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

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Patient Preference and Adherence

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 tt) groups. The AE group received a program of moderate-intensity aerobic exercise for 10 weeks with asthma medications and the Con tt 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 (\(VO_{2\text{max}}\)), 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 \(VO_{2\text{max}}\) in the two groups; however, this improvement was significantly higher in the AE group than in the Con tt group \((p<0.05)\). The
6MWT and fatigue index improved in the AE group ($p<0.05$) but not in the Cont 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 Cont 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; exercise-induced bronchoconstriction; maximum oxygen uptake; moderate-intensity exercise; pediatrics