primary studies - published RCT

Effect of low altitude at the Dead Sea on exercise capacity and cardiopulmonary response to exercise in cystic fibrosis patients with moderate to severe lung disease.

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Study design (if review, criteria of inclusion for studies)

randomized crossover study

Participants

14 CF patients (6 females, 8 males), aged 15-45 years, with moderate to severe lung disease (mean forced expired volume in 1 sec = 50.0 +/- 11.2% predicted).

Interventions

maximal (on a treademill) and submaximal exercise

Outcome measures

Examine the effect of natural oxygen enrichment (at the Dead Sea, 396 m below sea level) on exercise capacity, and the physiological responses to maximal and submaximal exercise in CF patients. Patients were tested twice: at sea level (barometric pressure, 754 +/- 6 mmHg, mean +/- SD), and at the Dead Sea (barometric pressure, 791 +/- 3 mmHg). Tests at each site included resting spirometry, anthropometry, a graded submaximal exercise test, a maximal exercise test on a treadmill, and a 6-min walk test. Tests were performed in identical order at both sites. Tests at the Dead Sea were performed 72 hr after arrival.

Main results

No differences between sites were observed in lung function at rest. Peak oxygen consumption was significantly improved at the Dead Sea compared with sea level (1.68 +/- 0.73 vs. 1.57 +/- 0.74 l/min, respectively, P = 0.05), along with an improvement in the ventilatory equivalent for oxygen (41.2 +/- 6.3 vs. 46.1 +/- 7.1, respectively, P

Authors' conclusions

In conclusion, these results suggest that even a brief stay at the Dead Sea area may have physiological benefits for CF patients with moderate to severe lung disease.

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See also

Pediatr Pulmonol. 2006 Mar;41(3):234-41.

Keywords

Adolescent; Adult; exercise; non pharmacological intervention - devices OR physiotherapy; Respiratory Tract Diseases;