Behavioral sensitivity to changing reinforcement contingencies in attention-deficit hyperactivity disorder.

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Background
Altered sensitivity to positive reinforcement has been hypothesized to contribute to the symptoms of attention-deficit hyperactivity disorder (ADHD). In this study, we evaluated the ability of children with and without ADHD to adapt their behavior to changing reinforcer availability.

Method
Of one hundred sixty-seven children, 97 diagnosed with ADHD completed a signal-detection task in which correct discriminations between two stimuli were associated with different frequencies of reinforcement. The response alternative associated with the higher rate of reinforcement switched twice during the task without warning. For a subset of participants, this was followed by trials for which no reinforcement was delivered, irrespective of performance.

Results
Children in both groups developed an initial bias toward the more frequently reinforced response alternative. When the response alternative associated with the higher rate of reinforcement switched, the children's response allocation (bias) followed suit, but this effect was significantly smaller for children with ADHD. When reinforcement was discontinued, only children in the control group modified their response pattern.

Conclusions
Children with ADHD adjust their behavioral responses to changing reinforcer availability less than typically developing children, when reinforcement is intermittent and the association between an action and its consequences is uncertain. This may explain the difficulty children with ADHD have adapting their behavior to new situations, with different reinforcement contingencies, in daily life.