

# The Effects of a School Based Obesity Prevention/Intervention Program Targeting Preschool Children



## Introduction

- The astounding increase in childhood obesity the past 20 to 30 years has become the number one public health concern in the US (1).
- The Healthy for Life/PE4ME Program provided resources to enhance the physical fitness and nutritional education provided to the 17 participating Orange County preschools serving children of low socioeconomic status.

## Significance

- Approximately 20 million children younger than 5 years are overweight worldwide (2).
- In the US, obesity rates for children ages two through five is 10.4% (3).
- Children from socioeconomically disadvantaged families are at an increased risk of being overweight and obese. Development of obesity in the preschool age is of concern because of the "adipose rebound" and increased risk of becoming an obese adult (4).
- Health consequences associated with childhood obesity include medical issues, psychosocial concerns, and decreased quality of life (5).

## Purpose of Study

- To determine whether the school-based Healthy for Life/PE4ME program significantly increased:
  - physical activity
  - nutritional knowledge and preferences for healthier foods
- And decreased:
  - TV/computer screen time
  - overweight/obesity rates
- Among preschool children over a 9-month period.

## Healthy for Life/PE4ME Program Overview

- Overall Goals
  - Improve physical fitness and overall health
  - Enhancing academic performance
  - Enhancing self esteem
  - Promoting a healthier lifestyle that carries into adulthood



## Program Overview Cont'd

### NUTRITION EDUCATION

- Children's parents attend nutrition lectures given by a registered dietitian and include:
  - Benefits of eating breakfast
  - Healthy choices when eating out
  - How to read a food label & portion control
  - Increase activity & decrease screen time
  - A Tip of the Week is sent to the teachers to share with the students and parents.
- Teachers use the Color Me Healthy curriculum during circle time with the students.

## Methods/Assessment

### PARTICIPANTS:

- Ethnically diverse
- Children (n=356) 3 to 9 years
- Students from a Head Start, State/Federally funded or Title1 school associated preschool
- Orange County resident

### INSTRUMENTATION AND MEASUREMENTS: ANTHROPOMETRICS

- Height (cm)
- Weight (kg)
- Body Mass Index Calculated
- Waist Circumference (cm)
- Screening Physical by Board Certified Physician:
  - BMI ≥ 95 percentile
  - Acanthosis Nigricans
  - Abnormal cardiac concerns

### PARENT QUESTIONNAIRE

- Student intake form (completed by the preschool child's parent)
- Used to obtain student lifestyle behaviors including nutrition behaviors, physical activity and screen time (TV, video, computer, iPod, cell phone, etc.)

### DEMOGRAPHICS:

- Age
- Gender
- Ethnicity
- Primary language



### BASELINE AND NINE-MONTH FOLLOW-UP:

#### DIETARY BEHAVIORS – EIGHT QUESTIONS

- Fast food/restaurant consumption frequency
  - Breakfast consumption days per week
  - Fruit and vegetable consumption per day
  - Junk food consumption frequency days per week
- Type of milk and amount consumed per day
- Healthy food consumption while participating screen time

## Methods/Assessment Cont'd

### PARENT QUESTIONNAIRE

#### BASELINE AND NINE-MONTH FOLLOW-UP:

##### PHYSICAN ACTIVITY – ONE QUESTION

- Frequency of 60 minutes/day of Physical Activity per week

##### SCREEN TIME – ONE QUESTION

- < 2 hours/day; 2 hours/day; > 2 hours/day

### PRESCHOOL CHILDREN INTERVIEW

- One on one structured interview
- Picture Scale Activity:
  - Measure child's knowledge of and preference for healthy food and physical activity behavior
- Six pairs of food and physical activity choices

## Procedures

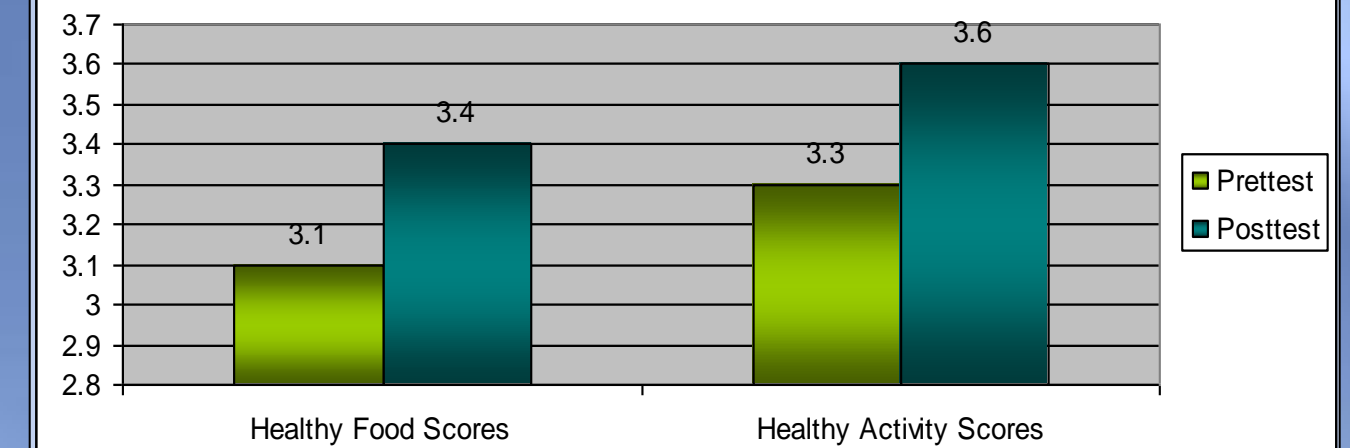
- Orange County preschools serving low socioeconomic families were recruited to implement the Healthy for Life/PE4ME Program.
- Preschools were provided with Sports, Play, Activity, Recreation for Kids (SPARK) Early Childhood Equipment, SPARK Curriculum, Color Me Healthy Curriculum, and Teacher SPARK Training.
- Obtained approval from St Jude Medical Center/St Joseph Health System to utilize IRB approved Healthy for Life/PE4ME Preschool Students' secondary data.
- 356 Participants were recruited from 17 Orange County Preschools participating in the Healthy for Life/PE4ME program.
- Administration of program information letter, student participation consent, photo consent and student/family initial intake form (questionnaire) and 9 month follow-up lifestyle questionnaire.
- Preschool children provided verbal assent to participate in the Healthy for Life/PE4ME Program.
- No incentives or compensation was provided to preschool parents for completing the student intake form.

