

Anterior insula hyperactivation in ADHD when faced with distracting negative stimuli.

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Patients with attention deficit hyperactivity disorder (ADHD) suffer from poor emotion regulation that might arise from problems in the distribution of attentional resources when confronted with emotional distractors. Previous studies investigating the neurocognitive basis of these problems remain inconclusive. Moreover, most of these studies did not exclude participants with comorbidity, particularly of conduct or oppositional defiant disorder. The aim of this study was to assess alterations in fronto-limbic activation in ADHD adolescents specifically during negative distractors in an emotional attention task. For this purpose, we used functional magnetic resonance imaging to assess 25 boys with noncomorbid ADHD and 25 typically developing (TD) boys while they performed an emotional attention task with positive, negative, and neutral emotional distractors. Boys with ADHD had increased activation relative to TD boys specifically during the negative valenced stimuli in an emotional processing network comprising left anterior insula reaching into the inferior frontal gyrus. The findings suggest altered salience processing in ADHD of negative valenced emotional stimuli that may lead to higher distractibility in ADHD specifically when faced with negative emotional distractors.