

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, FiO<sub>2</sub> 0.21 & 0.39. Order of control or oxygen tests was randomized to avoid training effect.

### Outcome measures

VO<sub>2</sub>, duration of exercise, SaO<sub>2</sub>, 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 O<sub>2</sub> (inspiratory O<sub>2</sub> fraction 39%) during one of the tests. Exercise duration was significantly longer in the supplemental O<sub>2</sub> study versus control (673±63 s versus 835±99 s). Arterial O<sub>2</sub> saturation was also higher in the supplemental O<sub>2</sub> study than the control exercise test (96±0.3% versus 86±1.5%). There was no statistical difference at end exercise between O<sub>2</sub> 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.

<http://dx.doi.org/10.1183/09031936.02.00492001>

### See also

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### Keywords

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