifespan. When you restrict the number of calories eaten by animals such as rodents and monkeys, they live longer. How caloric restriction increases lifespan, and whether it also works in people, are unanswered questions.

In a recent scientific report in the journal *Molecular Biology of the Cell*, CNRC researchers uncovered the role that one particular protein (SIRT2) plays when an animal faces food deprivation or exposure to cold. According to Dr. Qiang

(Continued on page 2)

Cellular protein *(continued from page 1)*

Tong, assistant professor of pediatrics at BCM and a researcher at the Children's Nutrition Research Center, the protein SIRT2, promotes the breakdown and use of fats (lipids) stored in fat cells while preventing the formation of new fat cells.

"We want to understand how SIRT2 is involved in this process and whether we can trigger it without dieting," said Tong. This could potentially help people live leaner and longer, without severely limiting food intake.

Previous research found that other members of this SIRT family of proteins are involved in the cell's response to nutrient deprivation. Tong and his team sought to determine the role of this protein in mammals. "We knew that this family of proteins may play a role in how mammals survive and compensate during food deprivation, and in promoting longevity, but to better understand how the protein works we also wanted to know where it was active," said Tong.

In mouse studies, he and his colleagues found that SIRT2 responded to long-term dietary restriction, short-term fasting and cold exposure, but the amount of protein was different in various types of fat cells. During food deprivation, the amount of SIRT2 increased in both brown fat tissue (which burns fat to help our body stay warm) and white fat tissue (which stores extra energy for the body). He found that during cold exposure, the amount of SIRT2 increased in only brown fat tissue.

During both nutrient deprivation and cold exposure, the body needs to rebalance energy intake with energy expenditure. When the level of SIRT2 protein rises in white and brown fat tissue, it promotes fat cells to release stored fat as fuel available for the body to use, while also shutting down the formation of new fat cells. In other studies, Dr. Tong and his colleagues have found that SIRT3, a protein related to SIRT2, is responsible for stimulating the brown fat cells to burn lipids to produce heat for the body during periods of starvation and cold exposure. As you can imagine, the roles played by SIRT2 and SIRT3 are important in helping the body respond internally to external changes in the environment, including the availability of food and cold weather.

As scientists unravel the role that SIRT2 and other proteins play in metabolism and life extension, they may in the future be able to apply these lessons toward improved nutrition to promote longer, healthier lives.

The study can be found at http://www.molbiolcell.org/cgi/reprint/20/3/801.

Winter 2010 Awards

Dr. Robert Waterland, assistant professor of pediatrics and molecular and human genetics at the USDA/ARS Children's Nutrition Research Center at BCM, was awarded the Nick Hales Award from the International Society for Developmental Origins of Health and Disease. The award is given to a young investigator who has made an outstanding contribution to the field. Waterland received the award and presented his lecture at the society's congress in Santiago, Chile, Nov. 19. His research focuses on epigenetics, or inheritable changes in the ways genes are expressed.

Keli Hawthorne, registered dietitian with the USDA/ARS Children's Nutrition Research Center, received the 2009-2010 Texas Distinguished Scientist Award from the Texas Dietetic Association. This award is given to a member of the association who made outstanding and significant contributions to research in the field of dietetics, nutrition, food science or related sciences. Hawthorne's research focuses on mineral absorption in infants and children, with an emphasis on calcium and vitamin D.

Childhood and Adolescent Growth and Development Studies

DHA FOR CHILDREN

Healthy children, 5 to 12 years old, are needed for a 48-week study examining an omega-3 fatty acid called DHA in the diet of children. DHA is usually low in children and may affect their cognitive function. The study seeks to determine if DHA levels can be increased by a DHA supplement. The study includes seven visits to the CNRC. There will be three blood draws (once at the beginning, again after eight weeks and one at the end). Compensation provided. Call Marilyn, 713-798-7002.

GIRLS ONLY

Healthy girls, ages 5 to 17, are needed to participate in a research project on female hormones. Free physical exam, labs and stipend provided. Call Betty at 832-024-1257 or e-mail baw@bcm.edu.

