Body Composition and Adherence to a Yearlong Exercise Intervention Among Previously Sedentary Men and Women

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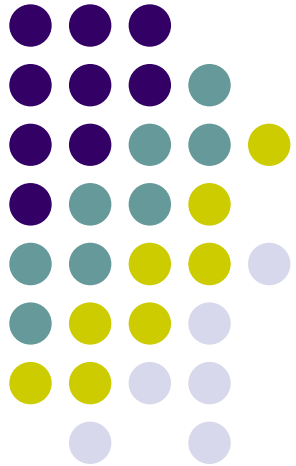
BCPT Annual Symposium

April 4, 2008

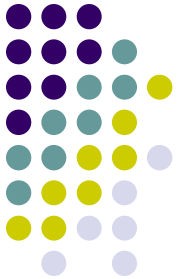
FHCRC



Acknowledgements

- Anne McTiernan
- Catherine Alfano
- Melinda Irwin
- APPEAL Study co-investigators
- APPEAL Study participants

Obesity, exercise and cancer



- For several major cancers, 25-30% of incidence attributable to obesity and physical inactivity*
  - Colon
  - Breast
  - Endometrial
  - Kidney
  - Esophageal
- Increased risk of recurrence
- Increased survival

* Vaino & Bianchini (2002)

We need good adherence…

- Efficacy

…And good measurement of adherence

- Interpretability
- Dose-response
- Prediction of behavior

Adherence to exercise trials

- Typical adherence rate: 63-83% of prescribed sessions*
- Little consistency in how adherence is defined/measured
  - Definition: Frequency? Duration? Intensity?
  - Measurement time points
  - Self-report vs. objective measures
- Adherence may vary according to:
  - Demographic (e.g. age, SES)
  - Psychosocial (e.g. depressive symptoms, exercise self-efficacy)
  - Physical (e.g. cardiovascular fitness)

* Martin, Bowen, Dunbar, & Perri (2000)

Objective

- Does body mass index (BMI) predict how well sedentary adults will adhere to a yearlong exercise intervention?
  - Men
  - Women

A Program Promoting Exercise & Active Lifestyles

Aims of APPEAL trial

Determine effect of 1 year exercise vs. control on:

- Proliferation rate
- Apoptosis-related proteins (bax/bcl-2 ratio)
- Rectal mucosa prostaglandin levels (PGE2 & PGF2α)
- Insulin, C-peptide, glucose, triglycerides, IGF-1, IGFBP-3
- Body weight, fat mass, fat distribution
- Fitness
- Patient-reported outcomes

A Program Promoting Exercise & Active Lifestyles

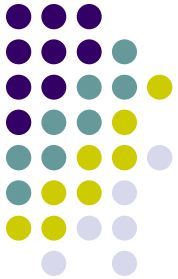
Study design

- Participants:
  - 202 healthy, sedentary men & women, 40-75
- Intervention
  - Goal: 6 days / 60 minutes per day
  - Moderate-to-vigorous: 60-85% max heart rate
  - 3 days at gym, 3 days at home
  - HR monitors, pedometers, logs, progress meetings

Participant characteristics

	Women	Men
N	49	51
Age	54.4 (7.1)	56.2 (6.7)
Non-Hispanic White	85.7%	94.1%
BMI	28.9 (5.5)	29.7 (3.7)
Steps/day	5,959 (2,567)	5,967 (2,778)
Exercise (min/week)	26.8 (47.7)	22.2 (58.3)

