Working Memory and Motor Activity: A Comparison across Attention-Deficit/Hyperactivity Disorder, Generalized Anxiety Disorder, and Healthy Control Groups

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Abstract

Converging findings from recent research suggest a functional relationship between ADHD-related hyperactivity and demands on working memory (WM) in both children and adults. Excessive motor activity such as restlessness and fidgeting are not pathognomonic symptoms of ADHD, however, and are often associated with other diagnoses such as generalized anxiety disorder. Further, previous research indicates that anticipatory processing associated with anxiety can directly interfere with storage and rehearsal processes of WM. The topographical similarity of excessive motor activity seen in both ADHD and anxiety disorders, as well as similar WM deficits, may indicate a common relationship between WM deficits and increased motor activity. The relationship between objectively measured motor activity (actigraphy) and phonological and visuospatial WM demands in adults with ADHD (n = 21), adults with GAD (n = 21), and healthy-control adults (n = 20) was examined. Although all groups exhibited significant increases in activity from control to WM conditions, the ADHD group exhibited a disproportionate increase in activity, while activity exhibited by the GAD and healthy control groups was not different. Findings indicate that ADHD-related hyperactivity is uniquely related to WM demands, and appear to suggest that adults with GAD are no more active relative to healthy control adults during a cognitively-demanding laboratory task.