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PII: S0166-4328(18)30052-4
DOI: https://doi.org/10.1016/j.bbr.2018.07.009
Reference: BBR 11502

To appear in: *Behavioural Brain Research*

Received date: 11-1-2018
Revised date: 29-6-2018
Accepted date: 14-7-2018

Please cite this article as: Robison LS, Alessi L, Thanos PK, Chronic forced exercise inhibits stress-induced reinstatement of cocaine conditioned place preference, *Behavioural Brain Research* (2018), https://doi.org/10.1016/j.bbr.2018.07.009

Chronic forced exercise inhibits stress-induced reinstatement of cocaine conditioned place preference

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Declarations of interest: none

Funding: This research was supported by the NY Research Foundation (Q9040).

Highlights:

- Acute immobilization stress resulted in reinstatement of cocaine CPP in sedentary control rats
- Exercise inhibited stress-induced reinstatement of cocaine CPP
- Exercise did not affect the rate of extinction of cocaine CPP
- Exercise increased serum corticosterone levels following 15 minutes of immobilization stress

Abstract

Stress increases the likelihood of cocaine relapse in humans and animals, even following a prolonged extinction/abstinence period. Exercise has previously been shown to reduce stress and decrease the likelihood of drug dependence, while also reducing cravings in humans and inhibiting relapse behaviors due to other risk factors in rodents. The present study evaluated the efficacy of exercise to reduce stress-induced relapse to cocaine in a rodent model. Young adult female Sprague Dawley rats were tested for cocaine conditioned place preference (CPP), then split into sedentary or exercise (six weeks of one-hour daily treadmill running, five days per week) groups. Following cocaine