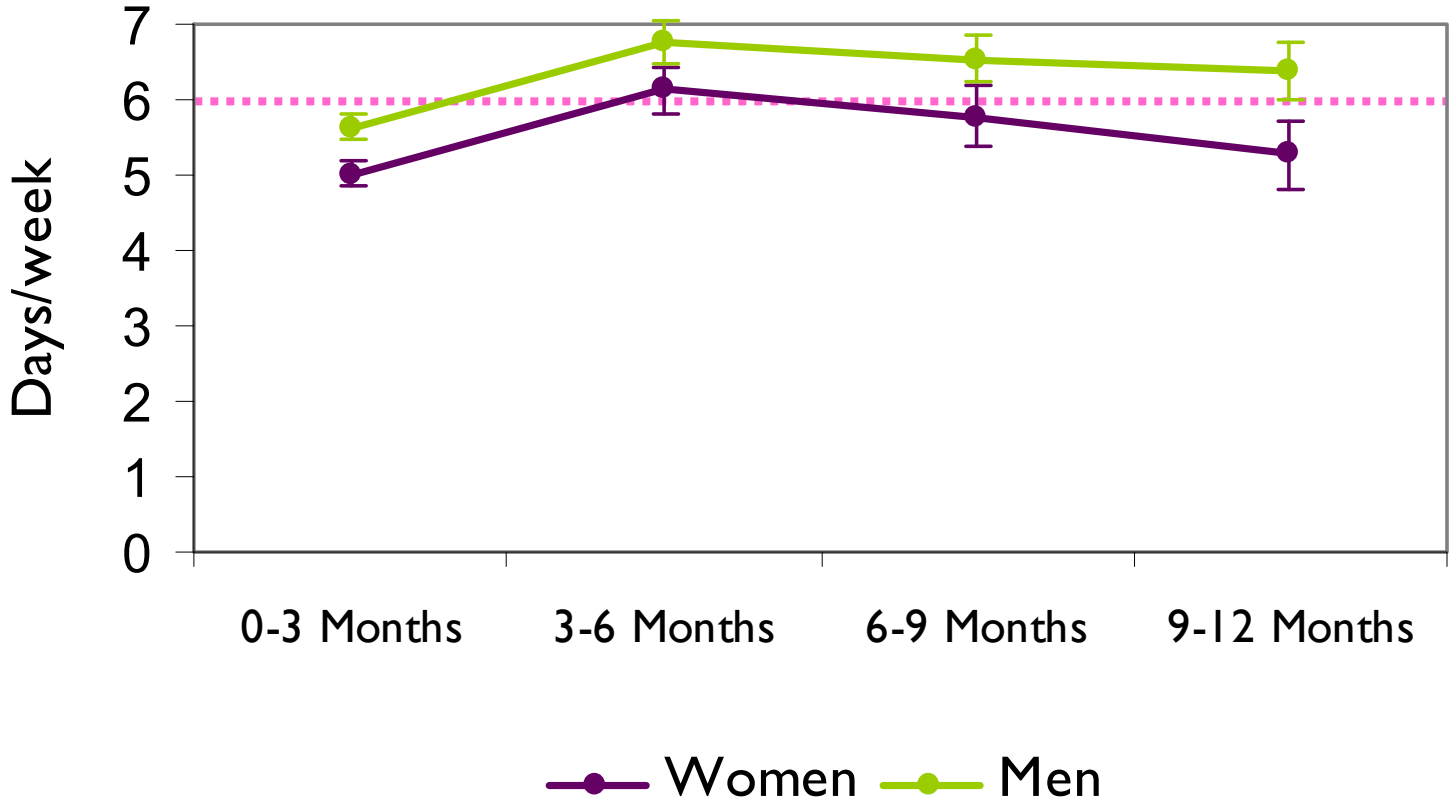
Definition of adherence



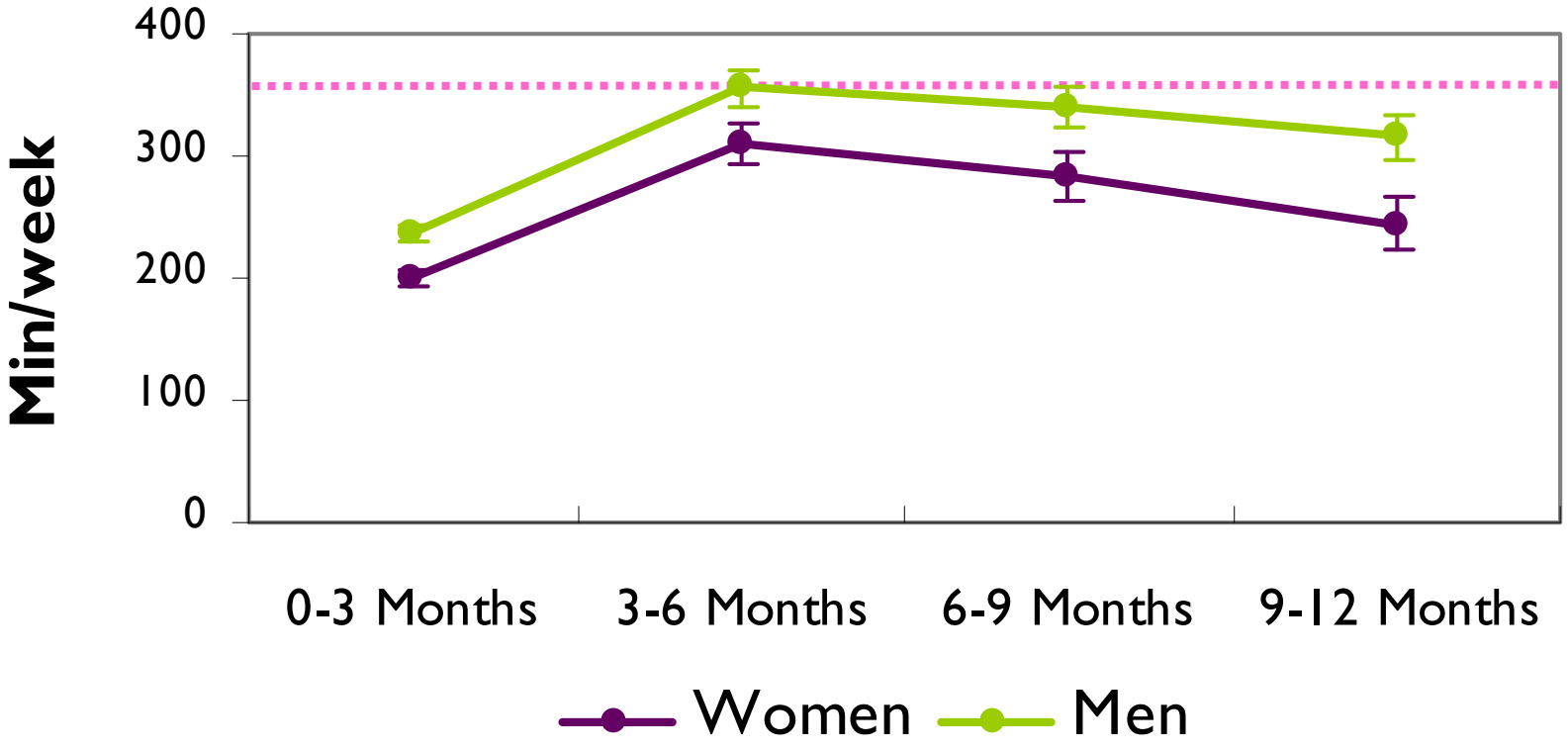
- Frequency: Mean days/wk of mod-vigorous PA
- Duration: Mean min/wk of mod-vigorous PA
- Dose: Mean MET-hours/week
- Fitness: Δ VO_2max from baseline to 12 months

Study exercise goal: 60 minutes, 6 days a week (360 min/week)

