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# **NUTRITION & YOUR CHILD**

# 2020-2025 Dietary Guidelines for Americans

Earlier this year, the U.S. Department of Agriculture and the U.S. Department of Health and Human Services issued the Dietary Guidelines for Americans for 2020 – 2025, which apply the most up-to-date scientific research to provide advice on what to eat and drink to meet nutrient needs, promote health, and prevent disease.

For the first time, the Dietary Guidelines for Americans (DGA) includes recommendations for infants from birth to age 24 months. Dr. Teresa Davis, professor and researcher at the USDA/ARS Children's Nutrition Research Center at Baylor College of Medicine, was a member of the DGA Advisory Committee (DGAC) and served on the Birth – 24 Months Subcommittee.

"It was an honor to be a member of the Birth-24 Months' Subcommittee, as this is the first time a DGAC has investigated this age group," Davis said. "My lab at the CNRC focuses on nutritional regulation of skeletal muscle growth in the neonate, so I was inspired to be part of this subcommittee."

The inclusion of this age group in the Dietary Guidelines for Americans is significant because the time between birth and age 2 is a critical time to establish healthy dietary patterns. Because of this new task assigned to the DGAC, the committee decided to look at the recommendations differently than previous committees. "For this edition of the DGA, our committee decided to take a life stage approach, looking at the specific nutrition recommendations at every major stage of life, starting at birth through late adulthood," Davis said.

The DGA recommends exclusive human milk feeding for the first 6 months of life, if possible. If this is not possible, infants should be fed iron-fortified infant formula. All infants, regardless of milk type, should receive vitamin D supplementation soon after birth. After 6-months of age, infants should be introduced to nutrient-dense complementary foods accompanied by potentially allergenic foods (such as peanut butter), as findings indicate early exposure leads to fewer food allergies. Additionally, infants and toddlers should be encouraged to consume a variety of foods from all food groups, especially those high in iron and zinc. After 12 months of age, toddlers should follow a healthy dietary pattern into adulthood. The DGA recommends the avoidance of foods and beverages high in added sugars and sodium for infants and toddlers.

The DGA also encourages consumption of the core elements that make up a healthy diet throughout all life stages, consisting of vegetables of all types, fruits (especially whole fruit), grains, at least half of which are whole grain, dairy, including fat-free or low-fat milk, yogurt, and cheese (and/or lactose-free versions and fortified soy beverages and yogurt as alternatives), protein foods, and oils, including vegetable oils and oils in food, such as seafood and nuts.

"It is important to consume a healthy diet, not just in adulthood, but throughout the lifespan to reduce the risk of chronic diseases," Davis said.

# **Obesity prevention among Hispanic fathers and children**

"Healthy Dads, Healthy Kids" is a program aimed to help fathers lose weight while influencing healthy behaviors in their children. Developed and tested by researchers in Australia, the program illustrates that fathers are an important target to promote healthy weight in their children, which in turn helps them to focus on healthy weight for themselves. Researchers at the USDA/ARS Children's Nutrition Research Center at Baylor College of Medicine and Texas Children's Hospital received funding from the National Heart, Lung and Blood Institute to culturally adapt the program for Hispanic fathers and children in Houston, titled "Healthy Dads, Healthy Kids" or "Papa's Saludables, Niños Saludables." Their research findings were published in three journals, the International Journal of Behavioral Nutrition and Physical Activity, Childhood Obesity, and the Journal of Nutrition Education and Behavior.

"We have been working on engaging with the Hispanic community in Houston on efforts for obesity prevention for kids, knowing that Hispanic children carry a greater burden for obesity than other children," said Dr. Teresia O'Connor, associate professor of pediatrics at Baylor, pediatrician at Texas Children's and principal investigator of the NIH-funded study. "Hispanics also represent a very large proportion of our population in the Greater Houston area, making up over 40 percent of the population."

With input from a panel of local Hispanic parents, through focus groups, interviews and working with experts from across the country, the research team adapted the program to be more relevant and engaging for Hispanic families. Cultural values such as familism, respect and collectivism were emphasized. The program material was changed to reflect popular food and games among Hispanic families in this region and to align with the U.S. recommendations for physical activity, dietary intake and screen media use for men and children. Mothers were engaged in creative ways via short videos sent to them and an optional Facebook group they could join. A booster session was added at the midpoint of the program to review the previously learned content and clarify areas of misunderstanding on important topics. The resulting 10-week program was then tested for feasibility by the research group. Through the weekly program, fathers and children learned about different nutrition-related topics, the important role of fathers in their children's lives, parenting, and how to form a stronger connection with each other. Fathers and children separated to learn about the same topics with age-appropriate approaches. The families then participated in the sports club portion of the program, which consisted of three primary components:

• Sports skill development: fundamental movement skills for children and teaching fathers how to help their children learn those skills, such as throwing, catching, kicking and batting.

