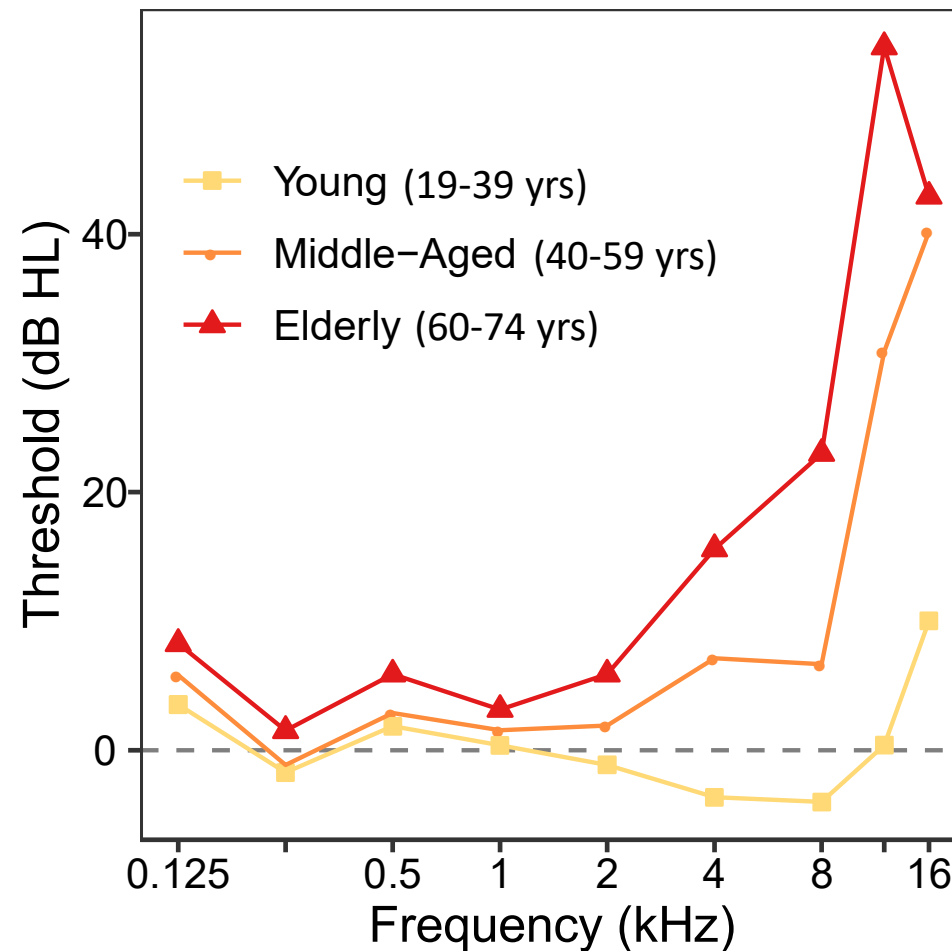


Age-related hearing loss and its effects on communication

Chris Plack

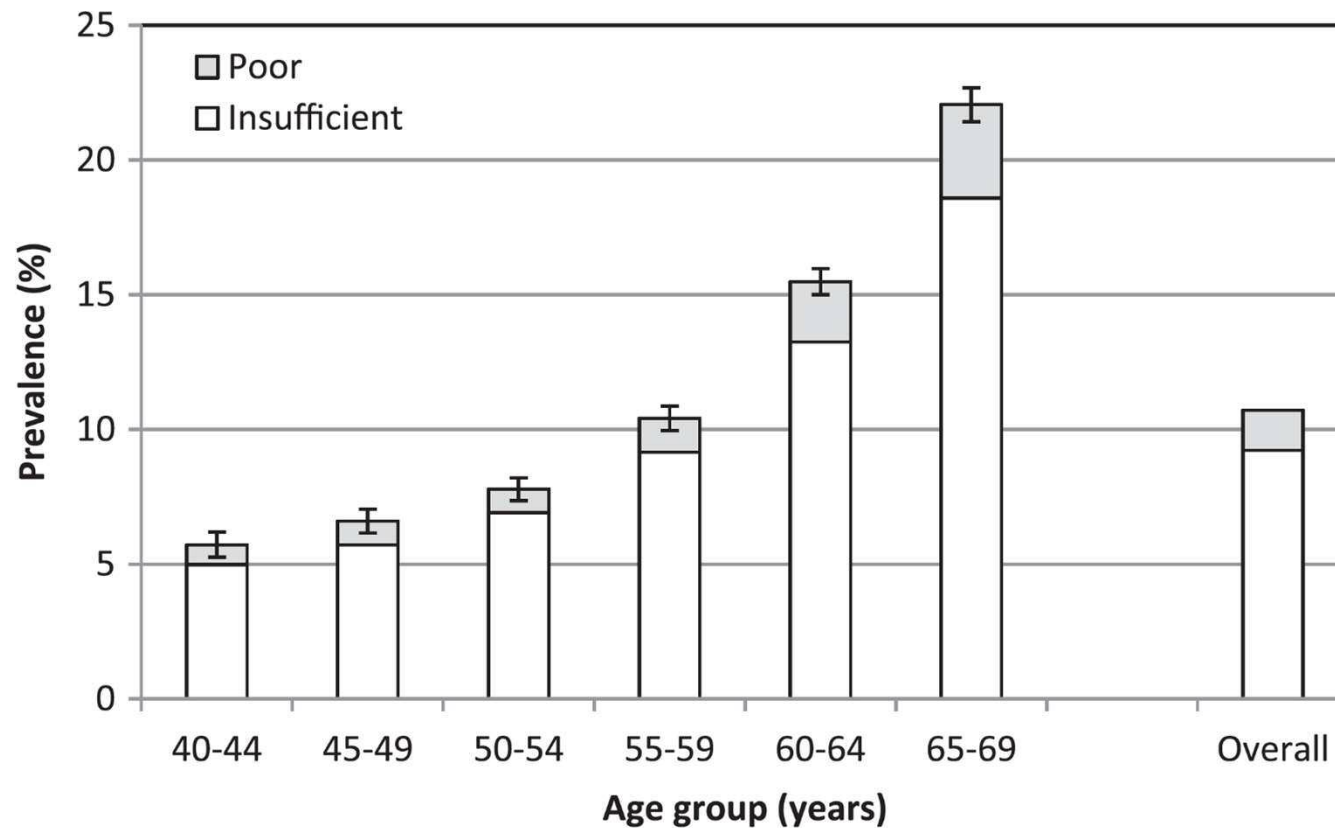
