

# 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 57 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
  - Junk/fast food consumption
  - overweight/obesity rates

## Healthy for Life/PE4ME Program Overview

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



## Program Overview Continued

### NUTRITION EDUCATION

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

## Methods/Assessment

### PARTICIPANTS:

- Ethnically diverse
- Children (n=1,284) 3 to 9 years
- Students from Head Start, State/Federally funded, or Title1 school-associated preschools
- Orange County residents

### 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) is 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 (days per week)
- Breakfast consumption (days per week)
- Fruit and vegetable consumption per day
- Junk food consumption (days per week)
- Type of milk and amount consumed per day
- Healthy food consumption while participating in screen time

## Methods/Assessment Continued

### PARENT QUESTIONNAIRE

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

##### PHYSICAL 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

### INTERVIEWS WITH PRESCHOOL CHILDREN

One-on-one structured interviews using the Picture Scale Activity:

- Measures child's knowledge of & preference for healthy food and physical activity
- Six pairs of food and physical activity choices

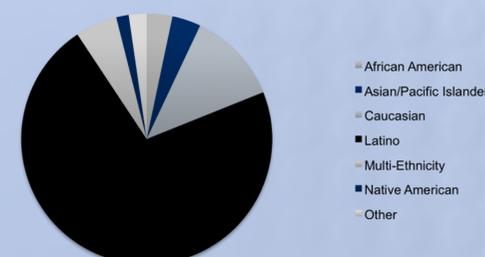
## Procedures

- Orange County preschools serving families of low socioeconomic 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.
- 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 incentive or compensation was provided to preschool parents for completing the student intake form.

## Results

- 1,284 participants (BMI data available for 1,054)
- 50.1% male/49.9% female
- Mean age = 5.49 years

### Participant Ethnicity



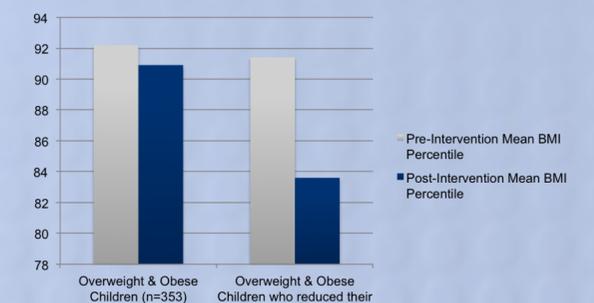
## Results

### CHANGES IN HEALTH BEHAVIORS

- Reduced screen time (p<.00)
- Reduced fast food consumption (p<.00)
- Reduced junk food consumption (p<.00)
- Improved Overall Healthy Choices scores on the child assessment (p<.00)
- Improved Overall Healthy Food scores on the child assessment (p<.00)

### OVERWEIGHT & OBESE CHILDREN

- 353 children (33.5%) had a BMI at the 85<sup>th</sup> percentile or greater prior to intervention.
- Mean BMI percentiles improved significantly after intervention (p<.00). The mean BMI percentile was 92.21 at the beginning of the year and 90.91 at the end.
- 93 (26%) of overweight or obese children reduced their BMI percentile (ranging from reductions of 2 percentile points to 40; mean of 7.83). For these 93, the mean BMI percentile at the beginning of the year was 91.43, and it was 83.60 at the end of the year.



- No one health or demographic factor predicted change in BMI percentile.
- Parent responses to the question "How important is it to you to improve physical nutrition habits" at the beginning of the year were significant predictors of improvement in the child's BMI (p<.05).

## Conclusions

- School-based obesity prevention/intervention programs may reduce rates of obesity among preschool children.
- More research is needed to better understand predictors of or barriers to positive change.
- Challenges still exist among families who are overworked, lack financial resources and lack access to healthy foods and safe play areas.

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## Contact Information

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