- Rough and tumble play: fathers and children played fun wrestling games together.
- Fun fitness: fitness games that offered a lot of movement for children and their fathers.

The physical activities encouraged fathers and their children to have fun while incorporating movement and challenging games that they could also play at home.

"Many of these fathers work seven days a week with few breaks, so Sundays were the best time for them to engage in this. It allowed them to spend quality time together and form a strong bond with one another," said Alicia Beltran, research dietitian at Baylor and coauthor of the study.

Although the program was geared toward fathers and children, mothers also played a role. The mothers participated in a session to experience the program and received an educational booklet to follow along at home. Program leaders sent weekly videos to the mothers of the children involved, so they could watch short summaries of the content learned by the fathers and children at each session. Mothers also stayed connected through a Facebook group to keep up to date with the program and see pictures of the fathers and children.

The feasibility study delved into the best way for researchers to recruit Hispanic families into the program and how to get them to engage and participate. According to O'Connor, the feasibility outcomes were promising, as they were able to recruit and keep a large portion of the families for the entire program. 75 percent of participants went to their follow-up data collection at the end of the study. The average attendance by the fathers and children to the 10 sessions was 72 percent, which is considered high for a first attempt at engaging fathers.

"All parents were very satisfied with the program and with the classes offered. The fathers really enjoyed the time they got to spend with their child, and many expressed that they wished the program were longer," said Oriana Perez, research coordinator of pediatrics at Baylor and co-author of the study.

The researchers aim to conduct a larger, randomized control trial of this program since they received very positive feedback from parents and children and felt the feasibility of the program was encouraging.

"Dads, kids and moms all consistently said that the bond between the child and the father improved and changed after taking part in this program. If dads and kids can engage in healthier eating, being more active and spending less time in front of screens in building their bond together, that has a big potential impact," O'Connor said. "It's important to not just deliver important content, but also to make it fun while playing games and letting dads and kids have a chance to relax and enjoy themselves."

# Study examines link between sleep and obesity in children

Sleep is an essential part of a healthy lifestyle, especially for the growth and development of children and adolescents. When it comes to preventing childhood obesity, a condition that can have detrimental effects on the organs and overall health, ensuring that youth receive an adequate amount of sleep each night plays an important role.

Although research shows that shorter sleep duration is linked to obesity risk in children and adolescents, little is known about how a lack of sleep causes obesity. A study published in *Pediatric Obesity* examined not only the link between how long and when children sleep and obesity, but also the connection with overall physical activity, energy expenditure and basal metabolic rate.

"There have been multiple studies that show a consistent relationship between short sleep duration and obesity in children and adolescents, but we were interested in trying to identify the potential mechanisms that link sleep to obesity," said Dr. Fida Bacha, associate professor of pediatrics at the USDA/ ARS Children's Nutrition Research Center at Baylor College of Medicine and lead author of the study.

Bacha and her team surveyed the quality and patterns of sleep in 59 children over seven days during a school break. They were split into two age groups – 5 to 11 years old and 12 to 18 years old. The researchers examined not only the length of sleep, but also the timing, quality of their sleep and whether it was interrupted.

Using a wearable device called an accelerometer that measures movement, Bacha explains that they could

examine the link between sleep and physical activity. The researchers also evaluated the participants' basal metabolic rate (the major component of energy expenditure) in the highly specialized metabolic chamber (or room calorimeter) at the Children's Nutrition Research Center.

After considering their age, sex and body composition, the findings showed that children and adolescents who fell asleep late were less active during the day. Lack of adequate sleep duration was related to a lower basal metabolic rate. A slower metabolism combined with sedentary behavior could lead to obesity over time, Bacha explains.

While the recommended sleep duration for children is nine hours or more in the younger age group and eight hours or more in the older age group, the study showed that less than 50% of children met those recommendations. The participants who reached the recommended hours of sleep engaged in more physical activity and less sedentary time over the 7 days of study.

