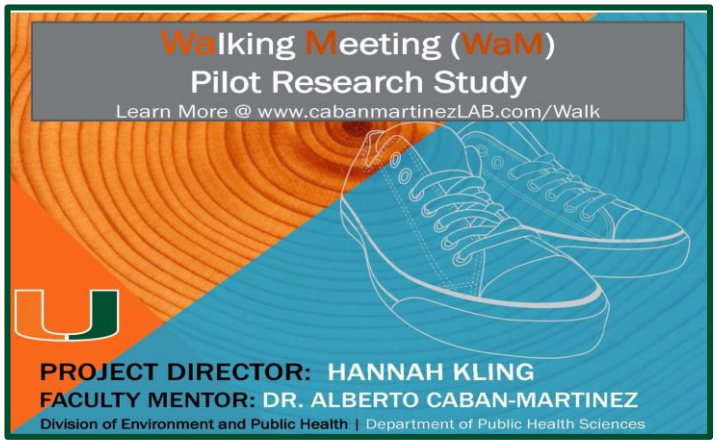
Musculoskeletal Pain Severity and Occupational Physical Activity:

Evidence from the Walking Meeting (WaM) Pilot Study



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Occupational Health Disparities

- **Work**, where individuals spend a large portion of their waking hours, is a major social determinant of health

- Employment of some demographic groups in high-risk jobs can lead to disparities in work-related:
  - Exposures
  - Illnesses
  - Injuries
  - Fatalities

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Obesity in the Workplace

- Highest Prevalence of Obesity:
  - Black, female workers relative to “other race”
  - White workers of both genders
  - Hispanic Male workers (biggest increase during study period)

- Hispanic immigrant workers:
  - Develop obesity during acculturation process of allostatic load
  - Tend to have poorer diets; less vegetable and fruit consumption and higher sweet drink consumption
  - Possible differences in physical activity levels

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Physical Activity in Construction workers – Epidemiologic Surveillance (PACES)

- Cross-sectional pilot study designed to characterize occupational physical activity in commercial construction workers (n=55)

- **Findings suggest:**
  - Workers engage in a high levels of physical activity at work and outside of work
  - Met the US DHHS guidelines for physical activity
  - Despite compliance with guidelines, ***85% of workers were overweight or obese***
  - Correlations between musculoskeletal pain and objectively-measured physical activity levels were not statistically significant

Arias OE, et al. J Occup Environ Med. 2015 Jan;57(1):73-8.

Health Disparities according to Occupational Group

- **Different occupational demands ≠ different health complaints**
  - Example: musculoskeletal pain
    - White collar: due to **under**use
    - Blue collar: **over**use
- Workplace physical activity promotion interventions highly warranted
  - Past programs largely unsuccessful
    - Few have assessed impact on musculoskeletal (MSK) pain severity

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Walking Meeting (WaM) Study: Background

- Shift from jobs with high levels of occupational physical activity (OPA) to prolonged sedentary behavior
  - Manufacturing/Agriculture → Service/Technology
- Decreased physical demands → Increased prevalence of musculoskeletal pain complaints
  - White-collar workers especially vulnerable

