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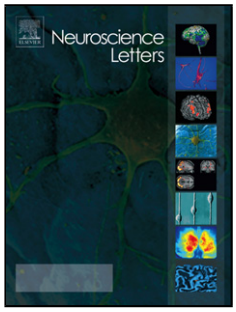

Title: Effects of treadmill exercise on methadone withdrawal-induced locomotor sensitization and the ventral pallidum and ventral tegmental area BDNF levels in morphine withdrawn rats receiving methadone maintenance treatment

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Effects of treadmill exercise on methadone withdrawal-induced locomotor sensitization and the ventral pallidum and ventral tegmental area BDNF levels in morphine withdrawn rats receiving methadone maintenance treatment

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Research highlights

- MMT were mildly increased morphine-induced hyperlocomotion.
- Exercise decreased morphine-induced hyperlocomotion in morphine-withdrawn rats.
- The VP BDNF level was still higher in the exercising morphine-withdrawn rats.
- Exercise had no effect on the locomotors response in rats receiving MMT.
- Exercise had no effect on the VTA-VP BDNF levels in rats receiving MMT.

Abstract

This study examined the effects of treadmill exercise on the methadone withdrawal -induced locomotor sensitization, the ventral tegmental area (VTA) and ventral pallidum (VP) BDNF levels in morphine withdrawn rats receiving methadone maintenance treatment (MMT). The rats were chronically treated with bi-daily doses (10 mg/kg, at 12 h intervals) of morphine for 14 days. The exercising rats receiving MMT were forced to run on a motorized treadmill for 30 days during morphine withdrawal. Then, rats were exposed to a 14-day methadone withdrawal period, without any exercise and then challenged with morphine (1 mg/kg, ip) and evaluated for locomotor activity. Also, the VTA-VP BDNF levels were assessed before and after receiving MMT. The sedentary morphine-dependent rats receiving MMT and