

Neural Correlates of Social Referencing

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Abstract

Social referencing refers to the ability to look at other people for information in novel situations. By the end of the first year of life, infants reliably look to adults when confronted with new situations, and regulate their behavior according to the adult's emotional response [1, 2]. The brain basis for this regulation of infants' emotional behavior is unclear. Because methods for measuring neural function in infants are highly constrained, there has been little research on the brain basis of social cognition. We report the results of a new method designed to evaluate the neural correlates of social referencing. We exposed infants to three novel, ambiguous stimuli and trained their caregivers to provide positive, negative, or neutral information about each of the stimuli. The association between emotion and individual stimuli was counterbalanced, such that no emotion was related to any one stimulus more frequently than any other emotion. Infants' behavior in this situation was rated by coders blind to the main hypothesis of the study. We then measured infants' brain activity in response to pictures of the stimuli used in behavioral testing. Infants show increased brain electrical activity in response to objects for which their caregivers provided negative emotional information (see Figure1).

This brain activity response is thought to reflect increased allocation of attention, and parallels behavioral results that suggest infants look more at toys associated with negative adult emotion. These results suggest that infants form associations between the emotional information and the stimulus with which it is associated. This method provides insight into the brain basis of infants' use of emotional information provided by a caregiver, and may prove useful in future studies of the brain basis and development of social cognition. We discuss the significance of these results for understanding the neural basis for the development of social referencing.

References

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2. Mumme, D.L., A. Fernald, and C. Herrera, *Infants' responses to facial and vocal emotional signals in a social referencing paradigm*. *Child Dev*, 1996. **67**(6): p. 3219-37.

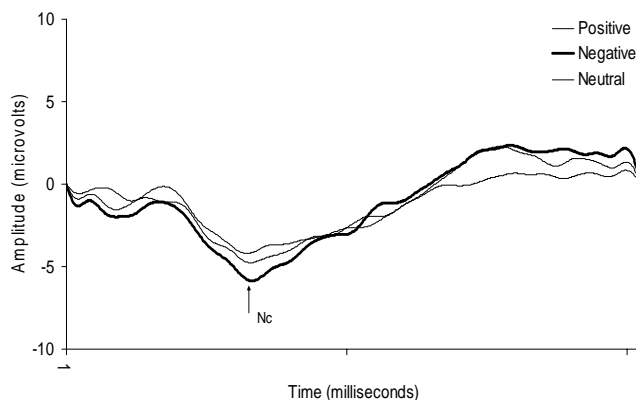


Figure 1. ERP response to pictures of objects associated with positive, negative, and neutral adult emotion.