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

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doi:10.1044/2016_JSLHR-H-16-0052

History: Received February 8, 2016; Revised May 18, 2016; Accepted December 5, 2016
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.

Acknowledgments

This work was supported, in part, by Institute of Educational Sciences Grant R324A110266 to Vanderbilt University (Nashville, TN; awarded to Fred H. Bess) and National Institute of Child Health & Human Development Grants P30 HD15052 and U54 HD083211 to Vanderbilt Kennedy Center. This research was also supported by the Dan and Margaret Maddox Charitable Fund. The content expressed is that of the authors and do not necessarily represent official views of the Institute of Educational Sciences, the U.S. Department of Education, or the National Institutes of Health. Data management was supported, in part, by the Vanderbilt Institute for Clinical and Translational Research (UL1 TR000445 from National Center for Advancing Translational Services and National Institutes of Health). We thank Dorita Jones for assistance with event-related potential data processing, as well as students and study staff who assisted in participant recruitment and data collection, including Nick Bennett, Hilary Davis, Andy DeLong, Caralie Focht, Emily Fustos, Amanda Headley, Quela Royster, Amelia Schuster, Elizabeth Suba, and Krystal Werfel. Requests for reprints should be sent to Alexandra P. Key, Vanderbilt University, 230 Appleton Place, Peabody Box 74, Nashville, TN 37203; e-mail: sasha.key@vanderbilt.edu.