

Innovative Treatment for Pediatric Overweight: An Important Element of Cancer Control

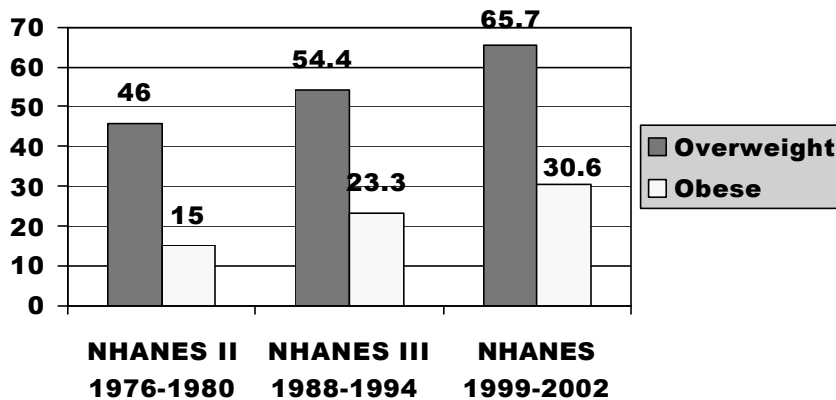
Suzanne Mazzeo, Ph.D.

Rachel Walker, M.A.

Acknowledgements

- Marilyn Stern, PhD
- Joseph Laver, MD
- Ron Evans, PhD
- Diane Wilson, EdD
- Janet Delorme, MS
- Resa Jones, PhD
- Karen Mitchell, M.S.

Prevalence of Overweight and Obesity (Adults)



Overweight vs. Obese

Body Mass Index (BMI) Weight Status

- Below 18.5 -- Underweight
- 18.5 – 24.9 -- Normal
- 25.0 – 29.9 -- Overweight
- 30.0 and Above -- Obese

$$\text{BMI} = \text{weight (kg)} / \text{height (m)}^2$$

Health Risks Associated with Obesity

- Type-II diabetes
- Cardiovascular disease
- Hypertension
- Stroke
- Osteoarthritis
- Sleep apnea
- Cancer



Obesity and Cancer

Obesity is associated with the following types of cancer:

- colon
- breast (postmenopausal)
- endometrium (the lining of the uterus)
- kidney
- gallbladder
- pancreas
- esophagus

Obesity and Cancer

- In 2002, an estimated 41,000 new cases of cancer in the United States were due to obesity. About 3.2 percent of all new cancers are linked to obesity (1).
- 14% of deaths from cancer in men & 20% of deaths in women were due to overweight and obesity(2).

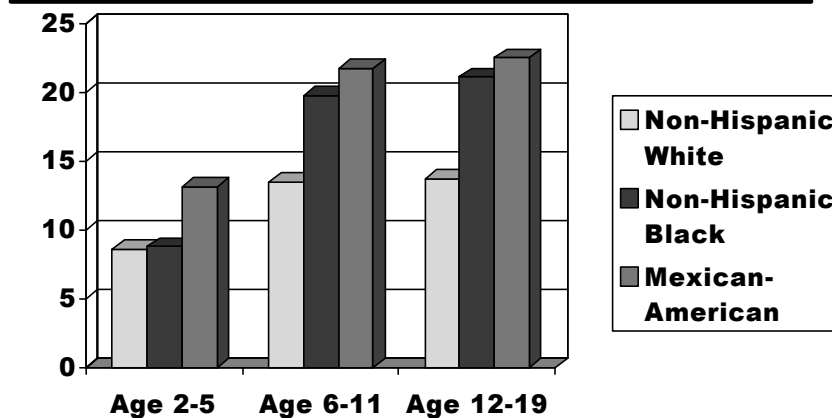
1. Polednak AP. Trends in incidence rates for obesity-associated cancers in the U.S. *Cancer Detection and Prevention* 2003; 27(6):415–421.

2. Calle EE, Rodriguez C, Walker-Thurmond K, Thun MJ. Overweight, obesity, and mortality from cancer in a prospectively studied cohort of U.S. adults. *New England Journal of Medicine* 2003; 348(17):1625–1638.

Obesity and Cancer

- Obesity and physical inactivity may account for 25%-30% of cancer of the colon, breast (postmenopausal), endometrial, kidney, and esophagus
- Preventing weight gain can reduce the risk of many cancers. Healthy eating and physical activity early in life can prevent overweight and obesity.

Prevalence of Pediatric Overweight



Source: NHANES (Hedley et al., 2004)

Pediatric Overweight

- For children (anyone under 18) there are two categories used to define overweight based on Body Mass Index (BMI):
 - BMI is an indicator of weight status that takes into account height and weight (and age and gender, for children).
 - “At-risk for overweight” is a term used to describe children between the 85th and 95th BMI percentile.
 - “Overweight” is used to describe children above the 95th percentile.

Why is Pediatric Overweight a Concern?

- Rates are increasing rapidly—more than doubled in the last 3 decades.
- It's associated with numerous health problems including high blood pressure Type 2 diabetes, asthma, and musculoskeletal problems in childhood.
- Overweight children are very likely to become obese adults with associated health problems.
- They also suffer negative psychological and emotional consequences.