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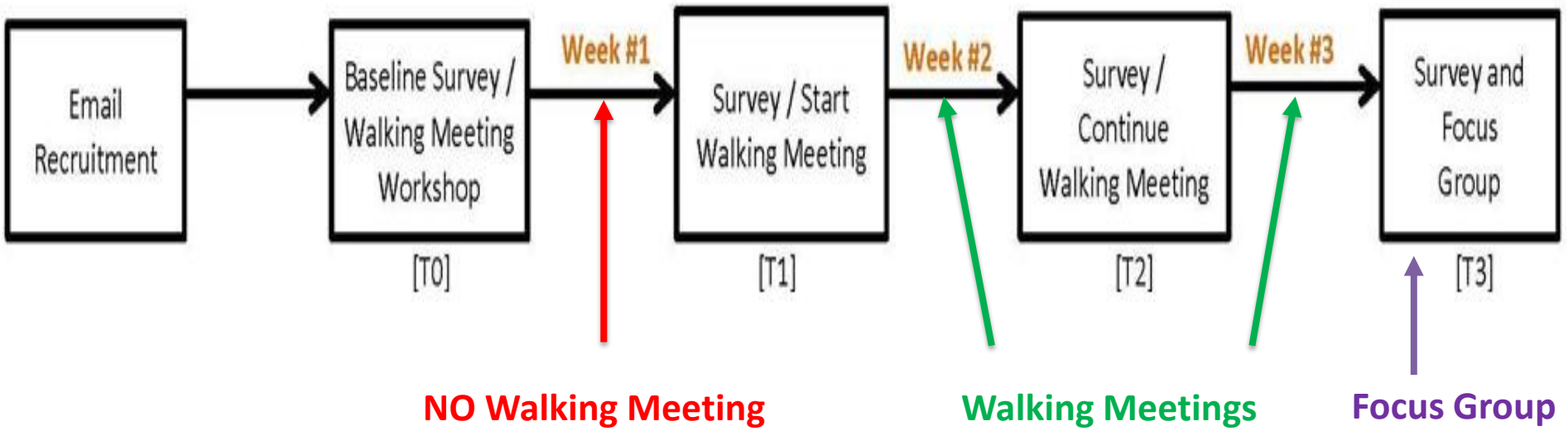
Walking Meeting (WaM) Study: Objective

Study Objective:

- Examine the association between **acute (past 7 day) musculoskeletal pain severity** and **occupational physical activity levels** among a convenience sample of white collar workers.
  - MAC Workshop = Focus on differences by ethnicity

