

MEALTIME ROUTINE KEY TO GIRLS' BONE HEALTH

Parents concerned about their young daughters' bone health would be wise to make milk part of their mealtime routine, according to a new CNRC study.

"This is the first study to show that girls' bone health is linked to childhood beverage habits and that these habits are established at a young age," said Dr. Jennifer Orlet Fisher, a CNRC behavioral scientist and assistant professor of pediatrics at Baylor College of Medicine.

The study followed more than 180 5-year-old girls over a five-year period. It was designed to test whether mothers'

sweetened beverage and milk-drinking habits affected their daughters' long-term beverage choices and whether the girls' beverage habits were linked to their bone health. The results of the study appear in the April issue of the *American Journal of Clinical Nutrition*.



"The girls who regularly met their calcium needs over the course of the study drank an average of 13 ounces of milk per day, which was almost twice the amount consumed by the

girls who did not meet their calcium needs," Fisher said.

They also had significantly better measurements of bone health at the end of the five-year study.

In previous studies, Fisher found that the mothers who drank the most milk had 5-year-old daughters who also drank more milk, but the reason for this similarity, and whether the girls' long-term beverage habits affected bone health, was not known.

After following the mother-daughter pairs for five years, Fisher found an answer. Milk-drinking moms were much more likely to report 'always serving' or 'almost always serving' milk to their daughters with meals and snacks.

(continued on page 4)

SNACK-BAR TEMPTATIONS DERAILING KIDS' DIETS

For many middle school students, having daily access to snack bars that offer little more than pizza and fries is a temptation too great to resist, say CNRC researchers.

"It's unrealistic to expect middle-school children to exercise that kind of will-power," said Dr. Karen Cullen, a CNRC behavioral nutrition researcher and assistant professor of pediatrics at Baylor College of Medicine. "Kids, just like adults, prefer the taste of sweets and fat. Knowing how to balance highly desirable but low-nutrition foods with more healthy ones is learned and takes maturity."

Cullen followed 594 fourth and fifth graders over a two-year period for

a study designed to learn how gaining access to snack bars affects children's diets. She found that after transitioning to middle school, students' lunch-time consumption of healthy foods like fruits, vegetables, and milk dropped by one-third or more. At the same time, she found they were eating 68 percent more fatty vegetables like French fries and chips and 62 percent more sweetened beverages like soda and sweetened teas.

"If we'd found the students eating just an occasional snack-bar meal of chips and a sweetened beverage we wouldn't be so concerned," she said. "But in fact, more than one-third of our middle-schoolers reported eating exclusively at the snack bar during the two-year study, where the top-selling foods were pizza, chips, soda, French fries, candy, and ice cream; the only vegetable in sight was a pickle and the closest thing to fruit was fruit-flavored candy."

Although the study results are a wake-up call, Cullen encourages

(continued on page 2)



INSIDE THIS ISSUE

Schools Getting Nutrition

Overhaul 3

No Hiding Baby Fat from

PEA POD 3

CNRC Researchers Publish Stable

Isotope "Bible" 3



VOLUNTEERS

Houston-area volunteers are needed to participate in the following studies.

Transportation/parking available. For more information, visit the CNRC website: <http://www.kidsnutrition.org>

New! Fitness Zone

14- and 15-year-old boys and girls are needed to give their opinions about a new computer program designed to help teens get active. Stipend. Call Jennifer, 713-798-7075 or email jld@bcm.tmc.edu.

New! Super Tasters Study

Healthy Caucasian children, 9 years of age and younger, and their mothers are needed for a study aimed at understanding how children's food likes and eating habits change with age. Call 713-798-0425.

Pea Pod Study

Healthy infants, from birth to 3 months old, are needed in a new study that is collecting data on how much of a baby's body weight is fat and how this measurement changes as babies grow. Mothers may enroll before or after delivery. Stipend. Call Marilyn at 713-798-7002.

Breast-Feeding: Pump Up the Volume

Breastfeeding mothers with babies less than 8 weeks old may be eligible. Mothers will receive an electric breast pump of their choice (~\$250 value) and free consultation with a certified lactation consultant. The study will compare the effectiveness of different breast pumps and strategies used to increase milk production. Sandra, 713-798-6779.

Iron Absorption from Rice Cereal Study

Healthy 15- to 18-month-old toddlers are needed in a new study comparing two forms of iron used to fortify infant rice cereal. The study requires four 1-hour visits to the CNRC. Stipend. Call Paz, 713-798-7125.

