

ORIGINAL RESEARCH COMMUNICATION

# Metabolic and behavioral predictors of weight gain in Hispanic children: the Viva la Familia Study<sup>1,2,3,4</sup>

Nancy F Butte, Guowen Cai, Shelley A Cole, Theresa A Wilson, Jennifer O Fisher, Issa F Zakeri, Kenneth J Ellis and Anthony G Comuzzie

<sup>1</sup> From the US Department of Agriculture, Agricultural Research Service Children's Nutrition Research Center, Department of Pediatrics, Baylor College of Medicine, Houston, TX (NFB, GC, TAW, JOF, IFZ, and KJE), and the Department of Genetics, Southwest Foundation for Biomedical Research, San Antonio, TX (SAC and AGC)

**Background:** Despite the high prevalence of overweight among Hispanic children in the United States, definitive predictors of weight gain have not been identified in this population.

**Objective:** The study objective was to test sociodemographic, metabolic, and behavioral predictors of 1-y weight gains in a large cohort of Hispanic children studied longitudinally.

**Design:** Subjects ( $n = 879$ ) were siblings from 319 Hispanic families enrolled in the Viva la Familia Study. Families were required to have at least one overweight child aged 4–19 y. One-year changes in weight and body composition by dual-energy X-ray absorptiometry were measured. Data were from parental interviews, birth certificates, multiple-pass 24-h dietary recalls, 3-d accelerometry, 24-h respiration calorimetry, measurements of eating in the absence of hunger, and measurement of fasting blood biochemistry indexes by radioimmunoassay. Generalized estimating equations and principal component analysis were applied.

**Results:** Weight gain increased with age ( $P = 0.001$ ), peaking at  $\approx 10$  y of age in girls and  $\approx 11$  y of age in boys. Mean ( $\pm$ SD) weight gain was significantly higher in overweight ( $7.5 \pm 3.7$  kg/y) than in nonoverweight ( $4.4 \pm 2.4$  kg/y) children and in boys than in girls. When adjusted for age, age squared, sex, and Tanner stage, the final model indicated a child's body mass index (BMI; kg/m<sup>2</sup>) status, maternal BMI, energy expenditure (total energy expenditure, basal metabolic rate, and sleeping metabolic rate), and fasting blood biochemistry indexes (total triiodothyronine, insulin, leptin, and ghrelin) as independent, positive predictors of weight gain ( $P = 0.01$ – $0.001$ ).

**Conclusion:** Knowledge of the metabolic and behavioral predictors of weight gain in Hispanic children will inform prevention and treatment efforts to address this serious public health problem in the United States.

**Key Words:** Food intake • eating behavior • energy expenditure • physical activity

**This Article**

- ▶ [Full Text](#)
- ▶ [Full Text \(PDF\)](#)
- ▶ [Purchase Article](#)
- ▶ [View Shopping Cart](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)
- ▶ [Citation Map](#)

**Services**

- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)
- ▶ [Get Permissions](#)

**Citing Articles**

- ▶ [Citing Articles via HighWire](#)
- ▶ [Citing Articles via Google Scholar](#)

**Google Scholar**

- ▶ [Articles by Butte, N. F.](#)
- ▶ [Articles by Comuzzie, A. G.](#)
- ▶ [Search for Related Content](#)

**PubMed**

- ▶ [PubMed Citation](#)
- ▶ [Articles by Butte, N. F.](#)
- ▶ [Articles by Comuzzie, A. G.](#)

**Agricola**

- ▶ [Articles by Butte, N. F.](#)
- ▶ [Articles by Comuzzie, A. G.](#)

This article has been cited by other articles:



Clinical Pediatrics

▶ HOME

D. P. McCormick, M. Ramirez, S. Caldwell, A. W. Ripley, and D. Wilkey  
YMCA Program for Childhood Obesity: A Case Series  
Clinical Pediatrics, September 1, 2008; 47(7): 693 - 697.

[\[Abstract\]](#) [\[PDF\]](#)

