

European Respiratory Society Annual Congress 2013

Abstract Number: 3352

Publication Number: P1301

Abstract Group: 9.2. Physiotherapists

Keyword 1: Peripheral muscle **Keyword 2:** Extrapulmonary impact **Keyword 3:** Rehabilitation

Title: Functional arm exercise capacity, activities of daily living and upper extremity muscle strength in patients with chronic obstructive pulmonary disease

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Body: Introduction and background: Patients with chronic obstructive pulmonary disease (COPD) have reduced arm exercise capacity and frequently experience marked dyspnea and fatigue during the performance of arm tasks important for daily living. Aims and objectives: The aim of this study was to investigate the relationship between functional arm exercise capacity, activities of daily living and upper extremity muscle strength in patients with COPD. Methods: Fourteen patients with COPD were included in the study. Upper extremity muscle strength was measured with a hand-held dynamometer. Functional arm exercise capacity was evaluated with 6-minute pegboard and ring test (PBRT). Activities of daily living (ADL) was assessed using the ADL Field Test. Results: The total number of rings moved during PBRT was correlated with shoulder abductors' muscle strength ($r=0.73$, $p=0.005$), hand grip strength ($r=0.66$, $p=0.019$), the shuttles completed during the ADL Field Test ($r=0.76$, $p=0.002$) and change in general fatigue perception during the ADL test ($r=0.70$, $p=0.005$). Shoulder abductors' muscle strength was also correlated with the shuttles completed ($r=0.60$, $p=0.029$) during the ADL Field Test. Conclusions: Functional arm exercise capacity is related with upper extremity muscle strength and the ability to perform ADL and fatigue perception during ADL. Incorporation of arm strength training into a comprehensive pulmonary rehabilitation program, might be of considerable clinical significance and should result in an improvement in the ability of the patients to perform arm-involved daily activities and functional arm exercise capacity.