

Effects of Cognitive Training in Healthy Elderly and Patients with Mild Cognitive Impairment

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Purpose

The purpose of this study was to investigate the effect of cognitive training using newly developed serious games on the improvement of cognitive functions in the healthy elderly and patients with mild cognitive impairment (MCI).

Methods

Cognitive training programs operable on tablet PC were developed to improve cognitive functions of the elderly or patients with MCI which consisted of four serious games targeting major symptoms of cognitive disorders; attention, working memory, long-term memory, and visuospatial perception. Thirty-two healthy elderly persons and thirty-five patients with MCI between 55 and 85 years of age participated in this study. Each participant was randomly assigned to one of two groups, intervention or control groups. The intervention group received four weeks of cognitive training, 30 minutes per day, three times per week for consecutive 4 weeks. The control group didn't receive any intervention. To assess the effectiveness of the cognitive training using tablet PC, comprehensive neuropsychological tests were administered three times; at pre- and post-intervention, and at four weeks after completing the intervention in both healthy and MCI groups.

Results

In the healthy elderly, the intervention group demonstrated significant improvement on global cognitive function, working memory, and verbal learning after training compared to the control group ($p < 0.05$). Significant improvement of attention and verbal learning was also demonstrated after training in the intervention group compared to the control group in MCI patients ($p < 0.05$). Interference in the verbal learning, which is regarded as an early sign of cognitive aging and dementia, was reduced after cognitive training in both healthy and MCI participants.

Conclusion

Cognitive training using serious games on tablet PC can be used for improving cognitive functions in both normal and pathological aging.

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