chris.plack@manchester.ac.uk

Effects of Age on Hearing Thresholds



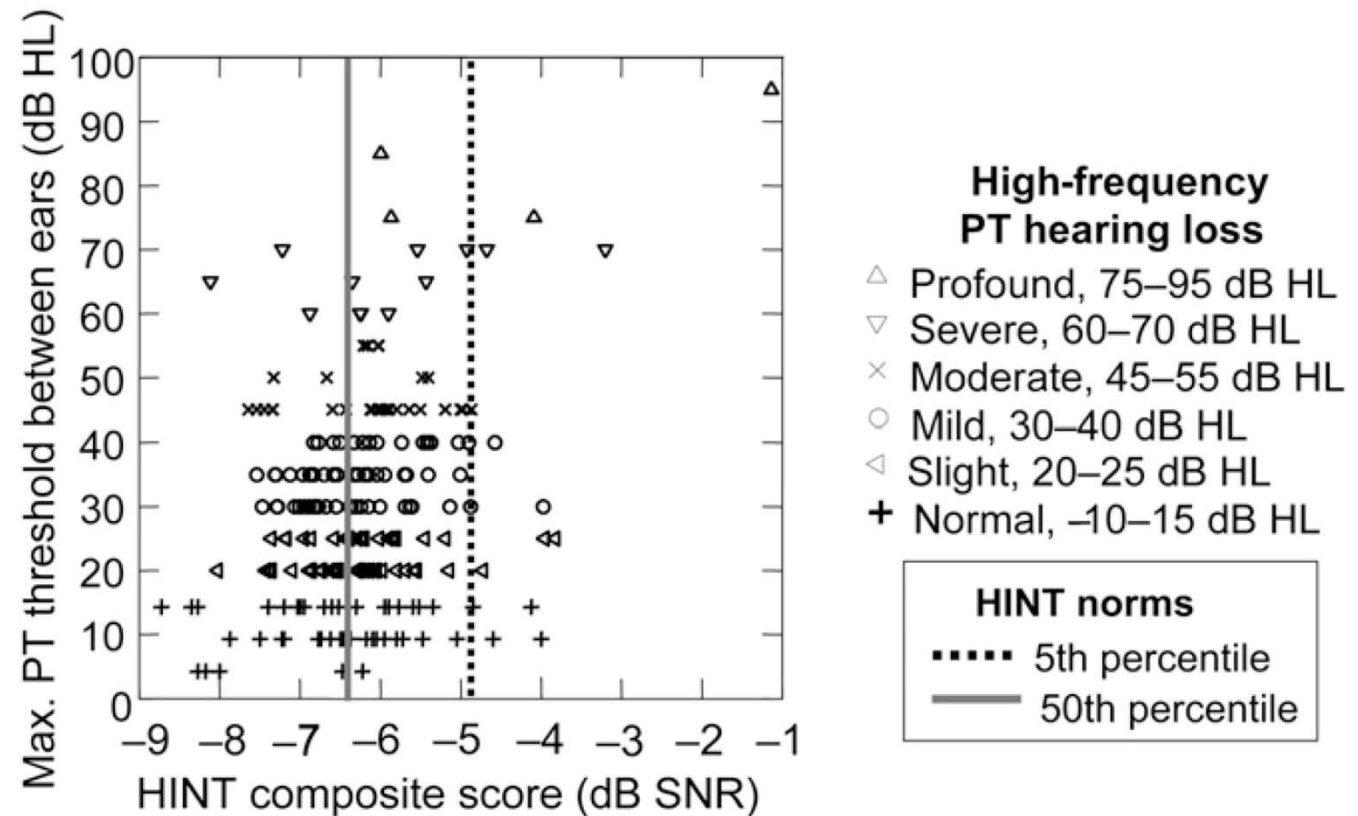
Carcagno and Plack
(2020)

