



## Mid Atlantic Regional Chapter of the American College of Sports Medicine

46<sup>th</sup> Annual Scientific Meeting, November 3<sup>rd</sup> - 4<sup>th</sup>, 2023  
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 12



### The Relationship of Cardiorespiratory Fitness with Leisure-time, Occupational and Transportation Physical Activity among College Students

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Physical activity (PA) is protective against cardiometabolic risk and improves cardiorespiratory fitness (CRF). The majority of studies examining these relationships have only included leisure-time PA (LTPA) and the relationship between different domains of PA and CRF among young adults is unknown. As young adults engage in a multitude of PA behaviors across domains, domain-specific PA impacts on CRF must be examined. **PURPOSE:** To examine the relationship between CRF and LTPA, occupational (OPA), and transportation (TPA) activity by gender and race/ethnicity. **METHODS:** A volunteer sample of students from a large Northeastern U.S. university completed a comprehensive fitness test ( $VO_{2max}$  estimated via submaximal single stage treadmill walking test) and a self-report survey (demographics, Global Physical Activity Questionnaire [LTPA, OPA, TPA, overall PA]) to assess CRF and current PA levels. Descriptive statistics described the sample, t-tests and ANOVAs examined the differences between CRF and PA. Linear regression examined the relationship between CRF and the different PA domains separately by racial/ethnic and gender groups. **RESULTS:** Participants ( $n=457$ ) were predominately male ( $n=319$ , 69.8%) and Non-Hispanic (NH) White ( $n=295$ , 65.4%). Men reported greater OPA, LTPA and overall PA ( $p$ 's  $<0.05$ ) compared to women and also had greater CRF ( $p<0.001$ ). NH Black students had higher OPA than NH White, Latino, and Asian American students ( $p$ 's  $<0.01$ ); however, there were no other racial/ethnic differences for PA. NH White students had the highest CRF ( $F=2.42$ ,  $p=0.04$ ). Regression analysis for men indicated that LTPA ( $\beta=0.26$ ,  $p<0.001$ ) and TPA ( $\beta=0.14$ ,  $p=.02$ ) were significant predictors of CRF. Among women, LTPA ( $\beta=0.31$ ,  $p<.001$ ) was the only significant predictor of CRF. For NH White students, LTPA ( $\beta=0.024$ ,  $p<0.001$ ) and TPA ( $\beta=0.15$ ,  $p=0.008$ ) were significant predictors of CRF. Among Hispanic students TPA ( $\beta=0.31$ ,  $p=0.05$ ) and OPA ( $\beta=0.36$ ,  $p=0.02$ ) were significant CRF predictors, though there were no significant CRF predictors for NH Black and Asian American students. **CONCLUSION:** CRF and PA types varied significantly by gender and race/ethnicity, with each PA domain impacting CRF uniquely. **SIGNIFICANCE:** Good CRF levels are important for overall health and disease prevention. Health and PA disparities are present in this population and it is essential to determine how different types of PA can contribute to CRF differently by demographic group. Further studies examining a link between CRF and PA behavior should consider measuring multiple domains of PA.