عنوان مقاله:

The Effect of Forced Short-term Aerobic Running on the Expression of MicroRNA-۱۲۴ and RE۱-Silencing Transcription Factor in the Hippocampus of Adult Male Rats

محل انتشار:

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نویسندگان:

شیما مجتهدی - *Dept. of Exercise Physiology, University of Tehran, Tehran, Iran*

محمد رضا کردی - *Dept. of Hematology, Tarbiat Modarres University, Tehran, Iran*

مسعود سلیمانی - *Islamic Azad University, Sabzevar Branch, Sabzevar, Iran*

سید ابراهیم حسینی

خلاصه مقاله:

Background and Objective: Transcription factors (TF) and microRNAs, are the largest families of transacting gene regulatory molecules in multicellular organisms. Our goal was to examine the effect of aerobic running on the expression of miR-۱۲۴ and RE۱-silencing TF in the hippocampus of adult male Wistar rats. Materials and Methods: A total of twelve ۸-week-old adult male Wistar rats with a mean body weight of ۲۰۰-۲۲۵ g were selected as subjects. Following ۱ week of familiarization, the animals were randomly divided into two groups of test (n=۶) and control (n=۶). In the test group, animals were forced to run on a treadmill, at a speed of ۲۵ m/min for ۳۰ minutes per day, for ۱۴ consecutive days. The animals were sacrificed ۲۴ hours after the last exercise session, and the hippocampi were removed from both sides of the brain hemispheres. Changes in the expression of miR-۱۲۴ and RE۱-silencing TF were analyzed using the quantitative RT-PCR technique. Results: Statistical analysis by independent sample t-test, showed that there was a significant difference between the exercise and control groups (P≤۰.۰۵), and while exercise significantly elevated the expression of miR-۱۲۴, it reduced the expression of RE۱-silencing TF. Conclusion: Our findings show that forced aerobic running at a speed of ۲۵ m/min could lead to positive changes in mechanisms involved in exercise-induced neurogenesis.

کلمات کلیدی:

Keywords: Running, MiR-۱۲۴, Gene expression, Hippocampus, Adult male rat.