Effects of Age on Speech-in-Noise Difficulties

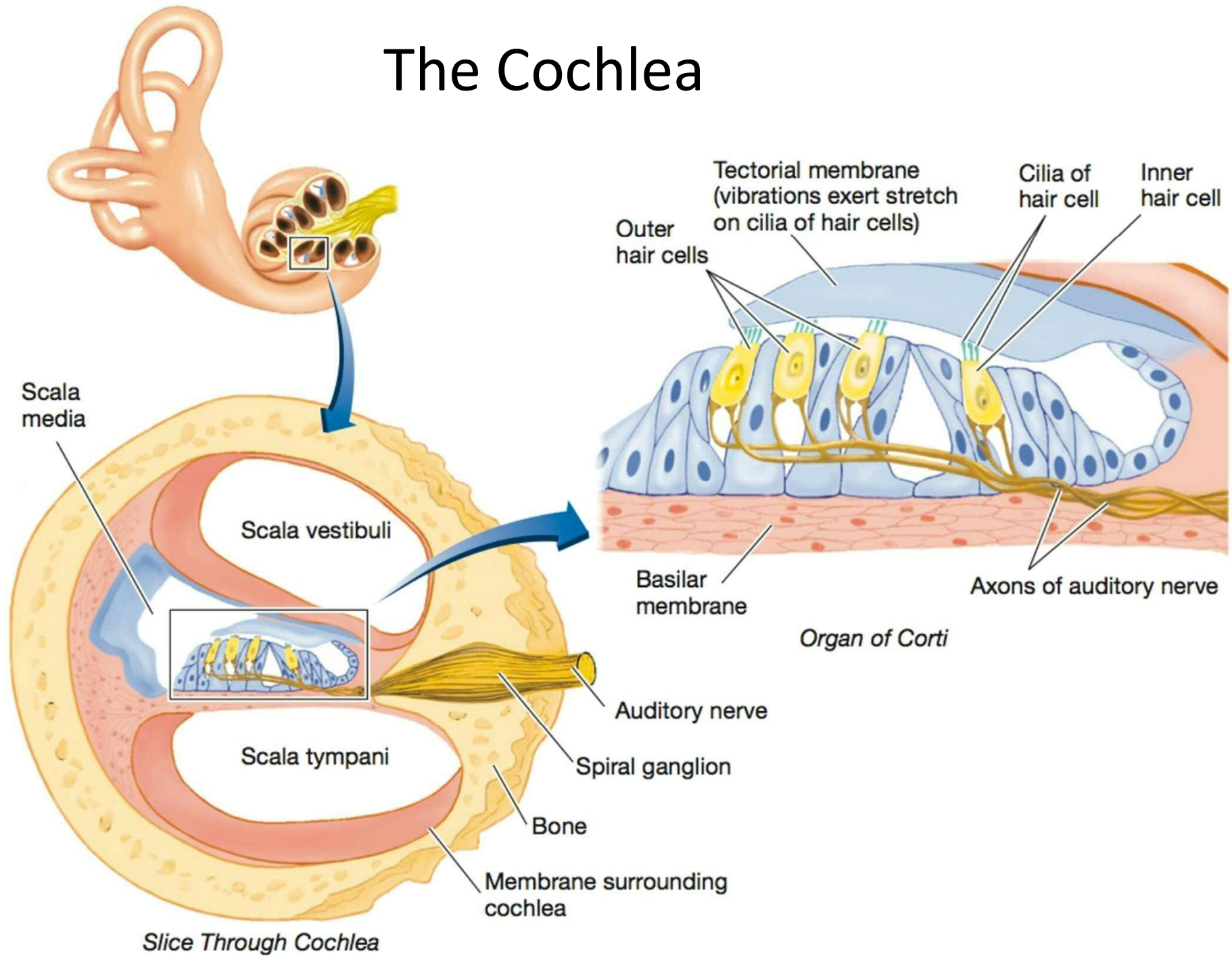


Dawes et al. (2014), UK Biobank, n = 165,000, digit triplet test

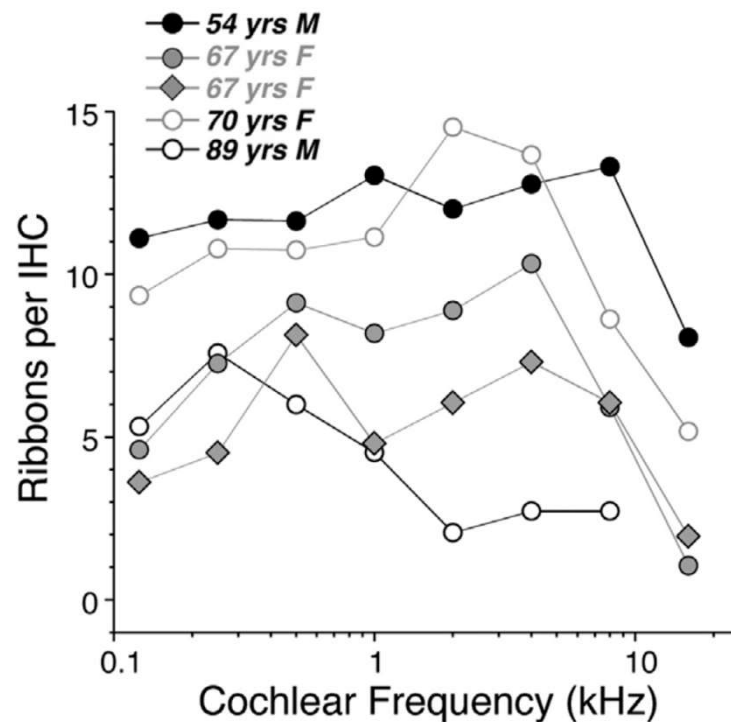
The Clinical Audiogram is a Poor Predictor of Speech-in-Noise Performance



