

# Does High School Sport Provide Enough Physical Health Benefits? Sport Type and Level Matter

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5–17 year olds  
should get at least



**PHYSICAL  
ACTIVITY  
EVERYDAY!**



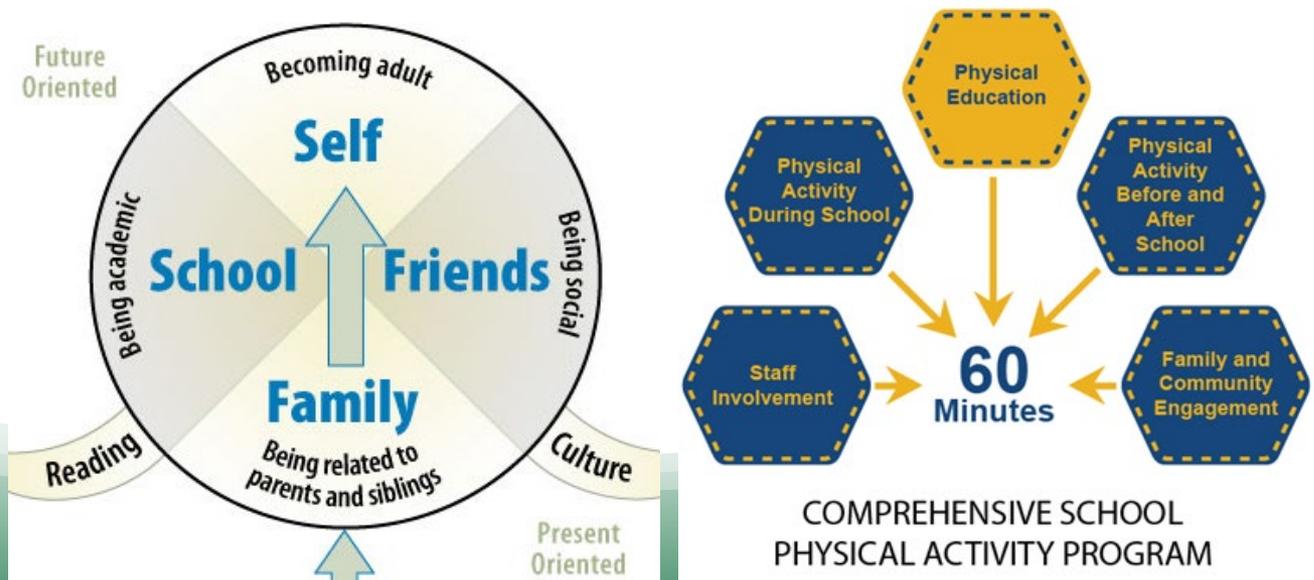
# Background

- Recent studies indicate that sport participation alone does not contribute to 60 minutes of recommended daily moderate-to-vigorous physical activity (MVPA) in youths (Fenton et al., 2016, 2017).
- Recreational league youth participants in the U.S. spend more than 50% of sport practice time on sedentary behavior (SB) and light physical activity (Schlechter et al., 2017).



# Framework

- Developmental stages of high school students
- Physical education (PE) is not universally required across U.S. high schools; organized school sports serve as a significant means for physically active lifestyles (Drake et al., 2015)



# Purpose

- To examine the main effects of sport type (individual and team) and level (varsity, junior varsity [JV], and freshman), as well as their interaction effects, on physical activity (PA) during sport practice and physical fitness in high school athletes.



# Methods

- 234 athletes ( $M_{\text{age}} = 15.25$  years; 56.5% boys) from two high schools in the southwestern U.S.
- Measures
  1. MVPA and SB:  
Percentage time (%) during three sport practices using Actical accelerometers
  2. Body composition (i.e., BMI):  
Objectively measured height and weight
  3. Aerobic capacity:  
Time (minutes) in completing a one-mile run test



