

Hearing following aneurysmal subarachnoid haemorrhage and the benefit of an assistive listening device.

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Background

People surviving an aneurysmal subarachnoid haemorrhage (aSAH) often report hearing difficulties. Previous studies have demonstrated that auditory processing disorder (APD), rather than peripheral hearing loss, is the primary underlying pathology. Assistive listening technology (ALT) can be used to manage APD but not explored following aSAH. The aim of this study was to assess the benefit of ALT.

Method

This was a pilot single-arm intervention study of an ALT for APD following aSAH. Patients who reported subjective hearing difficulty following aSAH were identified from the Wessex Neurological Centre aSAH database. Baseline peripheral hearing was assessed using PTA and individuals with peripheral hearing deficits were excluded. Speech-in-Noise was evaluated with a new test rig using the Bamford-Kowal-Bench (BKB) test at 60dB, with 60dB and 65dB noise conditions. BKB performance was compared with and without ALT.

Results

Fourteen aSAH patients with self-reported hearing loss were included in the analysis. In the 60 dB noise condition, the mean BKB words correctly repeated without the ALT was 25%, which increased to 99% with the ALT. In the 65 dB noise condition the mean BKB words correctly repeated without the ALT was 1%, which increased to 97% with the ALT.

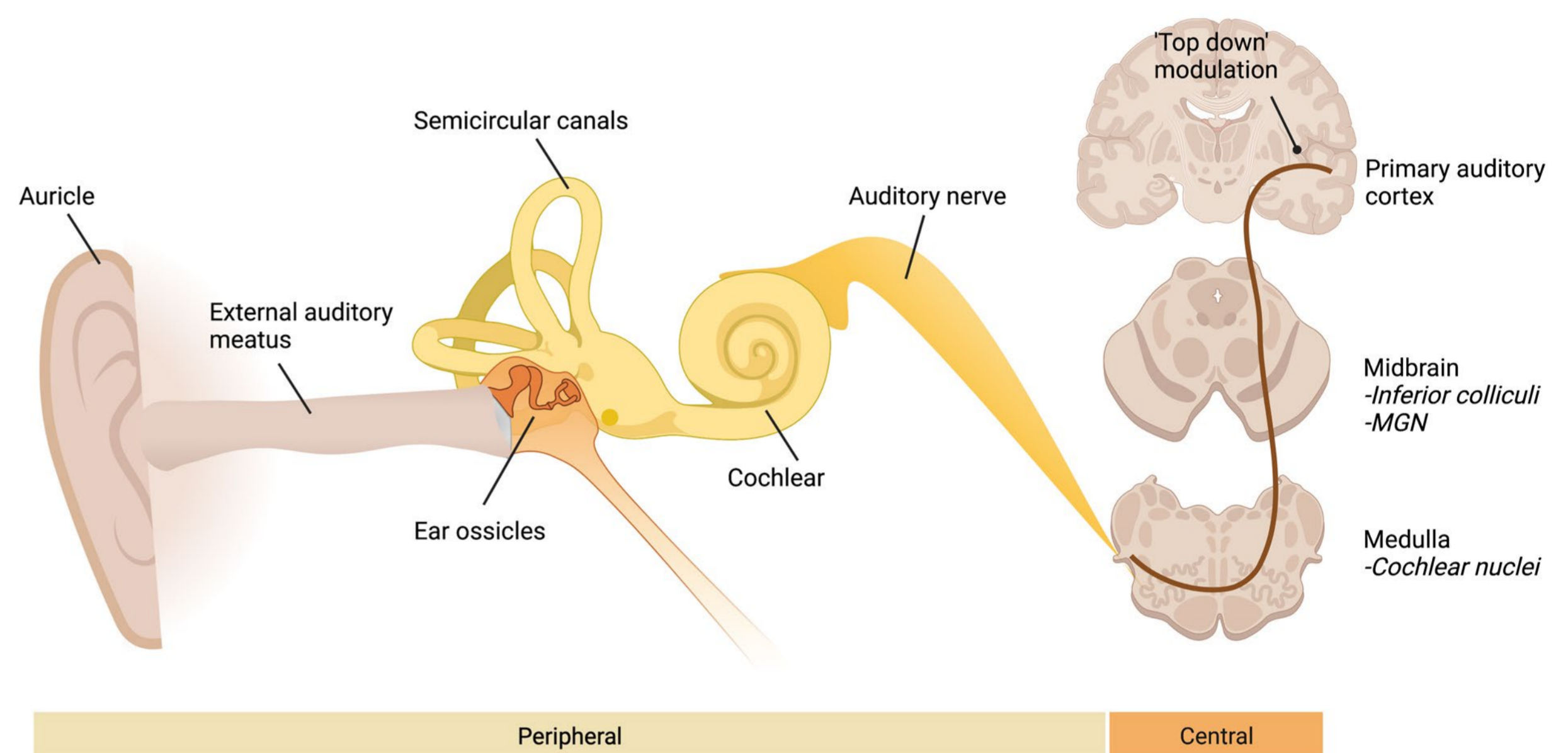


Figure 1. Hearing pathway divided into peripheral and central. *Created with Biorender.com*

