

# Interpersonal motor synchrony to a musical beat as a cue for social cohesion during infancy

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Because of individuals' propensity to entrain movements to a musical beat, group behaviours such as dancing, singing, and playing musical instruments encourage high levels of interpersonal motor synchrony. Even young infants spontaneously produce rhythmic movements when listening to musical beats, however these movements tend to be out-of-synchrony with the beat until preschool age. Coordinated movement to music among adults is associated with increased group cohesion and social bonding between group members. Specifically, individuals who walk, sing, or tap together are subsequently more helpful, compliant or cooperative in later interactions with one another. However, whether interpersonal synchrony affects social behaviour during infancy was previously untested. In the current set of experiments, we investigated the developmental trajectory of this effect. In experiment 1, the helpfulness of 14-month-old infants following interpersonal motor synchrony was measured. We found that infants were significantly more likely to help an adult experimenter after being bounced to music in synchrony (as opposed to out-of-synchrony) with that person's movements. In experiments 2 and 3, the preferences of 10- and 12-month-olds were measured for a nonhuman (puppet) agent that either bounced to music in- or out-of-synchrony with how the infant was bounced. These younger infants do not seem to form preferences for interpersonally synchronous nonhuman agents. This suggests that the cue of interpersonal synchrony is only salient after the first year of life, or that human agency is a fundamental condition of this cue. Experiment 4 (ongoing) will further investigate the importance of human agency with 10- to 12-month-old infants.

**Keywords:** Interpersonal synchrony, Infancy, social development, musical entrainment, rhythmic movements

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