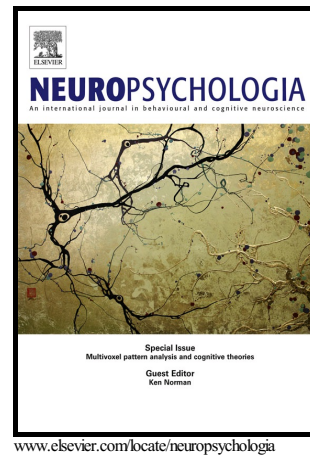


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Direct eye contact enhances mirroring of others' movements: A transcranial magnetic stimulation study

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Direct eye contact enhances mirroring of others' movements: A transcranial magnetic stimulation study**Jellina Prinsen^{a*}, Sylvie Bernaerts^a, Yin Wang^b, Toon T. de Beukelaar^c, Koen Cuypers^{c,d}, Stephan P. Swinnen^c, Kaat Alaerts^a**

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Abstract

Direct eye contact is a powerful social cue to regulate interpersonal interactions. Previous behavioral studies showed a link between eye contact and motor mimicry, indicating that the automatic mimicry of observed hand movements is significantly enhanced when direct eye contact exists between the observer and the observed model. In the present study, we aim to investigate the neurophysiological basis of the previously reported behavioral enhancements. Here, transcranial magnetic stimulation (TMS) was applied to assess changes in cortico-motor excitability at the level of the primary motor cortex (M1) to explore whether and how the motor system is facilitated from observing others' hand movements and, in particular, how this process is modulated by eye contact. To do so, motor evoked potentials (MEPs) were collected from two hand muscles while participants received single-pulse TMS and naturally observed video clips of an actor showing hand opening movements or static hands. During the observation, either direct or averted eye gaze was established between the subject and the observed actor. Our findings show a clear effect of eye gaze on observation-induced motor facilitation. This indicates that the mapping or 'mirroring' of others' movements is significantly enhanced when movement observation is accompanied by direct eye gaze compared to averted eye gaze. Our results support the notion that eye contact is a powerful social signal with the ability to direct human non-verbal social behavior. Furthermore, our findings are important for understanding the role of the mirror motor system in the mapping of socially relevant actions.

Abbreviations

متن کامل مقاله

دریافت فوری ←

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