# Results

## 2 × 3 MANOVAs on PA (MVPA% and SB%)

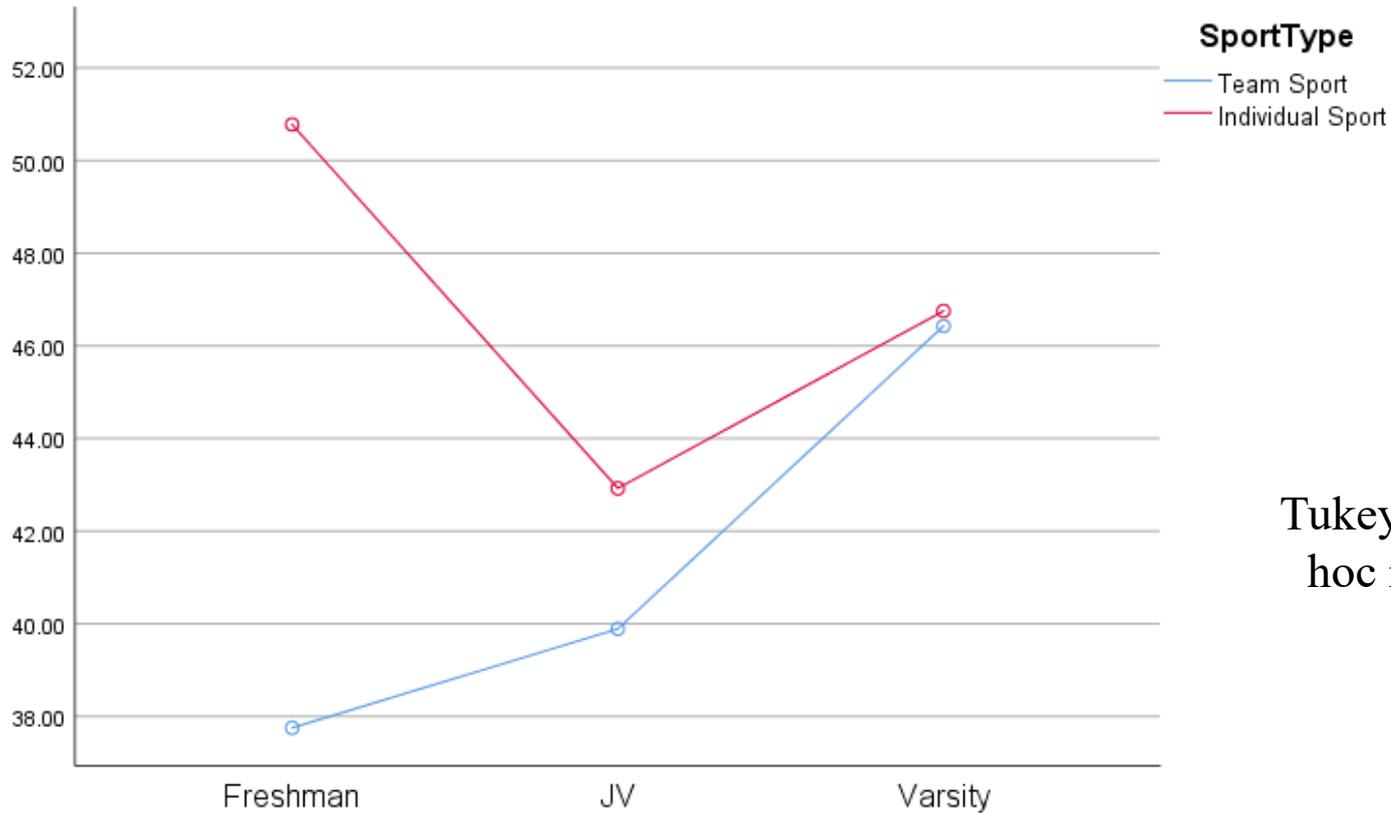
- Sport type: significant multivariate main effect ( $p = .002$ ; Pillai's trace = .073)
- Level: significant multivariate main effect ( $p = .002$ ; Pillai's trace = .081)
- Significant interaction effect ( $p = .048$ ; Pillai's trace = .041)

## 2 × 3 MANOVAs on fitness (BMI and mile time)

- Sport type: significant multivariate main effect ( $p = .002$ ; Pillai's trace = .081)
- Level: significant multivariate main effect ( $p < .001$ ; Pillai's trace = .103)
- Nonsignificant interaction effect ( $p = .106$ ; Pillai's trace = .037)



