

Impact of Park and Afterschool Program on Childhood Fitness

137th American Public Health Association Meeting & Exposition, Philadelphia, Pennsylvania

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Central California
**REGIONAL OBESITY
PREVENTION PROGRAM**

Healthy Environments • Healthy Choices • Healthy People



Funded by



Disclosures

- None

Background-1

- **This study is part of the Central California Regional Obesity Prevention Program's (CCROPP) effort to determine how policies and environment influence childhood obesity**

- **CCROPP is**

 - **An environmental and policy approach to obesity prevention**
 - **A partnership between 8 County Public Health departments and 8 community based organizations**
 - **Funded by the California Endowment**
 - **Administered by Fresno State through the regional obesity Prevention Program**

Background-2: Central California Regional Obesity Prevention Program (CROPP) Sites

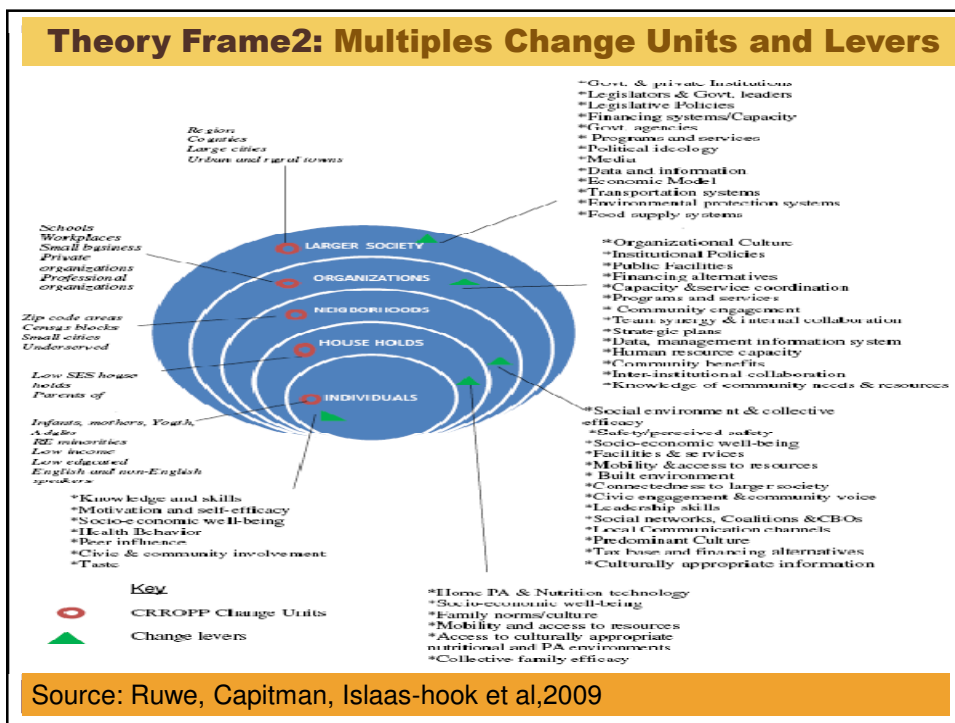
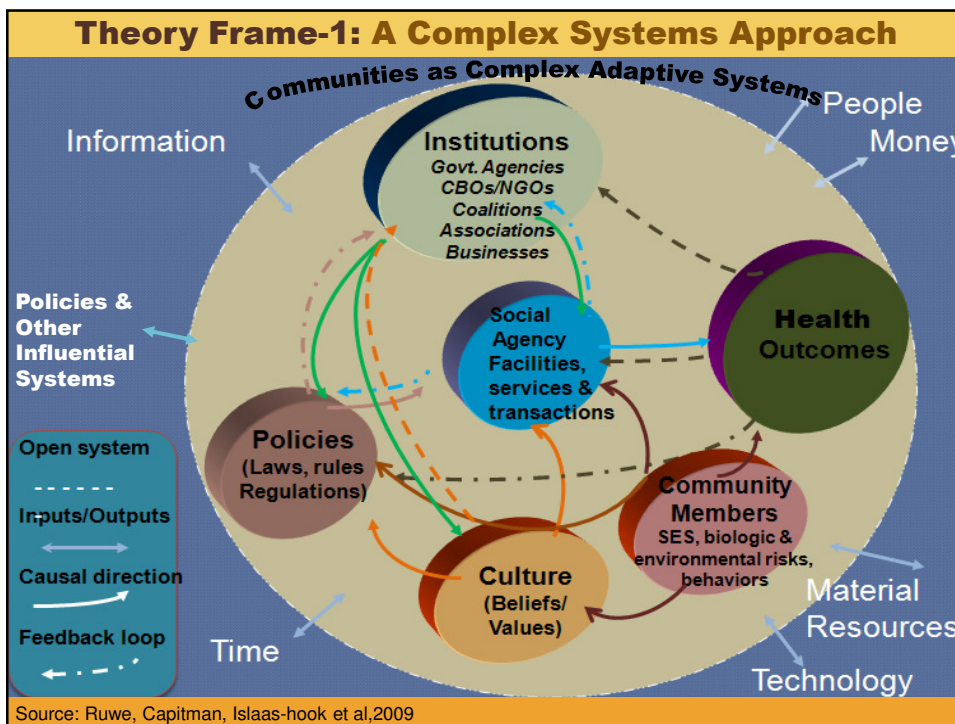
**CCROPP sites
2007 estimates**