Mixed Methods Explanatory Study Design



- *Participants*

  White collar office workers (n=18)

- *Study period*

  3 weeks comprising 4 survey administrations [T0-T3]

- *Intervention*

  30 minute walking meeting on weeks 2 and 3

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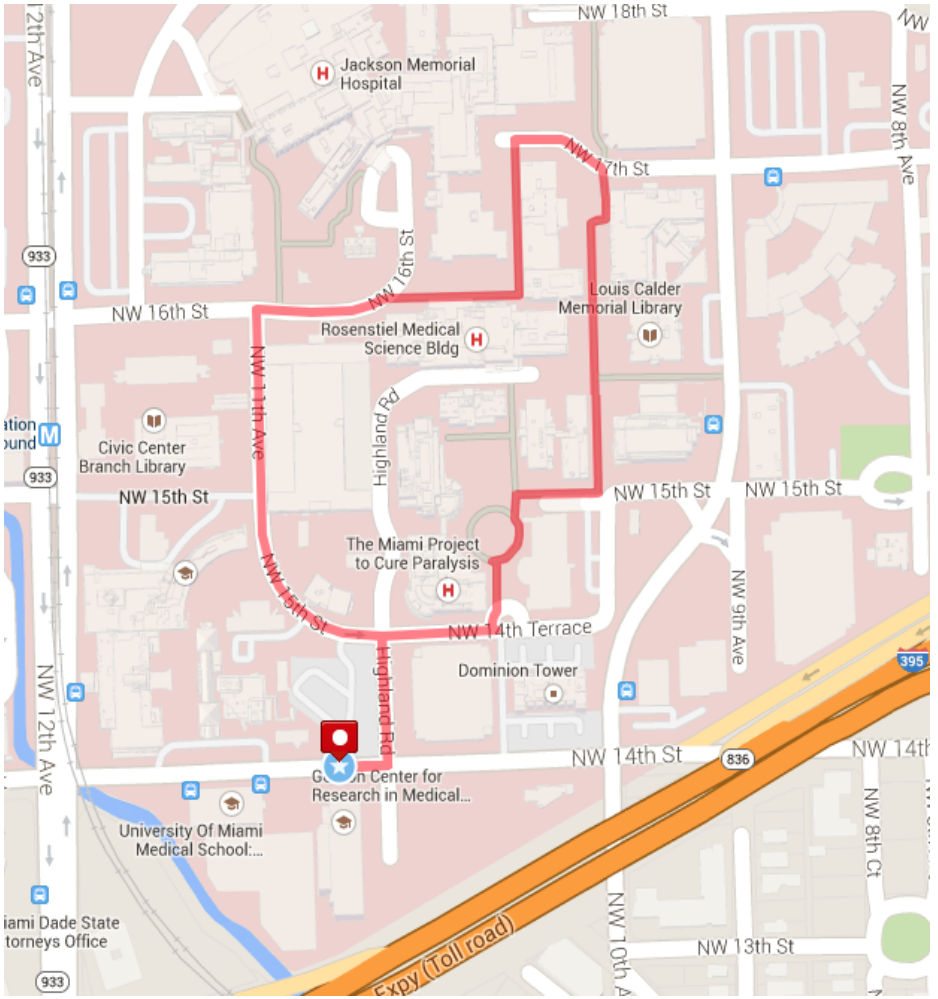
Core Components of the WaM Protocol

