

Evaluating pulmonary function, aerobic capacity, and pediatric quality of life following a 10-week aerobic exercise training in school-aged asthmatics: a randomized controlled trial

Background: It has been documented that aerobic exercise may increase pulmonary functions and aerobic capacity, but limited data has evaluated a child's satisfaction and pediatric quality of life (PQoL) with exercise training.

Objectives: This study aimed to investigate the effects of moderate-intensity exercise training on asthmatic school-aged children.

Subjects and methods: This study included 38 school-aged children with asthma (23 males and 15 females) aged between 8–12 years. They were randomly assigned to two groups, aerobic exercise (AE) and conventional treatment (Con ttt) groups. The AE group received a program of moderate-intensity aerobic exercise for 10 weeks with asthma medications and the Con ttt group received only asthma medications without exercise intervention. A home respiratory exercise was recommended for the two groups. Aerobic capacity was investigated using maximal oxygen uptake (VO₂max), 6-minute walk test (6MWT), and fatigue index. PQoL was evaluated using Pediatric Quality of Life Questionnaire (PQoLQ). Also, pulmonary function tests were performed, and the results recorded.

Results: The findings of this study showed significant improvements in pulmonary functions and VO₂max in the two groups; however, this improvement was significantly higher in the AE group than in the Con ttt group ($p < 0.05$). The 6MWT and fatigue index improved in the AE group ($p < 0.05$) but not in the Con ttt group ($p > 0.05$). All dimensions of PQoL significantly improved in the AE group ($p < 0.05$), but there was no significant improvement in the Con ttt group after the 10-week intervention period ($p > 0.05$).

Conclusion: Ten weeks of physical exercise had beneficial effects on pulmonary functions, aerobic capacity, and PQoL in school-aged children with asthma. Effort and awareness should be dedicated to encouraging the active lifestyle among different populations, especially asthmatic children.

Keywords: asthma, pediatrics, maximum oxygen uptake, exercise-induced bronchoconstriction, moderate-intensity exercise

Research area: Pulmonary diseases and aerobic exercises

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