



Mid Atlantic Regional Chapter of the American College of Sports Medicine

45th Annual Scientific Meeting, November 4th- 5th, 2022
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 11



Men and Women Have Similar Responses in Arterial Stiffness and Wave Reflection Post-High-Fat Meal

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Sex differences in inflammatory responses and cardiovascular disease rates persist across the lifespan. Inflammation is one of the major causes of vascular dysfunction leading to cardiovascular disease. A high-fat meal (HFM) can be used as a model to induce acute inflammation. Previous literature has shown sex differences in vascular function following a HFM, however, it is currently unknown if sex differences persist in measures of arterial stiffness and wave reflection following a HFM in young, healthy adults. **PURPOSE:** To elucidate whether there are sex differences in arterial stiffness and wave reflection responses to a HFM in a young, healthy population. **METHODS:** Augmentation index (AIx), augmentation index standardized to a heart rate of 75 bpm (AIx75), and Carotid-femoral pulse wave velocity (cfPWV) were measured at baseline (BL) and 4 hours-post HFM (4HP) in seven women (27 ± 4 y) and twelve men (22 ± 3 y). **RESULTS:** AIx, AIx75, and cfPWV remained unchanged in both men (AIx BL: -1.25 ± 4.73 vs. AIx 4HP: -5.33 ± 6.99 ; AIx75 BL: -10.83 ± 5.15 vs AIx75 4HP: -12.58 ± 7.39 ; cfPWV BL: 5.34 ± 0.77 vs. cfPWV 4HP: 5.66 ± 0.67 , $n=11$) and women (AIx BL: 3.14 ± 9.51 vs. AIx 4HP: -5.43 ± 13.86 ; AIx75 BL: -7.29 ± 12.65 vs. AIx75 4HP: -11.57 ± 10.74 ; cfPWV BL: 5.27 ± 0.92 vs. cfPWV 4HP: 5.39 ± 0.82) following the HFM. There were no significant model effects or interaction between time and sex for AIx ($F(2, 50) = 0.5018$, $p=0.61$), AIx75 ($F(2, 50) = 0.1218$, $p=0.89$), or PWV ($F(2, 48) = 0.1123$, $p=0.89$).

CONCLUSION: Arterial stiffness and wave reflection responses are similar in young, healthy men and women following a HFM.

Supported by MPower (University of Maryland)