

## **Greater Forearm Blood Flow is Associated with Higher Physical Activity in Older Individuals**

Duvall, PK., Coulbourn T., Dobrosielski, DA., Knuth, ND. Towson University, Towson, Maryland.

Aging is associated with increased risk for cardiovascular disease (CVD), in part, because there is an age-related decline in vascular function. Increased physical activity has been shown to improve vascular function and protect against the development of CVD; however, the association between physical activity and vascular function in older adults is not well known. **PURPOSE:** Examine the relationship between objectively measured physical activity levels and forearm blood flow in a group of older men and women.

**METHODS:** Resting arterial inflow and reactive hyperemic blood flow (RHBF) of the left forearm was measured in 48 participants of the Longitudinal Aging Study at Towson (LAST; 54% male, mean age 69, range 46-91) using venous occlusion plethysmography. Physical activity energy expenditure (PAEE) was assessed over 7 days using an Actigraph Link accelerometer worn on the non-dominant wrist. Dual energy X-ray absorptiometry was used to quantify body composition. The association between blood flow and physical activity was modeled using linear regression, with PAEE as a predictor adjusting for age, fat mass and fat-free mass. **RESULTS:** Mean RHBF was  $19.5 \pm 6.0$  mL•100mL tissue<sup>-1</sup>•min<sup>-1</sup> (range 8.1-32.3 mL•100mL tissue<sup>-1</sup>•min<sup>-1</sup>), and mean PAEE per day was  $1442 \pm 574$  kcals (range 328-3249 kcals). In the adjusted model, higher RHBF was positively associated with PAEE ( $\beta = 0.003$ ,  $p = 0.026$ ), indicating that blood flow was 0.3 mL•100mL tissue<sup>-1</sup>•min<sup>-1</sup> higher for each 100 kcal increase in PAEE.

**CONCLUSION:** Physical activity is a significant predictor of RHBF in older populations, suggesting that a greater degree of physical activity is related to better overall vascular health. Therefore, increased physical activity in the aging population may be beneficial in reducing the risk of developing CVD.