

P-306**Therapeutic effects of physical activity against juvenile stress induced anxiety or depression like behaviors and BDNF levels in the prefrontal cortex of adult female rats.****Mohammad Saeedi¹, Nasroallah Moradi-Kor², Hadi Rashidipour³, Ali Ghanbari², Ahmad Reza Bandegi⁴, Ali Rashid-Pour^{2,5}**

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Background: Exposure to stress during juvenile period has been demonstrated to impair mood related behaviors and BDNF changes in the prefrontal cortex. The present study investigated the protective effects of voluntary exercise (EX), against juvenile stress induced deficits in anxiety and depression like behaviors and BDNF levels in the prefrontal cortex in adult female rats.

Methods: Rats were subjected to restraint stress (2 h/day for 10 days, PND30-40). Then, the animals were subjected to treatment with voluntary exercise (running wheel, 15 days, PND41-55), followed by anxiety and depression testing and BDNF assessment in prefrontal cortex.

Results: The obtained results showed rats submitted to adolescent stress exhibited anxiety and depression like behaviors in adulthood. In addition, adolescent stress decreased BDNF levels in the prefrontal cortex. Treatment with EX alleviated both behavioral and biochemical deficits by juvenile stress, and even exerted the positive effects on BDNF changes in the prefrontal cortex.

Conclusion: Our findings provide important evidences that treatment with EX during pre-pubertal period can protect against juvenile stress induced behavioral and biochemical changes in adulthood.

Keywords: Anxiety, Depression, BDNF, Juvenile stress, Physical activity

P-307**Comparing the Effect of Air Pollution on Salivary Malondialdehyde and Total Antioxidant Capacity Response to a Semi-Soccer Protocol in Indoor Vs. Outdoor Environment****Vahab Khan Ahmadi¹, Ali Samadi^{2*}, Majid Hasan Pour Ezati³**

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Background and Objective: Health benefits of exercise have gained a wide recognition, which increased the popularity of indoor and outdoor exercises. However, due to the augmentation of pollutants concentration in the air, and enhancement of ventilation during exercise increasing concern exists over the adverse effects of air pollution on health. So, the present study compared the effect of air pollution on salivary malondialdehyde (MDA) and total antioxidant capacity (TAC) response to a semi-soccer protocol in indoor vs. outdoor environment in adolescent male soccer players.

Materials and Methods: Nine male adolescent soccer players completed a soccer-specific Bangsbo protocol in two environments (indoor vs outdoor) at two air quality conditions (Air Quality Index 50-100 = Healthy, and 100 to 150 = Unhealthy). Salivary samples were collected before and immediately after performing the protocol in each condition. MDA and TAC were assessed using specified kits. Data were analyzed using SPSS.

Results: Finding confirmed that completing the exercise protocol in unhealthy air - in both indoor and outdoor environments - leads to unfavorable changes in MDA and TAC levels ($p < 0.05$) in comparison with healthy air condition. However, comparing the MDA and TAC changes after exercise in indoor vs. outdoor environments revealed that there was not significant difference between indoor vs. outdoor environments ($p > 0.05$).

Conclusion: As oxidative stress is the main mediator of negative health effects of air pollution and based on findings of this study the general recommendation of shifting exercise to indoor environment at the time of air pollution needs to be reconsidered.

Keywords: outdoor, indoor, Oxidative stress, adolescent soccer players, air pollution