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Title: Aerobic training promotes benefits in patients with moderate and severe asthma independent of seasonal variation

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Body: Background: The incidence of asthma symptoms increases during the winter season in asthmatic patients. Aerobic training (AT) has been employed to improve cardiopulmonary capacity and to reduce asthma symptoms; however it remains unclear if the benefits of AT are modified by season changes. Objective: To compare the benefits of AT in asthmatic patients during distinct season variation. Methods: 42 patients (36±8 years) with moderate or severe asthma (FEV1=79.5±19.4% predicted) participated in an AT program (2xwk; 35 min/session; during 12 wks) and attended in an educational program. 21 patients were trained from summer to winter (winter group; WG) and 21 from winter to summer (summer group; SG). Before and after the intervention, all patients were evaluated in the number of days without asthma symptoms (daily diary), aerobic capacity (VO2max), a health-related quality of life (AQLQ questionnaire). Results: At baseline both groups were similar in all outcomes. After the AT program, it was observed that both groups obtained similar improvement in the HRQoL (23.5±9.9 vs. 18.5±14.3 score), maximal aerobic capacity (2.9±2.9 vs. 3.7±3.0 mL O₂/Kg/min) and in the number of days without asthma symptoms (8.8±7.5 vs. 3.6±7.5 days). Conclusion: Our results demonstrate that AT promotes improvement in aerobic capacity and HRQoL as well as reduction in the number of days without asthma symptoms regardless the season variation.