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ABSTRACT
EXAMINING THE RELATIONSHIP OF PHYSICAL ACTIVITY, INFLAMMATION & ADIPOSITY ON PHYSICAL FUNCTION WITH GENDER DIFFERENCES

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Older adults are a rapidly growing segment of the population in the United States. The ability to maintain physical function declines with age and is a critical factor that contributes to living independently. Physical activity has been shown to slow declines in physical function and decrease chronic inflammation. Increases in adipose tissue and decreases in muscle mass are associated with aging. The increase in adipose tissue produces inflammatory markers that can negatively impact older adults' health. Males and females' biological changes with aging have been hypothesized to differ. The purposes of this study were to :1) examine the relationship between physical activity, inflammation, with physical function 2) determine if adiposity was a predictor and moderator of physical function and 3) determine if there were gender differences in these relationships for community dwelling older adults.

This study was a cross-sectional secondary data analysis of the Health and Retirement Study (HRS)Wave 13 (2016) core biennial data and Venous Blood Study (n=4042). The mean age of study participants was 68.38 years old (*SD* = 9.64) and included 57.7% females (n=2332) and 42.3% males (n= 1710). Physical function, the outcome variable, included the semi-tandem balance test and 3 self-report items addressing balance, grip strength, and walking endurance. Physical activity was measured using five self-report items assessing frequency of walking, sports or activity and mild, moderate, and vigorous activity. Chronic low-level inflammation was measured with the pro-inflammatory markers interleukin-6 and high sensitive c-reactive protein and anti-inflammatory biomarker interleukin-10. BMI was used as a measure of adiposity. Using confirmatory factor analysis, latent factors were created for physical function, physical activity, and inflammation. Factor loadings and acceptable model fit (CFI scaled 0.871, CFI robust 0.879, SRMR 0.050, and gamma hat scaled 0.964) supported the indicators represented the measurement model. Latent regressions were significant ($p<.001$) and showed physical activity positively impacts physical function and inflammation negatively impacts physical function. Correlations showed inflammation is negatively correlated with both physical activity and function. Adiposity was not a significant predictor and further moderation testing was not indicated. Model comparison between genders supported using the overall model versus gender specific models.