

Treadmill exercise reduces self-administration of morphine in male rats

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Abstract

Exercise can activate the same pathways as morphine. The aim of the present study was to clarify the effect of short-term and mid-term exercises on the self-administration of morphine in rats. Male Wistar rats were initially trained to receive small pellets of food by pressing the active lever in self-administration apparatus. Rats were divided into 4 groups: Saline, Morphine, Exercise 1 (11 days) and Exercise 2 (20 days). Their jugular vein was cannulated. The animals were placed in self-administration apparatus and allowed to self-administer morphine (0.5 mg per infusion all test groups) or saline (Saline group) during consecutive days, for 2 h/sessions. In the group 1 the rats were running before each session of self-administration and of group Exercise 2, 20 days before surgery as well as before each session. The pressing numbers of active and passive levers in each group and among different groups were compared. The number of active lever pressing of Morphine group was significantly higher than Saline group ($p < 0.001$). In Exercise 1 and Exercise 2 groups, the number of active lever pressing was significantly lower than Morphine group ($p < 0.001$). As exercise can activate many neurotransmitter systems involved in the addiction process and increase the release of endorphins, it is likely that could decrease the morphine self-administration in this experimental setup. © 2008 Elsevier Ireland Ltd. All rights reserved.

Author keywords

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Indexed Keywords

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