

## **The Effort Required To Comprehend A Short Documentary In Noise: A Comparison Of Younger And Older Adults**

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**Objectives:** To measure the listening effort required to understand speech in noise using a comprehension task.

**Background:** Typically, word or sentence recognition tests are used to measure the listening effort required to understand speech in noise. To date, no studies have used a speech comprehension task to evaluate listening effort using a dual-task paradigm.

**Methods:** Each participant completed two single-tasks (in noise) and a dual-task condition: (1) comprehension of a short documentary, (2) vibrotactile detection of a tone, and (3) both single tasks administered concurrently. Listening effort was defined as the proportional dual task cost (pDTC) of the participants<sup>TM</sup> performance on a questionnaire related to the documentary, and of their response time (RT) to the vibrotactile stimulus. Three groups of participants were recruited (n= 18/group): (1) young normal-hearing adults, (2) young normal-hearing adults listening to low-pass filtered (above 3 kHz) speech (to simulate presbycusis), and (3) older adults with normal hearing sensitivity up to and including 3 kHz.

**Results:** Under all conditions, group 1 performed significantly better on the speech comprehension task than the other two groups. No difference in comprehension scores was found between group 2 and 3. Compared to the single task condition, each groups RT to the vibrotactile stimulus was significantly longer under the dual-task condition. The older adults had significantly longer RTs compared to the two other groups. However, statistical analyses failed to show a significant difference in pDTC across the three groups.

**Conclusions:** Independently of the age group, processing a documentary in noise is significantly more difficult when the listener has poorer hearing sensitivity in the higher frequencies. Although the older adults had significantly longer RTs on the secondary task than the two younger groups, the pDTCs showed no differences in listening effort across the three groups.