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We assessed the efficacy of the home-based Otago Exercise Program (OEP) as a secondary falls prevention strategy in seniors referred to a falls prevention clinic after an index fall. We conducted a 12-month randomized controlled trial of 344 adults, aged 70 years and older, with = or > 1 fall resulting in medical attention in the prior 12 months. Participants were randomized to OEP or standard of care (CON). The OEP is a home-based strength and balance training program delivered by a physical therapist. All participants received AGS Guideline Care for falls prevention from a geriatrician. Differences in falls rate was tested with a negative binomial regression model. The rate of falls was lower in the OEP group vs the CON group (incident rate ratio [IRR] = 0.64, 95% CI 0.46 to 0.90). The estimated incidence rate of falls per person-year was 1.4 (95% CI 0.1 to 2.0) in the OEP group and 2.1 (95% CI 0.1 to 3.2) in the CON group, with an absolute incidence rate difference of 0.74 (95% CI 0.04 to 1.78) falls per person-year. DSST performance also increased in the OEP group by a mean change of 1.1 points (95% CI 0.02 to 2.1) vs the CON group. Improved DSST was associated with fewer falls (IRR = 0.80, 95% CI 0.68 to 0.95). These findings support the use of the OEP for secondary falls prevention.

MULTIPLE MEDICATION USE AND RISK OF TREATED FALL INJURY: THE HEALTH ABC STUDY

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Multiple medication use within one year is associated with increased fall injury risk in older adults. However, chronically using multiple medications and treated fall injury have rarely been explored, particularly in cohort studies linked with claims data. We examined using >5 medications in 2 or more consecutive years (chronic medication use) as a risk factor for treated fall injury in 1,898 community-dwelling adults (age 73.6±2.9 years; 53% women; 37% black) with linked Medicare Fee-For-Service (FFS) claims from the Health, Aging and Body Composition Study since 1997/98 clinic visit. Incident fall injury (N=546) was the first claim from 1998/99 clinic visit to 12/31/08 with an ICD-9 fall code and non-fracture injury code, or fracture code with/without a fall code. Stepwise Cox models with a time-varying predictor of chronic medication use before fall injury or censoring (N=414) vs. not using >5 medications at the same time (N=1008) were adjusted for baseline demographics, lifestyle factors, fall history, quadriceps strength, cardiovascular disease (CVD), diabetes, sensory nerve impairment, and kidney function. Fall injury risk increased for chronic medication users (37%) vs. non-users (29%) (HR=1.25[1.00-1.57]), though was attenuated after adjustment for CVD and diabetes (HR=1.18[0.93-1.51]). Sensitivity analyses

excluding fall-risk-increasing drugs (FRIDs) from medication counts (HR=1.32[0.54-3.20]), or including those using >5 medications non-chronically (N=365) in referent groups (HR=1.22[0.96-1.55]) had consistent findings. Unmeasured comorbidity differences may confound associations of chronic medication use and treated fall injury risk in older adults with Medicare FFS. Considering both chronic diseases and medication use in fall risk assessments is needed.

PROGRAM CHARACTERISTICS ASSOCIATED WITH REDUCED FEAR OF FALLING: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RCTS

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Fear of falling (FOF) is common among older people and can result in activity avoidance and decreased physical functioning. Different types of interventions have demonstrated significant small reductions in FOF. To optimize effect sizes, we sought to identify characteristics of interventions that were associated with a change in FOF. Five scientific databases were searched for articles using randomized controlled trial designs in community-dwelling older people without medical conditions. Data extraction included intervention type, setting, group format, type of supervision, provider, delivery format, duration, number of sessions, contact time, and risk of bias (assessed with the Cochrane Collaboration's Risk of Bias Tool). After screening of titles, abstracts, and full texts, 55 unique studies – reporting on 68 interventions – were systematically reviewed. The majority of interventions focused on exercise (n=50). Interventions were performed at home (n=21) or in a community setting (n=23), were delivered in a group (n=26) or individual (n=30) format, and were often supervised (n=60) and delivered face-to-face (n=56). Duration ranged from 1 to 52 weeks and total contact time with the provider from 2 to 56 hours. Results of 42 interventions were suitable for meta-analysis. Univariate meta-regressions to evaluate associations between intervention characteristics and intervention effects directly after the intervention yielded no significant results. Due to self-reported outcomes and difficulties with blinding, risk of bias was high in all studies. To conclude, intervention characteristics were not associated with changes in FOF in this study. Possible reasons for an absence of associations and future research directions will be discussed.