Food, Fun & Fitness

African American girls, 8 to 10 years of age, are needed for a study that tests internet-based programs to promote healthy eating and physical activity. To participate, girls must have a computer at home with internet access and an email address. Contact Ashanti, 713-798-0504 or acanada@bcm.tmc.edu.

Calcium Absorption in Infancy

Healthy, full term infants, from birth to 2 months of age, are needed for a new study comparing calcium absorption from breast milk versus a new formula. Breastfeeding mothers will receive free use of an electric breast pump; mothers of formula fed infants will receive free formula. Mothers may enroll before or after delivery. Call 713-798-7085.

Beef Study: Beef Eating Enhances Fe (Iron)

Children 4 to 8 years of age are needed for a new study investigating how soy and beef proteins affect iron and zinc absorption in the body. In order to participate, children should like to eat Frito chili pie. Stipend. Call Paz, 713-798-7125.

Hypertension Prevention Using Soy

Normal weight, post-menopausal women, 40 to 60 years of age, with systolic blood pressure between 130 and 160 mmHg and diastolic blood pressure between 80 and 100 mmHg, and who are not on any hypertensive medication or hormone replacement therapy, are needed for a 6-week study evaluating the benefits of soy isoflavones. Call 713-798-6783.

Babies First Study

Breast-fed and bottle-fed infants, 2 to 11 months of age, and their mothers are needed for a study on infant eating patterns, food preferences, and growth. Stipend. Call 713-798-6740.

Metabolism Studies

Normal-weight children ages 6 to 9 and 13 to 17, and obese teens ages 13 to 17 are needed for metabolism studies. Children should be healthy, on no medications, and not have parents or siblings with diabetes. Study includes 12 weeks of supervised exercise with an exercise physiologist. Stipend. Call Amy, 713-798-7083.

Viva La Familia

Hispanic families with children 4 to 18 years of age are needed for a study aimed at understanding the factors causing childhood obesity. Stipend. Call Marilyn, 713-798-7002.

Breast-Feeding Study

New mothers, 18-35 years old, healthy, not taking birth control, and non-obese, who are exclusively breast-feeding infants less than 10 weeks of age are needed for a study investigating factors that affect breastmilk production. Participants should not have parents or siblings with diabetes. Stipend. Call Amy, 713-798-7083.

Biological Diversity of Growth

Children who have previously participated in any CNRC studies involving body composition measurements and are presently less than 22 years old, as well as Hispanic, African-American, and Caucasian young adults, 19 to 22 years of age, are needed for this study. Stipend. Call Marilyn, 713-798-7002. ❖

SNACK-BAR TEMPTATIONS DERAILING KIDS' DIETS (Continued from page 1)

schools, and parents, to resist the temptation to ban snack bars altogether.

"The problems we found with snack bars simply reinforce the need to make quick, good-tasting, easy-to-eat healthy choices available to children, both in school and at home," said Cullen. "There are ways to make healthy choices appealing to children."

For example, she suggests offering colorful cut-up fruit in see-through plastic cups or in fruit-and-yogurt parfaits, and carrot sticks with a low-fat dip.

"Although retooling snack bars will take effort, doing so offers a golden opportunity to improve the school eating environment in ways that

encourage kids to make healthy eating decisions," she said.

Editor's note: Cullen reported her findings in the March 2004 issue of the American Journal of Public Health. The article abstract is available at <http://www.ajph.org/cgi/content/abstract/94/3/463>

NO HIDING BABY FAT FROM PEA POD

A new CNRC machine measures what little boys and girls are made of. Instead of snakes and snails or sugar and spice, though, researchers are looking for body fat.

"Even in infancy, children's fat and muscle composition could provide

clues to their future health," said Dr. Ken Ellis, a Baylor Professor of Pediatrics and director of the CNRC's body composition laboratory. "But right now there isn't enough data on babies to answer such important questions as 'Is body weight or lean body mass the best indicator of when premature babies are healthy enough to go home?' or 'Are very chubby babies more prone to develop cardiovascular problems as adults?'"

According to Ellis, researchers currently rely on awkward tests conducted in bulky machines designed for adults to measure baby fat. This creates a problem because these machines generally require that the subject lie still, which often means delaying tests until babies fall asleep.



Not so with PEA POD.

"Using the PEA POD, babies can be kicking and carrying on as infants do, and it does not influence the results," said Ellis.

