Change Blindness in adolescents with Attention Deficit/Hyperactivity Disorder: Use of eye-tracking

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Objective: Attention Deficit/ Hyperactivity Disorder (ADHD) involves impaired visual attention among other executive functions. This study investigated detection of changed items with central and marginal levels of interest using a change blindness experiment with eye tracking.

Method: A total of 84 drug-naïve adolescents (44 ADHD/40 controls) performed a flicker task that included changes in items of central or marginal interest (flickers of 18 pairs of images with and without the change). The task required observers to search for a change until they detected it.

Results: Change detection times of adolescents with ADHD were similar to typically developing adolescents with no error-time trade-off. No differences were found between groups in time to first fixation, fixation duration on the changing item as well as in scan paths lengths, with better performance for items of central level of interest in both groups, however the ADHD group demonstrated significantly greater dispersion of fixations.

Conclusion: A greater dispersion of fixations in the ADHD group in a change detection task than controls, but with similar error ratios and response times, suggest a specific strategic scheme but which nevertheless may lead to greater fatigue in tasks that require longer attention duration.