The N200 as an Index of Automatic Orthographic Processing in a Reicher-Wheeler Paradigm

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INTRODUCTION

Reicher (1969) and others have reported a behavioral word superiority effect (WSE), such that letters are recognized more accurately in the context of real words than in nonwords; a similar advantage has been shown for pseudowords (PWSE). In ERPs, the N200 is reportedly sensitive to orthography (Martin et al., 2006). We investigated whether the N200 would index a WSE or PWSE in a modified Reicher-Wheeler paradigm, based on Chase and Tallal (1990).

METHODS

Participants: 24 (12 female) right-handed, monolingual English-speaking subjects (mean 19.4, SD 1.1)

Stimuli: 80 stimuli in each of 3 conditions: words (DARK/PARK); pseudowords (DARL/PARL); nonwords (RPKA/RDKA)


RESULTS

Behavioral Accuracy: 94% words, 93% pseudowords, 87% nonwords. A WSE (W > NW, p < .001) and PWSE (PW > NW, p < .001).

N200 (170-220 ms): W more negative than NW at posterior medial sites (condition x A/P x L/M, p < .05), an N200 WSE. No PWSE.

P150 (120-170 ms): Effects of condition were evident in the epoch preceding the N200. W more negative than NW, especially at the most posterior row (condition, p < .001; condition x A/P, p < .001), a P150 WSE. PW more negative than NW (condition, p < .05), a P150 PWSE.

REFERENCES


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