

TITLE: The Effects of Auditory Training on Elderly Hearing Impaired Listeners with Cognitive Decline

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The purpose of this study was to determine if Elderly Hearing Impaired (EHI) listeners with and without cognitive decline show improvement in cognitive and auditory working memory tests after auditory training. Very little research has been conducted to study EHI listeners with and without cognitive decline and learning-induced plasticity on auditory function. As rate of cognitive decline in the aging population in the United States increases, it becomes more urgent to find ways to assist these individuals in every day functioning.

In this pilot study, specific listening tasks designed to improve peripheral and central auditory functioning in aging individuals with hearing loss and cognitive decline were used. Four subjects between the ages of 65 to 80 with bilateral sensorineural hearing loss who were previously diagnosed with moderate cognitive decline were tested for the pilot stage of this study. These subjects were recruited from the Arbor Springs Health and Rehabilitation Center in Opelika, Alabama. Degree of hearing loss was measured using a portable audiometer and a baseline was established for both auditory and cognitive tasks using Angel Sound™ software and several working memory tasks. Each subject was trained according to his or her preliminary results using Angel Sound™ software over a four-week period (ten sessions).

Results during the post-intervention stage demonstrated that the auditory and cognitive training significantly impacted auditory working memory tests and somewhat impacted consonant recognition tests. This showed that auditory training does impact cognitive functioning over time. The results of our study support the view that the central auditory nervous system can be trained by means of specific listening tasks and may even have an impact on cognitive processing. This research is still in progress; the same testing methods and procedures are in use, but the subjects are different. Testing continues to solidify the previous conclusion regarding the improvement of cognitive functioning with auditory training.

This work shows that simple, thirty minute training sessions conducted twice a week can significantly impact the cognitive functioning and overall quality of life of these EHI patients; the software is free and simple to use, which would allow for easy utilization by health care workers working with these patients.

