

Pediatric Obesity

Pediatric obesity is an international concern. This condition has become increasingly prevalent in recent decades – the percentage of children in the U.S. classified as overweight or obese has tripled since 1980 – and has now reached epidemic proportions. According to the 1999-2002 National Health and Nutrition Examination Survey (NHANES), 16 percent of children ages 6 to 19 (over 9 million children) are overweight. “Overweight” is defined as a Body Mass Index (BMI)-for-age at or above the 95th percentile of the Centers for Disease Control and Prevention growth charts. In addition to the 16 percent of children considered overweight, another 15 percent are determined to be at risk of becoming overweight (a BMI-for-age between the 85th and 95th percentiles). The following risk factors are noteworthy:

- The incidence of obesity is not equally distributed among children. Economically disadvantaged children are disproportionately affected. In fact, minority children from lower socioeconomic strata have an almost one in two chance of being overweight.
- The National Health and Nutrition Examination Survey found that African American and Mexican American adoles-

cents ages 12-19 were more likely to be overweight (21 percent and 23 percent, respectively) than non-Hispanic White adolescents (14 percent).

- Children are at increased risk for obesity if one or both of their parents are obese.

Because of these factors, Cleveland’s youth are at particularly high risk of developing obesity and its related morbidity. In the city of Cleveland, 50 percent of children live in poverty, 52 percent of the population is African-American, and 61 percent of the adults are overweight or obese.

Obesity affects far more than a child’s clothing size. Overweight children are at increased risk of developing high blood cholesterol, high blood pressure, and Type II diabetes. Research has shown they are more likely to develop conditions such as sleep apnea, asthma, and orthopedic complications. It is also more likely that overweight children will become overweight adults; the probability of childhood obesity continuing into adulthood is estimated to increase from approximately 20 percent at age four to approximately 80 percent by the teen years.

THE SCHUBERT CENTER FOR CHILD STUDIES in the College of Arts and Sciences at Case Western Reserve University promotes multidisciplinary research on children and childhood. Our goal is to build and enhance connections among research, policy, and educational initiatives at the University and with the community. The Schubert Center’s focus is on children and childhood from infancy through adolescence in local, national, and international contexts.

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Healthy Kids/Healthy Weight Program



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Dr. Heinberg and her colleagues developed The Healthy Kids/Healthy Weight program at Rainbow Babies and Children's Hospital in Cleveland to provide a comprehensive, multidisciplinary family-based assessment and intervention for overweight children.

The program implements and tests the effectiveness of a family-based pediatric weight management strategy within a diverse and vulnerable population. While strategies such as these have proved effective in clinical trials, there is less evidence of the effectiveness of weight loss programs among clinical populations of need. The Healthy Kids/Healthy Weight program aims to not only meet the urgent need among Cleveland's children, but also to carefully document the program's effectiveness.

Evaluation includes determining whom the program works best for, and what aspects of the program are most effective so that it can be replicated in other settings.

Healthy Kids/Healthy Weight has partnered with a dozen local pediatric practices in an effort to reach a diverse group of children and adolescents. Of the children served:

- Almost 60 percent are children of color (51 percent African-American 4 percent Hispanic and 5 percent other race/ethnicity)
- 35 percent come from households earning less than \$25,000/year
- 47 percent do not live with both parents

Healthy Kids/Healthy Weight stresses *health* targets and goals. The program aims to:

- Provide comprehensive, multidisciplinary assessment of children ages 4-18 who are at risk for or are overweight (Body Mass Index (BMI) above 85th percentile)
- Provide an interdisciplinary, intensive intervention program for eligible youth and their families that is pragmatic and culturally competent, and that stresses family-environment fit
- Conduct research into the causes, complications, and treatments of pediatric obesity
- Serve as an institutional and community resource for knowledge related to pediatric obesity
- Become a national and international model for best practices

The Healthy Kids/Healthy Weight program consists of two complementary facets, assessment and intervention. The comprehensive assessment deter-

mines the extent and cause of the child's condition, and the presence of obesity-related co-morbid conditions. When the multidisciplinary assessment is concluded, the team meets with the child and parent(s), and summarizes the findings and recommendations for weight management/loss. A summary letter is mailed to the child's physician, indicating the need for sub-specialty referrals when clinically indicated.

