with lowest baseline serum BDNF levels (difference: .32 SD; 95% CI: .08–.55; p=.007)

**Conclusion:** Lower serum BDNF levels were associated with greater 2-year cognitive decline in community-dwelling older Japanese adults. Decline varied among cognitive subdomains, and baseline cognition. Research seeking to evaluate the added-value of serum BDNF for screening and/or health promotion initiatives involving physical activity, which has been linked to increment in BDNF levels, is warranted.

**HOW OLDER ADULTS REDEFINE ITEMS ON THE PROMIS-57 PROFILE PATIENT-REPORTED OUTCOME MEASURE**

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PROMIS® measures provide valid assessment of patient-reported outcomes, but have not been validated in older adults (especially aged 80+), including those with cognitive impairment. The objective of this project was to study how age-related role change effected the understanding of items on the PROMIS-57 Profile using cognitive interviews. Cognitive interviews were conducted with 38 adults, age 65+ with MoCA scores 10-30. Preliminary codes were created and then codes were added or modified as needed. Each interview was coded independently by two coders with differences resolved by consensus. The sample was 47% age 80+, 45% female, 18% African American, and 32% had a MoCA score between 10-17 (cognitively impaired). Thematic analysis of codes indicated that participants endorsed little or no impairment when they adapt to physical or cognitive disabilities by using economic means, instrumental support, physical aids, or by reducing activities. One respondent using grocery delivery services described no difficulty running errands or shopping. Another respondent reported no difficulty walking 15 minutes because they use a cane. Some reported no difficulty engaging in social roles when they restricted their activities due to disability or lack of appropriate social activities. Age-related changes effected responses on PROMIS-57 items. Findings suggest that age-related changes bias individuals to indicate less physical and cognitive impairment than their actual level of function. Physical functioning items show more bias for individuals with financial or instrument support, and social role items show more bias for those with restricted social networks.

**INFLAMMATION AND COGNITIVE FUNCTIONING IN OLDER ADULTS: THE ROLE OF GENDER AND OBESITY**

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Systemic inflammation is associated with steeper cognitive decline over time. Identifying potential moderators of inflammation is crucial for understanding inflammation's contribution to abnormal cognitive decline. This study examined whether inflammation predicted changes in cognitive functioning over time and explored the moderating effects of sex and BMI on this association. Data was collected from a longitudinal nationally representative data set. Data was collected from 2006/2008 and 2010/2012 waves. Participants, n=7,483, Age 71.39 years (SD = 9.24) ; 60.2% female, were categorized into groups based on BMI (i.e. normal, overweight, and obese). Sex and BMI significantly moderated the association between increased hs-CRP and lower cognitive functioning, b = -.22 (SE = .09), p = .01. Women with high BMI exhibit twice the risk of low cognitive functioning, b = -.49 (SE = .07), p < .0001, compared to men with high BMI, b = -.21 (SE = .08), p = .01. Men with normal BMI exhibited twice the risk of low cognitive functioning, b = -.49 (SE = .08), p < .0001, compared to women with normal BMI, b = -.24 (SE = .06), p = .0001. Inflammation and BMI are modifiable factors that may prevent or slow-down abnormal cognitive decline. Understanding the potentially sex-dependent role of adipose tissue in the impact of inflammation on cognitive function may be critical to understanding the pathogenesis of cognitive impairment late in life as well as identifying efficacious intervention targets.

**INTERACTIONS BETWEEN PLASMA AMYLOID AND AGING MARKERS TO DETERMINE CLINICALLY MEANINGFUL COGNITIVE DECLINE**

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**Background:** Brain amyloidosis is a well-known pathological hallmark of Alzheimer’s disease (AD) and can be early identified by measuring plasma amyloid-β (Aβ) status. Growing evidence implicates the biological mechanisms of aging, including chronic inflammation, mitochondrial dysfunction and neurodegeneration, in AD pathogenesis. This study aims to investigate the interactions between plasma Aβ status and aging markers on clinically meaningful cognitive decline.

**Methods:** This secondary analysis from Multidomain Alzheimer Preventive Trial (MAPT) enrolled 401 community-dwelling older adults (mean age ± SD: 76.7 ± 4.6 years) who had clinical dementia rating (CDR) scale as 0 or 0.5, and who had their plasma biomarkers measured: amyloidosis: Aβ42/40 ratio; inflammatory: tumor necrosis factor receptor type 1 (TNFR-1), interleukin-6 (IL-6), monocyte chemo-attractant protein-1 (MCP-1), C-reactive protein (CRP); mitochondrial dysfunction: growth differentiation factor 15 (GDF-15); neurodegeneration: neurofilament light chain (NFL). Cognitive decline was determined by diagnosed dementia and worsening CDR status. Cox regression and moderation modeling were applied to examine the interrelationships between biomarkers and risk of cognitive decline.

**Results:** Among 401 participants, 43.9% were cognitive normal (CDR=0) and 56.1% were mild cognitive impairment (CDR=0.5) initially. After 3.3 ± 1.1 years of follow-up, 7.0% of population evolved dementia and 34.2% had worsening CDR status. GDF-15 and NFL presented...
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

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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

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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/vmnuq/). 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

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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 on frame tilt may be accounted for with a phenomenological model whose two parameters describe the strengths of primary (P) and secondary (S) visual attractors which subjects use to infer SVV: