

Abstract 2.

Preferred presentation session: Free Paper

Thematic area and presentation category: Hearing loss prevention.

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Title: An investigation of musicians and 'hidden hearing loss'.

Background: Hidden hearing loss (HHL) is a term used to describe noise-induced cochlear neuropathy involving the selective loss of high-threshold auditory nerve fibres without affecting auditory thresholds, but resulting in perceptual deficits such as difficulty understanding speech in background noise. Previous research suggests that musical training, a complex auditory process, may enhance auditory abilities and provide a compensatory effect, such that musically trained noise-exposed people will have fewer problems understanding speech in noise compared to non-musically trained people with similar levels of noise exposure.

Methods: We have implemented a comprehensive behavioural test battery comprising an online survey, audiology, and auditory processing tests plus a range of cognitive measures to investigate the interactive effects of noise and music on auditory abilities in over 80 adults, aged 30-55 years with clinically normal hearing thresholds.

Results: Initial results suggest that despite their exposure to noise, musicians have enhanced auditory processing abilities (sharper temporal and spectral encoding of sound) and outperform non-musicians on a number of auditory tasks. Their performance on cognitive measures (attention and working memory) also appears to be particularly robust.

Conclusions: Our results have potential clinical relevance for designing rehabilitation and training programs that focus on developing music-related skills, which could be used to assist people in the wider population presenting with significant difficulty hearing in background noise.