**Median household
income: \$38,426
(2007 estimates)**

%under 18 years:33%

**%unemployed:17%
(2007 estimates)**

The map shows the following sites: SE Stockton, Ceres, SE Merced, Fairmead, Madera, SE Fresno, Kettleman City, Pixley / Earlimart, Delano, and Greenfield Neighborhood, Bakersfield. County labels include STANISLAUS, MERCEDE, MADERA, FRESNO, KINGS, TULARE, and KERN. Neighboring counties SAN JOAQUIN and NEVADA are also indicated.



Both School and Home Environments Should Provide Opportunities Children's Physical Activity

- **PA opportunities at school include:**
 - ✦ **Physical Education**
 - ✦ **Recess**
 - ✦ **Extra- curriculum sports: Intramural Activity or Physical Activity Club; Interscholastic Sport**
 - ✦ **At After school programs**
- **PA opportunities in the home environment**
 - **Walking, biking, gym or open space like parks**

But not All Schools Offer Full Range of PA

- **In 2006**
- **Only 48.4% of elementary schools offered intramural activity or physical activity clubs**
- **35.0% required a fee(12% increase from 2000)**

Study Goals/Objectives

- **Determine Impact of selected school-level and neighborhood factors on meeting body composition standard**
- **The association between having an after school program at the school and a nearby park influences children's body composition**
- **Impact of other fitness gram measures on body composition**
- **Impact of neighborhood factors on child's meeting body composition: CCROPP sites vs. no CCROPP sites, urban vs. rural, poor community vs. less poor community**

Study Design

- **A cross-sectional study design and, quantitative methods were used**
- **Sample: 860 schools in six San Joaquin Valley Counties: Fresno, Kern Kings, Madera, Merced, Tulare**
- **Data sources: California dept of education website, census bureau website, GIS Data using Google search**
- **Analysis: Descriptive statistics and multivariate analyses**

Measures Over Overview

- **Dependent/outcome Variable**
 - % children meeting health body composition
- **Primary independent/Predictor Variables**
 - Having park w/in 2 miles of school
 - Having an after school program
- **Covariates**
 - **Other fitness measures**
 - × Aerobic capacity
 - × Muscular Strength And Endurance
 - × Flexibility, Abdominal strength, Trunk strength & Upper body strength
 - **Socio-economic variables**
 - %children on free/reduce price meals
 - × Median Household income
 - **Location of schools: urban/rural, CCROP/non-CCROPP**

Measures1: Body Composition



- **Measure of obesity and overweight (BMI or skin fold)**
- **BMI= child's weight (kg) divided by height (squared) in meters**

Source: Human Kinetics-The Cooper Institute

Measures-2: Afterschool Program and Nearby Park



Source Google images

- **Measures**
 - **School has afterschool program (yes/No)**
 - **There is a park within 2 mile radius of school (yes/No)**

Measures 3: Cardiovascular Endurance




Source:
<http://www.dreamstime.com/royalty-free-stock-image-child-running-image2185556>

- **PACER (Progressive Aerobic Cardiovascular Endurance Run)**
 - *Set to music, a paced, 20-meter shuttle run increasing in intensity as time progresses*
- Or:**
 - **One-Mile Run – (or walk if needed) as fast as they can**
 - **Walk Test – Students walk one mile as fast as they can (for ages 13 or above)**

