Physical activity declines in COPD while exercise capacity remains stable: A longitudinal study over 5 years

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BACKGROUND AND OBJECTIVE
Daily physical activity (PA) and exercise capacity are reduced in patients with COPD. Whether the natural longitudinal course of both appears synchronically or one precedes the other is currently unclear. The aim was to assess the longitudinal relationship between exercise capacity and physical activity and their changes over time in patients with COPD.

METHODS
In a longitudinal observation-study of heterogeneous COPD patients, recruited from pulmonary outpatient clinics or hospital settings, we annually investigated two exercise capacity tests (1-min sit to stand test (STS) and 6 min walking test (6MWT)) and daily physical activity assessed by number of steps per day for minimum one, up to seven years. Univariable and multivariable mixed effect models were used to investigate the annual change in STS, 6MWD and number of steps per day.

RESULTS
202 COPD patients (17% COPD risk group (considers symptoms and future exacerbation risk to grade disease severity) A, 49% B, 4% C and 34% D) with a mean (min/max) follow-up time of 2.4 (0.9/6.8) years were annually assessed. The number of steps per day decreased significantly over time (annual mean (95% CI) of -451.0 (-605.3/-296.6) steps, p < 0.001) while STS and 6MWD remained stable.

CONCLUSION
Our findings suggest that COPD patients are increasingly impaired in their daily PA while exercise capacity remains stable during the study period. Thus, the longitudinal decline in PA seems not to be explained by a concomitant reduction in exercise tolerance.

CLINICAL TRIAL REGISTRATION