



Nutrition & Your Child

CHILDREN'S NUTRITION RESEARCH CENTER • 1100 BATES • HOUSTON, TEXAS 77030 • No. 3, 2003

CHICKPEA LEAVES COULD BE FOOD SOURCE IN DEVELOPING COUNTRIES

Chickpea leaves may prove to be an excellent alternative food source in malnourished populations of the world, with a mineral content that matches or exceeds spinach and cabbage.

The results of a Houston-based study published recently in the *Journal of the Science of Food and Agriculture* follows the close examination of 19 chickpea varieties.

"These leaves are very, very good," said study co-author Dr. Michael A. Grusak, Associate Professor of

Pediatrics at Baylor College of Medicine and a CNRC Plant Scientist. "We found the mineral composition of the leaves to be quite nutritious, especially when compared to common vegetables like cabbage and spinach."

This could have a great impact in developing countries throughout the world, he said.

"This will probably have the greatest impact in India," he said, "where there is a major production of the chickpea plant. That's also an area with a lot of nutritional deficiencies.

The Middle East is another area where you find a lot of chickpea cultivation." Additionally, cultivation of the leaves may actually assist in plant growth, he said.

"It turns out that the yield of chickpea is determined in large part by the number of branches," said Grusak. "There is some evidence that picking off leaves may actually promote enhanced branching and thus make the plant more productive as a seed crop."

Grusak and his team plan to do further research on the effects of cultivation on plant yield in remote, outdoor locations. All their research on the nutritional value of chickpea plants was conducted in a controlled, greenhouse setting.

The chickpea itself is the third most important cool-season food legume (plant species that include peas and peanuts) after the common bean and the pea, said the report. In several developing countries, the seed of the plant serves as a staple food for humans and can account for a significant portion of daily nutritional and caloric intake. ♦

CABBAGE-FAMILY VEGETABLES MAY REDUCE CANCER RISK

Including Chinese stir-fries in your family's diet could help reduce their risk for cancer.

"Vegetables in the cabbage family, like Chinese bok choy, contain protective phytochemicals called glucosinolates that help the body eliminate carcinogens," said Dr. Janice Stuff, Assistant Professor at Baylor College of Medicine and a CNRC Nutrition Scientist.

According to Stuff, the traditional Asian diet is rich in cabbage-family vegetables, also called cruciferous vegetables, and contains nearly three times the level of protective glucosinolates as the typical American diet.

"Research suggests that consuming just two servings a day of cruciferous vegetables could cut the risk for certain types of cancer, including prostate and esophageal cancers, by nearly 50 percent," she said. Other cruciferous vegetables include broccoli

and broccoli sprouts, Brussels sprouts, horseradish, mustard greens, collard greens, cauliflower, cabbage, kohlrabi, rutabaga, watercress, and Japanese wasabi.

Scientists have been exploring the link between diet and reduced risk for cancers for more than thirty years. In early studies, epidemiologists found that men living in Japan and China not only had less incidents of prostate cancer than American men, they also had less than Chinese and Japanese men who emigrated to America and second- and third-generation Chinese- and Japanese-Americans. Similar trends were found in breast-cancer rates among women.

"Since genetic makeup doesn't change when someone emigrates to a new country, it's clear that some environmental factor or factors, such as dietary changes, were affecting cancer rates," Stuff said.

Recent research linking the intake

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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/studies>

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. Participants should like to eat Frito chili pie. Stipend. Call Keli, 713-798-7085.

Breast Engagement Study

New mothers are needed for a breast engagement study that compares different breast pumps and strategies used to treat engorgement. Mothers may enroll before or after delivery. Call Cynthia, 713-798-7005.

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. Breast-feeding 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.

Osteoporosis Prevention Using Soy (OPUS)

Normal weight, post-menopausal women between the ages of 40 and 60 are needed for a two-year study designed to evaluate the benefits of soy isoflavones in the prevention of bone loss. Call 713-798-6783.

Breast-Feeding Study

Pregnant women in their last trimester who plan to breast-feed for at least three months and new mothers currently breast-feeding infants between 2 weeks and 2 months of age are needed for a study of breast-milk sugar production. Stipend. Call Andrea, 713-798-7083.

