

Amplitude Modulation Perception Of Children Suspected Of Auditory Processing Disorder

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Objectives: This study investigated temporal processing abilities by examining the detection of non-speech amplitude modulation in children suspected of auditory processing disorder (APD), typically developing children and normal hearing adults.

Background: Amplitude modulation (temporal envelope) cues are important for speech recognition in noisy environments. Shallow modulation depth can be discriminated by adults at slow modulation rates. Typically developing children need greater depth of modulation for detection of amplitude modulation cues, although the function describing detection is similar to adults [i.e., modulation detection is better for slower than faster rate]. Children suspected of APD often complain of listening difficulties in the presence of noise despite having normal hearing sensitivity. The extent to which children suspected of APD can extract the temporal envelope cues is not well understood.

Methods: Twenty-two typically developing children, 22 children suspected of APD and 30 normal hearing adults participated in the study. A three-alternative forced choice adaptive procedure was used to obtain amplitude modulation discrimination thresholds at modulation frequencies of 20, 32, 100 and 200 Hz.

Results: All listeners had better thresholds at 20 Hz compared to 200 Hz. There were no significant differences between typically developing children's and adults thresholds. Children suspected of APD had significantly poorer thresholds at both 20 and 200 Hz compared to typically developing children and normal hearing adults.

Conclusions: Children suspected of APD have poor amplitude modulation discrimination which may reflect poor temporal processing and could impact auditory performance in noise.