Feasibility and Effectiveness of Eye Movement Training for Improved Reading Function in Children and Adolescents after Acquired Brain Injury

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Introduction

Eye movement ability is often affected by acquired brain injury. Visual deficits after acquired brain injury contribute to reading difficulties and fatigue with a negative effect on the reading speed. For children and adolescents, who prior to the acquired brain injury read fluently, a poor reading function may decrease their motivation for school activities. In a clinical project with 14 participants eye movement training has shown positive effects on reading speed and on a number of symptoms. Knowledge about feasibility, effectiveness, duration, frequency and intensity of eye movement training is lacking.

The aim was to develop and evaluate eye movement training for improved reading function for children and adolescents with visual deficits after acquired brain injury.

Patients and methods

Ten children and adolescents with visual deficits after acquired brain injury performed eye movement training for 20 minutes daily under 3 weeks in their homes or at school. Individual support was given by phone calls or text messages.

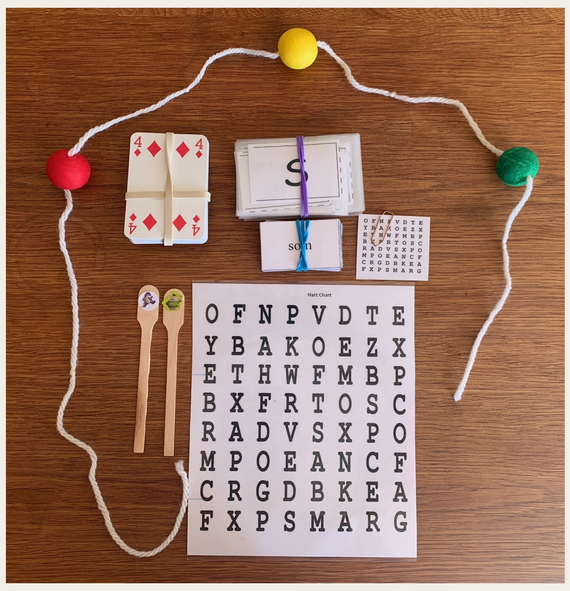

Figure 1. Toolbox for the eye movement training

At baseline, after 3 weeks and at the follow-up at 3 months, vision assessments, a reading speed test and an adapted version of the Convergence Insufficiency Symptom Survey (CISS) were performed at the Habilitation Services.

Results

- All participants (n=10) completed the training period
- Nearly all participants (9/10) improved their reading function measured by reading speed and convergence insufficiency symptoms after 3 weeks eye movement training and at the 3 months follow-up
- No negative results were reported

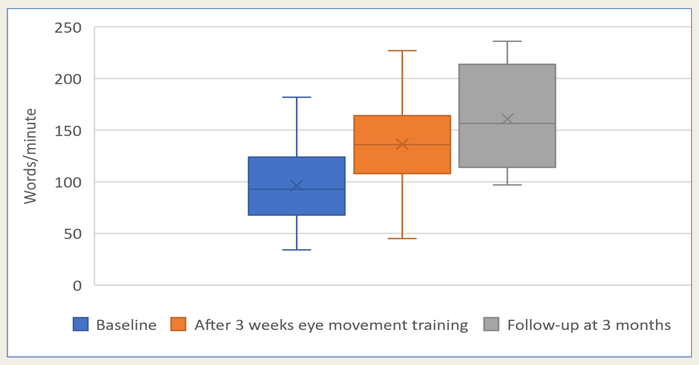

Figure 2. Reading speed

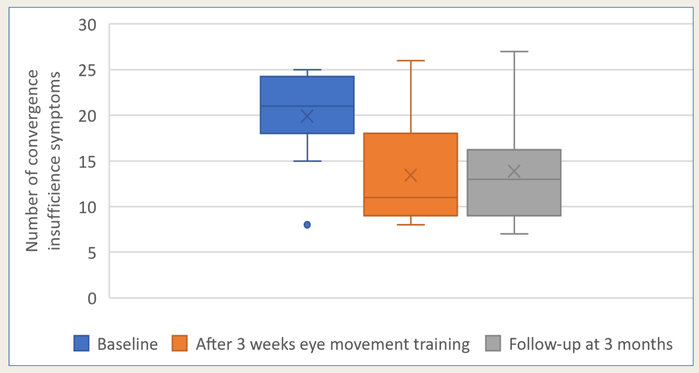

Figure 3. Convergence insufficiency symptoms

Conclusion

Eye movement training was feasible and effective for the participating children and adolescents with visual deficits after acquired brain injury to improve their reading function and may be considered as a cost-effective intervention for this patient group. A full-scale randomized controlled trial is needed to confirm our results.

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