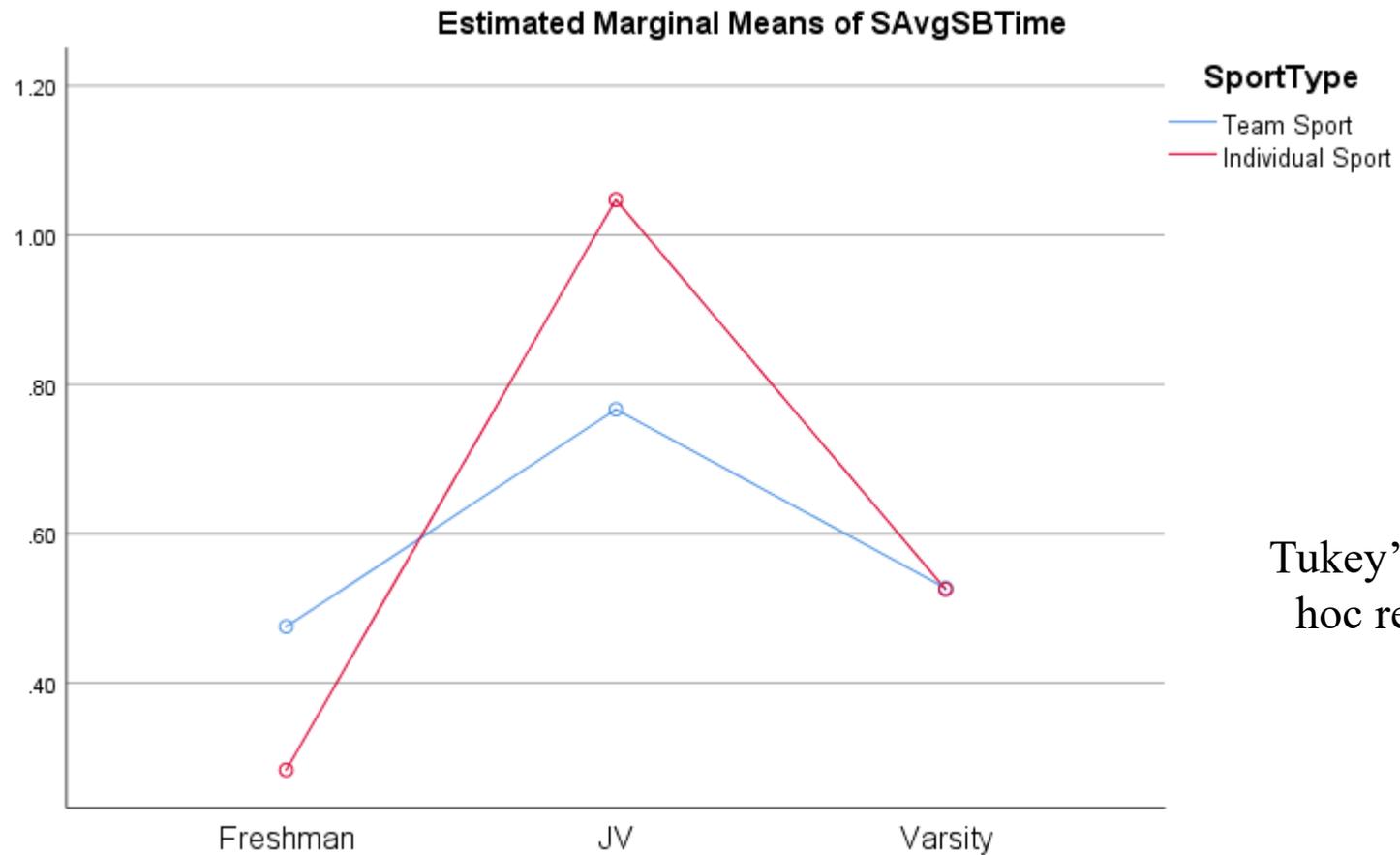
Estimated Marginal Means of SAvgMVPATime



Tukey's post-hoc results

- Freshman individual sport, varsity individual sport, and varsity team sport athletes had higher MVPA% than JV and freshman team sport athletes

