# Chapter 21 Adolescent Cognitive Control

# Brain Network Dynamics

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# Abstract

Adolescence is a time when the ability to consciously control thoughts, actions, and emotions is linked to successful outcomes later in life. Despite a historical focus on the prefrontal cortex, modern neuroimaging research suggests that these cognitive control abilities are mediated by the activity and interactions of brain regions that collectively form distributed networks. This chapter outlines research and methods that have highlighted the importance of brain network dynamics (i.e., the spatiotemporal interactions between brain regions) during cognitive control in adolescence. On the basis of current research, we suggest that transient reconfigurations of brain networks that occur in specific contexts are critical to cognitive control in adolescence. In particular, we suggest that the spatiotemporal dynamics of brain networks play a crucial role in governing adolescent cognitive control across different contexts (i.e., they are generalizable). We suggest that further research of generalizable principles will help adolescents with low cognitive control.