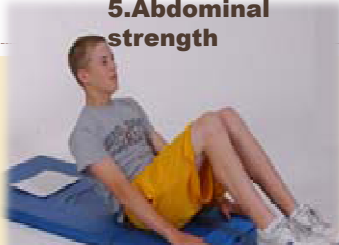
Measures-4 Muscular Strength And Endurance

3.Flexibility




Back-Saver Sit and Reach or shoulder stretch

5.Abdominal strength




Curl Ups Maximum 75

4.Trunk strength



Trunk Lift-raise long enough, measure floor chin distance

6.Upper body strength



Push-Ups or modified pull ups as many as possible

Source: Human Kinetics-The Cooper Institute

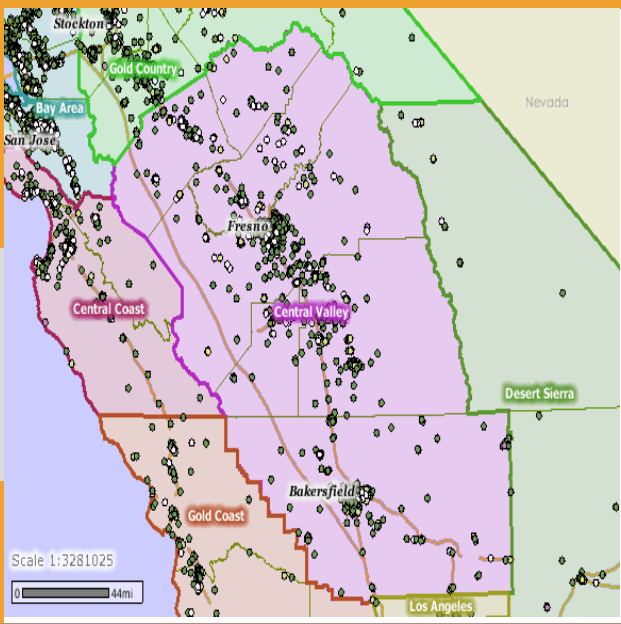
Measure 5a: School Location

Measures: CCROPP site (Yes/No)

Rural (Yes/no)

- Public Schools
- Elementary
- High School
- Junior High
- K-12
- Middle
- Other
- Counties
- Major Highways
- Major Cities
- State Boundary
- Neighbor States

Source: California nutrition network



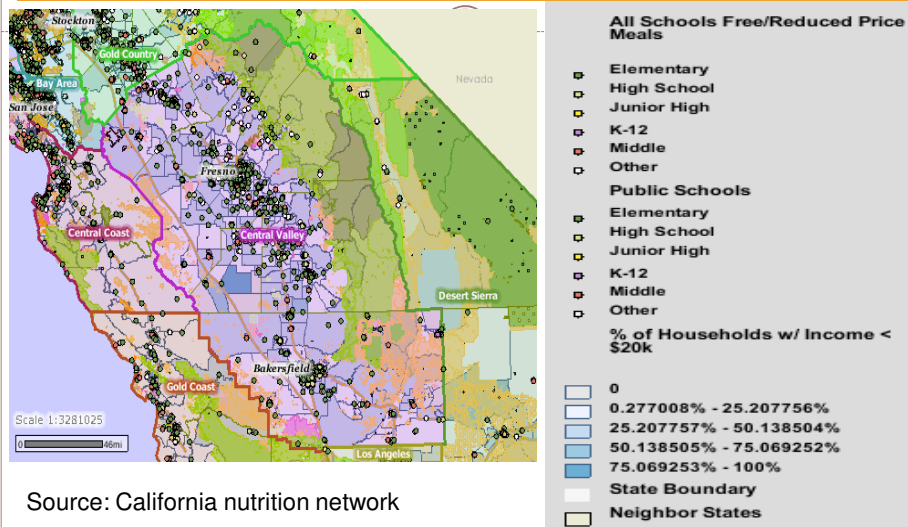
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Measures-5: Socio-economic

- Children receiving free/reduced price (F/RP) meals : > 60% versus (yes/NO)
- Median Household income by school zip
- Dollars in thousand –three categories were made:
 - <\$40,0000
 - \$40,000-49,999
 - >=\$50,000

Measures-5: Socio-economic Status of children in San Joaquin Valley Public schools