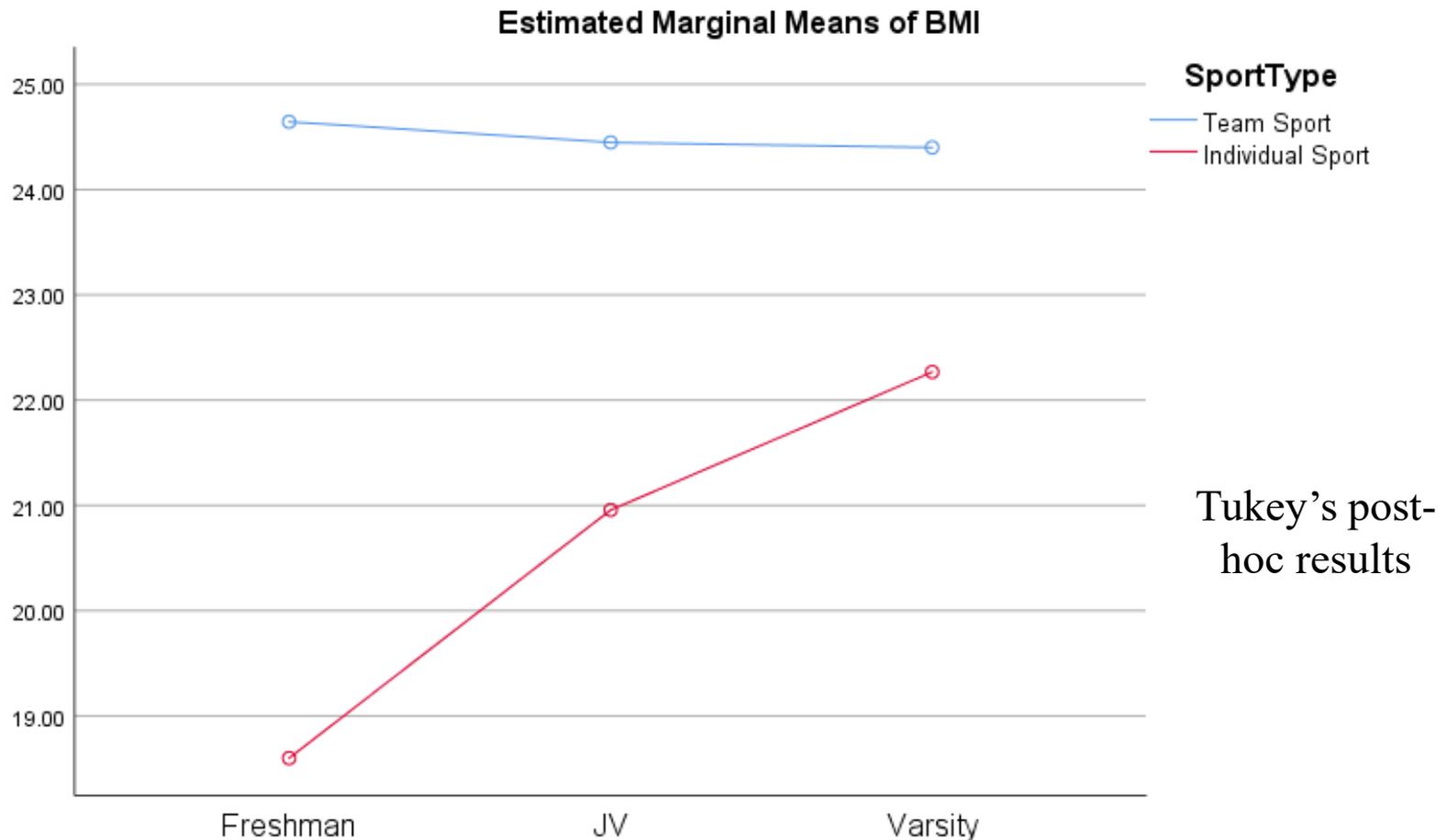




Tukey's post-hoc results

- No significant differences in SB% across groups

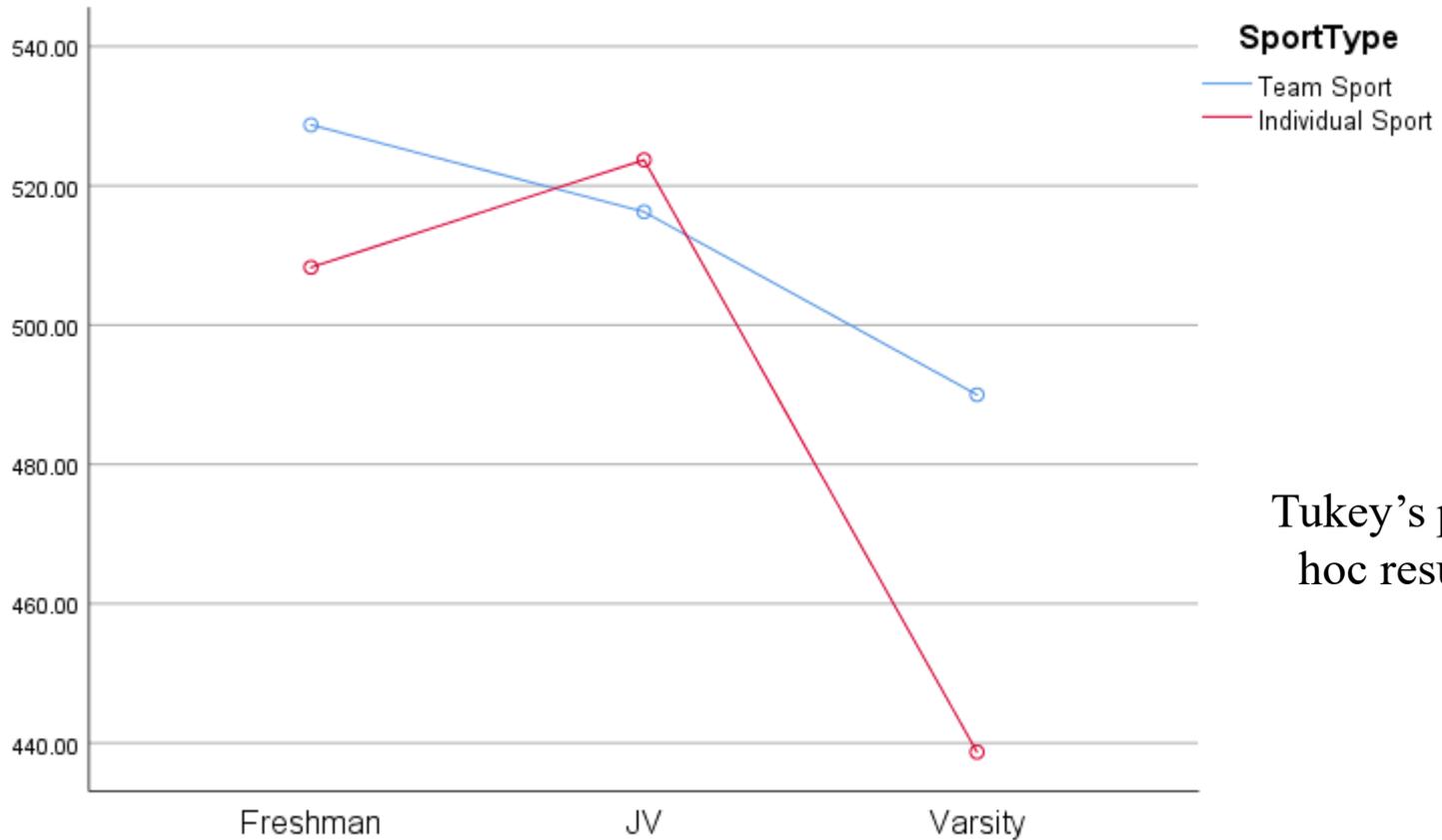




- Individual sport athletes lower BMI than team sport athletes (20.61 vs. 24.50)



Estimated Marginal Means of MileTime



Tukey's post-hoc results

- Varsity athletes had faster mile time than JV and freshman athletes (7.74min vs. 8.67min and 8.64min)



# Discussion

- Individual sport and varsity athletes appear to gain more physical health benefits than their corresponding counterparts.
- Coaches should implement strategies to engage team sport, JV, and freshman athletes in at least 50% of MVPA.



# Strengths

- First study examining sport type and level
- Racial/ethnic diversity
- Objective measurement paired with observations



# Limitations and Future Research



- Lacks generalizability → more schools, different geographic areas
- Clustering effects in teams → greater sample size
- Fluctuations in practices → Longitudinal design, measures of PA during competition and other fitness components



# Thank you! Questions?

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