

## **Interactions between Speech Recognition in Noise, Mobility and Risk of Falling in Older Adults.**

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**Introduction:** Older adults often experience increased difficulties understanding speech in the presence of background noise even without or with mild hearing impairment (HI). HI has been associated with falls and slower gait speed. This study examined the association between speech recognition in noise, mobility and risk of falling in older adults using hearing in noise and mobility tests and self-reporting questionnaires.

**Method:** 100 Hebrew speaking older adults (50-70 years old) participated in this study. All subjects had preserved cognitive ability according to Montreal Cognitive Assessment (MoCA) and their hearing thresholds were measured at the range of 0.5-4kHz. Their speech perception in noise performance was measured using the Hebrew version of Words In Noise Test (WIN-H). The Hebrew WIN test consists of two lists of 35 common CVC words mixed with 6 talkers babble noise, at 7 SNRs from 24- to 0-dB SNR in 4-dB decrements. Each subject listened to two lists, one per ear, for open-set identification. The WIN-H results were quantified in terms of the 50% point calculated with the Spearman–Kärber equation. Mobility and balance were assessed using the TUG (Timed Up and Go) Test. In addition the Hebrew versions of the ABC questionnaire and the Amsterdam Inventory for Auditory Disability and Handicap (H-AIADH) were administered to all subjects.

**Results:** WIN-H performance H-AIADH scores were correlated to the TUG test results. No correlation was observed between the ABC questionnaire and TUG test results or the hearing in noise assessment tools.

**Conclusions:** Age-related declines of the auditory system may be early indicators of mobility and balance declines of older listeners. Further examination of these interactions is needed and should be considered in early detection of older adults at high risk of falling.

**Either Poster or Podium**

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