SQUIRE'S QUEST! II

Fourth- and fifth-grade boys and girls are needed for a study to play a 10-episode computer game about fruits and vegetables. Children must be fluent in English and have an e-mail address, access to high-speed Internet connection and a parent who is willing to participate in the study. Parents will receive newsletters and access to a website on healthy nutrition. Parent materials are available in English and Spanish. Stipend provided for both parent and child. Call Marilyn, 713-798-7002.

STOMACH PAIN AND BACTERIA

Do you have a child between 7 to 12 years of age? We are seeking children who either often have stomach pain or never have stomach pain for a research study to learn how bacteria in our body keep us healthy or cause problems. It's easy and painless. Compensation provided. Contact Erica Baimbridge at 713-798-0381 or baimbrid@bcm.edu for more details.

STOMACH PAIN

Children ages 6 to 10 years of age with someone in their household not related by blood (step-parent, step-sibling, adoptive parents/child, non-related significant others, etc.) are needed for a research study about the environment and health on children with chronic stomach pain and on healthy children. Compensation provided. Contact Norah Vasen at 713-798-7041 or vasen@bcm.edu for more details.

SUGAR AND FAT METABOLISM

Hispanic teens are needed for a study on sugar and fat metabolism. Participants will learn their body fat percentage and have the opportunity

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. Free transportation and parking are available.

Understanding Parent's Rople *(continued from page 1)*

more than the others. O'Connor suggested this was due to a lack of good study designs and consistent methods to measure children's physical activity in the published papers.

The review of the 35 intervention programs was designed to be inclusive, O'Connor explained, in order to get a broad idea of what has been evaluated to date. The review therefore included pilot studies (small studies that allow an evaluation of the feasibility of a program) and studies that did not have a control group. However, even many of the studies reviewed that were considered to have used the best methodology—those with randomized control trials—were found to fall short for reporting standard study designs.

There was some evidence that engaging parents directly, either face-to-face or by telephone, had better outcomes for children's physical activity. However, most of the studies that have evaluated these direct methods to involve parents have been small, and stronger evidence is needed before definitive conclusions can be drawn.

The impact of structured exercise programs for both parent and child seemed to have less effect on children's overall physical activity. Indirect contact with parents through materials sent home was not strongly associated with increased activity, suggesting it may be an ineffective way to involve parents.

"The other thing that came out through the review is that physical activity is measured in so many different ways that it's difficult to compare one study to another," O'Connor said.

Some of the programs used accelerometers to measure physical activity, some used pedometers, she explained. Some included questionnaires that children filled out about their own behavior; in others parents filled out questionnaires regarding their child's behavior.

"To better inform researchers and policy makers," O'Connor said, "research first needs to identify the ways that parents effectively engage their child to be more physically active. Then we can develop good study designs to systematically evaluate how to target parents to help their child be more active, using consistent measurements in order for researchers to evaluate what works best."

The Dietary Guidelines for Americans (http://www.health.gov/dietaryguidelines/) recommends that children from preschool age through age 18 should get 60 minutes of physical activity each day. O'Connor notes that this doesn't have to come from just from sports or an exercise program but includes brisk walks or even active play.

Physical activity among youth is associated with a lower prevalence of chronic disease risk factors, including increased body mass index, elevated lipids, higher insulin levels and high blood pressure. Physical activity is also central to children's development of social skills and friendship groups.

The study can be found at http://www.ajpm-online.net/article/S0749-3797(09)00299-2/abstract.

Summer camp brings improvements in self-esteem and weight

In a two-week youth summer camp that incorporated a weight management program, children successfully reduced their weight and improved self-esteem, according to experts at Baylor College of Medicine and Texas Children's Hospital in a study that appeared in the *Journal of Pediatric Gastroenterology and Nutrition*.

