

primary studies - published RCT

Oxygen supplementation during exercise in cystic fibrosis.

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Author: Nixon PA

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

Randomized double-blind, cross-over trial, single center.

Participants

2 younger participants excluded from results as unable to co-operate sufficiently. Participants divided into "Low Sat" group versus "High Sat" group. Low sat group: mean age 20.8 +/- 4.5 years, 9 male and 6 female. "High Sat" group: mean age 13.9 +/- 4.1 years, 13 male and 6 female. 36 people with CF. Equal number of participants with FEV1 > 50% FVC and FEV1

Interventions

2 consecutive maximal exercise tests, FiO2 0.21 & 0.30.

Outcome measures

Work rate, O2 consumption, HR, SaO2, ETCO2, VE.

Main results

The SaO2 of 11 patients at peak exercise was 90% or less ("Low Sat" group). The SaO2 of 23 patients remained above 90% throughout the exercise ("High Sat" group). Hyperoxic air minimized desaturation during exercise in the Low Sat group to 2 +/- 2% compared to a decrease of 10 +/- 5% with normoxic air. The decrease in saturation was not significant for the High Sat group (1 +/- 1% for both 21% and 30% O2). Peak work rate and VO2 did not differ significantly between normoxic and hyperoxic conditions. However, VE and HR at peak exercise tended to be lower, and PETCO2 was higher during peak exercise with 30% O2 than 21% O2 for both groups. During submaximal exercise, O2 desaturation was diminished and HR was significantly lower with supplemental O2, specifically in the Low Sat group. VE was significantly lower for both groups during submaximal exercise with hyperoxic air.

Authors' conclusions

The results suggest that O2 supplementation minimizes O2 desaturation and enables patients with CF to exercise with reduced ventilatory and cardiovascular work.

<http://www.mrw.interscience.wiley.com/cochrane/clcentral/articles/694/CN-00070694/frame.html>

See also

Am Rev Respir Dis. 1990 Oct;142(4):807-11.

Keywords

Adolescent; Adult; Child; exercise; non pharmacological intervention - devices OR physiotherapy; Oxygen; Supplementation; Chest physiotherapy;