The intervention is a 12-week multi-family, behaviorally based intervention focused on increasing physical activity, decreasing sedentary activity, improving nutrition, and promoting behavior-change skills. Each child and his/her parents have a case manager who provides individualized attention within the group setting of 10-15 families. Group classes involve a multidisciplinary team of specialists in pediatric overweight/obesity (dietician, exercise physiologist, behaviorist) who use state-of-the-art learning approaches (games, demonstrations, interactive exercises, didactics) to engage children and parents.

WEIGHT TRAJECTORIES FOR ADOLESCENTS WHO COMPLETED HK/HW PROGRAM

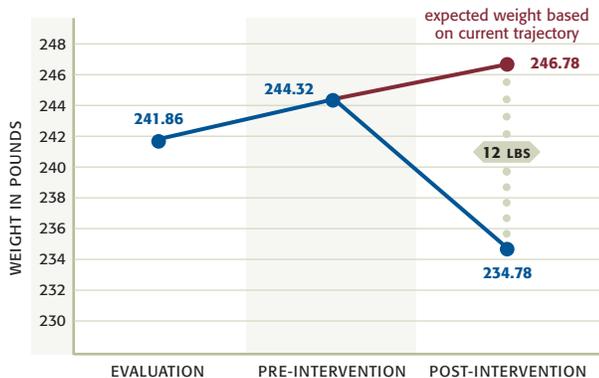


Figure 1

TIME: $F(2,50)=4.78$; $p<.01$; $D=.16$

WEIGHT TRAJECTORIES FOR CHILDREN WHO COMPLETED HK/HW PROGRAM

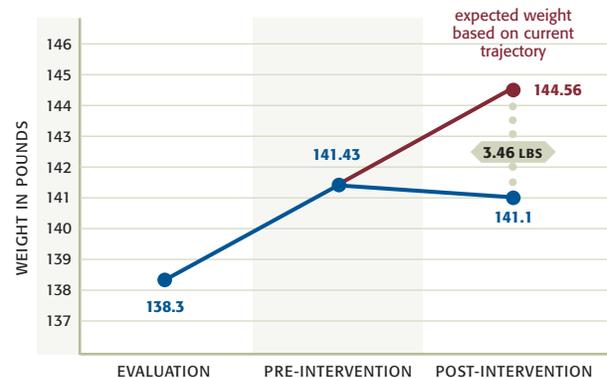


Figure 2

TIME: $F(2,53)=13.20$; $p<.001$; $D=.33$

HEALTHY KIDS/HEALTHY WEIGHT RESEARCH FINDINGS

The Healthy Kids/Healthy Weight program includes a rigorous evaluation component. To date, the program has completed 179 assessments, and 84 families have completed the 12-week intervention. Preliminary evaluation findings are promising.

Families report satisfaction with the program:

After completing the program, families reported a satisfaction rating of 6.4 on a 7-point scale.

Families stay in the Healthy Kids/Healthy Weight program longer than in similar programs: 74 percent of families remained in the program. This is a significant improvement over the 50-60 percent widely reported in the research literature for similar studies. Among families who completed the program, 76 percent attended at least ten of the twelve intervention groups.

Children experience successful weight management: Results indicate that the program was able to successfully reverse the positive weight gain in both children and adolescents. Prior to beginning the program (in the time period between evaluation and intervention), 86 percent of the participants

experienced an increase in their BMI. Once in the program, 72 percent saw a reduction in their BMI.

Figures 1 and 2 demonstrate significant success in weight management in children, and weight loss in adolescents. More important, the positive weight gain trajectory as reflected by increases in weight from evaluation to intervention (approximately 42 days) was successfully reversed for both children and adolescents. The red line demonstrates expected weight if this trajectory had continued unabated, and the “pounds saved” are highlighted in the dotted lines.

