

it is well-known that older adults exhibit diminished dual-task performance, the time course of age-related dual-task decline has not been established. We thus conducted an analysis of data collected within the ongoing Barcelona Brain Health Initiative, a prospective population-based study characterizing the determinants of brain health maintenance in middle-aged adults. Cognitively-unimpaired participants (n=655) aged 40-65 years without neuro-psychiatric disease completed laboratory-based trials of walking normally (single-task) and walking while performing a verbalized serial subtraction task (dual-task). A smartphone-based gait assessment application was used to capture data and derive both the mean stride time (ST) and stride time variability (STV, defined as the coefficient of variation about the mean stride time) of each trial. The dual-task costs (DTC) to each gait metric were obtained by calculating the percent change from single- to dual-task conditions. We categorized participants into five groups according to age (e.g. Group 1: 40-45 years; Group 5: 60-65 years). Age group did not have an effect on single-task gait outcomes ( $p>0.51$ ). However, the oldest age group, as compared to each of the other groups, exhibited greater DTC to both ST and STV ( $p<0.03$ ). These results indicate that dual-task walking performance in particular may begin to diminish in late middle age even in the absence of detectable cognitive issues, DTC may offer a sensitive metric to age-related change in cognitive function.

#### OBJECTIVELY MEASURED PHYSICAL ACTIVITY, SEDENTARY BEHAVIOR, AND INCIDENT FRACTURE IN OLDER WOMEN: THE OPACH STUDY

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Women aged 65 and older experience nearly three-fourths of the 2 million osteoporotic fractures annually in the US, yet whether accelerometer-measured volumes and intensities of physical activity and sedentary behavior (SB) are associated with reduced fracture risk is understudied. We investigated associations of accelerometer-measured light physical activity (LPA), moderate-to-vigorous physical activity (MVPA), sedentary time (ST), and mean sedentary bout duration (MBD) with incident clinical fractures (hip, vertebral, pelvis, lower leg, upper arm, forearm, and wrist) in the WHI OPACH cohort. Participants (N=6248; mean±SD age=78.6±6.7; 34% Black, 17% Hispanic) without prior hip fracture wore the ActiGraph GT3X+ for 7 days between May 2012-April 2014 and were followed through March 2020 for incident clinical fracture (N=711). Cox models estimated hazard ratios (HR) and 95% confidence intervals (CI), adjusting for age, race-ethnicity, education, alcohol, smoking, height, weight, falls history, RAND-36 physical function, diabetes, thiazide use, prescription osteoporotic therapy, and age at menopause. The HR(95% CI) across MVPA quartiles was 1.00(reference), 1.15(0.93-1.41), 0.90(0.72-1.13), and 0.79(0.61-1.02);  $p$ -trend=0.01. The HR(95% CI) for a one-interquartile range increment in MVPA (42 minutes/day) was 0.86(0.76-0.97). Associations were modified

by prescription osteoporotic therapy [no: HR=0.77(0.66-0.89), yes: HR=1.03(0.85-1.25);  $p$ -interaction=0.01] and varied in magnitude by age[ $<80$ : HR=0.78(0.64-0.96),  $\geq 80$ : HR=0.92(0.79-1.07);  $p$ -interaction=0.09], BMI [ $<30$  kg/m<sup>2</sup>: HR=0.85(0.75-0.97),  $\geq 30$  kg/m<sup>2</sup>: HR=0.90(0.67-1.19);  $p$ -interaction=0.08], and race-ethnicity [Black: HR=0.63(0.44-0.89), Hispanic: HR=0.78(0.56-1.09), White: HR=0.92(0.80-1.06);  $p$ -interaction=0.16]. LPA, ST, or MBD were not associated with incident fractures. These data suggest that MVPA may reduce and not increase fracture risk and that LPA and SB do not increase fracture risk.

#### PREMENOPAUSAL BILATERAL OOPHORECTOMY EFFECTS ON CLINICAL AND REAL-WORLD PHYSICAL FUNCTION MEASURES

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Women with premenopausal bilateral oophorectomy (PBO) are at increased risk for physical function (PF) declines. This study investigated the relationships of field-based physical activity measures with clinical PF and strength parameters in post-menopausal women with and without PBO. Women with (n=21; age=64±4 years; BMI=32±8 kg.m<sup>-2</sup>) and without (n=15; age=67±6 years; BMI=28±6 kg.m<sup>-2</sup>) PBO performed PF and strength tests (walking speed, distance walked, short physical performance battery (SPBB), leg and chest strength), and wore ankle accelerometers for 7 days (daily step count and loading index [the cumulative sum of each step's skeletal loading]). Age, BMI, step count and loading index were entered into stepwise multiple regression to identify significant predictors of PF and strength parameters. Step count was a predictor of SPBB score in both groups. In women without PBO, step count was a predictor of walking speed; loading index was a predictor of leg strength; step count and loading index were predictors of distance; and step count and age were predictors of chest strength. For PBO women, loading index and BMI were predictors of walking speed and distance; BMI was a predictor of leg strength; and there were no predictors of chest strength. These data suggest while field-based physical activity was strongly and positively associated with clinical PF and strength measures for women without PBO, BMI was a dominant negative factor for PF in women with PBO. Future work will include a larger sample size and additional confounders to further elucidate underlying factors of reduced PF and mobility after PBO.

#### THE RELATIONSHIP BETWEEN KNEE PAIN AND HEART FAILURE IN OLDER BLACK AND LATINO WOMEN

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