primary studies - published RCT

The role of supplemental oxygen during submaximal exercise in patients with cystic fibrosis.

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

Randomised controlled cross-over trial, single center. Single blind

Participants

8 people with CF, mean age 26 years, 7 males and 1 female. Participants completed all three exercise tests and no test was stopped by the physician.

Interventions

Two consecutive submaximal exercise tests, FiO2 0.21 & 0.39. Order of control or oxygen tests was randomized to avoid training effect.

Outcome measures

VO2, duration of exercise, SaO2, HR, VE.

Main results

Eight patients with CF (mean forced expiratory volume in one second 41% predicted) each underwent two submaximal exercise tests on a bicycle ergometer at 80% of maximal workload. The two tests were identical except for the addition of supplemental O2 (inspiratory O2 fraction 39%) during one of the tests. Exercise duration was significantly longer in the supplemental O2 study versus control (673+/-63 s versus 835+/-99 s). Arterial O2 saturation was also higher in the supplemental O2 study than the control exercise test (96+/-0.3% versus 86+/-1.5%). There was no statistical difference at end exercise between O2 consumption, minute ventilation and heart rate. There was a significant relationship between improvement in exercise capacity and the amount of desaturation during the control exercise test.

Authors' conclusions

Results indicate that supplemental oxygen improves submaximal exercise capacity in patients with moderate-to-severe cystic fibrosis. Oxygen therapy may be an important intervention to improve participation and maximise the benefits of pulmonary exercise rehabilitation programmes.

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See also

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Keywords

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