SESSION 570 (SYMPOSIUM)

SEDENTARY BEHAVIOR AND PHYSICAL ACTIVITY IN THE ADULT CHANGES IN THOUGHT (ACT) STUDY

Chair: Dori E. Rosenberg, *Kaiser Permanente Washington Health Research Institute, Seattle, Washington, United States*

Co-Chair: Andrea Z. LaCroix, *University of California San Diego, La Jolla, California, United States*

Discussant: Jack Guralnik, *University of Maryland School of Medicine, Baltimore, Maryland, United States*

Few epidemiologic studies have examined device-measured sitting patterns and health outcomes. Furthermore, there is a need to continue understanding the role of prospectively measured physical activity in relation to older adult health. The Adult Changes in Thought (ACT) study is an on-going epidemiologic study of adults age ≥ 65 years that began in 1994. Participants complete biennial assessments including a self-reported measure of physical activity. Starting in 2016, ACT participants could enroll in a physical activity sub-study that involved wearing a thigh-worn activPAL device and maintaining sleep logs for 7 days. Of those approached to participate in the sub-study, 64% agreed ($N = 1139$). A total of 961 had valid wear time (≥ 4 days with 10-20 hours of data per day) and completed survey collecting measures on pain and built environments (56% female, 57% $>$ age 75, 89% non-Hispanic white). Participants who consented to the sub-study were generally younger and had fewer chronic conditions than those who did not consent. After removing sleep time, mean daily activPAL measures calculated included hours sitting and standing, number of sitting bouts lasting 30 minutes or more, number of breaks from sitting, and steps walked. The first session in this symposium will present historical self-reported physical activity trajectories in relation to cognitive function. The subsequent sessions will present novel cross-sectional data examining activPAL variables with measures of physical function, pain, and perceived built environments. This symposium will provide new insights on the roles of sedentary behavior and physical activity in aging and health.

SITTING PATTERNS, PHYSICAL ACTIVITY, AND PHYSICAL FUNCTIONING IN OLDER ADULTS

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We examined cross-sectional associations between physical function and device-based (activPAL) sedentary patterns and physical activity. Physical function tasks included time to complete 5 chair stands and walk a 10-foot gait speed course. We estimated associations using linear regression models adjusting for age and sex; coefficients represent estimated change in mean activPAL measures associated with each second increase in gait/chair stands time. Longer gait speed times were associated with more total sitting time ($b=0.19$, $p < 0.01$), fewer steps ($b=-788.0$, $p < 0.001$), fewer sitting breaks ($b=-1.7$, $p < 0.01$), and more prolonged sitting bouts ($b=0.19$, $p < 0.01$). Longer chair stand times were associated with more total sitting time ($b=0.06$, $p < 0.001$), less standing time ($b=-0.04$, $p < 0.01$), fewer steps ($b=-176.8$, $p < 0.001$), fewer sitting breaks ($b=-0.45$, $p < 0.01$), and more prolonged sitting bouts ($b=0.07$, $p < 0.001$). Prolonged patterns of sitting time and higher total sitting time, in addition to lower physical activity, were consistently associated with worse physical function.

ASSOCIATION OF 10-YEAR WALKING TRAJECTORIES WITH COGNITIVE FUNCTION IN OLDER ADULTS: ADULT CHANGES IN THOUGHT STUDY

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We identified trajectories of older adults' walking and their associations with cognitive function. Data on walking (days/week) were collected at baseline of the Adult Changes in Thought study and every two years for 10 years. Cognitive function was assessed by the Cognitive Abilities Screening Instrument (CASI) at year 12. Group-based trajectory analyses identified trajectories among 763 participants (baseline age 70 ± 5 years, 60% female). Regression models, adjusted for baseline sociodemographic and health factors, examined associations with cognitive function. Five walking trajectories were identified: consistently inactive (18.1%), medium active (21.9%), early decline (15.8%), late decline (18.4%), and consistently active (25.8%). Mean CASI score was 92.0 (SD 6.9). CASI scores were lower in early $b = -1.66$ (95%CI: -2.97, -0.35) and late decline $b = -1.89$ (-3.26, -0.51) groups, with no difference in consistently active and inactive groups, compared to the medium active trajectory group. Ten-year walking trajectories may determine late-life cognitive function.

ASSOCIATIONS OF PAIN INTENSITY WITH SEDENTARY BEHAVIOR AND PHYSICAL ACTIVITY IN OLDER ADULTS

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Exercise is recommended for several painful, age-associated conditions; however, relationships between pain intensity and objectively measured sedentary behavior and physical activity have not been investigated in older adults. Accordingly, we analyzed cross-sectional data on 936 older adults in the ACT Study who self-reported their pain intensity on a 0-10 rating scale (0=no pain; 1-3=mild pain; and 4-10=moderate/severe pain) and wore an activPAL accelerometer. A total of 181 (19.3%) reported no pain, while 564 (60.3%) and 191 (20.4%) reported mild and moderate/severe pain, respectively. Linear regression models adjusted for age and sex estimated that compared to those with no pain, participants with moderate/severe pain walked significantly fewer steps/day (b -coefficient= -778 [95%CI: -1377, -179]) and had fewer sit-to-stand transitions/day (b -coefficient= -2.9 [95%CI: -5.6, -0.1]). In contrast, there were no significant differences in these outcomes comparing no pain versus mild pain. Future research will examine effects of pain treatments (opioids) and diagnoses on accelerometer-measured outcomes.