Versional eye tracking in mild traumatic brain injury (mTBI) effects of oculomotor training (OMT).

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Abstract

OBJECTIVE:

To evaluate a range of objective measures of versional eye movements before and after oculomotor training (OMT) in individuals with mTBI. The results were compared with placebo (P) training.

METHODS:

Twelve individuals with mTBI (mean age = 29 ± 3 years) having oculomotor-based near-vision symptoms participated in the study. Versional eye movements were recorded objectively before and after OMT (fixation, predictable saccades, simulated reading) and P training (6 weeks each, two sessions/week, 45 minutes/session).

RESULTS:

Following OMT, there was a significant ($p < 0.05$) reduction in the horizontal fixational error. Saccadic gain increased both horizontally and vertically ($p < 0.05$). The saccade ratio for the simulated reading, multiple-line paradigm reduced significantly ($p < 0.05$). None of the measures changed significantly following the P training.

CONCLUSIONS:

The versional-based OMT had a significant, positive effect on most aspects of versional tracking. These findings are suggestive of improved rhythmicity, accuracy and sequencing of saccades following OMT in mTBI as a result of oculomotor learning.

KEYWORDS:

Neuroplasticity; oculomotor coordination; oculomotor training; traumatic brain injury; versional eye movement disorders; vision therapy

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