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Revisiting the Role of the Prefrontal Cortex in the Pathophysiology of Attention-Deficit/Hyperactivity Disorder

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Most neural models for the pathophysiology of attention-deficit/hyperactivity disorder (ADHD) have centered on the prefrontal cortex and its interconnections with the striatum and other subcortical structures. However, research only partially supports these models, and they do not correspond with the development of the prefrontal cortex and its interrelated neurocircuitry. The neural and functional development of the prefrontal cortex more closely parallels recovery from ADHD as indicated by the developmental remission of symptomatology. The authors hypothesize that ADHD is due to noncortical dysfunction that manifests early in ontogeny, remains static throughout the lifetime, and is not associated with the remission of symptomatology. Data supporting this neurodevelopmental model of prefrontal cortex function in ADHD are reviewed. Research and treatment implications are discussed.

Keywords: ADHD, prefrontal cortex, development, brain maturation, recovery