

## **Cognitive contributions to understanding acoustically challenging speech**

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How does hearing impairment affect the way our brains process speech? I will review data from behavioral and brain imaging studies that speak to the added cognitive demands associated with acoustic challenge. Evidence from multiple sources is consistent with a shared resource framework of speech comprehension in which domain-general cognitive processes supported by discrete regions of frontal cortex are required for both auditory and linguistic processing. The specific patterns of neural activity depend on the difficulty of the speech being heard, as well as the hearing and cognitive ability of the listeners. I will present neuroimaging data from listeners with normal hearing, age-related hearing loss, and cochlear implants implicating executive attention networks in understanding acoustically challenging speech. Although frequently studied in the context of age-related hearing loss, these principles have broader implications for our understanding of how auditory and cognitive factors interact during spoken language comprehension.

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