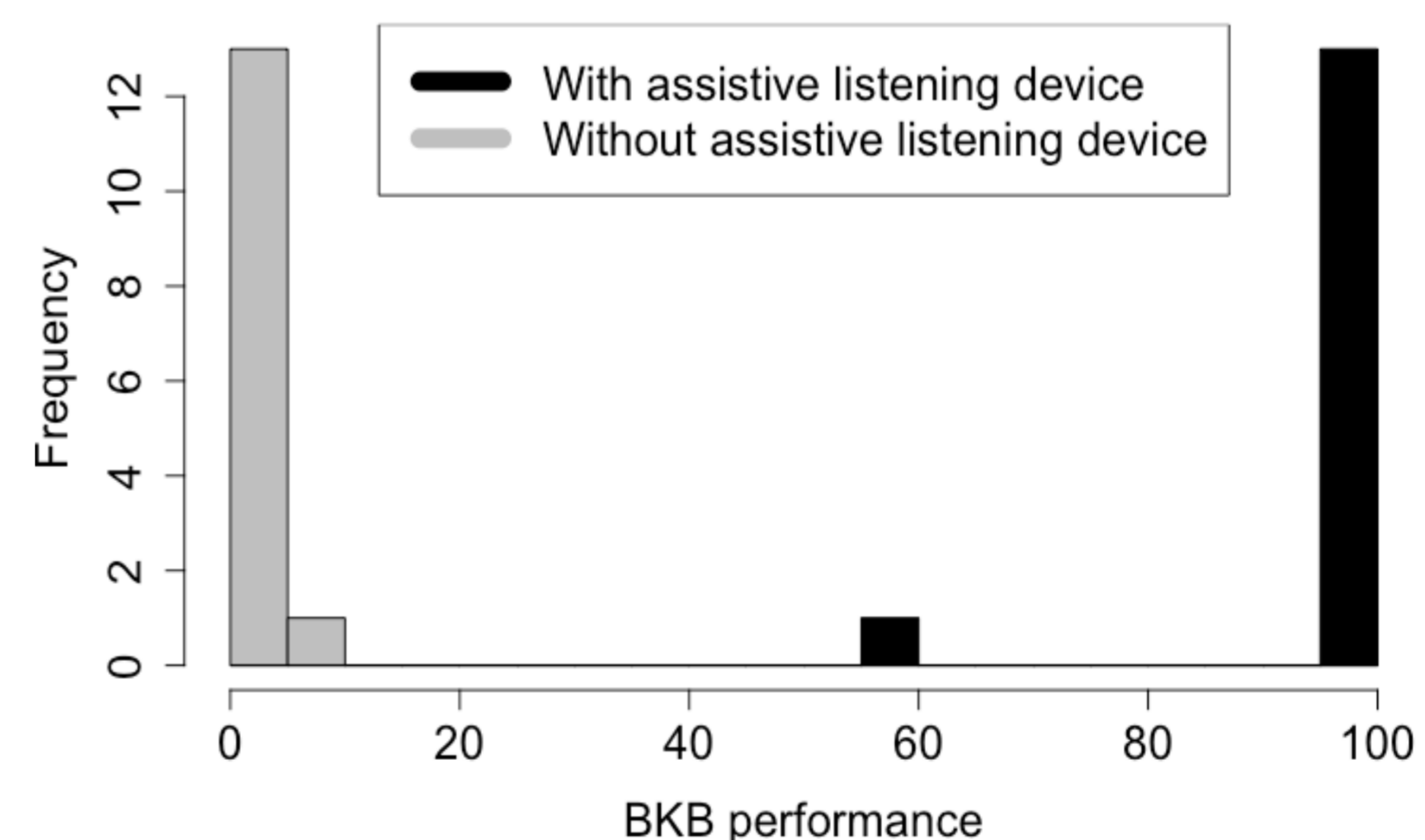


Figure 2. 65 dB noise condition. Histogram of BKB performance with and without a Phonak Roger assistive listening device (ALD). Higher BKB score signifies better hearing

Conclusions

This study demonstrates the test rig is an effective way of assessing benefit of ALT. Studies are underway to demonstrate the importance of ALT in meeting the needs of patients who are deaf, or deaf with additional needs, or whose deafness is not their primary need, or have APD, rather than peripheral hearing loss.