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

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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

BMI = weight (kg)/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).

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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.

National Cancer Institute
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

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

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<thead>
<tr>
<th>Group</th>
<th>Baseline</th>
<th>Parent Intervention</th>
<th>Post-Parent Group Test</th>
<th>6-month follow-up</th>
<th>12-month follow-up</th>
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# 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.