Set a time and place to meet before your walking meeting
Create an agenda for your meeting
To make the walk more comfortable, bring items such as comfortable shoes, water, sunglasses, and sunscreen
Have the group leader assign roles to each walking meeting group member. (i.e. time checker, note taker, path leader)
Follow the pre-circumscribed route
Walk for at least 30 minutes
After the walking meeting, sit and conclude to wrap up meeting. Take care of paperwork or other tasks that could not be accomplished on WaM

Pre-Circumscribed WaM Path



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Study Measures

- **WaM Survey Instrument**
  - Completed at 4 time points [T0-T3]
  - *Primary outcome:* acute (past 7 day) musculoskeletal pain severity
    - Assessed with Tan et al.'s Brief Pain Inventory
    - 4-item, 10-point Likert scale

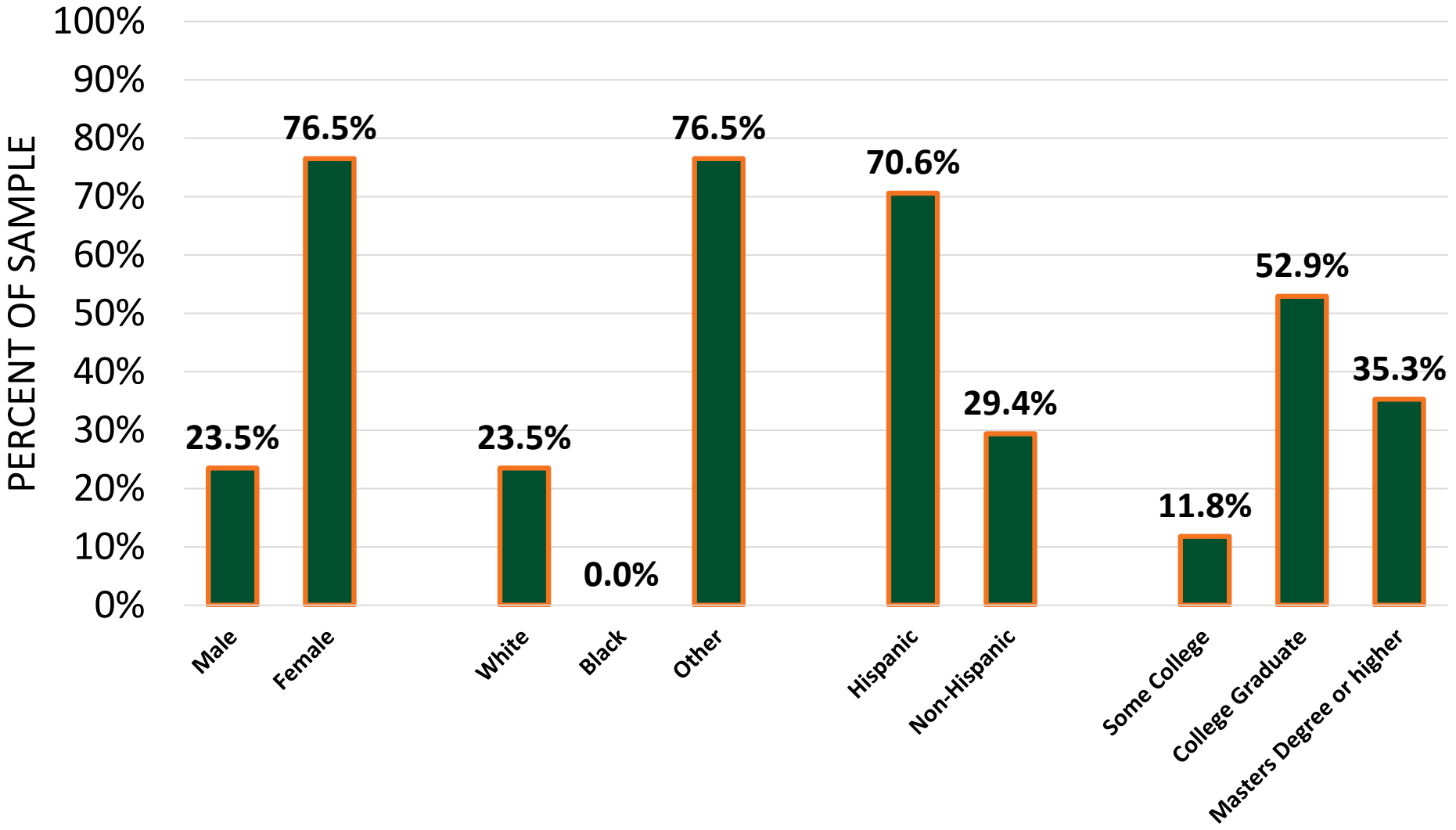
- **ActiGraph GT3XP Triaxial Accelerometer**
  - Belt-device worn from T0 to T3
  - Objectively measures physical activity levels
  - *Primary predictor variable:* occupational physical activity levels

