

عنوان مقاله:

THE EFFECT OF AIR POLLUTION ON CARDIO RESPIRATORY PERFORMANCE OF ACTIVE INDIVIDUALS

محل انتشار:

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خلاصه مقاله:

Abstract BACKGROUND: Although much has been discussed regarding the improvement of quality of life with regular physical exercise, we need studies on the cardio respiratory response evaluated on the basis of O₂ uptake, transport, and utilization in areas with high concentrations of pollutants in the atmosphere. The purpose of this study was to determine the effect of air pollution on respiratory and cardiac performance of active individuals in the environments with polluted air and non-polluted air. METHODS: Twenty healthy non-smoker athlete undergraduate male students (Mean \pm SD: age 21.70 ± 2.10 yr, height 175.80 ± 6.78 cm, weight 65.58 ± 4.23 kg and BMI 24.44 ± 2.32) volunteered to participate in the study. First, two environments including polluted and non-polluted were determined on the basis of the environmental protection agency. Then, the subjects were performed on a field cooper test. The tests consisted of two phases: phase A, in non-polluted air area, and phase B, in polluted air area, with a 7-day interval between phases. Finally, respiratory volumes and capacities were measured. RESULTS: The results of analysis by paired t-test showed that there were significant decreases in all of the respiratory parameters (ERV, IC, FVC, FEV₁, MVV, FEV₂₅₋₇₅, FEV₁/FVC), in polluted air compared with non-polluted air ($P < 0.05$). The heart rate measures in two group showed that the mean of heart rate in polluted area was (89 ± 4) more than non polluted environment (83 ± 5) and this was significant at $P=0.028$. CONCLUSION: Therefore, the acute exposure to polluted air, may cause a significant reduction in the respiratory and cardiac performance of active individuals. Keywords: air pollution, respiratory and cardiac performance, active individuals

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