Kamp K'aana, a camp led by experts at Baylor College of Medicine and Texas Children's Hospital, includes a comprehensive weight management program for obese children 10 to 14 years of age. The main goals of the camp are to improve self-esteem and teach children the benefits of good nutrition and physical activity.

"Because the camp is only for obese children, they don't feel intimidated by others around them," said Dr. William Wong, professor of pediatrics—nutrition at the USDA/ARS Children's Nutrition Research Center at BCM.

Children can try new activities and learn about healthy eating choices all while experiencing the adventures any summer camp has to offer.

Twenty-one children participated in the first year of the camp. During their stay, campers participated in several classes to learn about healthy eating and physical activity. The children also learned about healthy food choices through the Traffic Light diet adapted especially for the two-week summer camp. All foods at the camp were labeled red, yellow or green and children were taught to recognize and consume red zone foods cautiously, yellow zone foods moderately and green zone foods regularly.

Classes also taught children how to continually pursue a healthier lifestyle even after the camp ended.

Body weights of the campers were measured at the beginning and end of the camp, and all children completed a survey called the Self-Perception Profile for Children (SPPC) to measure their self-esteem.

At the end of the two weeks, the campers' self-esteem scores improved significantly, due to positive changes in their self-perception, social acceptance, athletic competence, physical appearance and global self-worth. They also showed a reduction in body weight and body mass index at the end of the program.

"This shows that the program works," said Wong. "The unique features of the camp help improve children's self-esteem and knowledge of healthy living."

For more information on Kamp K'aana, visit www.bcm.edu/kampkaana or call 832-822-4780. Financial assistance is available to low-income families.

to learn how research is done. Compensation provided. Call Marilyn, 713-798-7002.

TEENS IN ACTION ONLINE SURVEY

Children and teens, ages 11 to 13 and 15 to 17, are needed for an online survey about physical activity. Must be fluent in English and have Internet access and an e-mail address. Compensation provided. Call Marilyn, 713-798-6715.

Wii VIDEO GAME STUDY

Nine- to 12-year old boys and girls may be eligible to participate in a six month study to understand how video games influence children's physical activity. Must be fluent in English. Stipend provided. Call Marilyn, 713-798-7002.

BREASTFEEDING STUDIES

Expectant and new mothers, not on any medications (including birth control) and planning to exclusively breast feed, are needed for studies investigating metabolic factors that affect breast milk production. Participants should not have parents or siblings with diabetes. Compensation is provided. Call Marilyn, 713-798-7002.

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DIARY REQUIREMENTS *(continued from page 1)*

nutrient recommendations," said Nicklas. This can be achieved by eating milk products such as yogurt, hard cheese and lactose-free milk, or taking lactase enzyme tablets before consuming milk or milk products.

In another study, published in the *Journal of the American College of Nutrition*, Nicklas evaluated the role that dairy products play in meeting the recommendations for calcium, potassium and magnesium—defined by the 2005 Dietary Guidelines Advisory Committee as nutrients often lacking in both children's and adults' diets.

The study found that a surprising proportion of Americans did not meet the recommendations for the three nutrients. Only 30 percent consumed or exceeded the recommended level of calcium and 45 percent consumed the recommended level of magnesium and, surprisingly, less than 3 percent consumed the recommended level of potassium.

Another reason for less dairy product consumption by children can be found in a study published in the *International Journal of Behavioral Nutrition and Physical Activity*, Dr. Nicklas and colleagues examined the relationship between feeding styles of parents with limited incomes and their children's food intake. Researchers found differences in how parents guide their children's eating habits based on their general ideas of how children should be treated. Some parents believe that children should be very obedient to their wishes and directives whereas other parents try to help children be more self-sufficient in their thinking.

The study found that dairy, fruit, juice and vegetable intakes were lowest among children whose parents had a more relaxed feeding style compared to parents who had a stricter feeding style.

"This suggests that parents need to take an active role in planning and offering meals and snacks that include dairy products," said Nicklas.

These studies provide some reasons for limited dairy consumption although all the reasons are not fully understood.

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