Statistical Analyses

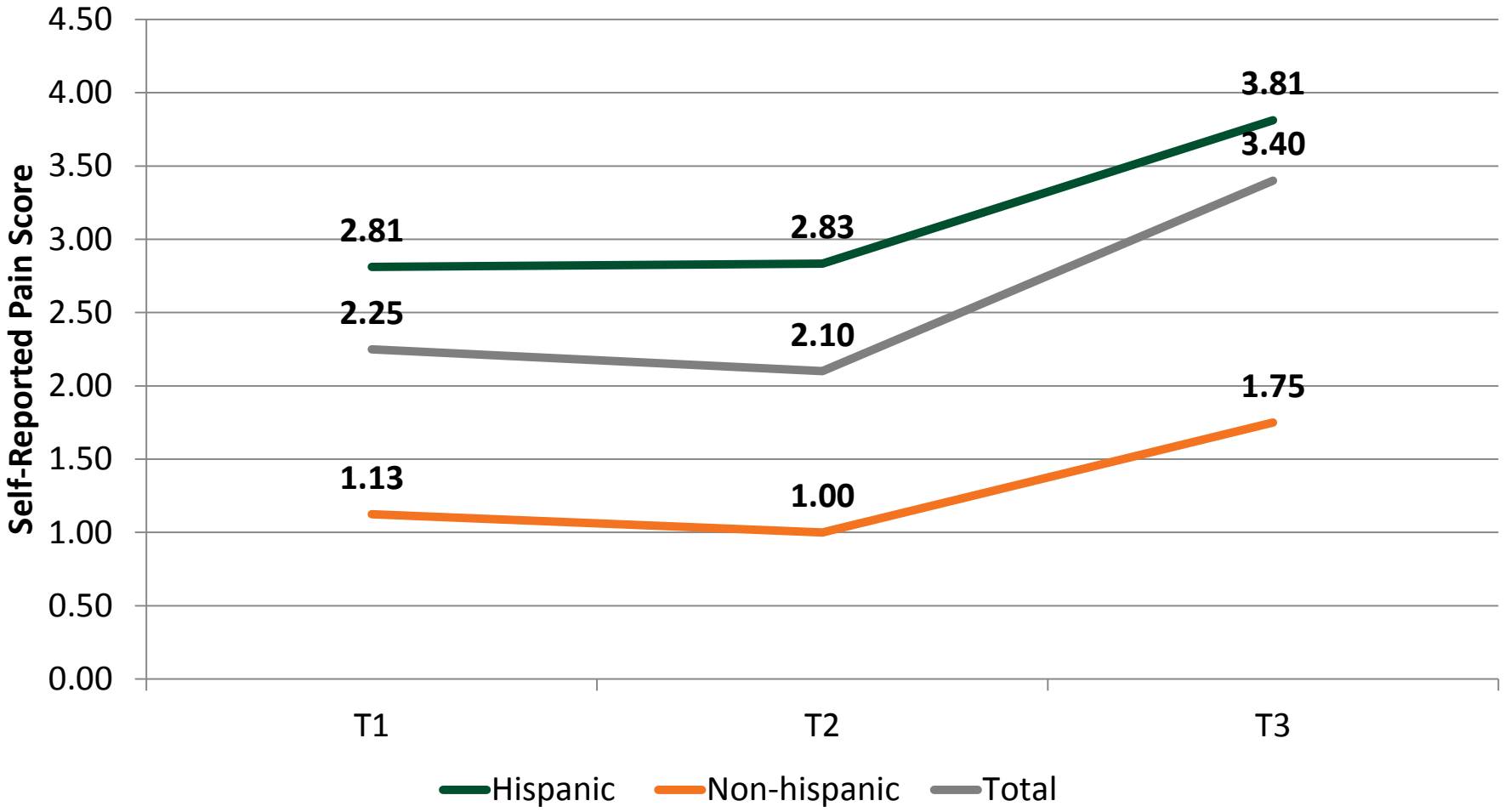
- **Descriptive statistics** to characterize the study sample

- Non-parametric **Spearman's correlations** to examine the association between self-reported acute (past 7 day) musculoskeletal pain severity and objectively-measured physical activity levels

