

Prof. Dr. Marlies Knipper

Tübingen Hearing Research Centre, Dept. of Otorhinolaryngology, Head and Neck Surgery, Eberhard Karls University, Tübingen

"If you want to keep your brain sharp, take care of your ears"

It has recently been reported that hearing loss is associated with a significantly increased risk of developing dementia (Livingston et al., 2017, Lancet). The underlying connection between hearing loss and cognitive loss remains speculative and is attributed, among other aspects, to increasing mobility loss in hearing impaired people with untreated deafness. However, there has been evidence for some time (including our own research) that the causes between hearing and 'cognition' could be much more subtle, and may be related to the different functions of auditory fibres for normal hearing and brain function. We will discuss and examine such a differential function of hearing fibres for brain functions in different contexts: (i) auditory fibre types can influence our brain in very different ways during hearing development, (ii) they have very different vulnerabilities to noise and stress, as well as to age, (iii) they have very different functions for our understanding of language and memory performance, (iv) accordingly, they have very different consequences on language understanding and memory performance when injured.

With regard to our responsibility for members of future generations, who are getting older and at an increasing risk of developing hearing loss and dementia due to different leisure activities, questions and projects for the research and restoration of differential functions of auditory fibres should be pushed, and should be initiated and integrated into future therapy concepts as well as future strategies for the treatment of congenital and acquired hearing disorders.

Prof. Dr. Marlies Knipper has been a university professor of molecular hearing physiology at the Hearing Research Centre of the Department of Otorhinolaryngology, Head and Neck Surgery, at Eberhard Karls University in Tübingen since 2009. Her research focuses on the causes of congenital deafness, tinnitus, age, and noise deafness, and the relationship between deafness and cognitive deficits.