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Speech-Processing Fatigue in Children: Auditory Event-Related Potential and Behavioral Measures

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Purpose Fatigue related to speech processing is an understudied area that may have significant negative effects, especially in children who spend the majority of their school days listening to classroom instruction.

Method This study examined the feasibility of using auditory P300 responses and behavioral indices (lapses of attention and self-report) to measure fatigue resulting from sustained listening demands in 27 children ($M = 9.28$ years).

Results Consistent with predictions, increased lapses of attention, longer reaction times, reduced P300 amplitudes to infrequent target stimuli, and self-report of greater fatigue were observed after the completion of a series of demanding listening tasks compared with the baseline values. The event-related potential responses correlated with the behavioral measures of performance.

Conclusion These findings suggest that neural and behavioral responses indexing attention and processing resources show promise as effective markers of fatigue in children.

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