Children's Nutrition Research Center

Nutrition & Your Child

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The USDA/ARS Children's Nutrition Research Center

Celebrating 30 Years of Discovery

This fall marks the 30th anniversary of the official proclamation of the United States Department of Agriculture/ Agricultural Research Service (USDA/ARS) Children's Nutrition Research Center (CNRC) at Baylor College of Medicine, located in Houston at the Texas Medical Center. ARS is USDA's principal in-house research agency.

The CNRC is one of six federally funded human nutrition research centers in the nation and the first multi-disciplinary center to conduct scientific investigations into the role of maternal, infant and child nutrition in optimal health, development, and growth. Scientific data from the CNRC enables healthcare providers and policy advisors to make dietary recommendations that improve the health for children today and for future generations. CNRC impacts feeding and dietary guidelines for children worldwide as well as influencing the design of dietary and behavioral interventions to improve health and prevent obesity.

The official proclamation of the CNRC at Baylor College of Medicine and Texas Children's Hospital was announced on November 2, 1978 by US Senator Lloyd Bentsen (Texas). Today, Baylor College of Medicine ranks in the top ten medical schools in the nation, Texas Children's Hospital ranks as one of the top five children's hospitals and ARS has grown to become a billion dollar research agency of the USDA.

Initially housed in temporary facilities, today's CNRC is a modern 11-story research facility located in the heart of the Texas Medical Center along with more than 40 other hospitals and research facilities.

Over 65 research scientists and 200 support staff/doctoral students from a wide range of disciplines and expertise call the CNRC their research and academic home. The scientists of CNRC collectively have published more than 3,250 peer reviewed papers and invited reviews since 1978. In addition, CNRC scientists are regularly sought by the national and international media to explain research findings for the public.

A key factor in the worldwide recognition for the CNRC is the creativity and resourcefulness of the scientists and the staff working together to see beyond the obvious and look for new solutions to existing problems.

The CNRC includes a large live-in metabolic unit, an energy metabolism laboratory, analytical core laboratories including confocal microscopy and image analysis, a body composition laboratory, an eating behavior observation laboratory, and a plant physiology laboratory.

Directed by Dr. Dennis Bier since 1993, the scientists are divided into 8 research groups (see following article). Dr. Bier is recognized as a world class pediatrician, researcher and administrator, and is a firm believer that children are our most precious natural resource and the key to this planet's future. ❖

INSIDE THIS ISSUE

Disciplines at CNRC

- Animal Science
- Behavioral Science
- Economics
- Education
- Epidemiology
- Nutrition
- Pediatrics
- Plant Science
- Psychology
- Public Health
- Statistics

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.

BREASTFEEDING STUDIES

Healthy new mothers, 18 to 35 years old, not taking any medications (including birth control) and exclusively breastfeeding infants less than 10 weeks of age are needed for studies investigating metabolic factors that affect breast milk production. Participants should not have parents or siblings with diabetes. Stipend. Call Marilyn, 713-798-7002.

ARGININE AND INSULIN SENSITIVITY

Overweight but otherwise healthy 13 to 17 year old Hispanic and African-American teens are needed for a study to examine whether taking arginine (a protein building block) can help the body better metabolize sugar, protein and fat. Stipend. Call Debra, 713-798-7080.

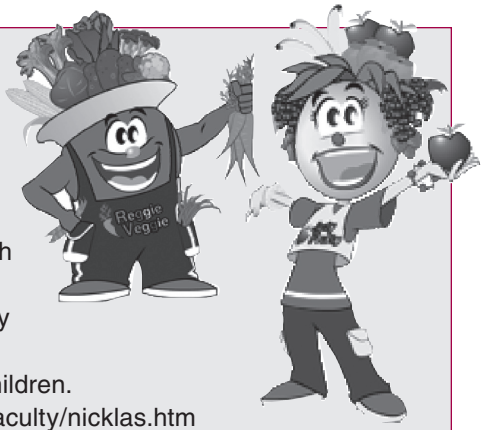
VIDEO & WEB GAMES FOR HEALTHY EATING AND PHYSICAL ACTIVITY

Children, 10 to 12 years old, who love to play computer games are needed for a 6-month study to learn if video or web games can help children eat healthier and be more physically active. Must be fluent in English, have high-speed Internet connection at home and be available for 4 visits to CNRC within 6 months. Stipend. Call Marilyn, 713-798-7002.

CARBOHYDRATE AND SUGAR METABOLISM

Normal weight and overweight Hispanic teens, ages 13 to 17 years, are needed for metabolism studies. Teens should be healthy, not on medications, not have a diabetic parent or sibling, not be enrolled in sports and not currently trying to diet. Study includes 12 weeks of supervised exercise with an exercise physiologist. Stipend. Call Marilyn, 713-798-7002. ❖

CNRC RESOURCES AVAILABLE TO USE



The "**Children's BMI-percentile-for-age Calculator**" can help you determine whether a child is at a healthy weight. www.kidsnutrition.org/bodycomp/bmiz2.html

30 full-color **"Healthy Eating Posters"** (11" x 17") can be used in schools or for other nutrition education training. www.kidsnutrition.org/images/posters3/posters/poster_1.html

An interactive **"Healthy Eating Plan Calculator"** shows you the amount of the different food groups necessary each day for children between 4 and 18 years. www.kidsnutrition.org/HealthyEating_calculator.htm

