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Older drivers with health impairments may be required to undertake fitness-to-drive assessments. Scores on the Occupational Therapy-Drive Home Maze Test (OT-DHMT) can contribute to fitness-to-drive recommendations. The OT-DHMT is a short, timed maze test that has been shown to be valid and reliable, and norms are available for completion with a driver's dominant hand. However, the validity of a person's score when using their non-dominant hand to complete the test, for example following stroke, is unknown. This study aimed to determine if a person's OT-DHMT score time (in seconds) requires adjustment when completed with a non-dominant hand. The OT-DHMT was administered with a normative sample of 150 participants, aged 21-81 years (mean=48.6,SD=19.38). Overall, OT-DHMT score times were significantly faster when using a dominant (M=15.73) compared with non-dominant (M=17.64) hand, d=1.91 (CI 1.13, 2.69), t= 4.84,p< .01. Employing a generalised weighted least squares regression model indicated that multiplying a driver's non-dominant hand time by .833 seconds for drivers aged ≤60, and by .929 seconds for drivers aged 61+ can approximate dominant hand completion times. Adjusted scores can then be compared against normed scores to aid fitness-to-drive recommendations. The adjustment required for people aged ≤60 is larger than for older people, reinforcing previous findings that younger people have faster OT-DHMT completion times. These findings support the clinical utility and vaildity of using the OT-DHMT with older people undergoing fitness-to-drive assessment who may be required to use their non-dominant hand due to conditions such as stroke, arthritis or amputation.

MOTOR ADAPTATION TO COGNITIVE CHALLENGES AND DESTABILIZING TREADMILL WALKING IN HEALTHY OLDER ADULTS

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To develop effective fall prevention intervention, it is necessary to understand how older adults respond to challenges that demand cognitive-motor dual-tasking capability, an important capability in the daily lives. The purpose of this study is to investigate how older adults adjust their motor responses when encountering cognitive and walking perturbations simultaneously. We recorded kinematic data as subjects walked on a treadmill with or without 1) continuous random-amplitude treadmill platform sways (Perturbed vs. No-perturbed walking); and 2) each of the four cognitive tasks: Paced Auditory Serial Addition test (PASAT), clock test, visual color-word incongruent test (V-stroop), and auditory pitch-word incongruent test (A-stroop). We computed dynamic margins of stability (MOS), gait variability, and short-term local divergence exponent (LDE) of the trunk motion (local stability). Data of ten older subjects (age: 72.2±4.9) show that cognitive performance did not differ between standing, Perturbed or No-perturbed walking. Subjects demonstrated significantly greater local instability and variability in step measures, joint angle and MOS during Perturbed than No-perturbed walking (p<0.001). During dual-task conditions, subjects walked with significantly larger mediolateral MOS (MOSML) compared to walking only, especially during early phase of the trial. During Perturbed walking, subjects had significantly larger MOSML during PASAT and Vstroop than walking only. Our data showed that subjects tried to increase their dynamic MOS during Perturbed walking or a cognitive task more difficult or taxing visual attention. However, the adjustments do not sustain throughout the trial. These findings suggest older adults tend to prioritize cognitive over walking tasks even when encountering walking perturbations.

SESSION 3023 (PAPER)

CARDIOVASCULAR HEALTH AND DISEASE (PAPER)

AGE-RELATED VARIATION IN CARDIOVASCULAR RISK ASSOCIATED WITH RED CELL DISTRIBUTION WIDTH

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We previously showed that routine indicators of immune-hematologic function are strongly associated with all-cause and cardiovascular mortality, especially among older adults, in whom traditional atherosclerotic cardiovascular disease (ASCVD) risk factors predict poorly. The objective of this study was to quantify differences in the relationship between red cell distribution width (RDW) and 5-year risk of ASCVD events (stroke, myocardial infarction or cardiovascular death) as a function of age and the area deprivation index (ADI). We analyzed electronic health records of 76287 Cuyahoga County, Ohio residents who were over age 40 and who visited Cleveland Clinic Health System and/or MetroHealth System in two consecutive years between 2005 and 2015, the latter of which served as the index/baseline. Multivariable Cox regression was used, adjusting for sex, race/ethnicity, diabetes, systolic blood pressure and antihypertensive use. Generally, RDW levels in disadvantaged neighborhoods corresponded to people 15-20 years older from affluent neighborhoods. In a main-effects-only model, we found higher ASCVD event rates associated with age (hazard ratio [95% confidence interval] per 10 year increment: 1.34 [1.32–1.35]), ADI (top vs. bottom quintile: 1.30 [1.24–1.36]) and RDW (>16% vs ≤13%: 2.03 [1.94–2.12]). Age and RDW exhibited a synergistic interaction ($\chi 2$ = 17.7 on 2 df, p<0.001), with slightly larger RDW effects associated with increasing age, while evidence of differential RDW effects across ADI quintiles was weak ($\chi 2$ = 12.9 on 8 df, p=0.11). We conclude that RDW effects on ASCVD event risk are large, independent from traditional ASCVD risk factors and increase with advancing age.