



POLICY PERSPECTIVE

WITH CHILDHOOD OBESITY ON THE RISE AT ALARMING RATES IN THE UNITED STATES, THESE FINDINGS HAVE POPULATION-LEVEL POLICY IMPLICATIONS. WHILE INDIVIDUAL BEHAVIOR PLAYS A KEY ROLE IN WEIGHT MAINTENANCE, STRATEGIES FOR REDUCING OBESITY THAT RELY ONLY ON INDIVIDUAL RESPONSIBILITY ARE UNLIKELY TO BE EFFECTIVE IN ENVIRONMENTS THAT DISCOURAGE HEALTHY EATING AND PHYSICAL ACTIVITY. THIS IS ESPECIALLY TRUE FOR CHILDREN. A COMPREHENSIVE POLICY AND ENVIRONMENTAL APPROACH THAT FOCUSES ON PROVIDING CHILDREN WITH ACCESS TO HEALTHY FOODS AND OPPORTUNITIES FOR SAFE PHYSICAL ACTIVITY MAY BE REQUIRED TO ADDRESS THIS TROUBLING ISSUE.

Background

Over the last four decades, obesity rates have more than tripled among U.S. children and adolescents. Currently, a third (33.6%) of all children and adolescents in the U.S. are either obese or at risk for becoming obese.¹ This is troubling because, among children, obesity is linked with diabetes, asthma and sleep apnea, as well as a myriad of social and behavioral consequences. Also, overweight adolescents are more likely to become overweight adults. Obesity in adulthood is linked with many health problems, including heart disease, stroke, diabetes and certain types of cancer. In addition to the extraordinary toll on our nation’s health, obesity also poses a tremendous financial burden, with estimated costs for medical care and lost productivity topping \$100 billion annually.

Current research suggests that most U.S. children and adolescents have poor diets and do not get enough physical activity. In fact, only 2 percent of children ages 2 to 19 meet the federal government’s recommendations for a healthy diet, and only one in four gets even 30 minutes of moderate physical activity five days a week, compared with the recommended 60 minutes of activity.

Adding to this research, an RWJF-funded study suggests that U.S. children and adolescents experience an “energy gap,” or imbalance between the number of calories they are consuming each day and the number of calories required to support normal growth, physical activity and body function.

Key Findings

- U.S. children and adolescents overall experienced an energy gap of roughly 110–165 calories per day over 10 years, on average. This gap led to an excess 10 pounds of body weight for all adolescents, or one pound per year, on average.
- U.S. overweight adolescents have consumed an average of 700 to 1,000 more calories a day than required for normal growth, physical activity and body function. Over a 10-year period, this energy gap produced an average of 58 extra pounds beyond the weight gain that would be associated with normal growth, or, on average, an extra 6 pounds per year. Over time, these weight gains led adolescents to overweight status.

Research Methods

Wang and colleagues looked at the actual heights and body weights of U.S. children ages 2 to 7 reported in a national survey conducted between 1988 and 1994 (NHANES III; N=5,000). The researchers then predicted the body weights of these children 10 years later, assuming the children experienced only normal growth in weight for height.² The researchers then contrasted the body weights of this “normal-growth” scenario with the actual body weights of U.S. children and adolescents ages 12 to 17, approximately 10 years later (NHANES 1999–2002; N=3,091).

¹ RWJF Research Highlight—“Energy gap” contributes to adolescent obesity

They found that U.S. children and adolescents differed from the “normal-growth” scenario by 10 pounds on average. The researchers attribute this weight gain to an “energy gap”—the imbalance between the number of calories children consume each day and the number required to support normal growth, physical activity and body function.

The researchers then looked only at U.S. adolescents who were overweight—above the 95th percentile on Centers for Disease Control and Prevention growth charts³—to calculate the energy gap for overweight adolescents. They estimated that overweight U.S. adolescents consumed between 700–1,000 excess calories per day on average over a 10-year period, above and beyond the amount needed for normal growth.

This study builds upon a similar study by Hill and colleagues, which calculated the average energy gap for U.S. adults.⁴ This study differs from that by Hill and colleagues because it accounts for the fact that heavier people burn more calories than lighter people simply due to daily functioning—it takes more energy to lift and move a heavier body. The researchers also account for the fact that children need to grow and thus need to consume more calories than they burn each day to achieve normal growth.

For more information and to view the full study, visit www.rwjf.org.

Resources

- Wang YC, Gortmaker GL, Sobol AM and Kuntz KM, “Estimating the Energy Gap among U.S. Children: A Counterfactual Approach” *Pediatrics*, December, 2006; 118(6).
- Institute of Medicine Report on the nation’s *Progress in Preventing Childhood Obesity*, 2006. Available at: www.rwjf.org/research/researchdetail.jsp?id=3029&ia=138&gsa=1
- More information about the RWJF Childhood Obesity Interest Area is available at: www.rwjf.org/portfolios/interestarea.jsp?iaid=138

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1 The Centers for Disease Control and Prevention (CDC) does not classify children as obese. Instead, the CDC and the study highlighted here use the terminology “overweight” to designate children with a Body Mass Index (BMI) at or above the 95th percentile on the commonly-used CDC growth charts, and “at risk for overweight” to designate children with a BMI at or above the 85th percentile and below the 95th percentile.

2 To find the heights of these children 10 years later, the researchers used the actual heights of U.S. children and adolescents ages 12 to 17, NHANES 1999–2002.

3 These are growth charts commonly used by pediatricians to plot a child’s growth over time. Available at www.cdc.gov/growthcharts; 2000. Accessed September 1, 2006.

4 Hill JO, Wyatt HR, Reed GW and Peters JC. “Obesity and the environment: where do we go from here?” *Science*, February 7, 2003; 299(5608): 853–855.