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Binge-pattern cocaine administration causes long-lasting behavioral hyperarousal but does not enhance vulnerability to single prolonged stress in rats

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## Abstract

Cocaine use disorder and post-traumatic stress disorder (PTSD) commonly co-occur. This could be due to vulnerability to post-traumatic symptoms conferred by previous exposure to cocaine. Therefore, we combined chronic binge-pattern cocaine with a model of psychological trauma (single prolonged stress) to determine whether the behavioral effects of psychological trauma are enhanced in cocaine-sensitized individuals. Adult male Sprague Dawley rats received 14 days of cocaine (15 mg/kg/injection) or saline in a binge pattern (3 injections per day, 1 hour apart). Seven days after the last injection animals were exposed to traumatic stress or a control procedure. Seven days after stress, activity and anxiety-like behaviors were measured. Binge-pattern cocaine increased locomotor activity in the open field and elevated plus maze, and both cocaine and SPS exposure increased the rapidity with which rats moved through grooming sequences. Neither binge-pattern cocaine nor SPS increased anxiety-like behaviors, and no interactions were found between binge-pattern cocaine exposure and SPS exposure. A behavioral

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