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, education, smoking, height, weight, falls history, RAND-36 physical function, diabetes, thiazide use, prescription osteoporotic therapy, and age at menopause. The HR for LPA (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 increase 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), >80: HR=0.92 (0.79-1.07); p-interaction=0.09], BMI [<30 kg/m²: HR=0.85 (0.75-0.97), ≥30 kg/m²: 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⁻²) and without (n=15; age=67±6 years; BMI=28±6 kg.m⁻²) 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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Background: Knee pain is the second-most prevalent and disabling common pain condition globally, having deleterious effects on daily function including mobility and exercise capacity; chronic knee pain is especially prevalent in older adults. There is substantial evidence to indicate that physically inactive individuals have higher rates of cardiovascular disease. Nonetheless, studies investigating cardiovascular risks with osteoarthritis have had mixed results.

Objective: This study explores the relationship between knee pain and heart failure especially examining the factors of age, gender, race in U.S. older adults.

Methods: Retrospective secondary analysis of Medicare claims data for 1.478 million adults over age 65. The standard analytical file for 2017 was segmented according to the presence of any of several ICD-10 codes for heart failure (HF). Medicare beneficiaries with and without HF diagnoses were evaluated for knee pain and other common pain-associated conditions; pain condition data was stratified by age, gender and race codes.

Results: Knee pain was markedly increased in women with HF in the 65-70- and 70-75-year-old age-cohorts and relatively less increased in older age-cohorts and males. Knee pain in women was especially elevated in those with Medicare race codes indicating Black and Hispanic status.

Conclusion: In a large cohort of Medicare beneficiaries, knee pain was noted to be markedly increased in younger cohorts of older women with HF, and more prevalent in Black and Hispanic women. Further studies should evaluate lifestyle, biomechanics, and inflammatory factors that may be contributing to this relationship.

THE SEX DIFFERENCE IN GAIT SPEED: HOW DO SOCIODEMOGRAPHIC, LIFESTYLE, SOCIAL, AND HEALTH DETERMINANTS CONTRIBUTE?
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