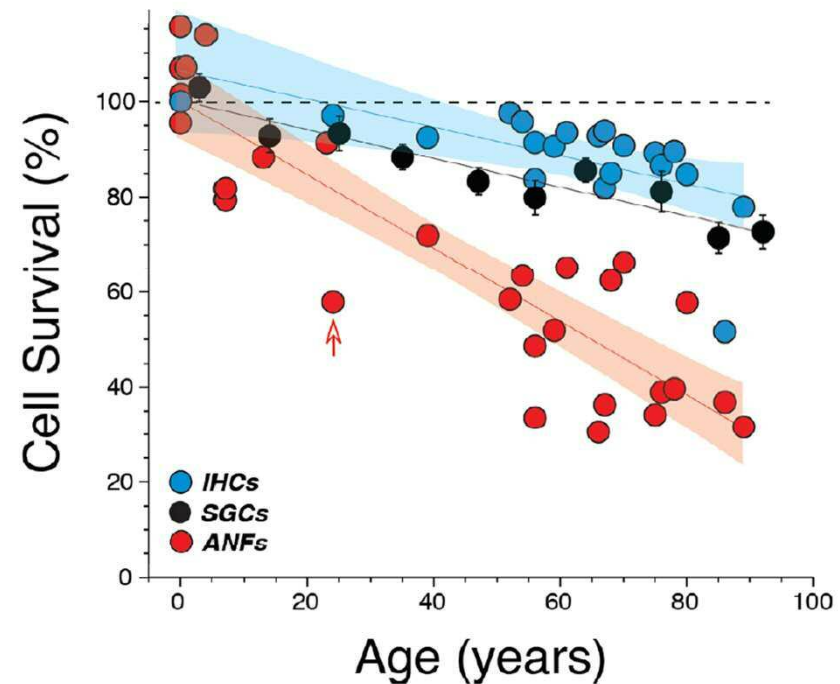
The Cochlea



Ageing Is Associated With Loss of Cochlear Synapses and Auditory Nerve Fibres (greater than predicted by loss of hair cells)

