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**Title:** Dynamic hyperinflation during activities of daily living in patients with mild COPD

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**Body:** Introduction Mild COPD is already related with significant dyspnea and health related problems. Dynamic hyperinflation is an important contributor to exertional dyspnea and occurs even in patients with mild COPD during cardiopulmonary exercise testing. However, from patient perspective it is important to study this phenomenon during daily life, which has not been studied previously in mild COPD. Objective To study the occurrence of dynamic hyperinflation during activities of daily living (ADL) in patients with mild COPD. Methods In this cross-sectional study 20 stable patients with mild COPD (14 male, mean age 65±7 years, FEV<sub>1</sub> 89±11 % predicted) performed pulmonary function tests and three ADL (climbing stairs, vacuum cleaning and displacing groceries in a cupboard from the ground shelf to a shelf at shoulder height). Inspiratory capacity (IC) was measured using a portable breath-by-breath system (Oxycon Mobile) during ADL. Dynamic hyperinflation was determined by subtracting IC measured directly after the activity from resting IC. Results Climbing stairs, vacuum cleaning and the cupboard activity caused a decrease in IC in 55%, 45% and 40% of the patients, respectively. Focusing on a clinically relevant IC decrease of 150ml, 40%, 10% and 35% of the patients showed dynamic hyperinflation during these ADLs, respectively. 9 out of 20 patients showed significant dynamic hyperinflation during at least one ADL. Dyspnea increased significantly 1.9±1.3, 0.6±0.6 and 1.3±0.9 units on BORG score, respectively. Conclusion A large portion of patients with mild COPD shows dynamic hyperinflation during ADL despite their relatively preserved airflow.