The crib-sized PEA POD is actually a mini-version of the BOD POD, one of the machines Ellis now uses to measure adult body fat. To use the PEA POD, the baby is placed in a pressure-controlled 'crib'. The machine measures the volume of space the baby occupies and contains a precise scale for measuring body weight. Ellis uses these two values to calculate the baby's body density, which is linked to the amount of body fat.

Ellis is currently looking for healthy infants between the ages of birth and 5-months to participate in the initial PEA POD studies, which will test the accuracy of PEA POD and collect data on how infant body composition changes with age.

Parents interested in participating should call 713-798-7002. ♦

OVERHAULING SCHOOL NUTRITION

Many state governments are taking a major step toward improving children's eating environments by revising state school nutrition policies. "Limiting temptations is essential to make eating healthy easy for kids," said Dr. Karen Cullen.

Some of these new policies include:

- Limiting snack-bar, vending-machine, and school-stores snack food package to specific sizes. For example, limiting regular chips to 1-ounce packages, baked chips to 1.5 ounces, cookies to 2 ounces, bakery items to 3 ounces, and sweetened beverages to 12 ounces.
- Setting limits for the amount of fat and added sugars per package of snack foods available in school.
- Limiting serving sizes of French fries or other fried potato products to three

ounces and availability to three times per week. Limiting student purchases to one serving at a time.

- Requiring that low-fat milk, bottled water, and fruit and/or vegetables be made available where ever competitive foods are sold.
- Prohibiting ala cart, snack bar and vending machine sales of individual foods in elementary schools.
- Prohibiting the sale and service of competitive foods during meal periods.

"Improving the school eating environment sends a powerful message to kids about the importance of eating healthy foods at mealtime," she said.

*More information: USDA Team Nutrition — Healthy School Nutrition Environment.
<http://www.fns.usda.gov/tn/Healthy/index.htm>*

CNRC RESEARCHERS PUBLISH STABLE ISOTOPE "BIBLE"

Nutrition scientists now have a 'cookbook' to refer to when conducting high-tech studies using stable-isotope tracers, courtesy of two CNRC researchers who are experts in the field.

"Because stable isotopes are safe and easy to use, their use in nutrition research has grown tremendously over the past 20 years," said Dr. William Wong, a Baylor Professor of Pediatrics. "However, until we wrote this handbook, scientists had to search through published research papers to find key information on each type of study they wished to conduct."

Wong co-authored *Stable Isotopes in Human Nutrition* with fellow CNRC scientist, Dr. Steven Abrams. The handbook provides information on the use of stable isotopes in mineral-, protein-, glucose-, cholesterol-, and fat-metabolism studies, and studies of nutrient bioavailability and energy utilization. It is available from CABI Publishing.

"Stable isotopes often give us information about the body's metabolic workings that is otherwise expensive and cumbersome, if not impossible, to obtain," Wong said.

For example, the doubly labeled water method, which Wong helped perfect, is the only research method available for capturing how many calories people actually burn while going about their everyday life. This has made it an essential tool in the battle against obesity. Studies using doubly labeled water were also the basis for the latest energy recommendations released by the Institutes of Medicine.

"Stable isotopes are among the most effective tools we have for measuring the effect of diet on the development and treatment of obesity, diabetes, osteoporosis, cardiovascular disease, and many other health problems," Wong said. "And now with this handbook, the information needed to conduct these studies is at researchers' fingertips." ♦

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(continued from page 1)

"We found that the meal- and snack-time beverage routine in place when the girls were 5 years old was the primary predictor of the girls' beverage habits and calcium intakes throughout the study," she said.

And, although both groups drank more sweetened beverages as they got older, only those whose mothers were in the habit of making milk the 'default' beverage during meals and snacks were still drinking significant amounts of milk, and getting enough calcium, at age 9.

While milk was the main source of calcium in the diets of the girls in this

study, Fisher suggests that parents of girls who don't care for milk can still foster healthy habits by routinely making other calcium-rich foods like yogurt and calcium-fortified soy milk or orange juice part of the mealtime routine.

"The food routines mothers practice with their preschoolers tend to become ingrained, fostering life-long food habits that ultimately affect health," Fisher said.

Abstract: <http://www.ajcn.org/cgi/content/abstract/79/4/698> ❖

Find hundreds of articles on topics ranging from breast-feeding to vegetarian teens, links to great food and nutrition web sites, and back issues of *Nutrition & Your Child* on the CNRC website. Go to:

<http://www.kidsnutrition.org>

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