Reduction of listening effort with binaural algorithms in hearing aids: an EEG study

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Abstract

The listening effort can be measured with P300 responses at the start of low SNR conditions (Winneke et al. 2013). The listening effort is reduced with the DuoPhone binaural algorithm (Kiessling et al. 2013). The binaural algorithm during speech perception in noise improves the auditory processing: Amplitude N1 (influence of SNR) increases (Winneke et al. 2013). The DuoPhone is able to increase the capacity of the working memory and to reduce the cognitive load based on the assumption that a portion of the cognitive resources which are then missing for later cognitive processes (see shared resource hypothesis, Rabitt et al. 1968). The listening effort can be measured with P300 responses at the start of low SNR conditions (Winneke et al. 2013). The listening effort is reduced with the DuoPhone binaural algorithm (Kiessling et al. 2013). The binaural algorithm during speech perception in noise improves the auditory processing: Amplitude N1 (influence of SNR) increases (Winneke et al. 2013). The DuoPhone is able to increase the capacity of the working memory and to reduce the cognitive load based on the assumption that a portion of the cognitive resources which are then missing for later cognitive processes (see shared resource hypothesis, Rabitt et al. 1968).

Introduction

DuoPhone reduce the listening effort by making use of presenting the phone signal bi-aurally using a DuoPhone digital hearing aid.

Participants & Methods

Test sites: 1) Private volunteers, 2) DuoPhone DP, 3) DuoPhone DP and test ITIS, 4) DuoPhone DP and test ITIS

Test condition: 1) Off, 2) Low SNR, 3) High SNR

Results

Discussion and Take Home Message

The binaural algorithm is able to increase the capacity of the working memory and to reduce the cognitive load based on the assumption that a portion of the cognitive resources which are then missing for later cognitive processes (see shared resource hypothesis, Rabitt et al. 1968).

References


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Latzel et al. 2013) after stimulus onset