



Nutrition & Your Child

CHILDREN'S NUTRITION RESEARCH CENTER • 1100 BATES • HOUSTON, TEXAS 77030 • No. 1, 2005

MOTHER-CHILD DIABETES, HEART RISK PATTERNS DIFFER BY ETHNICITY

Findings from a new CNRC study could help researchers design more effective programs to prevent heart disease and diabetes — diseases predicted to take a heavy toll on today's generation of extra-large kids.

"Our research expands upon past studies that found a relationship between parental and child risk factors, such as body weight, cholesterol levels, and blood pressure, by showing that these relationships differ by ethnicity," said Dr. Russell Jago, a CNRC behavioral scientist.

The study, which involved 133 pairs of African-American, Hispanic, and white mothers, and their 6- to 7-year-old children, was published in

the December issue of the *Archives of Pediatric & Adolescent Medicine*.

Jago's overall findings showed that a mother's waist circumference and body fat, as measured by body mass index (BMI), were associated with the risk of her child being overweight by age 7, which was similar to the findings of past studies.

"However, when we broke the numbers down by ethnicity, this relationship was strong only in Hispanic pairs," Jago said. No association was found in African-American or white families.

Similarly, the mother-child relationship for high blood levels of insulin and cholesterol was strong

only among African-American pairs. High insulin and cholesterol levels, like BMI, are key risk factors in the development of cardiovascular disease, while obesity and high insulin levels raise the risk for diabetes.

The researchers also assessed whether mothers' physical activity levels influenced how active their children were. Their conclusion: no effect, regardless of ethnicity.

According to Jago, the study findings could help others design more effective interventions to prevent obesity, heart disease, and diabetes. For example, family-centered interventions may be most effective among Hispanics, while other ethnic groups may respond to more child-specific strategies.

"We don't really know why the differences we found exist, or whether they are due to genes, environmental factors such as diet, or a combination," Jago said. "However, the more we understand how mothers affect their children's risk for health problems, and how these effects may vary by ethnicity, the more effective we can be in helping families avoid these diseases." ♦

CNRC WEB SITE OFFERS NEW INTERACTIVE HEALTHY EATING CALCULATOR

Finding customized information about what and how much to feed your child is just a click away, thanks to the CNRC's new Interactive Healthy Eating Plan Calculator.

The calculator is available on the web at www.kidsnutrition.org.

"By entering a child's sex, age, weight, height, and physical activity level, parents can obtain a general eating plan that provides all the nutrition and energy their child needs to grow and be active without excessive weight gains," said Joan Carter, an instructor in the department of pediatrics and CNRC dietitian who developed the calculator.

The plans generated by the calculator are based on the new 2005 Dietary Guidelines for Americans and the Institute of Medicine's nutritional recommendations for children ages 4 and older. In addition to suggesting amounts of the basic food groups, including fruits, vegetables, grains, milk products, lean meats and beans, and oils to be consumed each day, the calculator gives guidelines for the consumption of discretionary calories.

"Discretionary calories are the calories 'left over' in an eating plan after the recommended amounts of nutrient-dense foods are consumed," Carter explained. In other words, the

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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! First BITES

Healthy 7- to 11-month-old infants, and toddlers, 12- to 24 months of age, and their mothers are needed for a study aimed at measuring how much children this age are eating. Stipend. Call Marilyn, 713-798-7002.

MIGHTY MINERALS STUDY

Healthy toddlers, 12 to 48 months of age, are needed for a new study of toddler nutritional needs. Email Keli, kelih@bcm.tmc.edu, or call 713-798-7085.

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. Email Jennifer at jld@bcm.tmc.edu or call 713-798-7075.

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.

BEEF STUDY: BEEF EATING ENHANCES FE (IRON)

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

HYPERTENSION PREVENTION USING SOY

Normal weight, post-menopausal women, 40 to 65 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 six-week

study evaluating the benefits of soy in hypertension prevention. Call 713-798-6783.

CARBOHYDRATE AND SUGAR METABOLISM

Normal-weight and obese teens ages 13 to 17 are needed for metabolism studies. The teens should be healthy, not on medications and not have a diabetic parent or sibling. Study includes 12 weeks of supervised exercise with an exercise physiologist. Stipend. Call Amy, 713-798-7083.

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. ♦

CNRC WEB SITE OFFERS NEW INTERACTIVE HEALTHY EATING CALCULATOR

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number of calories a child can 'spend' consuming solid fats, treats and sweets, or more food from the basic food groups without gaining too much weight.

According to Carter, taking a close look at a child's discretionary calorie budget and the tables that list the fat, calories and sugar content of popular foods that accompany the calculator may be a real eye-opener for some parents.

"When kids are relatively inactive, their discretionary calorie allowance is quite small," she said.

Yet, Carter also believes that this information can help parents better appreciate the value of physical activity and help them make better decisions about managing low-nutrition, high-calorie foods.

"All foods really can fit into a healthy diet for children. It's just a matter of how much and how often," she said. "The diets of active kids have room for a bit more—and a bit more often."

Because the calculator is designed as an educational tool, the recommendations provided are for normal weight children between the ages of 4 and 18.

"Overweight children need almost the identical laundry-list of nutrients as their slimmer counterparts, but there is

less room in their diets for discretionary calories," she explained. "This is also why increasing physical activity is the main recommendation given to parents with children prone to weight problems."

Carter notes that in addition to limiting discretionary calories, the calculator's healthy eating plan, like the new dietary guidelines, promotes high-fiber foods, including whole grains, fruits, and vegetables.