Hypertension Prevention Using Soy

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

Metabolism Studies

Normal-weight children, ages 6 to 9 and 13 to 17, overweight teens ages 13 to 16, and normal-weight, healthy adults, ages 18 to 35, are needed for metabolism studies. Stipend. Call Andrea, 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.

Breast-Feeding: Pump Up the Volume!

Breastfeeding mothers with babies less than 8 weeks of age may be eligible for this study that compares the effectiveness of different breast pumps and strategies used to increase milk production. Mothers will receive an electric breast pump of their choice (~\$250 value) and free consultation with a certified lactation consultant. Call Cynthia, 713-798-7005.

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. Contact Marilyn, 713-798-7002. ❖

YOU CAN HELP MAKE CHILDREN HEALTHIER

Nearly 5,000 Houston-area children and family members have helped improve the nutritional well being of the world's children by participating in CNRC studies—and you can to!

To learn more, call 713-798-7002 or see: <http://www.kidsnutrition.org/studies>

NEW STUDY LOOKS AT CALCIUM ABSORPTION IN INFANTS

Formulas may have an adequate amount of calcium, but researchers wonder if the calcium from formula milk is absorbed as well as calcium from breast milk.

Dr. Steven Abrams, Professor of Pediatrics at Baylor College of Medicine and a neonatologist at Texas Children's Hospital, is heading a study that will look at calcium absorption in infants from birth to 2 months of age. The study will compare breast milk versus a new formula that has a different fat blend than what is currently on the market.

Abrams, who studies calcium and bone metabolism at the USDA/ARS Children's Nutrition Resource Center, says adequate calcium intake levels set by the National Academy of Sciences are

210 milligrams per day for infants up to 6 months and 270 milligrams per day between 6 and 12 months. The intake levels are based on the usual intake of breast-fed infants.

"It is possible that formula does not have calcium that is absorbed as well as it is from breast milk so formula contains, more calcium than is in breast milk," Abrams said.

Abrams and his team will give each infant a stable calcium isotope. Stable isotopes are naturally occurring forms of minerals, such as calcium, and are safe. The isotopes are used to assess the rate of bone mineral deposition and the secretion of minerals into the gastrointestinal tract to determine calcium absorption.

"It is especially important for older infants who are also vitamin D-deficient to receive the recommended amount of calcium," Abrams said. "These infants have a higher risk of rickets, a 'soft-bone' disease that can stunt growth and make children bow-legged."

The study requires three visits to the CNRC for formula-fed infants and four visits for breast fed infants. Breastfeeding mothers will receive free use of an electric breast pump; mothers of formula fed infants will receive free formula.

For more information or to enroll in the study, contact Penni at 713-798-7166 or pennih@bcm.tmc.edu ❖

SCHOOL LUNCH PERIOD CAN SERVE AS NUTRITION TESTING GROUND

Parents can encourage a lifetime of healthy eating by using school lunch options as a testing ground for good food decisions.

"Students in middle and high school get to make more of their own lunch choices, so it's important to make their options a topic of conversation," said Joan Carter Clark, a registered dietitian at the Children's Nutrition Research Center at Baylor College of Medicine. "It's a great opportunity to discuss the importance of making food choices that help their bodies feel and perform their best versus simply satisfying hunger."

For many children, choosing what to have for lunch at school is the first time they have total responsibility for what they eat.

"Starting with middle school, a student can choose to bring a sack lunch, eat in the cafeteria, or pick something up at the snack bar," said Clark. "Parents can help influence good decisions by discussing all these options."

Clark recommends that parents get a copy of the school menu and talk about which days the child will eat a lunch

from home, in the cafeteria or at the snack bar. The child still has the responsibility, but he or she also has the information and support needed to make good choices, she said.

And, Clark stressed, it's important to remember that the school lunch is only one meal during the day.

