



# Web- and Phone-based Weight Loss for Teens & Supporting Parents

NCI-funded Phase I + II SBIR Research

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## MySteps - Approach and Research Design

- Based on Social Cognitive theory and Physical Activity and Dietary Skill development (modified Epstein, et al. “Stoplight Approach”)
- Translational research to develop scalable, cost effective intervention that could be widely disseminated.
- Evaluated intervention effects on 63 teens, compared to matched historical control group from an earlier study (n=61)

## Primary Aim

- To evaluate the effect, at 12 months, of the MySteps program on Body Mass Index (BMI) z-score among overweight male and female adolescents, compared to a historical control group (“SunSmart” condition from earlier PACE clinical trial with 878 adolescents).



# Demographics

- White: 51%; Black/African American 13%; Asian 3%; Hispanic/Latino 23%; Native American/Alaskan Native/Native peoples 3%; Other 7%
- 75% female; 25% males
- Mean age between 13-14 years



## Eligibility Criteria

- Adolescents ages 12-16 who were at-risk for overweight or overweight/obese (BMI  $\geq$  85th percentile for age and gender) but not more than 285 pounds
- Read/speak English (parent could be Spanish speaking)
- Internet access at home or school

## MySteps – Behavioral Targets

- Increasing fruit, vegetable and fiber intake
- Decreasing dietary fat intake
- Increasing total physical activity
- Limiting optional/recreational sedentary time (e.g. TV watching, video games and phone use)



## Measurement

- Primary measurement points are baseline and 12 months
- Subset of measures also administered at months 4 & 8 for MySteps group
- BMI z-score – primary outcome

# MySteps – Program Features

## Interactive website for Teens

- 12 Month Program
- Weekly Topics, Skills, Challenges for Teens
- Weekly Progress Reporting and Goal-Setting
- Graphic Feedback and Commentary (weight, steps...)
- Reward Points Accumulation for use with Optional Rewards Contract with Parents
- Robust Library of Resources and Personal Archived Material



## MySteps – Program Features (con't)

- Steps Tracking w/ included Omron Pedometer
  - Developed Automated Uploading Software that is now co-owned with Omron
- Weight & Diet Tracking Tools
- Personal Health Counseling
  - Weekly emails
  - Monthly phone calls
  - Ongoing access for teens and parents initiating contact

## MySteps – Program Features (con't)

### Integrated Website for Parents

- 12 Month Program
- Info on *Child's* weekly Topics, Skills & Challenge
- Parental content: Topics, Skills, Challenges to assist their child
- Weekly Progress Reporting and Goal-Setting
- Child's Progress and Reward Points Accumulation



Moving  
at a  
NEW  
PACE



Change Background [Back] Music Tracks: 1 2 3 4 5 6 : [off] [Return to Weekly Activities] [Print] [Log Out]

Level:1 Week:1 My Points:100

- X connect
- X faqs
- X MY stuff
- X REWARDS
- X stop Light plan
- X LIBRARY
- X home



"A habit is something you can do without thinking"

## WEEK 1 TOPIC

**Ever hear the phrase "You are what you eat"?** Losing weight and getting healthy always starts with a healthy diet! That does not mean you have to give up foods you love or only eat certain things. The best way to eat well and get all the nutrients (vitamins and minerals) that you need to grow and function properly is to have a variety of foods from all the food groups and to make sure you eat the right amount for your body.



Changing how you eat can be hard. But we have an easy way to start: the Stop Light way of eating.

Every food is put into one of the groups below:

### RED Light foods: Stop & Think

These foods are high in calories and fat and low in vitamins, minerals, and fiber

- French fries

Big Mac at McDonald's®



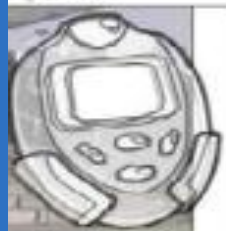
Moving  
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PLACE

# MY STEPS

Change Background [Back]
Music Tracks: 1 2 3 4 5 6 : [off]
[Return to Weekly Activities]
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**Level: 1    Week: 17    My Points: 3485**

- X connect
- X faqs
- X MY stuff
- X REWARDS
- X stop light plan
- X LIBRARY
- X home



Washington state produces more apples than any other state in the country.

## WEEK 2 SKILL

### Why do I have to write things down?

It may feel weird to write down what you do during the day... but it is really important!

Can you remember:

- What you ate 3 days ago? Breakfast? Lunch? Dinner? Snacks?
- How much exercise did you do 6 days ago?

