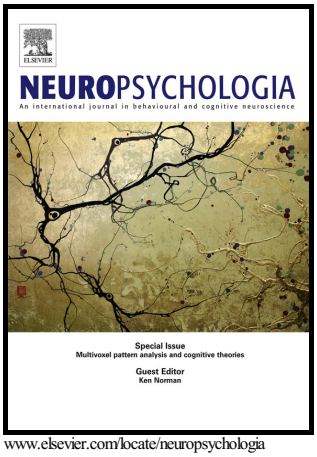

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Behavioral and Neural Inhibitory Control Moderates the Effects of Reward Sensitivity on Adolescent Substance Use

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Abstract

The developmental period of adolescence is characterized by increasing incidence of health risk behaviors, including experimenting with drugs and alcohol. We examined how inhibitory control interacts with reward and punishment sensitivity to predict substance use severity and age of onset among early adolescents. The sample was comprised of 157 early adolescents (13-14 years of age, 52% male). Composite scores for behavioral activation system (BAS), behavioral inhibition system (BIS), and substance use severity and onset were computed using adolescents' questionnaire data, and inhibitory control was assessed based on adolescents' behavioral performance and brain imaging during the Multiple Source Interference Task (MSIT). Structural equation modeling analyses indicated that for both behavioral performance and neural activity indicators of inhibitory control, high levels of BAS predicted earlier onset of substance use among adolescents with low inhibitory control—but not among adolescents with high inhibitory