"The nutritional quality of a child's diet is determined by the sum of all foods and beverages consumed over several days," she said. "So, if you send your child off to school after having a good breakfast, and prepare a healthy, balanced meal in the evening, just accept the fact that your child is going to choose an occasional school snack bar lunch of burgers and chips."

Clark said offering a healthy breakfast and evening meal has another added benefit.

"If kids associate eating healthy foods at home with positive feelings, they are more likely to choose healthy foods when they have the chance to decide for themselves," she said. ❖

CABBAGE-LIKE VEGETABLES MAY REDUCE CANCER RISK *(Continued from page 1)*

of specific foods to cancer risk found that vegetables, particularly cruciferous vegetables, had pronounced anti-cancer benefits. Further laboratory tests found that glucosinolates, which give cruciferous vegetables their bitter taste, stimulated the body to produce certain enzymes that help prevent prostate and other cancer.

Although studies continue to confirm that diet can play a significant role in cancer risk, Stuff points out that this doesn't mean that genetic makeup doesn't matter. A person's genetic makeup can affect how effectively and/or efficiently his or her body responds to the presence of glucosinolates in the diet, which in turn can affect cancer risk.

"This is what makes nutrition research in the post-human genome sequencing era exciting. Perhaps one day we will find genetic markers that identify those individuals who could benefit most from increasing their consumption of cruciferous vegetables or other anti-

cancer food," she said. Stuff, like many nutrition researchers, also believes that cancer prevention should begin in childhood.

"As a pediatric nutrition researcher, I am very interested in understanding whether the consumption of cruciferous vegetables in childhood can affect life-long cancer risk, and if so, the amount that is beneficial," she said. ❖

Did you know?

Chopping cruciferous vegetables like broccoli increases the activity of protective glucosinolates, while prolonged cooking decreases glucosinolate levels. Stir-frying and light steaming have little effect on the compound's concentrations. "Bottom-line, don't overcook your vegetables," Stuff said.

CNRC RESEARCHER NAMED TO REVIEW NUTRITION GUIDELINES

Dr. Theresa Nicklas, Professor of Pediatrics and Researcher at the Children's Nutrition Research Center, has been named to the federal Dietary Guidelines Advisory Committee, a panel that will review the nutrition guidelines for Americans.

The appointment was announced by Health and Human Services Secretary Tommy G. Thompson and Agriculture Secretary Ann Veneman. Nicklas is one of 13 experts named to the panel, which issues a review report every five years.

The panelists will meet to review the most recent scientific literature in preparation for the release of the 2005 version of Dietary Guidelines for Americans. The guidelines contain nutritional and dietary information and guidance for the general public.

The information is based on the latest scientific and medical knowledge, and currently comprises 10 guidelines that individuals should aim for to improve overall health:

- Aim for a healthy weight
- Be physically active each day
- Let the Food Pyramid guide your food choices
- Choose a variety of grains daily, especially whole grains
- Choose a variety of fruits and vegetables daily
- Keep food safe to eat
- Choose a diet that is low in saturated fat and cholesterol and moderate in total fat
- Choose beverages and foods to moderate your intake of sugars
- Choose and prepare foods with less salt
- If you drink alcoholic beverages, do so in moderation

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NUTRITION TIDBITS

Q

Do I need extra calcium while breastfeeding my baby?

A

Supplemental calcium has had no effect on the calcium balance of nursing mothers, which is why calcium recommendations for nursing and non-nursing women are exactly the same: 1000 milligrams per day for those 19 years of age and older and 1300 milligrams for those 18 and younger.

This means that if you're diet is already calcium-rich, you probably don't need supplements. However, if you have difficulty meeting your basic calcium

needs, you might benefit from calcium supplements, such as the 200 to 250 milligrams found in multivitamins given to pregnant and nursing women. There are also some specific groups of women who might benefit from additional calcium while breastfeeding. These include women breastfeeding more than one infant, those who have had closely spaced pregnancies and nursing adolescents.

In the long-run, breastfeeding your baby could be good for your bones. Some studies suggest that breastfeeding might actually decrease the risk of postmenopausal osteoporosis. ❖

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Find hundreds of articles on topics ranging from breastfeeding 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>