Chances are you can't remember exactly.

Nobody could! It's impossible to keep that much information in your head! Writing things down can help you remember. Just like you might write down due dates for homework assignments in school. Writing things down for MySteps will help you remember.



Writing this...



Moving  
at a  
NEW  
PLACE



# MY STEPS

Change Background [Back]
Music Tracks: 1 2 3 4 5 6 : [off]
[Return to Weekly Activities]
[Print]
[Log Out]

Level:1 Week:16 My Points:150

- X connect
- X fags
- X MY stuff
- X REWARDS
- X stop Light plan
- X LIBRARY
- X home

## WEEK 16 challenge

Your Challenge This Week Is To... Do **GREEN** and **YELLOW** Light Activity Before any **RED** Light Activity

1. WEAR pedometer every day this week
2. DO 30 minutes or more of **GREEN** or **YELLOW** Light Activities of your choice before doing any **RED** Light Activities. Do this on at least 3 days. *(Select the days you plan on doing this)*

**Days**

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday



When you reach the end of your rope, tie a knot in it.



## Matched Control Group

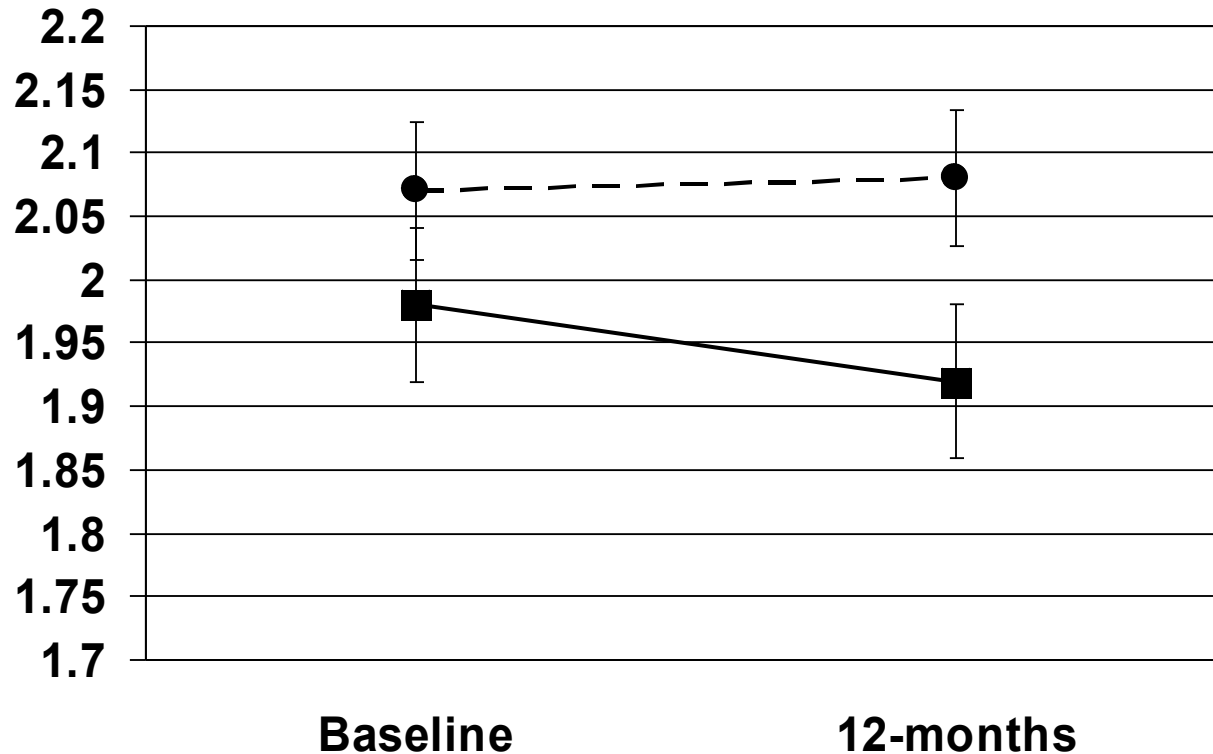
- Selected from pool of 405 control group participants from earlier study
- Logistic regression model used to create propensity score based upon gender, age in months, BMI and ethnicity (white/black/Hispanic)
- Results: Exact matches for 47 cases, 14 close matches and two without a match; thus control sample = 61

## MySteps – Analysis & Primary Results

- Assessed using ANCOVA model controlling for baseline BMI z-score, age (years) and gender
- Statistically significant different group difference in BMI z-scores at 12-months  
( $F(1, 119) = 7.57, p = .007, \text{partial } \eta^2 = .06$ ). Estimated adjusted least squares means for BMI z-score were 1.96 (SE .02) for MySteps™ and 2.04 (SE .02) for controls.