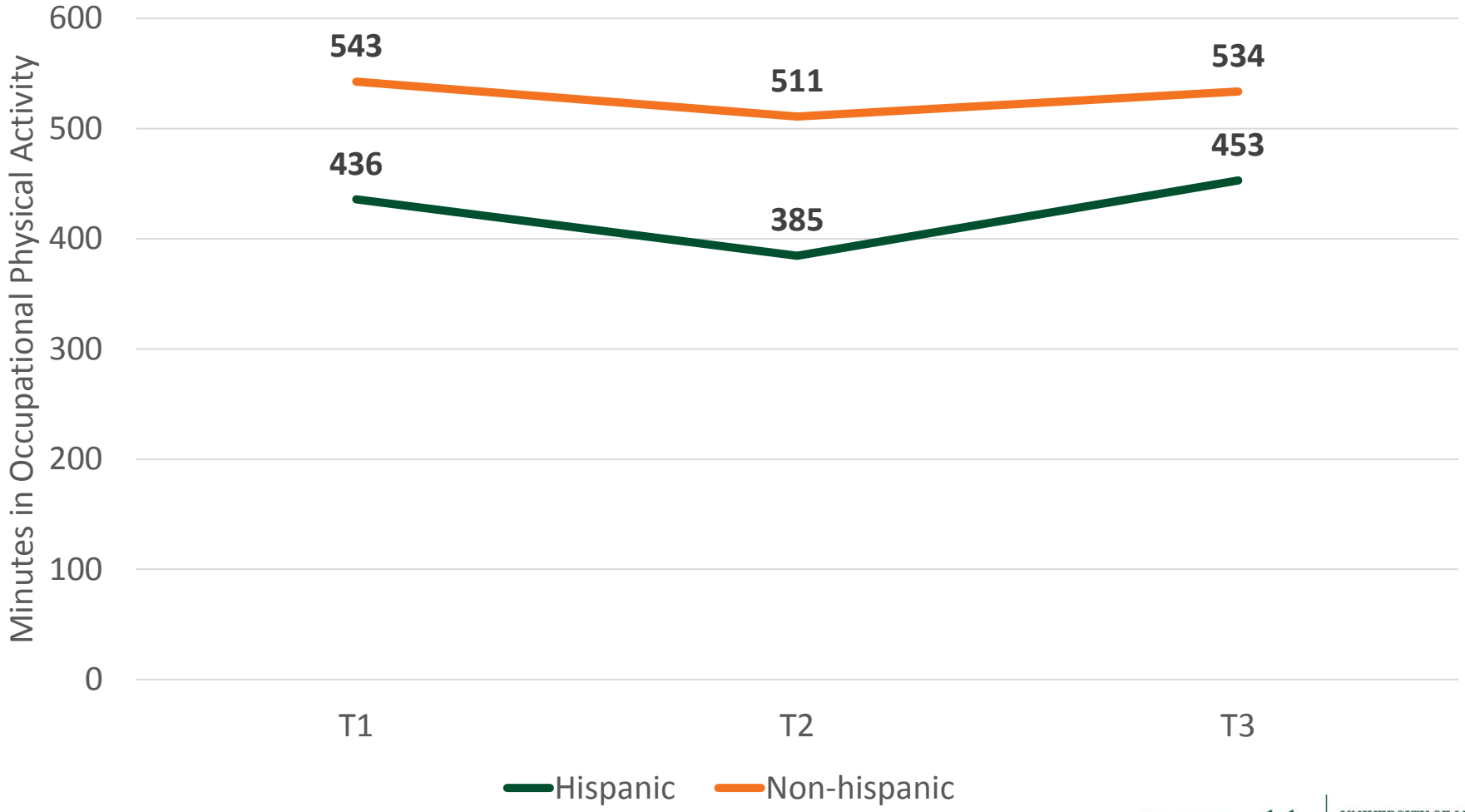
Sociodemographic characteristics of participants of the Walking Meeting (WaM) pilot study, 2015 (n=18)



Average Pain Scores by Ethnicity



Average Minutes in Occupational Physical Activity by Ethnicity



Occupational Physical Activity levels Significantly Predict Self-Reported Acute (past 7 day) Musculoskeletal Pain Severity among White Collar Workers (n=6)

	T1 MSK Pain Severity		T2 MSK Pain Severity		T3 MSK Pain Severity	
Characteristic	r	p	r	p	r	p
Occupational Physical Activity Levels	-0.1086	0.8377	-0.6586	0.2268	-0.5824	0.3028

Objectively-measured occupational physical activity levels are *inversely* but *not significantly* associated with acute (past 7 day) musculoskeletal pain severity.

Primary Finding(s)

- *Hispanics self-report slightly higher musculoskeletal pain severity scores than non-Hispanics across all study time-points.*
- *Minutes in occupational physical activity were less among Hispanics than non-Hispanics.*
- *Acute musculoskeletal pain severity is inversely yet non significantly associated with occupational physical activity levels at each of three time points.*

Study Limitations

- Small sample size (n=18)
- Intervention dosage (30 min/week) – One walking meeting
- Short study period (3 weeks)
- Workplace exposures were not collected

Future Studies

- Larger sample size with longer study period and increased intervention dosage
- Examine racial, gender, and ethnic disparities
- Collect data on:
  - Chronic musculoskeletal conditions
  - Lifestyle factors (smoking, alcohol use)
  - Baseline physical activity levels
  - Specific anatomic musculoskeletal pain locations

Thank you! / Questions?

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