# Bidirectional Interference between Speech and Non-Speech Tasks in College-Age, Middle-Aged, and Older Adults

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## ABSTRACT

The present study examined the divided attention effects of three non-speech tasks on concurrent speech motor performance. Participants included 60 healthy adults separated into three age groups of twenty participants each: college-age (20s), middle-aged (40s), and older adults (60s). Each participant completed a speech task once in isolation and once concurrently with each of three non-speech tasks: a semantic decision linguistic task, a quantitative comparison cognitive task, and a manual motor task. The non-speech tasks were also performed in isolation. The speech task involved repeating a target phrase each time a beep sounded, for a total of fourteen repetitions. Dependent measures for speech were derived from lip kinematic recordings from a head-mounted strain gauge system. Dependent measures for the other tasks included timed response counts and accuracy rates. Results indicated significant divided attention effects impacting speech and non-speech measures in the linguistic and cognitive conditions, and impacting speech measures in the manual motor condition. There was also a significant age effect for utterance duration. The results increase what is known about bidirectional interference between speech and other concurrent tasks, as well as age effects on speech motor control.