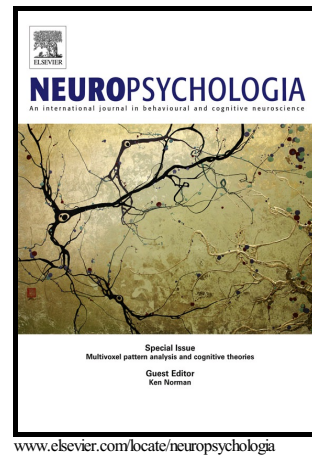


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Action preparation modulates sensory perception in unseen personal space: an electrophysiological investigation

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### Abstract

Behavioural and electrophysiological evidence has demonstrated that preparation of goal-directed actions modulates sensory perception at the goal location before the action is executed. However, previous studies have focused on sensory perception in areas of peripersonal space. The present study investigated visual and tactile sensory processing at the goal location of upcoming movements towards the body, much of which is not visible, as well as visible peripersonal space. A motor task cued participants to prepare a reaching movement towards goals either in peripersonal space in front of them or personal space on the upper chest. In order to assess modulations of sensory perception during movement preparation, event-related potentials (ERPs) were recorded in response to task-irrelevant visual and tactile probe stimuli delivered randomly at one of the goal locations of the movements. In line with previous neurophysiological findings, movement preparation modulated visual processing at the goal of a movement in peripersonal space. Movement preparation also modulated somatosensory processing at the movement goal in personal space. The findings demonstrate that tactile perception in personal space is subject to similar top-down sensory modulation by motor preparation as observed for visual stimuli presented

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