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The effects of pre and post learning sleep deprivation on cognitive function.

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Background and Aim : It has been shown that sleep contributes to the acquisition and consolidation of memory. Insufficient sleep is a familiar problem in modern societies. It has been previously shown that female rats are more susceptible to the harmful effects of sleep deprivation on cognitive functions. The purpose of this study was to determine the effect of pre and post learning sleep deprivation (SD) on hippocampus-dependent learning and memory in female rats.

Methods : Intact and ovariectomized (OVX) female Wistar rats were used in the current study. The multiple platform method was applied to induce 24h and 72h sleep deprivation (SD) after and before training respectively. We tested the effects of sleep deprivation on spatial learning and memory using the Morris water maze (MWM) task .

Results : Our results indicated that pre- learning sleep deprivation impaired spatial learning in the OVX and short-term memory in both intact and OVX animals ($p<0.05$). In addition post training sleep deprivation induced long term memory impairment in the intact and ovariectomized female rats, regardless of reproductive status ($p<0.05$).

Conclusion : In conclusion the results of the current study confirmed the negative effect of SD on cognitive functions of female rats; however more investigations need to be done.

Keywords : Sleep deprivation, Learning and memory, Morris Water Maze, Female rats