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Title: Effects of pulmonary rehabilitation on thoracoabdominal mechanic, dyspneia and daily activities in patients with COPD

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Body: Chronic obstructive pulmonary disease (COPD) patients have exercise limitation associated with the ineffectiveness of mechanical ventilation and air imprisonment. Objective: To evaluate the effects of pulmonary rehabilitation on thoracoabdominal mechanic, functional capacity in patients with COPD during bicycle exercise with progressive load. Methods: Sixteen patients with moderate or severe COPD (9 males, 64±5yrs, 26.7±3.7kg/m2, FEV1=1.7± 0.9L) performed a pulmonary rehabilitation program twice week during 12 weeks. Before and after a pulmonary rehabilitation program, all patients were submitted to thoracoabdominal mechanics evaluation by optoelectronic plethysmography during aerobic bicycle exercise with progressive loading. End-expiratory and -inspiratory chest wall (VEEcw and VEIcw), upper chest (VEEuc and VEIuc), lower chest (VEElc and VEIlc) and abdominal volumes (VEEabd and VEIabd) were measured. Dyspnea (MRC scale) and daily activities (London scale) were also obtained. Paired t test was used with significance level set at 5%. Results: The parameters before and after pulmonary rehabilitation were: VEEuc (860±180 vs. 910±120ml; p<0.03), VEIuc (880±180 vs. 930±120ml; p=0.03), MRC (1±3.3 vs. 2.6±0.9points; p=0.05) and LCADL Total (30±1.4 vs. 20±8points; p=0.01). Conclusion: Our results show that pulmonary rehabilitation improves the upper ventilatory chest mechanics that seem associated with dyspnea sensation and daily activities in patients with COPD.