

## **SPEECH AUDIOMETRY, ATTENTION AND AGING**

Hearing acuity and several cognitive abilities are typically subject to age-related decline. A potential interplay of these abilities has come into strong clinical-scientific focus in recent years. Amongst other, it may have important consequences for verbal communication, especially in difficult acoustic situations.

In the course of the present project, different forms of attention have been considered in the context of age-related changes. The aim is to obtain a deeper understanding of the underlying mechanisms and to take them into account in the framework of appropriate speech audiometric methods. Especially by investigating static and dynamic "cocktail party situations" further insights could be gained. In contrast to static situations, the target speaker may change in dynamic situations. Such situations relevant to everyday life were examined by speech audiometry considering younger and older subjects with and without hearing impairment. Age- and hearing loss-related differences were found, especially for the ability to divide attention and to attend to multiple potential target talkers. In contrast, switching attention between talkers showed no significant study group differences. In addition, several attention-related mechanisms could be identified with respect to target speaker position, temporal processing, and possible error sources.

In the proposed follow-up project, these mechanisms will be explored in more detail in light of individual auditory and cognitive performance. These topics include a hemisphere difference in the processing of speech signals that may be more pronounced in dynamic situations, sluggishness of switching spatial auditory attention, and linguistic factors in the sense of semantic context effects that have not yet been taken into account. By gaining further insights in these areas, the project offers the chance to establish a controlled, ecologically valid setting for clinical and scientific purposes based on speech audiometry. Thus, it can provide support for the evaluation of modern hearing rehabilitation technologies and the comprehensive diagnostics of auditory and cognitive abilities.

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