

Title: Comparing performance on a speech-in-noise task among personal sound amplification products

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Abstract: Personal sound amplification products (PSAPs) are over-the-counter devices with varying degrees of amplification and sound processing capabilities. Many of these devices feature directional microphones and/or noise-reduction technology that may help those with nearly-normal hearing or a mild hearing loss to understand speech in adverse listening situations. Participants in this study were middle-aged adults with a range of hearing thresholds (age range 50-64 years, mean 59.2 years; better-ear HFPTA range = 3.75 – 42.5 dB HL, mean 21.55 dB HL). They were fit binaurally with one of four PSAPs (Bose Hearphones, NuHeara IQ Buds, Tweak Focus, Sound World Solutions CS50+). Directional microphone capabilities were enabled for each device and amplification levels were verified with on-ear measures using a fitting procedure based on NAL-NL2 targets and a 7-point loudness discomfort level scale. Participants completed a speech perception task in which target sentences were presented from a frontal loudspeaker at 50 and 65 dB A while maskers (steady-state speech-spectrum noise, single-channel envelope modulated noise, or two competing talkers) were played from loudspeakers 60 degrees left and right at SNRs of 0 and -6 dB. Performance was measured as percentage of target words correctly repeated back. Participants also used 10-point scales to rate the physical comfort of the devices and listening effort during the task, and completed a post-experiment questionnaire about their impressions of the device. Results suggest that differences exist among PSAP devices in benefit, physical comfort, and ability to match NAL- NL2 targets. This presentation will elaborate on these results and compare how the various devices handle different type of maskers. Post-experiment questionnaires and effort ratings also will be discussed in the context of how people are likely to use and adopt over-the-counter amplification.

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Either Poster or Podium

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