



AAN 64th ANNUAL MEETING ABSTRACT

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Abstract Title: Walking Speed, Handgrip Strength and Risk of Dementia and Stroke: The Framingham Offspring Study

Press Release Title: How Fast You Walk and Your Grip in Middle Age May Predict Dementia, Stroke Risk

Objective: We explored the association of two simple office based tests, walking speed (WS) and hand grip strength (HGS), with the risks of incident dementia and stroke/TIA, and with brain MRI and cognition.

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Background: Frailty and lower physical performance are frequent findings in persons with a wide range of subclinical and clinical brain injuries, and have been associated with an increased risk of dementia in the elderly. However, their predictive value in a middle-aged community sample is uncertain.

Design/Methods: Stroke- and dementia-free Framingham Offspring (n=2,410; mean age 62, 54% female) had WS, HGS, brain MRI and cognitive function assessed between 1999 and 2005. We related age-standardized HGS and WS to baseline volumetric brain MRI and age- and education-standardized cognitive function using multivariable logistic regression, and to incident stroke and dementia on follow-up using Cox models. All analyses were adjusted for age, sex and vascular risk factors.

Results: Over a follow-up period of up to 11years 34 persons developed incident dementia (28 AD) and 79 incident stroke/TIA. Slower WS was associated with a higher risk of dementia (HR=1.50[95% CI 1.07-2.11]/SDU,p=0.020) as well as with lower total cerebral brain volume[TCBV] ($\beta=-0.17\pm 0.06$,p=0.007) and poorer performance on tests of memory (visual reproduction[VR], $\beta=-0.06\pm 0.02$,p=0.009; paired associate learning[PAS], $\beta=-0.07\pm 0.02$,p<0.001), executive function (Trails B-A[TrB-A], $\beta=-0.06\pm 0.02$,p=0.004), visuo perceptual function (Hooper visual organization test[HVOT], $\beta=-0.07\pm 0.02$,p=0.002) and language (Boston Naming Test[BNT], $\beta=-0.06\pm 0.02$,p=0.006). Higher HGS was associated with a lower risk of incident stroke/TIA (HR=0.58[0.37-0.89],p=0.013) in persons over age 65 (n=53/784; but not in the overall sample). It was also associated with higher TCBV($\beta=0.39\pm 0.10$,p<0.001), VR($\beta=0.14\pm 0.03$,p<0.001), TrB-A($\beta=0.08\pm 0.03$,p=0.009), HVOT($\beta=0.17\pm 0.03$,p<0.001), BNT($\beta=0.11\pm 0.03$,p=0.002) and better abstraction (similarities test; $\beta=0.09\pm 0.03$,p=0.009).

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Conclusions: In a middle-aged community sample, WS and HGS were associated, respectively, with the risks of incident dementia and of stroke/TIA and with markers of subclinical brain injury. Thus WS and HGS might serve as clinical markers of the need for a more detailed assessment of brain function.

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