Spatial Processing in Adults With Attention Deficit Hyperactivity Disorder.

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Background: "Global processing bias" is an automatic tendency to process the global picture prior to the local details. The right hemisphere is known to be more dominant in global processing, and some researchers have demonstrated its important role in alertness. Converging evidence implies some dysfunction in right hemisphere activation in people suffering from attention deficit hyperactivity disorder (ADHD). Global processing is yet to be understood in ADHD.

Objective: We examined whether adults with ADHD show deficient global processing and whether this could be alleviated by the presence of an alerting signal.

Method: Adult participants (20 ADHD, 20 typically developing controls) responded to a global-local Navon task in which they were asked to respond to the large stimulus or the small component stimuli, and to a Navon-like task with an alerting cue. Reaction time and accuracy were measured. Results: Unlike controls, adults with ADHD did not have global precedence; irrelevant global stimuli (when asked to respond to the local level) and irrelevant local stimuli (when asked to respond to the global level) produced similar interference in ADHD participants. Appearance of an alerting cue increased global processing bias (i.e., increased interference from global stimuli in the local block and reduced interference from local stimuli in the global block) for both groups, such that global processing in ADHD participants was comparable to that of controls.

Conclusion: ADHD participants showed lack of a global processing bias. Most important, global processing bias was reinstated by an alerting cue. Implications for the definition of ADHD, which currently emphasizes failure to pay close attention to details, will be discussed. Moreover, the current results have important implications for social functioning of people suffering from ADHD.