

Neural Coupling Between Infants and Adults Supports Successful Communication

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Abstract

Infancy is the foundational period for learning from adults, and the dynamics of the social environment have long been proposed as central to children's development. Here we reveal a novel, naturalistic approach for studying live interactions between infants and adults. Using functional near-infrared spectroscopy (fNIRS), we simultaneously and continuously measured the brains of infants (9-15 months) and an adult while they communicated and played with each other in real time. We found that time-locked neural synchrony within dyads was significantly greater when they interacted with each other than with control individuals. In addition, we found that both infant and adult brains continuously tracked the moment-to-moment fluctuations of mutual gaze and infant emotion with high temporal precision. This investigation marks a new means of understanding how the brains and behaviors of infants both shape and reflect those of their caregivers during real-life communication.