## Results

- 356 participants, 49.9% male, 50.1% female.
- Mean age = 5.7 years (SD = 29.0).
- 17 students (4.8%) were diagnosed with Acanthosis Nigricans by the program physician during the initial screening.
- The picture scale activity demonstrated a significant improvement in healthy food and physical activity choices.

## Results

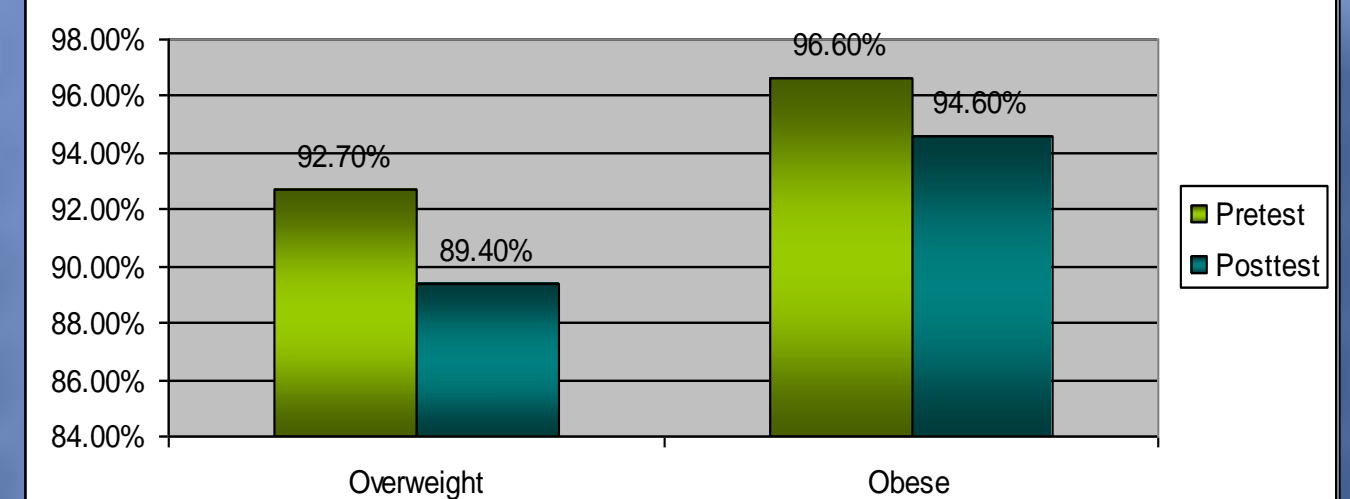
Children's Knowledge/Preference for Healthy Food and Physical Activity (mean sum of the changes)



**DECREASE IN OVERWEIGHT & OBESE STUDENTS:**  
Overweight students (BMI 85<sup>th</sup> - 94<sup>th</sup> percentile)  
Pretest: 92.7%ile Posttest: 89.4%ile (t = 3.36, p = .001)

Obese students (BMI ≥ 95<sup>th</sup> percentile)  
Pretest: 96.6%ile Posttest: 94.6%ile (t = 2.03, p = .05)

Change in BMI



### LIFESTYLE BEHAVIOR IMPROVEMENTS:

- Overweight and Obese participants significantly decreased their junk food consumption.
- Obese participants at baseline significantly decreased their consumption of whole milk and increased their consumption of lower fat.
- Participants in all BMI categories significantly increased the frequency of milk consumption and of physical activity.

## Discussion

- School-based obesity prevention/intervention programs may reduce rates of obesity among preschool children.
- More research is needed to justify setting physical activity and nutrition standards in preschool and child care settings.
- Challenges still exist among families who are overworked, lack financial resources and lack access to healthy foods and safe play areas.
- More research is necessary to examine the barriers that exist in preventing the reversal of the childhood obesity epidemic during early childhood.

## Contact Information

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