primary studies - published RCT

Symptoms, lactate and exercise limitation at peak cycle ergometry in adults with cystic fibrosis.

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

RCT

Participants

104 CF adults attending an adult CF centre and 27 controls

Interventions

progressive cycle ergometry to a symptom-limited maximum

Outcome measures

Measurements taken at peak exercise included: heart rate, ventilation, oxygen uptake, carbon dioxide output, oxygen saturation and blood lactate. Symptom scores of perceived breathlessness and muscle effort were recorded using Borg scales.

Main results

The CF subjects had a lower mean body mass index, forced expiratory volume in one second (FEV(1)) and peak oxygen uptake than controls. Peak lactate concentrations were very similar to controls (mean+/-sd 6.8+/-2.0 mmol x L(-1) versus 7.4+/-1.0 mmol x L(-1)). Symptom scores were no different to controls for either breathlessness (4.5+/-2.0 versus 4.3+/-1.0) or perceived muscle effort (6.1+/-2.0 versus 6.5+/-1.0), with higher scores for muscle effort than breathlessness in both groups. In addition, peak ventilation was lower than the predicted maximum, and high peak heart rates were recorded supporting nonpulmonary factors as important in limiting peak exercise. Peak oxygen uptake was correlated with FEV(1). Comparison of CF subjects with mild or moderate pulmonary disease and controls revealed similar exercise responses. In contrast, those CF patients with severe lung disease (FEV(1)

Authors' conclusions

cystic fibrosis subjects have a reduced peak exercise capacity, but their exercise response is similar to controls in generating high blood-lactate concentrations and symptoms of muscle effort in excess of dyspnoea. Nonpulmonary factors influence peak performance more in those without severe disease.

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See also

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Keywords

Adult; cycle ergometer; exercise; non pharmacological intervention - devices OR physiotherapy; training; Chest physiotherapy;