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## Effects of an auditory lateralization training in children suspected to central auditory processing disorder

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**Introduction:** Central auditory processing disorder [(C)APD] refers to a deficit in auditory stimuli processing in nervous system that is not due to higher-order language or cognitive factors. One of the problems in children with (C)APD is spatial difficulties which have been overlooked despite their significance. Localization is an auditory ability to detect sound sources in space and can help to differentiate between the desired speech from other simultaneous sound sources. Aim of this research was investigating effects of an auditory lateralization training on speech perception in presence of noise/competing signals in children suspected to (C)APD.

**Methods:** In this interventional study, 60 children suspected to (C)APD were selected based on multiple auditory processing assessment subtests. They were randomly divided into two groups: control and training groups. Training program consisted of detection and pointing to sound sources delivered with interaural time differences under headphones for 12 formal sessions. Spatial word recognition score and monaural selective auditory attention test were used to follow the auditory lateralization training effects.

**Results:** This study showed that in the training group, mSAAT score and spatial WRS in noise ( $p$  value  $\leq 0.001$ ) improved significantly after the auditory lateralization training.

**Conclusions:** We used auditory lateralization training for six weeks and showed that auditory lateralization can improve speech understanding in noise significantly. The generalization of this results needs further researches.

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