



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

University of Wollongong
Research Online

Faculty of Social Sciences - Papers

Faculty of Social Sciences

2013

Equiprobable Go/NoGo auditory ERP components: Adults vs. children

Robert Barry

University of Wollongong, rbarry@uow.edu.au

Frances De Blasio

University of Wollongong, fmd02@uowmail.edu.au

Jay P. Borchard

Univeristy of Wollongong, jb893@uowmail.edu.au

Publication Details

Barry, R. J., De Blasio, F. M. & Borchard, J. P. (2013). Equiprobable Go/NoGo auditory ERP components: Adults vs. children. 23rd Australasian Society for Psychophysiology Conference (p. 16). Wollongong, Australia: Australian Society for Psychophysiology Inc.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library:
research-pubs@uow.edu.au

Equiprobable Go/NoGo auditory ERP components: Adults vs. children

Abstract

Abstract presented at the 23rd Australasian Society for Psychophysiology Conference, 20-22 Nov 2013, Wollongong, Australia

Keywords

children, go, equiprobable, nogo, auditory, erp, components, adults, vs

Disciplines

Education | Social and Behavioral Sciences

Publication Details

Barry, R. J., De Blasio, F. M. & Borchard, J. P. (2013). Equiprobable Go/NoGo auditory ERP components: Adults vs. children. 23rd Australasian Society for Psychophysiology Conference (p. 16). Wollongong, Australia: Australian Society for Psychophysiology Inc.

Equiprobable Go/NoGo auditory ERP components: Adults vs. children

Robert J. Barry^{1*}, Frances M. De Blasio¹ and Jay P. Borchard¹

¹School of Psychology, University of Wollongong, Australia

Aims: We are interested in exploring sequential-processing in the uncued equiprobable auditory Go/NoGo task, and recently proposed an ERP-based sequential-processing schema derived from an adult sample. Our aim here is to investigate sequential processing in children, comparing the PCA-derived ERP components for adults vs. children in this paradigm. **Method:** Continuous EEG at 19 scalp sites was recorded from 18 adults and 18 children in an uncued equiprobable auditory Go/NoGo Task. Following our earlier investigation, Go and NoGo ERP components were extracted using unrestricted Varimax-rotated Principle Components Analyses; these were conducted separately for the adult and child samples. We used the coefficient of congruence to assess the equivalence between the corresponding ERP components identified for each group. **Results:** A broadly-similar series of components was identifiable in both age groups: P1, N1-3, N1-1, PN, P2, N2, P3, Slow Wave, and a diffuse Late Positivity. The N1 subcomponents and late components were similar in adults and children, but the intervening P2 and N2 were substantially different in relation to Go/NoGo. **Conclusions:** The results in adults confirmed our previous findings and supported our hypothetical processing sequence in this paradigm. Despite the broad similarity between the identified components in the adult and child samples, important differences in the detailed stimulus-response relationships between the PCA components of each group were apparent. Aspects of stimulus categorisation differ between children and adults, but early sensory processing and late imperative processing appear to be more similar. Further research on the developmental aspects involved in this paradigm should be fruitful.

Keywords: adults, Children, event-related potentials (ERPs), Principle Component Analysis (PCA), auditory Go/NoGo task

doi: 10.3389/conf.fnhum.2013.213.00002

*Correspondence: Dr. Robert J. Barry, Brain & Behaviour Research Institute, School of Psychology, University of Wollongong, Northfields Avenue, Wollongong, NSW, Australia, rbarry@uow.edu.au