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Pointing Practice for the Spatial Perceptual Learning enhances the Adaptation of Walking with Prism Glasses which Cause Right-left Reversal of The Visual Field

Iwatsuki Hiroyasu, Echigo Ayumi, Sakamoto Mayu

Graduate School of Aomori University of Health and Welfare

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【Purpose】

Unilateral spatial neglect is a behavioral syndrome occurring after a right-hemisphere stroke. Treatment for spatial neglect focuses on cognitive rehabilitation that uses prism adaptation therapy as one approach. However, this therapy has limitations both in terms of its narrowness of focus and duration of the beneficial effects. This study was carried out to evaluate the effects of pointing practice on walking performance looking through a right-left reversing prism.

【Methods】

The participants were twelve right-handed healthy persons with a mean (SD) of 25.5 (6.7) years. They put on prism glasses causing right-left reversal of the visual field, and were asked 30 times to point to targets placed 3m in front using a laser pointer once daily, five days a week. Timed up and go (TUG) test and walking around the edge of a 3m square (SW) were used to measure walking performance and were evaluated 3 times (before, immediately after and 5 mins after the pointing practice) daily for 5 days.

【Results】

From 3 day to 5 days, the required times, both TUG and SW, recorded immediately after and 5 mins after the pointing practice were significantly shorter than that of before. In particular, the deviations from the walking path in SW showed significant differences between the values recorded immediately after and 5 mins after the pointing practice and that of before.

【Discussion】

Improvement of walking performance with a prism after the pointing practice might have facilitated adaptation between mediated proprioceptive perceptions and visual information.

The efficacy of single-session prism adaptation suggests general improvement of daily activities in patients with unilateral spatial neglect.