

The motor roots of acting together: A psychophysiological investigation

ABSTRACT:

Background

When people act together, how can their actions be coordinated around a collective goal? An answer to this question may be easily extracted from accounts of ‘shared’ or ‘collective’ intentionality. Alternatively, interpersonal coordination around collective goals may rely on certain interagential structure of motor representations. When people act together with a purpose, the collective goals of their actions may be sometimes represented motorically.

Aims

The main aim of the project is to explore the motor representation of collective goals at cortical level. Our conjecture is that motor representations may enable joint action and provide interpersonal coordination around goals.

Method

To test this hypothesis at neurophysiological level, we run 3 studies measuring motor activity during joint actions: a transcranial magnetic stimulation (TMS) study; an EEG study and a TMS-EEG study.

Results

Analyses in study 1 suggested that a motor representation of joint actions may have a weaker impact than what expected from previous literature. Experiment 2 showed a significant difference in motor processes between joint and parallel actions when motor coordination is needed. Experiment 3 motor network is not differently activated in joint actions when two persons are aiming at a concrete goal.

Conclusions

Our studies, so far, do not support the instantiation of a motor representation of collective goals when joint actions do not require an ongoing motor coordination between the participants and their confederate.

Keywords

Joint action, Motor system, Transcranial magnetic stimulation, Social neuroscience

Published Work:

Barchiesi, G., Zazio, A., Marcantoni, E., Bulgari, M., di San Pietro, C. B., Sinigaglia, C. & Bortoletto, M. (2022). Sharing motor plans while acting jointly: A TMS study. *Cortex*, 151, 224-239. <https://doi.org/10.1016/j.cortex.2022.03.007>

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