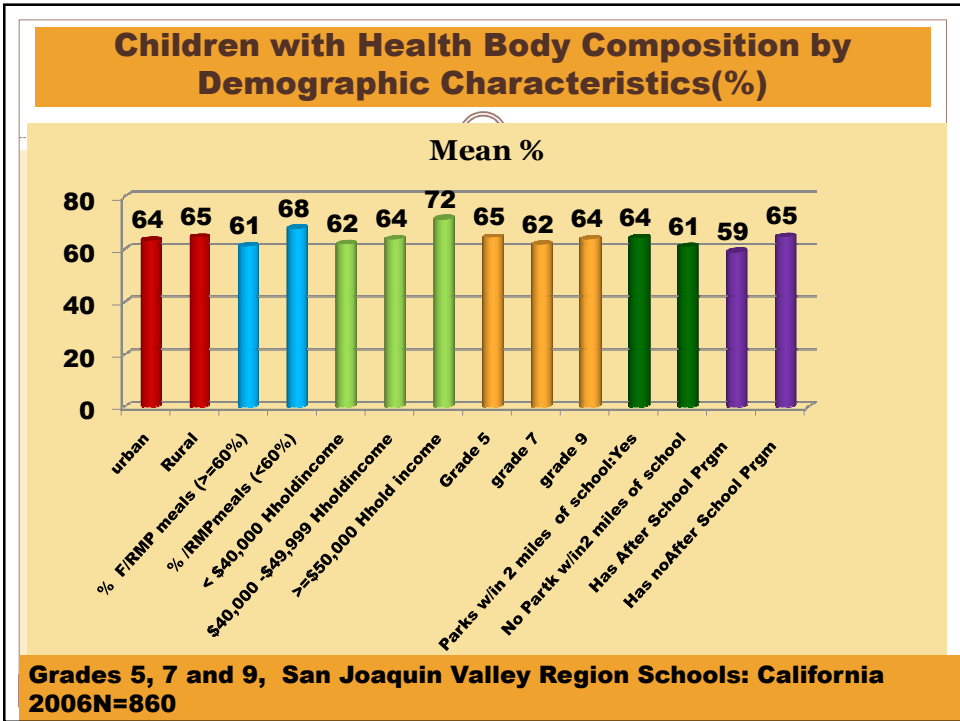


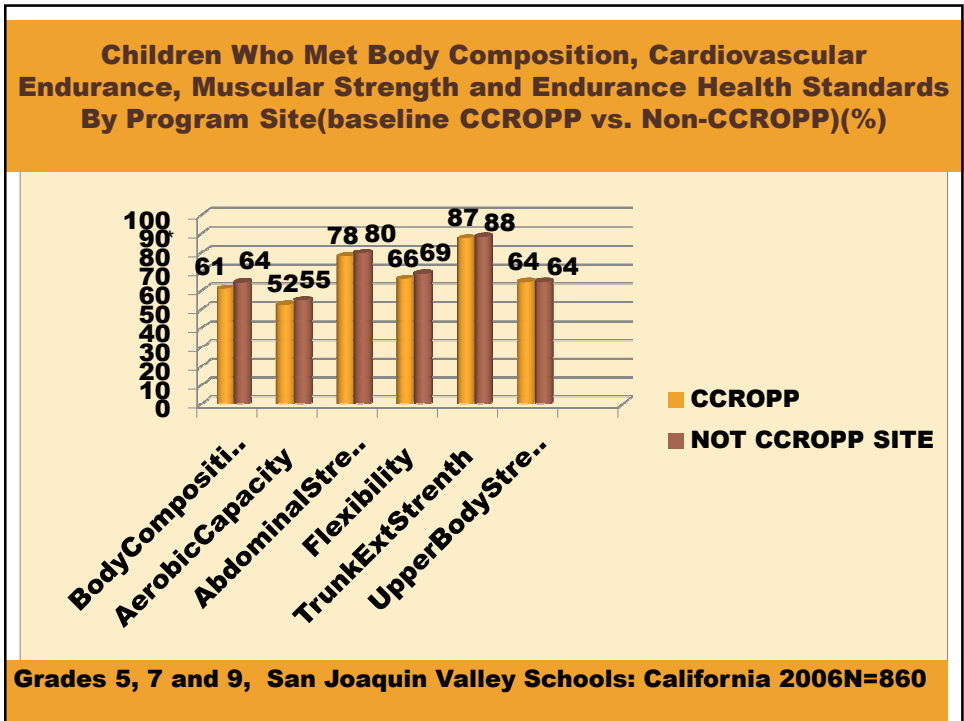
Source: California nutrition network

**Schools offering Free or reduced price meals
Neighborhoods