"Fruit and Vegetable Commercials" (for video viewing) in English and Spanish featuring Reggie Veggie and Judy Fruity promote fruit and vegetables for young children. www.kidsnutrition.org/faculty/nicklas.htm

A **"Food Preference Assessment Tool"** for Preschoolers in English and Spanish demonstrates how young children can rate different food items. www.kidsnutrition.org/faculty/nicklas.htm

Review the back issues of the **"Nutrition & Your Child Newsletter"** from Summer 1998 until today. www.kidsnutrition.org/consumer/nyc/

Information about **"Research Volunteer Opportunities"** at CNRC are frequently updated. www.kidsnutrition.org/studies/index.html. ❖

COMING SOON

Available for free download, 6 short videos in English and Spanish as well as supporting lesson plans, handouts and recipes, also in English and Spanish, from "**Building Healthy Families: Step by Step.**"

Building Healthy Famlies: Step by Step

- Goal Setting
- Parenting Tips
- Nutrition

Research Groups at the USDA/ARS Children's Nutrition Research Center (CNRC)

Today at CNRC there are eight research groups. These research groups target studies ranging from basic research at the molecular level to health promotion and behavioral interventions as well as plant research to improve nutritional quality. Working within research groups leads to collaborative research and creative problem solving.

BASIC GENE-MOLECULAR LEVEL RESEARCH

- **Nutritional Regulation of Cell Growth, Differentiation and Development**
  Scientists study how dietary components help determine organ growth, development and function throughout fetal life, infancy, childhood, and adolescence.
- **Nutrient-Gene Interactions**
  Scientists study how a person's genes affect nutrient requirements and how nutrients can change the expression of a person's genes, which is the crucial "personal" link in the development of nutrition-related diseases like obesity, cancer and heart disease.
- **Absorption and Metabolism of Essential Mineral Elements**
  Scientists investigate the metabolic, hormonal and dietary factors that affect the body's absorption and utilization of calcium, zinc, and other essential minerals.

RESEARCH RELATED TO OBESITY

- **Childhood Obesity: Regulation of Energy Balance and Body Composition**
  Scientists identify genetic, physiological and environmental factors, including physical activity, that influences the body composition of children as well as body composition standards for children.
- **Childhood Eating Behaviors: Prevention of Childhood Obesity and Chronic Diseases**
  Scientists investigate what factors influence children's eating habits and how to help children and families adopt healthier habits to avoid long-term health problems.
- **Developmental Origins of Obesity, Cardiovascular Disease, and other Chronic Diseases of Nutritional Lineage**
  Scientists determine how an inadequate intake of dietary nutrients during critical periods of development can have permanent effects on a child and on an individual's health in adulthood.

NUTRITION STANDARDS RESEARCH

- **Nutrition During Pregnancy, Lactation, Infancy and Childhood**
  Scientists determine and define the optimal dietary calorie, protein, and mineral requirements for maternal health during pregnancy and lactation. ❖

Children, Fruit Juice and Weight

With the recent increase in childhood obesity, the public, medical authorities and the media are trying to determine causes. Some have suggested that excess intake of juice may be a cause.

Dr. Theresa Nicklas, a professor at the USDA/ARS Children's Nutrition Research Center (CNRC) and her colleagues published an article in the June 2008 issue of Archives of Pediatric Adolescent Medicine http://archpedi.ama-assn.org/cgi/reprint/162/6/557 that provided a comprehensive look at fruit juice consumption, nutrient intake and overweight in children, aged 2 to 11 years.

Dr. Nicklas used the 1999-2002 National Health and Nutrition Examination Survey (NHANES) data for her analysis. Children aged 2 to 11 years were separated into 4 groups based on their juice intake:

Average Amount of 100% Juice Consumed per Day

- none
- > 0 to < 6 oz.
- > 6 oz. to < 12 oz.
- > 12 oz.

In addition, the children were divided into groups by age (2-3 years, 4-8 years, and 9-11 years).

Her analysis demonstrated that drinking 100% juice was not associated with overweight for children between 2 and 11 years. In addition, children who drank 100% juice had improved nutrient intakes compared with those who did not. For example, children who consumed more than 6 oz. of 100% fruit juice had significantly lower intakes of total fat and saturated fat and significantly higher intakes of vitamins C, B6, and folate, as well as potassium, magnesium and iron. Children who consumed more than 12 oz. of juice per day had an increased calorie intake, although there was no significant difference in weight.

Dr. Nicklas reminds parents that good dietary habits should be encouraged for children since many adult diseases including some cancers and cardiovascular disease are linked to a low intake of fruits and vegetables. ❖

NOTE TO PARENTS: Remember to read the label to be certain you are buying 100% juice instead of colored, flavored water. The American Academy of Pediatrics (AAP) Guidelines recommend limiting 100% fruit juice to 4 to 6 oz. per day for 1 to 6 year old children as well as encouraging whole fruits in addition to 100% fruit juice.

BCM
Baylor College of Medicine

USDA/ARS CHILDREN'S NUTRITION RESEARCH CENTER

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Groundbreaking 1985

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Send comments or change of address information to Nutrition & Your Child, Children's Nutrition Research Center, 1100 Bates Street, Houston, TX 77030-2600.

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www.kidsnutrition.org

BCM Baylor College of Medicine · Texas Children's Hospital · USDA · CSREES

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