
Influence of eye dominance on hand reaction time and on interhemispheric transfer time

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Abstract

The dominant eye is the one we unconsciously choose when we have to align a target in peripersonal space with a more distant point. Previous works showed that visual stimulation of this dominant eye (DE) leads to a faster and greater activation in the ipsilateral hemisphere (e.g. Shima et al. 2010; Neuroreport 21(12), 817-21). Here we first tested whether this could have consequences in visuo-motor processes through a simple hand pointing task. Right and left handers with right or left DE participated in the study. We observed shorter reaction times (RT) for the hand contralateral to the DE compared to those for the ipsilateral hand only in left handers. In right handers, the left hand always showed the shorter RT, which is consistent with a right hemispheric specialization for spatial attention. Secondly, we are currently assessing the influence of DE on interhemispheric transfer time (IHTT). We use a simple Poffenberger paradigm with central button press in reaction to lateralized target appearance. EEG recordings are used to precisely evaluate the IHTT (e.g. Rugg et al. 1984; Neuropsychologia 22(2), 215-25). Preliminary analyses of EEG data in right handers tend to show that IHTT values are higher in subjects with left DE compared to those with right DE. All these data converge to suggest that the influence of the DE needs to be precisely evaluated in visuo-motor and interhemispheric transfer processes.

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