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**Title:** Decline of daily activity in COPD patients with frequent and infrequent exacerbations

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**Body:** Increased breathlessness during COPD exacerbations may lead to reduced physical activity and skeletal muscle dysfunction. We evaluated the longitudinal trend of daily activity in frequent and infrequent COPD exacerbators. 73 outpatients from the London COPD cohort wore a pedometer (Yamax SW-200) and recorded their daily step count on diary cards. We excluded patients using walking sticks or ambulatory oxygen; and data 2 weeks before, during and 2 weeks after each symptom-defined exacerbation. Each patient's exacerbation frequency was determined over one year prior to when they started with the pedometer. The patients were then divided into two groups, infrequent (<2 exacerbations/year) and frequent (≥2/year) exacerbators. The data was analysed by random-effects GLS regression models. The 73 COPD patients (64 male, 30 current smokers) had a mean (±SD) age 71 (±8) years and FEV<sub>1</sub> 53 (±16) %predicted. Daily step count was recorded in the stable state on 14653 days (median 169 days/patient; IQR 113-285; max 488). Step count fell in the infrequent exacerbators (n=33) by 337 steps /year and among frequent exacerbators (n=40) by 707 steps/year (both p<0.001). The decline was faster in frequent exacerbators (p=0.002; see fig1). Frequent COPD exacerbators have an accelerated decline in physical activity compared to infrequent exacerbators. Further study is required to determine the mechanisms and appropriate management strategies.