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The Effects of Continuous and Interval Aerobic Exercises with Moderate Intensity on Serum Levels of Glial Cell Line-Derived Neurotrophic Factor and Aerobic Capacity in Obese Children

Authors : Ali Golestani, Vahid Naseri, Hossein Taheri

Abstract : Recently, some of studies examined the effect of exercise on neurotrophic factors influencing the growth, protection, plasticity and function in central and peripheral nerve cells. The aim of this study was to investigate the effects of continuous and interval aerobic exercises with moderate intensity on serum levels of glial cell line-derived neurotrophic factor (GDNF) and aerobic capacity in obese children. 21 obese students with an average age of 13.6 ± 0.5 height 171 ± 5 and BMI 32 ± 1.2 were divided randomly to control, continuous aerobic and interval aerobic groups. Training protocol included continuous or interval aerobic exercises with moderate intensity 50-65%MHR, three times per week for 10 weeks. 48 hours before and after executing of protocol, blood samples were taken from the participants and their GDNF serum levels were measured by ELISA. Aerobic power was estimated using Shuttle-run test. T-test results indicated a small increase in their GDNF serum levels, which was not statistically significant (p =0.11). In addition, the results of ANOVA did not show any significant difference between continuous and interval aerobic training on the serum levels of their GDNF but their aerobic capacity significantly increased (p =0.012). Although continuous and interval aerobic exercise improves aerobic power in obese children, they had no significant effect on their serum levels of GDNF.

Keywords : aerobic power, continuous aerobic training, glial cell line-derived neurotrophic factor (GDNF), interval aerobic training, obese children
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