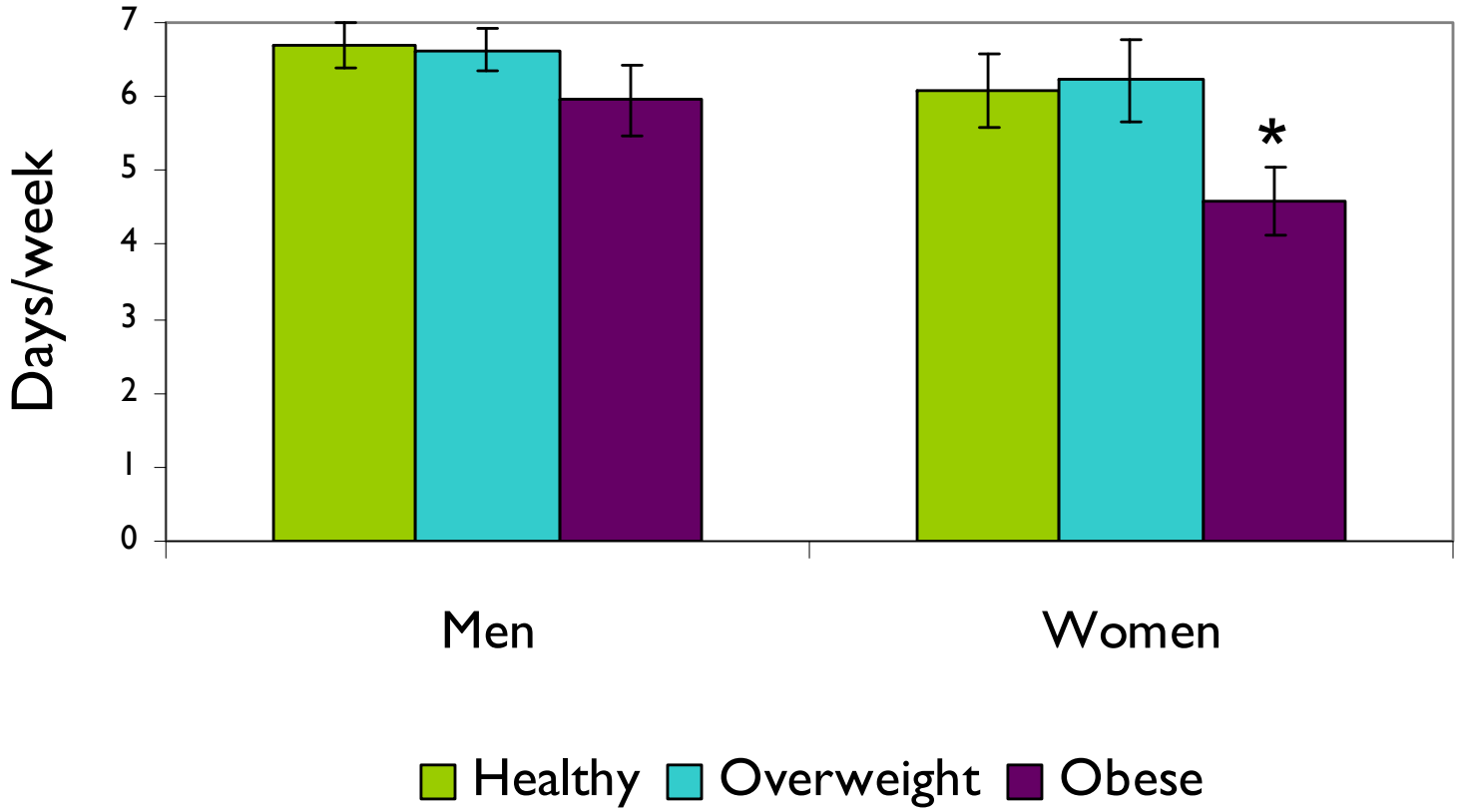
Adherence over time: Days/wk



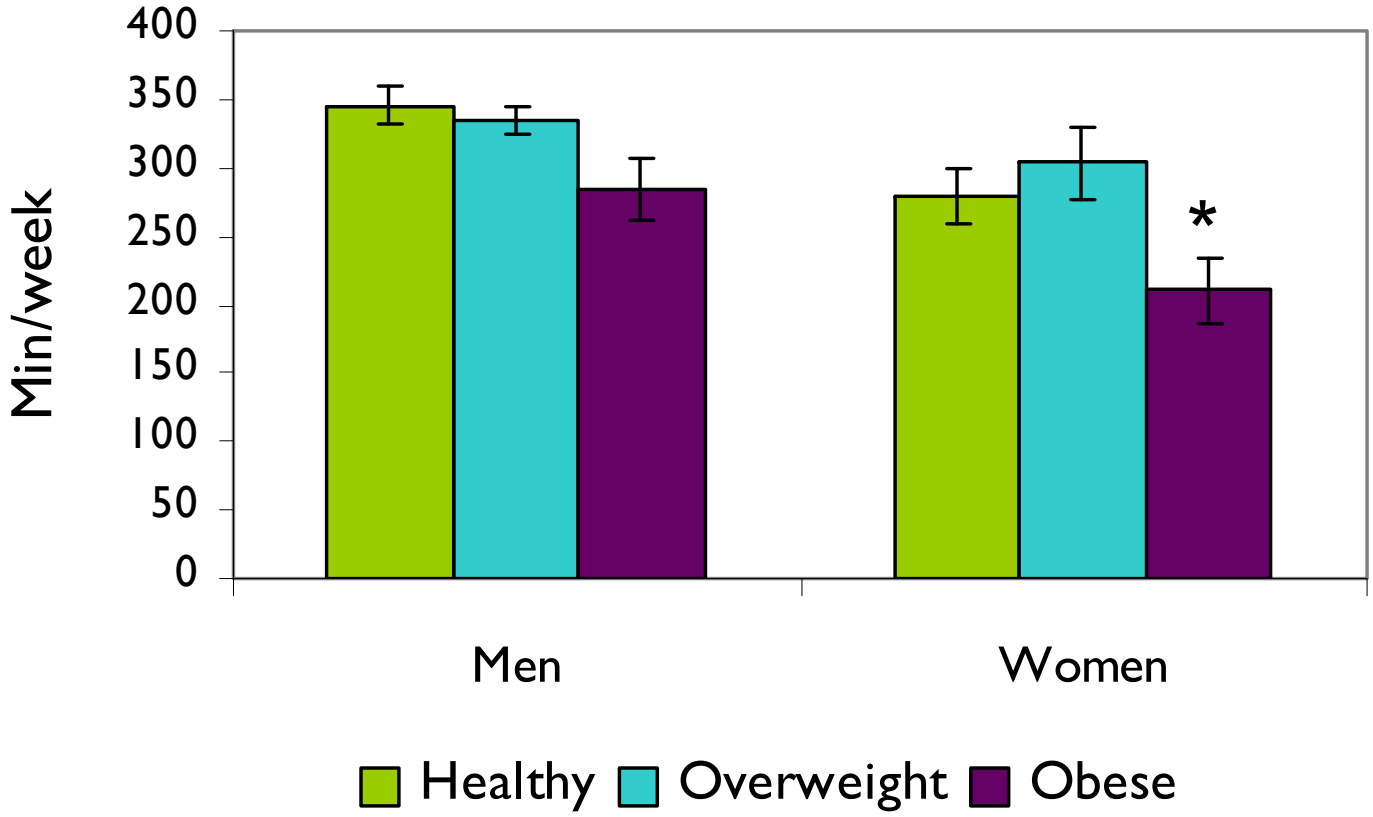
Adherence over time: Min/wk



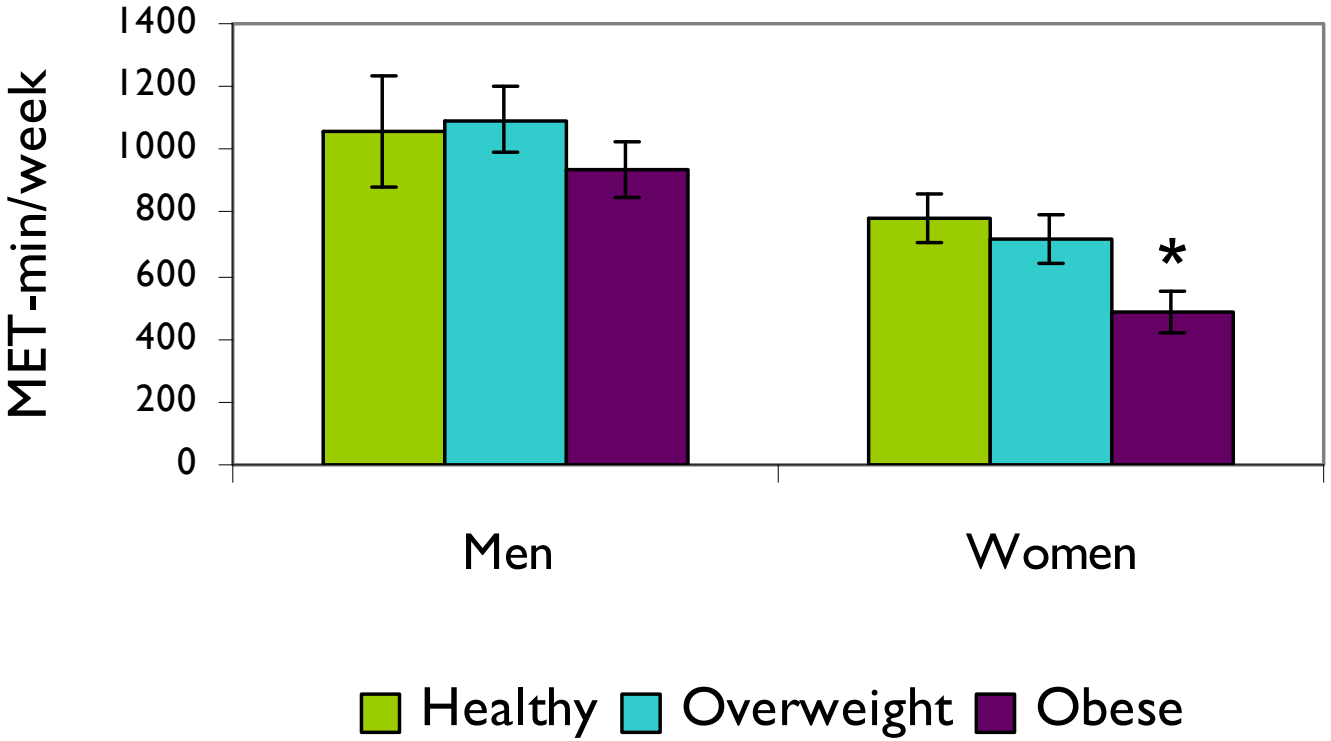
Adherence by BMI: Days/week



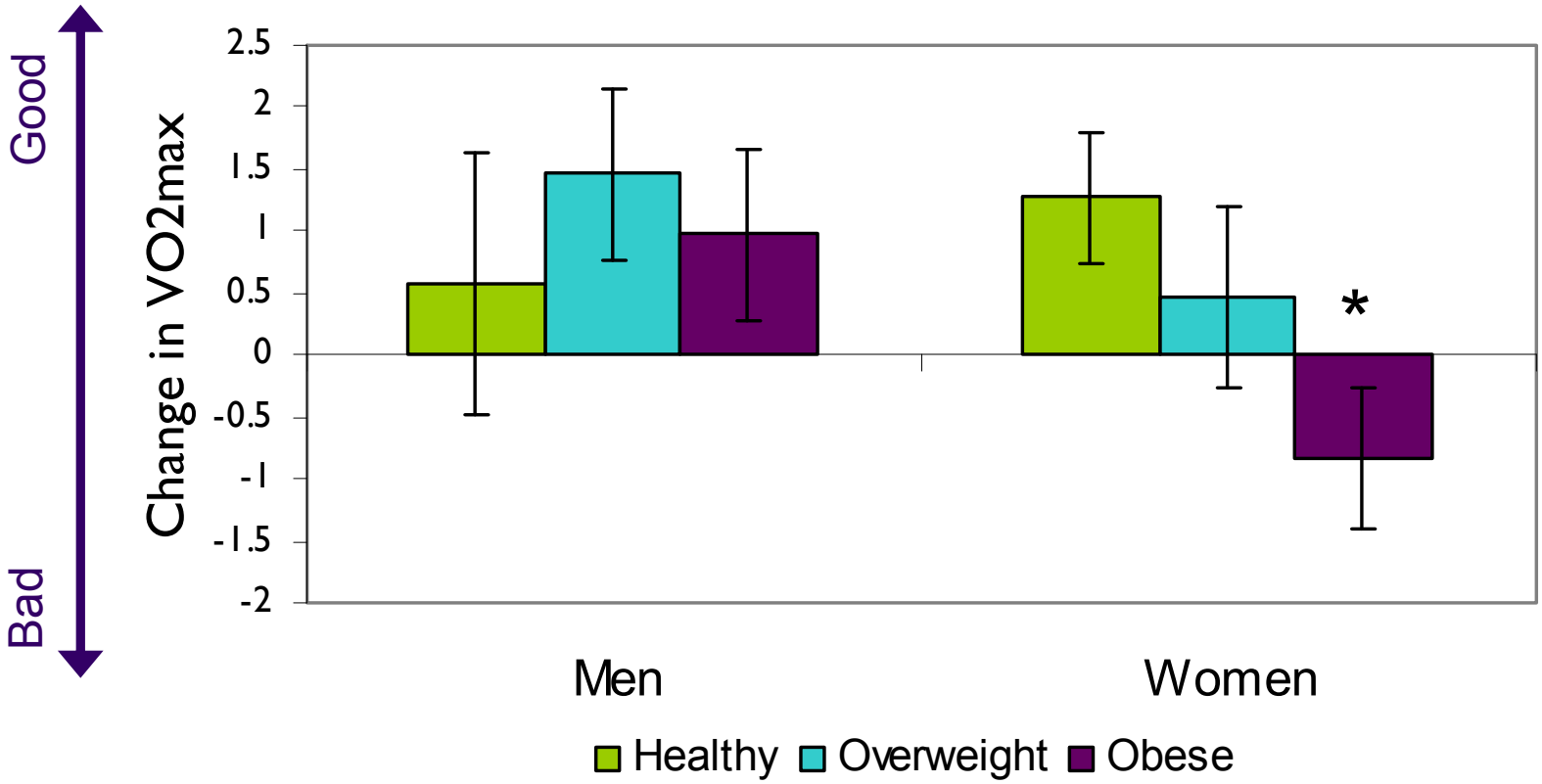
Adherence by BMI: Min/week



Adherence by BMI: Dose

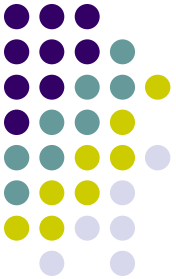


Adherence by BMI: ΔVO_2max*



* 12-month VO_2max – baseline VO_2max

Strengths and Limitations



- Strengths
  - Randomized controlled trial
  - High adherence goal
  - Good physical activity assessment
  - Objective height & weight measurement
- Limitation: limited generalizability
  - Homogenous sample
  - Healthy participant effect
  - Efficacy trial

Summary

- 12-month intervention among 100 sedentary adults
- Obesity associated with poorer adherence in women
- BMI not strong predictor of adherence in men

Implications

- Need for tailored interventions, better strategies for promoting adherence
- Barriers, benefits, etc.
- Mediators?

"I'm trying to squeeze 30 minutes of exercise into my daily schedule. Today I took 120 fifteen-second walks."