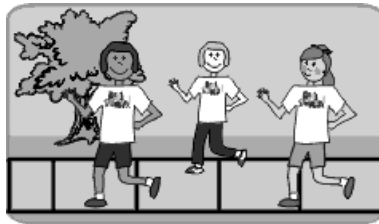
Physical Activity

Cultural differences in physical activity may explain ethnic disparities in obesity rates

- Activity rates of adolescents from all ethnic groups have decreased over the last 40 years
- African American girls' physical activity median activity declined 100% between ages 9-10 (year 1 of the study) and ages 18-19 (year 10)
- Caucasian adolescent girls' median activity declined 64%
- By ages 16-17, 56% of African American girls did not engage in any leisure time physical activity.

Early Intervention

- Adult interventions have had poor outcomes
- Treating childhood overweight is an important strategy for the prevention of adult obesity.



TEENS Program

- 157 adolescents between the ages of 11 and 18 (*M* age = 13.6 years, 59% female).
- Majority are African American (76%)
- Average baseline BMI percentile was 99.00 (SD=.97).
- 1/3 (34%) had Medicaid or were uninsured
- 77% were still participating at 12 weeks, and 65% remained enrolled at 6 months.

Adolescent Intervention

1. Physical Activity Intervention
 - monitored, structured physical activity session one day each week
 - two additional days of physical activity at YMCA
2. Behavioral Intervention
 - intake behavioral specialist
 - bi-weekly, ongoing, structured, same gender groups
 - homework is assigned and goal monitoring t
3. Nutrition Intervention
 - 30 minute twice-monthly meetings with the dietitian

A New Approach

Our intervention will incorporate an intensive parental intervention within an established adolescent program (TEENS Program).

Why Parents?



- 1) parental obesity is associated with overweight status in children
- 2) parents serve as powerful models of eating and exercise behaviors for their children
- 3) parental involvement in treatment for pediatric overweight is associated with better outcomes for children

Parental Obesity and Child Overweight

- Parental obesity is associated with overweight in children.
- Children with 1 overweight parent have 3x risk of becoming obese themselves than do children of non-obese parents.
- Risk is higher for children with 2 obese parents.
- Children with obese parents are also less likely to maintain weight lost during treatment.

Parents Are Role Models of Eating Behavior

- Parents' direct modeling of fruit and vegetable consumption is typically the strongest predictor of children's own intake of these foods.
- Parents model eating attitudes, such as restraint and disinhibition.
- Parents can provide structure and predictable routines for eating, such as family meals.



Parents Model Exercise Behavior

- Children whose parents exercise are more likely to participate in physical activity.
- Parental support is one of the strongest predictors of adolescents' activity.
- Children of overweight parents are more likely than their peers to be sedentary, and to prefer sedentary activities.



Parental Involvement Associated with Better Child Outcomes

- Family-based tx is more successful than tx that targets overweight child alone.
- Adolescents' beliefs about their parent's willingness to make dietary changes are associated with greater adolescent weight loss.
- More intensive parental interventions are the most likely to yield positive pediatric outcomes.

Limitations of Previous Research

- Has targeted younger children
- Who were not ethnically diverse
- Who were from intact families
- Who were not severely overweight
- Parent involvement usually limited to parental weight loss program.

Specific Aims

- Implement and evaluate a randomized parent intervention for its impact on main study outcomes of adolescent BMI and cardiorespiratory fitness.
- Test the impact of the parent intervention on secondary study outcomes of adolescent dietary intake and psychosocial outcomes.

Specific Aims

- Identify predictors of adolescents' success in the intervention, including parental change, and examine potential gender and ethnic differences in outcomes.
- Evaluate the impact of the parenting intervention on participants, including parental BMI change, parental physical activity levels, and parenting sense of competence.

Parent Intervention: Hypotheses

We hypothesize that adolescents whose parents participate in the intervention will have:

1. greater decreases in BMI
2. greater increases in physical activity
3. greater increases in cardiorespiratory health and fitness

Why is it Important to Target this Population?

- African Americans at higher risk for obesity and its complications.
- The older overweight children become, the more likely they are to be obese adults.
- Parents of older children may be more motivated to help them lose weight.

Schedule of Parent Assessment and Intervention

Group	Baseline Pretest	Parent Intervention	Post-Parent Group Test	6-month follow-up	12-month follow-up
Parenting Intervention	X	X	X	X	X
Parents of Adolescents in Standard Care Control Group	X		X	X	X

Intervention

Sessions address:

- Parents as role models of eating and exercise behavior
- Nutrition: Moderating Portion Sizes
- Fruits and Vegetables
- Family Meals
- Physical Activity



Session Topics (continued)

- The Feeding Relationship
- Mindful Eating
- Resisting Media Influences
- Healthy Body Image and Dealing with Teasing



Summary

- Overweight and obesity is associated with several health risks, including cancer.
- Early intervention is key.
- Our research aims to increase the effectiveness of intervention with diverse, severely overweight adolescents by equipping parents to model healthy lifestyle behaviors.