with household income <\$20,000**

Findings

DESCRITPIVES





Findings

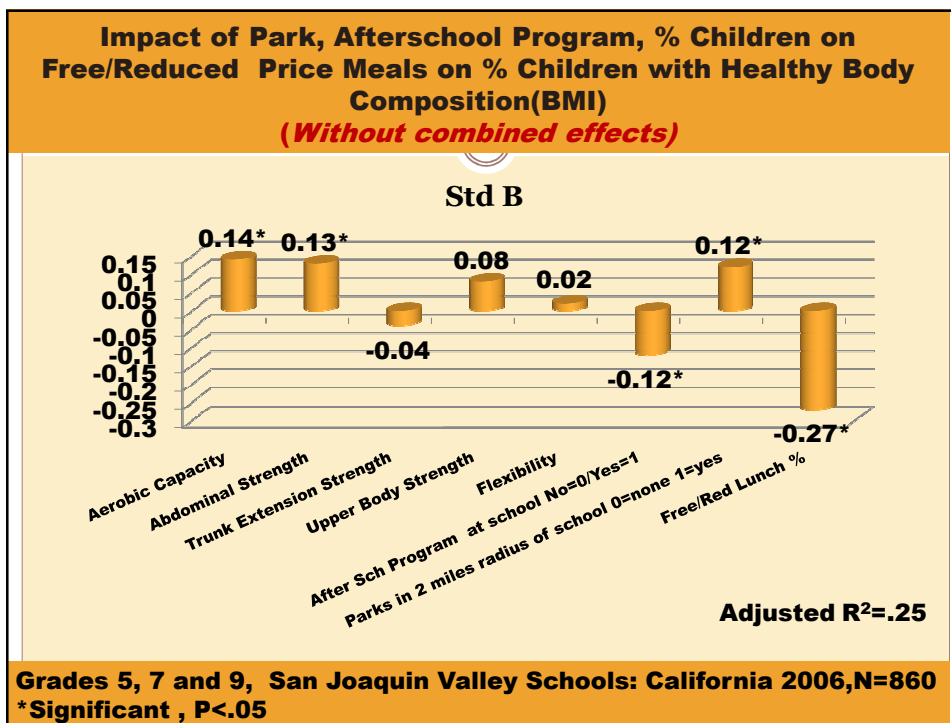
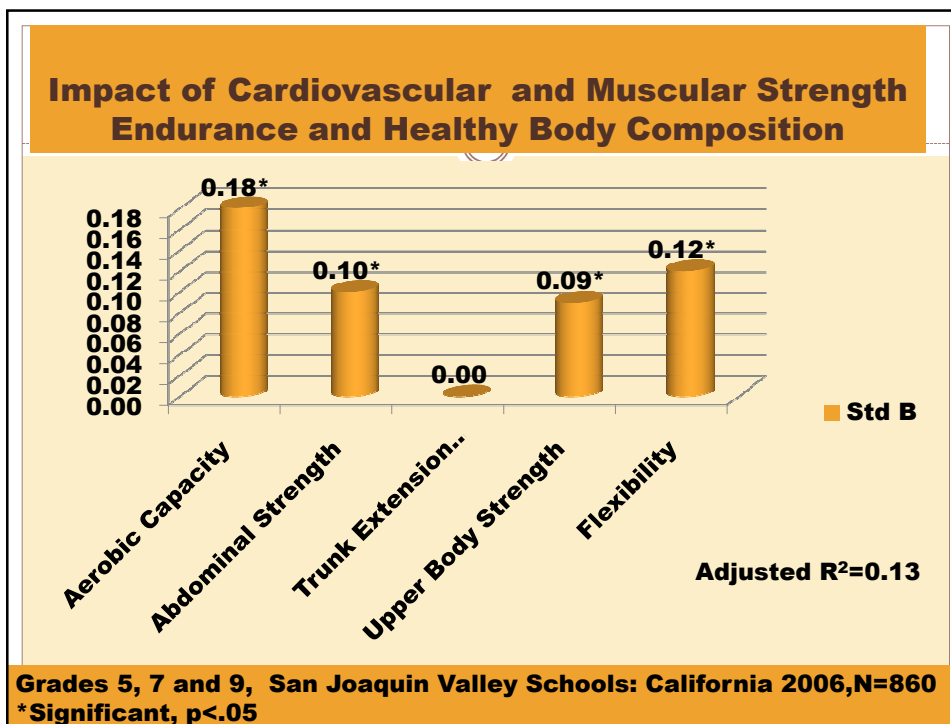
Multivariate analyses

