

POSTER ABSTRACT

Exercise and Estrogen Influence the Behavioral Correlates of Depression in Female Rats

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Recent research on both animals and humans has demonstrated that exercise, such as running and swimming, decreases symptoms of depression. The majority of these studies have examined the effects of exercise on males, despite the fact that more females suffer from depression. We conducted an experiment using female Sprague-Dawley rats to determine whether wheel-running is an effective antidepressant treatment in female subjects and to examine the interaction between estrogen and the efficacy of exercise as an anti-depressant treatment. Subjects were ovariectomized and their baseline behavior was assessed using the forced swim test (FST). The rats were then randomly divided into two hormone groups and given a subcutaneous implant containing either estrogen or placebo. Within each hormone group, half of the subjects were given access to a running wheel (exercise group) and half were not. After 14 days, the effectiveness of the treatment conditions was measured by a posttest FST. There was an interaction between exercise and test time on inactivity, with subjects in the exercise group spending significantly fewer seconds inactive in the posttest FST. Rats in the estrogen group were more active in the posttest FST and exercised more than those in the no estrogen group. These results support the effectiveness of exercise as a possible treatment for depression and indicate that estrogen may alter the efficacy of this form of therapy.