

## Neuroanatomical basis of prism adaptation therapy on premotor neglect

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The present study assessed to what extent having premotor neglect (PMN) increases the chances of patients to benefit from prism adaptation therapy (PA). Furthermore, with the aim of elucidating the neuroanatomical correlates of PMN, still unclear to date, the lesion patterns of patients displaying premotor deficits (PMD) were compared to those without them.

Eight neglect patients underwent a four session protocol, including two sessions of neuropsychological assessment each followed or preceded by PA therapy, and two follow-up sessions consisting of assessment only. PMN was evaluated with a modified landmark task designed to explore the presence of perceptual and intentional motor biases, by asking the patients to either bisect lines (i.e. manual condition) or verbally judge whether similar lines had been correctly bisected (i.e. verbal condition). After comparing patient's performance on both conditions, two groups were defined (i.e. patients with predominant perceptual symptoms vs. patients with accompanying PMD). Linear regression analyses were conducted to test for influences of PMN on the performance on the different assessment tasks. Those tasks that showed to be significantly predicted by PMD were selected as dependent variables to follow the effects of PA across sessions (i.e. line bisection, star cancellation, letter cancellation, and straight-ahead pointing tasks). A mixed design ANOVA revealed a significant interaction between session and patient group. This interaction was given by a significant performance improvement in the fourth session compared to the first one, for the group of patients with PMD,  $F(3, 18) = 4.45$ ,  $p < .05$ . As to the neuroanatomical basis of PMN, the right caudate nucleus and the putamen were found to be significantly related to the presence of PMN.

Our findings provide evidence for the involvement of subcortical regions in PMN. Furthermore, they suggest that neglect patients with PMD profit more from PA than patients without them.

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