

Conclusion. The results showed the loss of GABAergic inhibitory tone in neuropathic state and involvement of GAT-1 and GAT-3 in neuropathic pain development. Glial inhibition and GABAA receptor stimulation were effective in alleviating pain but could not be effective on transporters.

Keywords : CCI; GABA transporters; Muscimol; Pentoxifylline

Positive effect of physical exercise on learning and memory impairments induced by paradoxical sleep deprivation in female rats

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Introduction. Inadequate sleep is a common problem in modern societies. Previous studies have shown that female sex act as a predisposing factor in the effects of sleep deprivation on cognitive function. Physical exercise has been shown to alleviate impairments induced by sleep deprivation in male rats. The objective of the current study is to evaluate the effect of physical exercise on cognitive function of female rats following REM sleep deprivation.

Materials and Methods. Intact and ovariectomized (OVX) female Wistar rats were used for the current study. A four week treadmill exercise was administered and after that, the effect of paradoxical sleep deprivation (PSD) (multiple platform method) on cognitive function of OVX and intact rats was evaluated in exercise or control groups using Morris Water Maze (MWM). ANOVA and repeated Measures were used to analyze the data. $p < 0.05$ was considered statistically significant.

Results. OVX rats showed significant learning impairments compared to the intact and control rats ($p < 0.05$). Short term memory impairments were observed in both OVX and intact rats ($p < 0.05$). Physical exercise alleviated the PSD-induced impairments in both intact and OVX groups ($p < 0.05$).

Conclusion. The results of the Current study confirm the negative effect of PSD on learning in OVX rats and memory in both intact and OVX groups. Regular physical exercise seems to protect rats against these effects. More studies are suggested to evaluate the possible underlying mechanisms and the possible interaction of sex hormones with PSD-induced cognitive impairments.

Keywords: Paradoxical sleep deprivation; Treadmill exercise; Morris water maze; Female rats