BACKGROUND: The Loewenstein-Acevedo Scale for Semantic Interferences and Learning (LASSI-L) has been shown to be sensitive to Alzheimer's Disease (AD) pathology among those with preclinical AD, however, LASSI-L's ability to
predict longitudinal cognitive and functional decline of pre-clinical AD has not been examined.

**Method:** We evaluated 97 older adults aged 54-98 who were diagnosed with amnestic mild cognitive impairment (aMCI) at Florida Alzheimer’s Disease Research Center initial visit. The mean age was 71.9 yr, 51% male, average education 15.7 yr, and mean MMSE score was 28.0. Participants had 3 to 5 visits over a follow-up time as long as 76.7 months. We examined the association of LASSI-L measures on the growth curve trajectory of Clinical Dementia Rating sum of Box (CDR-SOB).

**Results:** The growth curve model that best fit the CDR sum of box trajectory is a linear form and included the fixed and random effect of intercept and slope of time. After adjusting for age, gender, education, Hopkins Verbal Learning Test (HVLT) delayed recall and LASSI-L maximum storage capacity, worse performance on LASSI-L measures of vulnerability to proactive semantic interference (B2 cued recall, $\beta=-0.093$, se 0.004, $p=0.004$) and semantic intrusion (B2 cued intrusions, $\beta=0.053$, se 0.023, $p=0.02$) were statistically significant in predicting a steeper slope on the trajectory of decline in CDR-SOB.

**Conclusions:** The LASSI-L measures reflecting failure to recover from proactive interference and associated intrusions predicted the rate of cognitive/functional decline over time in amnestic MCI and demonstrated the utility of LASSI-L’s longitudinal prediction of prodromal AD.