Self-other dynamics in spontaneous interpersonal synchronization.

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Abstract

Self-other integration plays a vital role in efficient synchronization with other humans. Previous research has shown that in simple rhythmic joint action tasks (e.g., tapping), self-other integration can be described using mathematical models of coupled oscillators, representing within- and between-person action-perception links. The present study focuses on investigating self-other behavioral and inter-brain dynamics (dual-EEG) when synchronization is either the goal of the task itself or rather an emergent phenomenon in complex continuous interactions. More specifically, participants produce improvised movements in a 'mirror-game' paradigm while being explicitly asked to synchronize with the partner (synchronized condition) or produce independent movements with visual feedback of each other (spontaneous condition). Mathematical models of coupled oscillators will be used to reveal emergent dynamics of self-other integration on behavioral and neural level. Moreover, we hypothesize that stronger interpersonal synchronization in the spontaneous condition will lead to stronger sensorimotor alpha and beta desynchronization and higher inter-brain synchronization.

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