Positive changes in blood lipid levels: Significant improvements were also demonstrated in laboratory results. Following intervention, youth significantly increased their HDL or “good” cholesterol level (41.87 vs. 40.88; $p<001$), decreased their LDL or “bad” cholesterol levels (96.81 vs. 103.18; $p<001$), and markedly decreased their triglycerides (131.77 vs. 175.22; $p<001$). The significant declines in LDL and triglycerides are reflective of adherence to dietary lifestyle change during treatment.

IMPLICATIONS

FOR POLICY AND PRACTICE

Findings from the Healthy Kids/Healthy Weight program are very promising. They suggest that pediatric weight loss strategies can be effective with diverse and vulnerable populations. Yet, this is just one of many strategies that could be employed to promote healthy weight and healthy lifestyles among children. To be most effective, an approach should be used that:

- focuses on prevention and treatment
- builds on an understanding of child development from infancy through adolescence, and incorporates appropriate strategies across the developmental span
- includes strategies that focus on the many contexts in which children live, recognizing that children's experiences are shaped by everyday settings including families, schools, neighborhoods, and the broader culture

In **Northeast Ohio** there are many efforts worth noting that are doing just that, including:

- **Steps to a Healthier US**, funded by the U.S. Department of Health and Human Services, awarded the Cleveland Department of Health \$1.5 million over two years to work on reducing the burden of diabetes, overweight, obesity, and asthma. **Steps to a Healthier Cleveland** is working with schools, the media, and the community to institute programs and policies to reduce the rate of obesity among children in Cleveland.
- The Cuyahoga County Board of Health (CCBH) is working on a number of initiatives aimed at promoting healthy weight among children. The **CCBH "DIET" (Dietitians Involved in Education & Training) Program** is an effort to provide training to local health care providers for the prevention and management of pediatric obesity and

Cultural Changes Changes in U.S. culture and family life have contributed to the increase in childhood obesity. For a number of reasons, children today consume more energy-dense foods and are less physically active than they were 20 years ago. Portion sizes are increasing. Children spend more time watching television, resulting in less time engaged in physical activity. Also, there is an increasing amount of direct marketing to children of foods that are high in "empty" calories.

Parents/Home Environment Parents play a primary role in modeling healthy behaviors. Today, fewer families eat together due to increased labor force participation among women, busy family schedules, and the decreasing cost of eating out. Parents themselves are more likely to be overweight.

Child Care Over 60% of children from birth through age six spend time in some form of out-of-home childcare, which becomes an important setting for both physical activity and food consumption.

Schools Many children eat at least one meal, and sometimes two, each weekday at school. The majority of schools have vending machines, snack bars, or other food services outside the school meal program which offer food and beverages considered to be "of minimal nutrition value" by the USDA. Additionally, given financial constraints of many school systems and pressures to improve standardized test scores, physical education is usually one of the first classes to be dropped from the curriculum.

Neighborhoods Neighborhoods are less "walkable" today than they were in the past. New neighborhoods are often built without sidewalks and in locations making cars necessary. Disadvantaged neighborhoods are less likely to have recreational facilities, and in unsafe neighborhoods, children are less likely to play outside. Low income neighborhoods generally have more "fast food" restaurants and often fewer healthy choices in local supermarkets.

related chronic diseases. The Board of Health is also working with schools. The **School Wellness Policy Program** assists schools with the development, implementation, and evaluation of policies to improve eating habits and physical activity of students. The **Coordinated School Health Initiative** pilot project is working to reduce childhood obesity. This comprehensive approach provides prevention and education services aimed at reducing the short and long term impact of negative health behaviors.

- The Robert Wood Johnson Foundation has named childhood obesity as a specific interest area. Researchers at Case Western Reserve University were awarded \$99,992 to study whether renovating

school playgrounds could raise the level of physical activity among children and adults. Dr. Natalie Colabianchi, formerly of the Department of Epidemiology and Biostatistics, Dr. Claudia Coulton, at the Mandel School of Applied Social Sciences, and Dr. Shirley Moore, of the Frances Payne Bolton School of Nursing found that renovated playgrounds had higher attendance by both children and adults. However, once at the playground, exertion rates did not differ significantly. Drs. Colabianchi and Coulton also are conducting a study on the effects of the social and built environment on where adolescent residents of public housing travel for physical activity and to purchase restaurant or snack foods.