prospective associations with incident dementia. However, risk of dementia associated with plasma Aβ did not change after considering the serum level of GDF-15 and NFL.

**Conclusion:** The markers of mitochondrial dysfunction and neurodegeneration did not partially explain the associations between plasma Aβ status and cognitive decline in older adults.

**LONGITUDINAL ASSOCIATION OF EXECUTIVE FUNCTION AND BALANCE IN COMMUNITY-DWELLING OLDER ADULTS**


Declines in Executive Function (EF) are associated with balance in community-dwelling older adults with Mild Cognitive Impairment (MCI). While this has been examined in cross-sectional studies, no longitudinal studies describe change over time. The purpose of this study was to examine how performance on the components of the Short Physical Performance Battery (SPPB) are associated with EF in community-dwelling older adults who transition into MCI. This secondary data analysis employed eight years of data from the National Health and Aging Trends Study dataset (2011 – 2018) with 1,225 participants in all eight waves (balanced). EF was measured with the Clock Drawing Test and SPPB balance tests included side-by-side, semi-tandem, full tandem, and single leg stance with eyes open or closed. Longitudinal ordered logistic regression was used to examine associations between each balance measure and EF while controlling for comorbidity, function, depression, gender, age, and ethnicity. EF was significantly associated with tandem, semi-tandem, and single leg stance after controlling for covariates. One point increase in SPPB can reduce the risk of EF impairment by 8.2% (Odds Ratio (OR)=0.918, p<0.001). Among SPPB components, semi-tandem (OR=0.468) and side-by-side (OR=0.472) were the strongest predictors of EF impairment. Declines in both EF and balance performance occurred over an eight-year period in adults. This may reflect common neural processes shared between the cognitive and motor areas of the central nervous system. Best practice suggests screening both balance (tandem, semi-tandem, or single leg stance) and EF in the clinical assessment of community-dwelling older adults.

**LONG-TERM VISIT-TO-VISIT BLOOD PRESSURE VARIABILITY AND COGNITION: A SYSTEMATIC REVIEW OF OBSERVATIONAL STUDIES**

Tomiko Yoneda,¹ Jamie Knight,¹ Amelia Zhang,² Graciela Muniz-Terrera,¹ and Andrea Piccinin,¹, ¹ University of Victoria, Victoria, British Columbia, Canada, 2. University of Toronto, Toronto, Ontario, Canada, 3. University of Edinburgh, Edinburgh, Scotland, United Kingdom

Existing literature suggests that in comparison to a single blood pressure (BP) measurement, or the mean of multiple recordings, BP variability (BPV) may reflect dysfunction in cardiovascular regulatory mechanisms, leading to compromised cognitive health. No systematic review has yet synthesized observational reports examining the association between cognition and long-term visit-to-visit BPV. In response, a comprehensive literature search was executed in December, 2019, and updated in December, 2020. Methodological approach was pre-registered (https://osf.io/vmuqa/). Of 1385 reports, 27 met eligibility criteria. Most executed secondary analyses using existing longitudinal datasets of older adults (N=21). Intervals between measurement occasions ranged from 30 days to four years, and follow-up ranged from 0.5-25 years. Most studies computed more than one index of BPV (range=1-6), and all included at least three BP recordings (range=3-12). Given extensive between-study variability in analytic approach (e.g., BPV and cognition treated as continuous and/or categorical variables; number of covariates ranged 0-18), our team determined that meta-analyzing the results would be inappropriate. Despite heterogeneity in study characteristics, the majority (85.2%) reported that systolic BPV (sBPV) was negatively associated with cognition; specifically, higher sBPV was associated with cognitive impairment (N=9), cognitive decline (N=6), and/or risk of dementia (N=5). Four studies also revealed higher sBPV in individuals with dementia compared to controls. Three studies reported no association, while one reported a positive significant association between BPV and cognition. Results were similar for diastolic BPV. Despite considerable heterogeneity in study characteristics, greater variability in visit-to-visit BP appears to be consistently associated with adverse cognitive outcomes.

**MANIFESTATIONS OF AGING IN VIRTUAL REALITY IMPLEMENTATION OF ROD AND FRAME TEST**

Michal Adamski,¹ Miroslaw Latka,² Anna Latka,¹ and Bruce West,³ 1. Wrocław University of Science and Technology, Wrocław, Dolnoslaskie, Poland, 2. Wrocław University of Science and Technology, Wrocław, Dolnoslaskie, Poland, 3. Opole Neuropsychiatric Hospital, Opole, Opolskie, Poland, 4. Army Research Office, Research Triangle Park, North Carolina, United States

Senior adults’ reliance on the visual frame of reference for spatial orientation is a manifestation of an age-related shift in cognitive style from field independence to field dependence. We implemented a virtual reality rod and frame test (VR-RFT) to assess visual field dependence (VFD) in n=39 young adults (20-30 years old) and n=43 seniors (60 years old and above). The subjects were asked to determine subjective visual vertical (SVV) for 19 angles of frame tilt (running from -45 degrees to 45 degrees in steps of 5 degrees). The strong VFD of seniors was manifested not only by the increased error in the determination of SVV (SVVE) but also in its distribution. For small and large frame tilt angles, seniors’ SVVE skewness and kurtosis were greater than those of young adults. The SVVE median dependence from -45 degrees to 45 degrees in steps of 5 degrees).

**IMPLEMENTATION OF ROD AND FRAME TEST MANIFESTATIONS OF AGING IN VIRTUAL REALITY**

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