# Mean BMI z-scores and standard error bars



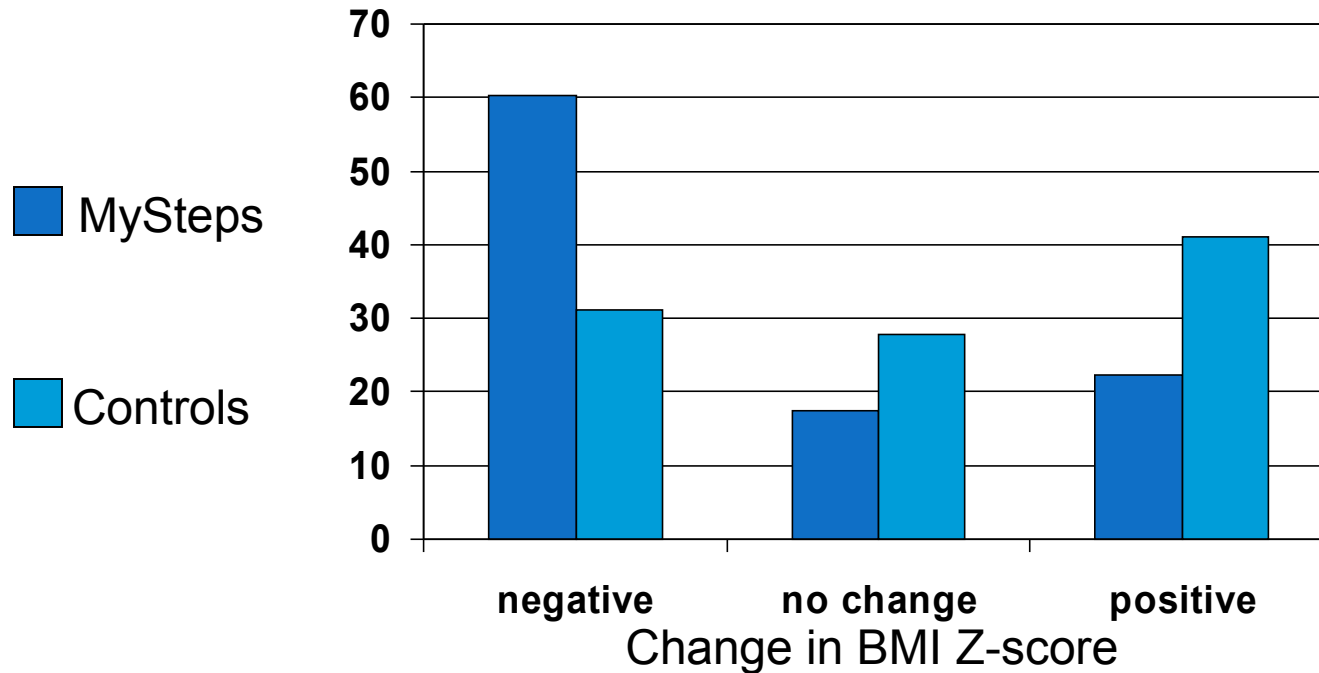
(Missing values at 12-months LOCF)

## MySteps – Primary Results (con't)

- Significantly more MySteps participants decreased BMI scores, compared to controls.
- However, no differences in proportion with a BMI  $\geq$  95<sup>th</sup> percentile for age/gender (74.6% for MySteps & 78.7% for controls)



# Change in BMI Z-score from baseline to 12-months



N = 124, 12-month values LOCF

Chi-Square (df = 2) = 10.69, p = .005

## MySteps – Primary Results (con't)

- **“Dose” Analyses:** Linear decrease in BMI z-score across dose quartiles from 2.02 (SE= .043) for quartile 1 to 1.84 (SE = .039) for quartile 4 ( $F(3, 56) = 3.39$ ,  $p = .024$ , partial  $\eta^2 = .15$ ).
- **Implication:** Those who set more weekly goals had greater decreases in BMI.



## MySteps – Primary Results (con't)

Overall, MySteps™ participants were more successful in stabilizing or reducing their BMIs than control participants, despite the increases in height and weight that are expected over the course of a year for growing adolescents.



# Q & A