TIME COURSE AND ROBUSTNESS OF THE N170 FACE EFFECT AT THE SCALP AND IN INDEPENDENT COMPONENTS: SEPARATING THE N170 AND P100 FACE EFFECTS

James A. Desjardins & Sidney J. Segalowitz

Department of Psychology, Brock University, St. Catharines, Ontario, Canada

BACKGROUND

The initial timing of face specific ERP effects is controversial in the literature. Although the ERP effects for face-category and face-inversion are robust at the time of the N170, earlier effects at the time of the P100 challenge the interpretation of the N170 as reflecting the time necessary to encode face stimuli. P100 effects are generally associated with low-level stimulus characteristics.

RESULTS

Face-House-Checkerboard task:

- Left or right key press to respective target half-circle checkboard
- Non-target stimuli consisted of oval-cropped faces and houses that were presented in both upright and inverted orientations (200 trials per category)
- Stimuli were presented for 250ms (ISI 800ms - 1200ms)
- Data processing:

  - Filtered (1-30Hz) and re-referenced (average site) data were manually pruned
  - Pruned continuous data sets were submitted to ICA decomposition
  - Robust estimation methods were used to test effects at the scalp and in ICs

DATA PROCESSING:

- ICA outcome:

  - Four ICs account for the scalp ERPs during the period of the P100 and N170
  - ERP envelope plots show that multiple ICs underlie each ERP component

METHODS

- Four ICs underlie the P100 and N170 ERPs during face and house perception
- The P100 and N170 effects consist of anatomically independent processes
- The pattern of effects in ICN1a replicates the scalp results of Rousselet et al (2008)
- These results are in agreement with the interpretation that the P100 is sensitive to low-level stimulus characteristics that may differ across stimulus category independently for face processing
- ICA is a useful tool for isolating the high-level face effect in the context of low-level confounds across stimulus categories

CONCLUSIONS

REFERENCES


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