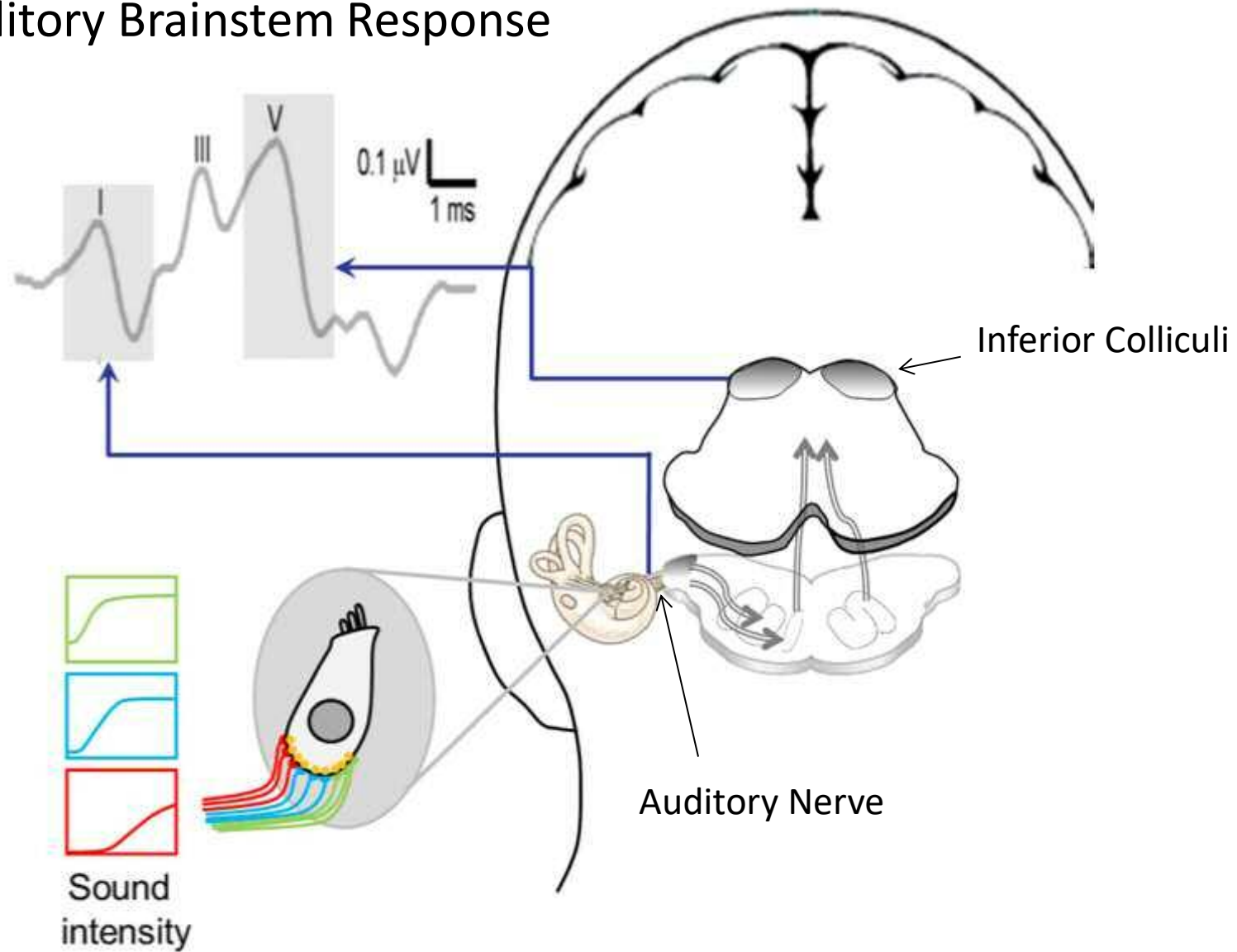


Viana et al. (2015)