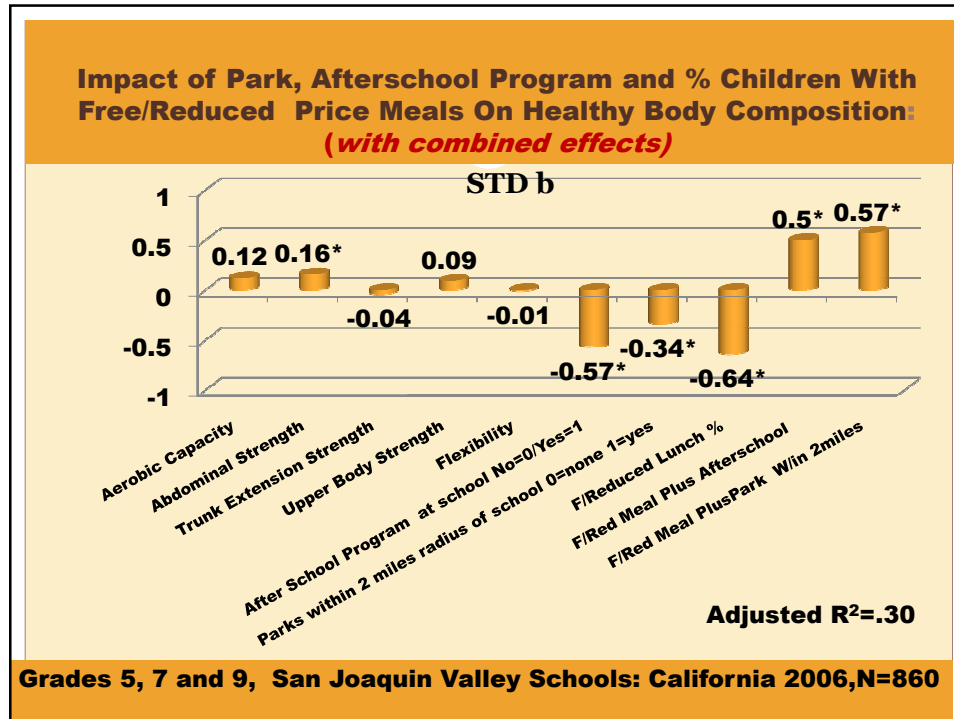
Overview of Multivariate Analyses Findings-1

- **Positive associations with healthy body composition**
 - Aerobic capacity,
 - Abdominal strength,
 - Upper body strength,
 - Flexibility
 - Park in 2 miles
- **Negative associations with healthy body composition**
 - After school program in general
 - Percent children on free or reduced price meals

Overview of Multivariate Analyses-2

- **Park within 2 miles but not afterschool program partly explained impact of upper body strength and flexibility on body composition**
- **Aerobic capacity and abdominal strength were not explained by parks within two miles of school**
- **Trunk Extension Strength was not associated with meeting Healthy body composition**
- **There was significant interaction of free reduced meals with park and with having afterschool program**





Summary of Findings

- Meeting standards for: **aerobic capacity, abdominal strength, upper body strength and flexibility** was **positively associated** with meeting the body composition fitness standard.
 - In having a **park within 2 miles** was **positively associated** with meeting body composition standard for all children.
 - Having **high rate of children on F/RP meals** was **negatively associated** with having health body composition
 - However, a **positive interaction between being on F/RP meals and having ASP or having park within 2 miles** was observed:
 - × Schools with **>=60 % children on F/RP meals** who also had an **ASP or a park within 2 miles radius** were able to meet healthy body composition than those who did not have these facilities

Conclusion

- **Having ASP at or a park within two miles of school seems particularly beneficial for children in low income households.**
- **The negative association of park or ASP with body composition exhibited in the main effects requires further evaluation of how programming components of after schools or parks influence children's fitness.**

Acknowledgements

- **This study was a collaborative effort between the central valley health Policy institute, the central California obesity prevention program and the social science class of 2008**
- **Central valley health policy institute directed the study, collected fitness gram data and neighborhood census based data and analyzed the data presented in this presentation**
- **The regional central California obesity prevention program made the funding of this study possible**
- **The social science class added park and after school programs data and did preliminary analyses on a subset of the data**
- **Special thanks to the California endowment for funding the study**

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and www.cvhpi.org

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<http://www.cooperinstitute.org/ourkidshealth/fitnessgram/documents/FITNESSGRAMRecommendedTestsHandout.pdf>

California nutrition network