Comparison of change detection performance and visual search patterns among children with/without ADHD: Evidence from eye movements

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Abstract

Background
ADHD participants showed poorer change detection performance compared to participants without any diagnosis. The difficulty to detect changes in ADHD children might be due to their voluntary eye movement control and attentional deficits.

Aims
To evaluate change detection performance and visual search patterns of children with ADHD and compare their performances with typically developing (TD) children.

Methods and procedures
48 children (nADHD = 24, nTD = 24) participated (Mage = 8 years, 10 months). Flicker paradigm was used to evaluate change detection performance, while eye movements were recorded during the experiment.

Results
Change detection accuracies of TD children were higher compared to ADHD children. TD groups made longer fixations on the changed area and their first fixation duration was also longer than ADHD children which showed that TD children had longer fixation maintenance than ADHD children.

Conclusions
The change detection performance, which is associated with visual attention and memory, was found to be worse in ADHD children than TD children and these children made shorter fixations on the changed area than TD children. The findings were found to be in line with the difficulty to sustain attention in ADHD children that is necessary for encoding the scene properties and goal-oriented behavior.