"The calculator's plans may seem a far cry from how many kids are eating today," Carter said. "But, that's part of the problem, isn't it?" ♦

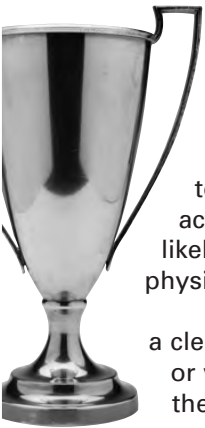


PARENTAL ATTITUDES HELP SHAPE KIDS' "ATHLETIC IDENTITY"

Whether in algebra or athletics, what parents think of their kids' abilities tends to be identical to what kids themselves think," said Dr. Cheryl Anderson, a CNRC researcher and a Baylor assistant professor of pediatrics.

And, kids who have a good opinion of their abilities, something Anderson calls a positive 'athletic identity,' also tend to enjoy and value physical activity more—increasing the likelihood that they will remain physically active into adulthood.

"Children aren't born with a clear sense of who they are or what is important. Instead, their identities and values are continuously shaped by what they learn from their parents and others as they grow," she said.



To help parents raise "positive athletic identity" kids, Anderson offers these tips:

Make Positive Experiences the Goal

- Show kids that what makes you proud is their effort, not whether they get a trophy. "Even a child on a community team who sits on the bench most of the time can have a positive experience as long as she's with friends, building skills, and having fun—it's OK to go slow," Anderson said.

Value Variety

- Expose children to a variety of both individual and organized activities. "Each activity teaches kids skills that can make the next activity they try easier to learn and enjoy, which in turn builds confidence," she said.

Focus on Skills

- Mastering skills helps build confidence. "Everyone dislikes doing, and tends to devalue,

things they are not good at," Anderson said.

- Skill building is particularly important for girls, who tend to already feel less athletically capable than boys when they enter first grade.

Give Feedback

- Kids want you to watch, help, and praise them. Were their feet together? Head down?

No Pressure

- It takes time to build skills, so avoid criticizing or pressuring children too much.
- Avoid pushing your dreams on your children.

Be Patient

- It may take time for the child to find something they like to do.
- Some kids need more positive experiences than others before they enjoy an activity. ❖

ZINC ABSORPTION FROM PLANT-BASED DIETS IMPROVES WITH DAIRY

Consuming small amounts of milk or yogurt can significantly increase zinc absorption among impoverished people living on plant-based diets, but has little effect on iron absorption, according to a CNRC study recently published in the *Journal of Nutrition*.

"Milk is the most common animal food provided in nutritional support of impoverished populations, yet there has been controversy over the specific effects of milk on zinc absorption and whether the calcium present in milk significantly impairs the absorption of iron from plant-based diets," said Dr. Ian Griffin, an assistant professor of pediatrics at Baylor College of Medicine who studies zinc metabolism at the CNRC.

Zinc and iron deficiencies, which cause poor growth, impaired immune function, and delayed mental development, are major health problems in developing countries.

"People living in low-income areas of developing countries have little access to zinc-rich foods like meat," he said. "In addition, the cereals and legumes

that make up the bulk of their diets contain large amounts of fiber and compounds called phytates, which severely limit the body's ability to absorb the little zinc that's there."

For the study, 48 women living in rural Mexico who normally consumed a plant-based diet ate two test meals a day consisting of tortillas and black beans plus either water, one cup milk, or one-half cup flavored yogurt, for two weeks. Iron and zinc absorption was measured using stable-isotope "tracers."

Griffin found that compared to the women in the water group, zinc absorption was 50 percent higher in the milk group and 68 percent higher in the yogurt group. There were no differences in iron absorption rates.

According to Griffin, although calcium is known to reduce iron absorption from a single meal, finding no effect

on iron absorption in this study was not entirely unexpected. "Other studies have suggested that over time people adjust their iron absorption to account for the increased calcium intake, and their iron absorption returns to normal," he said.

The reason why dairy products, which are not zinc-rich foods, increase zinc absorption remains unknown. However, Griffin believes that the proteins in milk may help keep the little zinc that's there in a form that is easily absorbed by the body.

"Although the amount of zinc in milk might appear to be a 'drop in the bucket,' the overall affect is large because so little zinc is absorbed from a plant-based diet," he said.

But is this significant to an individual's zinc health?

"When nutritional status is so poor, every 'drop' counts," he said. ❖



SOY BENEFITS STUDIED

The medicinal benefits of soybeans may finally be explained in an ongoing CNRC study.

Funded by the National Institutes of Health, the study is investigating the effect of chemicals in the soy plant, isoflavones, in reducing hypertension in menopausal women.

"There doesn't appear to be any downside to soy," said Dr. William Wong, CNRC scientist and professor of pediatrics at Baylor College of Medicine.

Wong and his colleagues are particularly interested in isoflavones that are part of a group of chemicals called phytoestrogens, which are abundant in soy plants, because they may lower blood pressure. They are also examining the effect of isoflavones on the production of nitric oxide, a substance made by blood vessels that reduces the tendency of blood to clot.

The six-week trial will administer enriched isoflavones to patients, who will undergo monitoring of blood pressure for an entire 24-hour period.

"It will give us a better idea as to whether the beneficial effects persist through the whole 24 hours or is confined to just certain parts of the day or night," said Wong. "It will also allow us to determine what role nitric oxide production is playing."

Isoflavone has long been believed by some members of the scientific community to ward off health problems associated with aging, such as hot flashes in menopausal women; but limited empirical data have prevented physicians from recommending its use. However, concerns about conventional estrogen replacement therapy, based on its connection to an increased risk of breast cancer, have compelled many women to consider "natural" alternatives such as soy.

Wong is still actively recruiting study participants. Healthy menopausal women with blood pressures between 130/80 and 160/100 who are not taking hypertensive medication may call 713-798-6783 for enrollment information. ❖

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