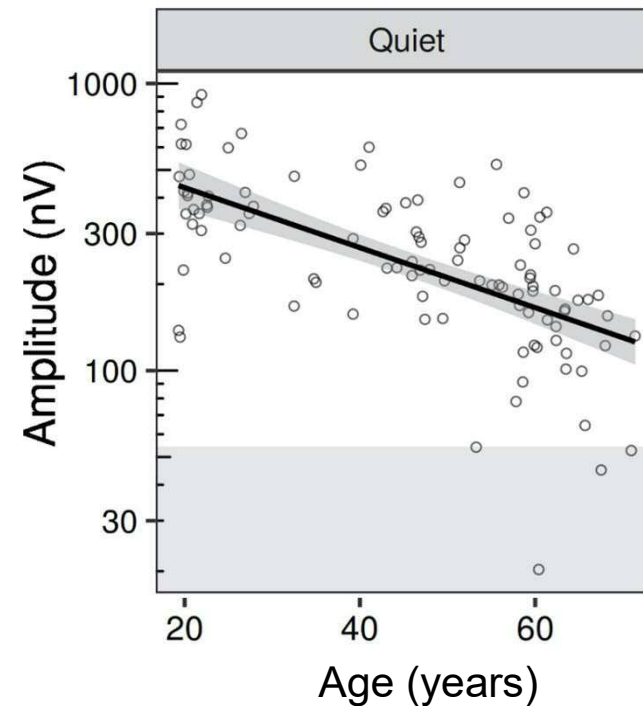
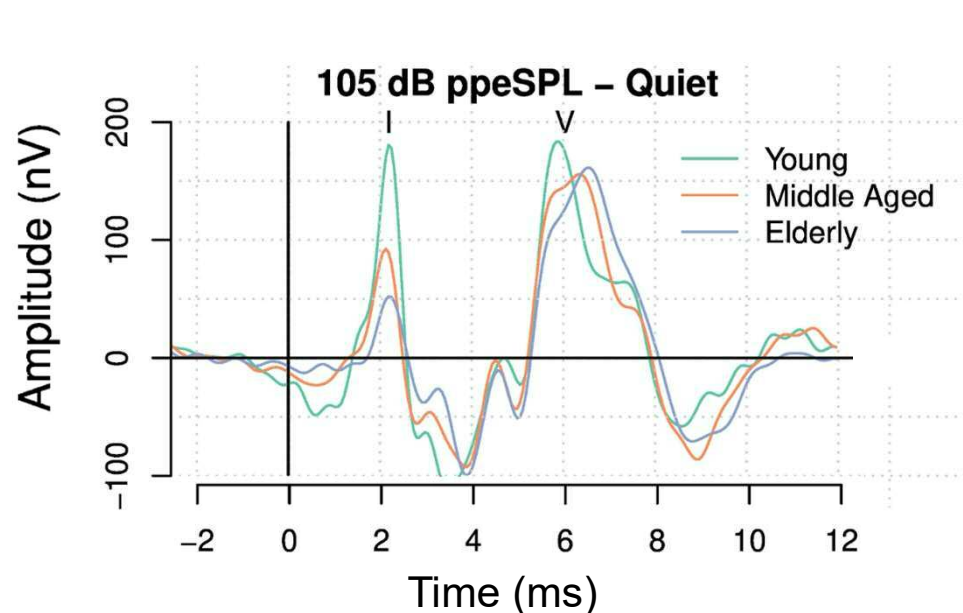
Wu et al. (2018)