"We need to get the message out that late sleep timing, even during school break, is an important factor in determining physical activity level in children," Bacha said. "These data support the importance of promoting good sleep hygiene in children as a method to promote an active lifestyle."

Bacha advises promoting good sleep habits for children and adolescents by keeping a regular bedtime and wakeup times that meet the <u>recommended hours of sleep for each age group.</u>

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The 2020-2025 DGA encourages Americans to "Make Every Bite Count" by following four main guidelines:

- 1. Follow a healthy dietary pattern at every life stage.
- 2. Customize and enjoy nutrient-dense food and beverage choices to reflect personal preferences, cultural traditions, and budgetary considerations.
- Focus on meeting food group needs with nutrient-dense foods and beverages and stay within calorie limits.
- 4. Limit foods and beverages higher in added sugars, saturated fat, and sodium, and limit alcoholic beverages.

The USDA and HHS have jointly published the Dietary Guidelines for Americans every five years

since 1980. The DGA is developed and written for a professional audience, such as policymakers, healthcare providers, nutrition educators, and Federal nutrition program operators. It influences federal programs such as the National School Lunch Program and the Supplemental Nutrition Assistance Program.

Each edition of the DGA is informed by the Dietary Guidelines Advisory Committee (DGAC), a group of nationally recognized scientific experts in nutrition and medicine. Davis and 19 of her colleagues created the 2020-2025 DGAC Report, providing an overview of the latest available science on a variety of nutrition topics. The committee was divided into six subcommittees and one working group consisting of a member from each subcommittee. The DGAC Report is given to USDA and HHS and used as the foundation for the DGA.

The DGA is publicly available and can be accessed here.



# USDA/ARS CHILDREN'S NUTRITION RESEARCH CENTER

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# JOIN A CNRC NUTRITION STUDY!

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 parking is provided. For most studies, financial compensation is provided. **For information, contact Noemi Islam at 713.798.7002 or nislam@bcm.edu**.



# **Teen Heart Health H-30665**

12- to 21-year-old adolescents and young adults, normal weight and overweight, with and without type 2 diabetes are needed for a research study investigating risk for heart disease in youth. Study involves body composition, scans and blood tests. Compensation provided. If interested, please call us at 713.798.6791.

# **Bone Health Study H-45986**

Adolescents and young adults, ages 12 to 21 years, normal weight and overweight, with and without type 2 diabetes are needed for a research study to investigate the effect of obesity and childhood onset diabetes on bone health and risk of heart disease in youth. Study involves body composition, scans and blood tests. Compensation provided. If interested, please call 713.798.6791.

### A Pediatric Gastroparesis Registry H-41641

Researchers at Baylor College of Medicine and Texas Children's Hospital are conducting a research study to learn how slow stomach emptying (called gastroparesis) affects children and how it may be treated. Children ages 5 to 17 years who have been diagnosed with gastroparesis or have a combination of pain, nausea, vomiting, early satiety, or postprandial fullness may be eligible. The study requires visits to the CNRC. For more information, contact the study coordinator, Heather Charron, at 713.798.0381 or charron@bcm.edu

# **Biomarker of Food Intake Research Study H-49630**

Seeking adults, 18 to 65 years old in good health, to study if a rapid, optical skin measurement can be used to measure how many servings of fruits and vegetables participants consume. Participants will consume 6 or 12 oz. of a provided juice daily for 6 weeks. Research study involves three 90 minute-each visits for height, weight, body fat, and optical skin measurements, blood draw (1 ¼ teaspoons), and food surveys. Eligible volunteers should speak, read, and understand English; self-identify as either African American/Black, Asian, non-Hispanic White, or Hispanic/Latinx; and meet body weight criteria. If interested, call 713.798.0517 or e-mail VeggieMeterStudy@bcm.edu

# Development and Validation of an Automated Measurement of Child Screen Media Use: FLASH (R01) H-40556

How much time do children spend watching TV or on the phone? A new study at Baylor College of Medicine is developing a system to measure screen time. Looking for parents with two children 6 to 11 years old, and 6 and 14 years old. Must have an Android device. \$40 compensation. Free parking. If interested visit https://redcap.link/Screentime, call 713.798.0503 or email flashstudy@bcm.edu.

### Teen Talk Study H-46202

Baylor College of Medicine is recruiting 14-17 year olds living in rural communities and their parents to help us understand what affects their food and physical activity choices and body weight. Stipend. For more information, please contact Chishinga Callender at 713.798.0506 or Noemi Islam at 713.798.7002.