Imbalances in brain maturation and their role in adolescent-typical behavior and the consequences of amphetamine abuse

Joshua M. Gulley, Ph.D.
Associate Professor, Department of Psychology
Neuroscience Program
University of Illinois at Urbana-Champaign

Compared to adults, adolescents who use drugs are more likely to develop substance use disorders. The reason for this is multifaceted, but the characteristic features of motivated behavior in adolescents - including heightened risk taking and reduced impulse control - likely contribute to their heightened vulnerability. Work on both humans and laboratory animals has established that neuronal signaling in the prefrontal cortex (PFC) and nucleus accumbens is critical for self-regulatory behaviors, and imbalances in the functional maturation of the PFC relative to the accumbens may play a critical role in adolescent-typical behavior as well as in the consequences of drug use during this time of life. In this talk, I will discuss our studies that have used a rat model of adolescence to explore this hypothesis in measures of brain function and behavior.