Auditory Brainstem Response



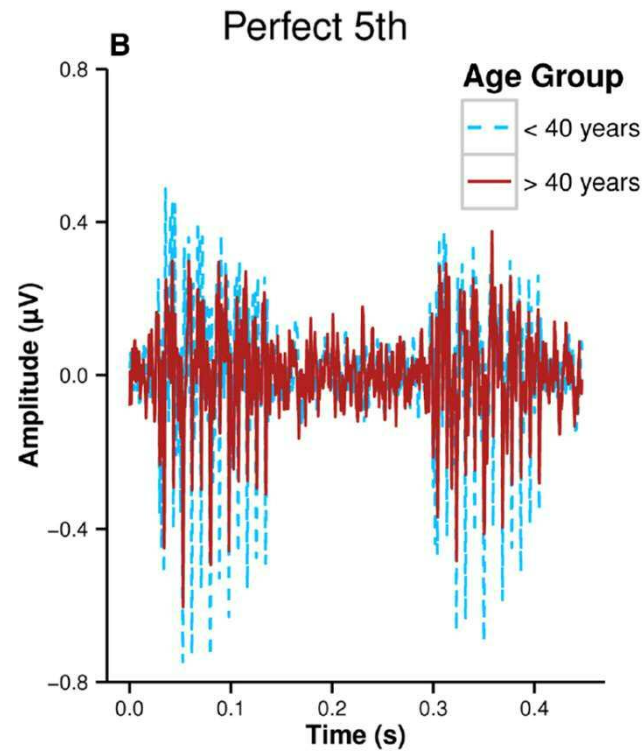
Schaette and McAlpine (2011)

Ageing Affects Auditory Nerve Response, Even Controlling for Audiometric Threshold

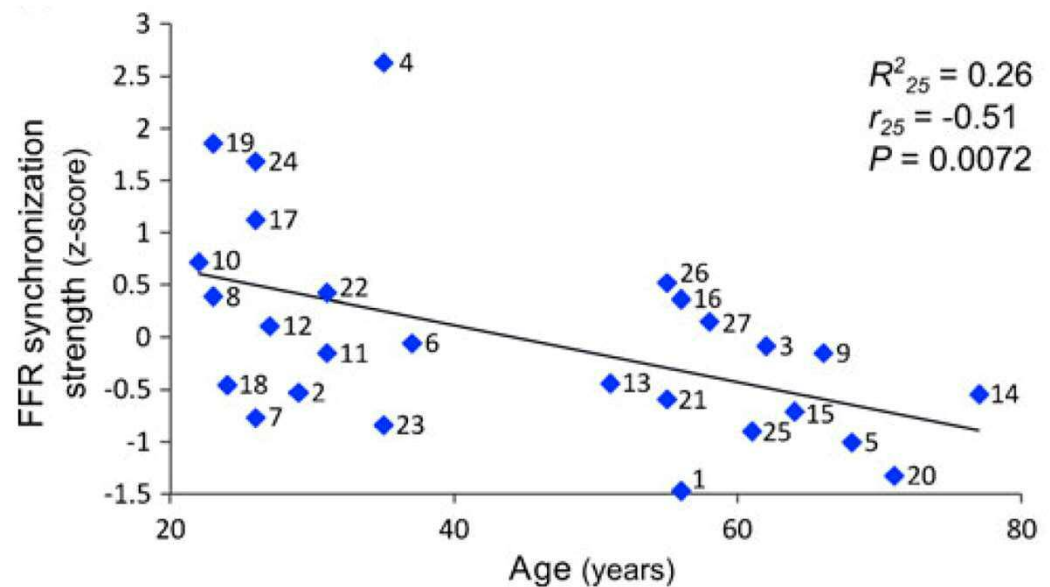


Carcagno and Plack (2020)

Ageing Affects Brainstem Neural Response



Bones and Plack (2014)



Marmel et al. (2013)

Summary

- Ageing is associated with a clinical (audiometric) hearing loss, especially at high frequencies, and with difficulties understanding speech in noisy environments
- Clinical hearing loss is a poor predictor of speech-in-noise performance
- Performance may be affected by age-related “sub-clinical” neural loss and demyelination
- A diagnostic approach focused on neural deficits may provide a clearer understanding of the listening difficulties experienced by older people

Funders:

