

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.