



Title [Using a Bone-Conduction Headset to Improve Speech Discrimination in Children with Otitis Media with Effusion](#)

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Main Points

- This study by Holland Brown et al. 2019 considered whether bone conduction (BC) headsets, like those available relatively cheaply in the leisure industry could be used with a remote microphone to improve speech access for children with otitis media with effusion (OME), also known as glue ear.
- Glue ear is very common in young children. This build-up of fluid in the middle ear can cause a fluctuating temporary mild-to-moderate hearing loss. This level of hearing loss can adversely impact the development of speech and language, listening, attention behaviour and wellbeing.
- Air conduction hearing aids can be used to provide amplification, making sounds louder, but as the air conduction thresholds may change and improve over time this may result in sounds being too loud. Bone conduction hearing aids do not need as frequent monitoring as bone conduction thresholds will not change significantly when a child has glue ear. These aids however are expensive and require a transducer which has to be held tightly to the skin on a headband. Given how common glue ear is in the early years this research aims to identify a low-cost solution.
- A one size fits all bone conduction headset that has become popular for sports activities to link phones by blue tooth, has the potential to be an affordable solution when paired with a bluetooth microphone to promote speech access for children at home and in education settings.
- Nineteen children between the ages of 3 and 6 years who were identified with a hearing loss worse than 25dBHL took part in this study. The childrens' ability to discriminate words in quiet and noise over distance, were measured with and without the use of a headset. An automated version of the McCormick Toy Test was used, where toys are used to represent the test items of pairs of similar sounding words with similar vowels and different consonants. The test was set up to represent a noisy classroom where the child was sitting 3m away from the teacher.
- Results showed that use of the BC headset significantly improved speech discrimination both in quiet and noise.

Research into Practice

Bone conduction headsets could be used for children with glue ear, particularly in the context of a short term intervention, whilst waiting for grommet surgery or audiological intervention, at an important period for early development.

The award winning Hear Glue Ear App can be shared with families providing information and videos about improving speech and language skills

Further information is available at www.hearglueear.co.uk