

Eye movements and visuo-verbal descriptions exhibit heterogeneous and dissociated patterns before and after prismatic adaptation in unilateral spatial neglect

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This prospective study examined the effects of prismatic adaptation on visual exploration strategies in patients with left unilateral spatial neglect (USN).

Photo-oculographic gaze recordings were obtained, as the subjects (28 brain-damaged; 15 control) performed a free visual exploration task before and after a session of prismatic adaptation.

(i) Before prismatic adaptation, the pattern of visual exploration described two subgroups of patients (symmetrical exploration of hemispaces – similar to the control subjects, deficient exploration of left hemisphere). Twelve of 20 patients failed to describe significant elements in the left part of the displayed image. Several visuo-verbal patterns were observed, some dissociating visual exploration and verbal description.

(ii) Immediately after prismatic adaptation, patients with asymmetrical visual exploration presented a significant increase in the number of point fixations and saccades in the left hemisphere. Patients with symmetrical exploration presented the opposite pattern. Improved pattern of visual exploration contrasted with an absence of improved verbal description. Eye movements and visuo-verbal descriptions exhibit heterogeneous and dissociated patterns before and after prismatic adaptation.

These results demonstrate that prismatic adaptation has no effect in certain patients, suggesting that therapeutic indications and evaluation of prismatic test results should take into consideration the heterogeneous nature of USN.