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Title: Changes in fatigue index during an 8 week quadriceps resistance training programme for patients with COPD & healthy controls

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Body: Introduction: Fatigue index (FI) measures the reduction in muscle force during muscle testing/training & can be altered by resistance training (RT). FI is seldom reported in patients with COPD. In isokinetic testing 2 variables are of interest: peak torque (PT) & total work (TWor). Aim: To evaluate changes in FI for PT & TWor during 8weeks of RT in patients & healthy controls. Methods: 70 patients [mean (SD) age 68.6 (9.1)yr, FEV₁44.8(15.2)% pr, 42 men] & 22 controls [age 66.6 (5.1)yr, FEV₁103.4(15.9)% pr, 12 men] completed quadriceps RT for 8weeks. RT was 5x30 knee extensions; 3times/week on a cybex dynamometer (speed=180°/sec). PT (Newton-metres:Nm) & TWor (Joules:J) were recorded for each set & FI was calculated as: set5/set1x100 for the right leg (weekly average). A high FI=less fatigue. Results: There were no significant differences between/within-groups for PT FI over 8weeks (FI approx 90% in both groups for all weeks).

TWor FI in the COPD group did not significantly change over 8weeks. Control subjects displayed improvements in TWor FI & the difference in FI at week8 was significant compared to baseline & week4. However there were no significant differences between the 2 groups for TWor FI (fig.1). Conclusions: Healthy controls experienced less fatigue in TWor as RT progressed. This did not occur in the COPD group & may be related to muscle dysfunction. TWor seems a more sensitive measure than PT.