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Event-related potentials reveal differences between foveal and parafoveal integration of visual and contextual information during sentence processing

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Abstract

Electrical brain potentials in response to violation of expectations in language processing have revealed that people use sentence context to facilitate word recognition and integration. Less is known about the interaction between the quality of visual information in reading and the use of contextual information. In the current study we manipulated the visual field (foveal vs. parafoveal) in which a sentence-final expected word, orthographic neighbor of an expected word, or unexpected word is presented and recorded event-related potentials (ERPs) to investigate the role of visual clarity. We find evidence that earlier stages of semantic retrieval indexed by the N400 are resilient to visual information presented at greater eccentricity, but that later, integration-related processes indexed by a posterior late positive complex (LPC) may depend on unambiguous, foveally presented visual information. These findings have implications for parafoveal processing during natural reading.