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Effects of regular intermittent exercise on cognitive functions and IGF1 levels during adolescent period in rats

Aysegul TAS
Kocaeli Derince Research and Training Hospital, Turkey

Exercise has positive effects on cognitive functions that enhances learning-memory with increasing neurogenesis via neurotrophic factors like IGF1. WHO has been recommended at least 150 min/week of exercise for health that can be accumulated over the course of a day through one or more sessions of physical activity of at least 10 minutes in duration. Present study examined IGF1 dependent effects of daily intermittent exercise (IE) on cognitive fuctions, behaviour and neurogenesis in hippocampus and prefrontal cortex (PFC) in 28 day old adolescent rats. Exercised rats (45min/day-5days/week:GrA, 45min/day, 3days/week:GrB, 15minx3/day-5days/week:GrC, 15minx3/day-3days/week:GrD) run on a treadmill at a speed of 10m/min for 6 weeks. Blood(IGF, corticosterone), tissiue (PFC, hippocampus, liver IGF1) levels and anxyete status were determined in all exercise and control gorups. Our study suggests that IE reduces anxiety and serum corticosterone levels; increases brain hippocampal and prefrontal cortex IGF-1 levels, induces neurogenesis and enhances learning memory performance when compared with controls. Although there was no increase in serum IGF-1 and liver tissue IGF-1 levels in IE groups, brain IGF-1 levels were increased. This increase in brain tissues may result from an increase in local brain IGF-1 production. Local IGF-1 increase in brain associated with IE and induced neurogenesis may affect the learning memory performance in adolescent rats.

Biography

Aysegul TAS graduated from Ege University Medical School and then studied Physiology in Dokuz Eylul University (DEU) Medical School as Research Assistant for 4 years. She has been working as Physiology specialist MD in Kocaeli Derince Research and Training Hospital for 2-5 years and from last 2 months she has been working as a deputy of chief-doctor. She has published several papers in reputed journals and has been serving as an Editorial Board Member of *Kocaeli Medical Journal*. Sports medicine, exercise physiology and neurophysiology are her special interests.

aysegultas84@hotmail.com

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