

Letter To Editor**Treadmill running improves spatial learning and memory in the rats with intracerebroventricular injection of streptozotocin**J Res Med Sci 2011; 16(10): 1386-1387

Exercise has positive effects on central nervous system, especially when there is a context of disorder.¹ Considering the prevalence of Alzheimer's disease and lack of a decisive treatment, this study aimed to evaluate the effect of exercise on learning and memory in rats after intracerebroventricular injection of streptozotocin (ICV-STZ), a well defined model for Alzheimer's disease.²

Experimental groups consisted of sham-rest, sham-exercise, lesion-rest and lesion-exercise groups. Rats in lesion group received ICV-STZ. In the exercise group, rats were made to run on a treadmill (20 m/min, 0-degree inclination, 50 min/day, 4 weeks). Mor-

ris water maze test was used to evaluate spatial learning and memory.

The results showed that spatial learning and memory indices were significantly impaired in the rats with ICV-STZ (Figure 1). However, exercise prevented impairments as there was a significant difference between lesion-exercise and lesion-rest groups.

The findings of this study suggested that similar to Alzheimer's disease, ICV-STZ severely impairs cognitive process, but exercise prevents this damage. Therefore, exercise probably is helpful in prevention and alleviation of cognitive disorders in Alzheimer's disease.

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Conflict of Interests

Authors have no conflict of interests.

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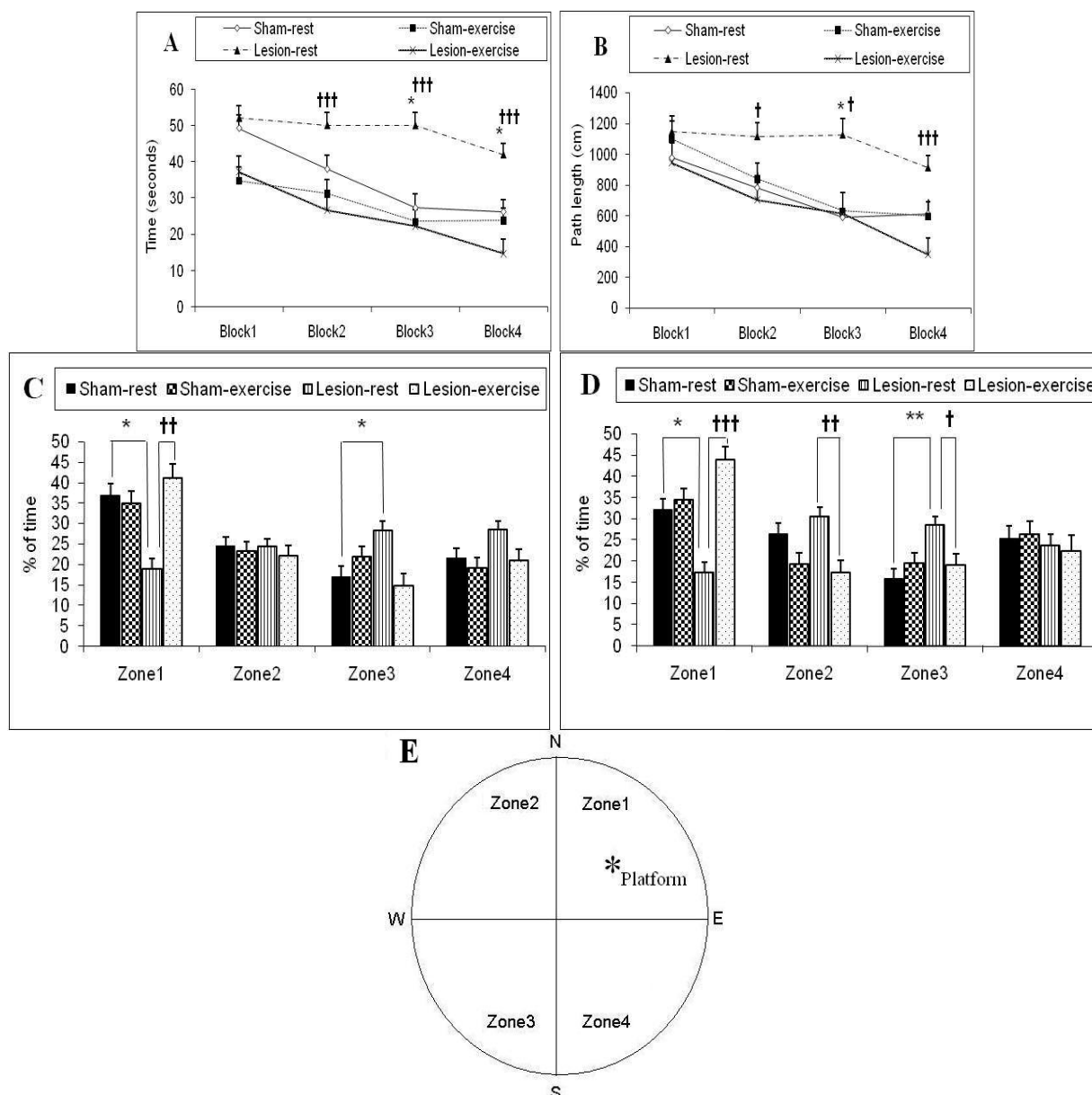
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Result are presented as mean \pm SEM; * $p < 0.05$, ** $p < 0.01$ vs. sham-rest group, † $p < 0.05$, †† $p < 0.01$ and ††† $p < 0.001$ vs. lesion-exercise group; $n = 8-11$.

Figure 1. Effects of exercise and ICV-STZ on the escape latencies (A) and the path length (B) at different block to reach the platform (lower numbers indicate better performance); and performance during the probe trials as measured by mean percentage (%) of time spent in each of the four zones 1 day (C) and 1 week (D) after spatial acquisition phase. Schematic diagram of tank and site of the platform (E).

References

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