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Title: Walking speed and muscle strength are determinants of physical activity level (PAL) – A cross-sectional study in COPD

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Body: Introduction Physical activity level (PAL) is a strong predictor of mortality in patients with COPD, only explained to a small degree by lung function. If simple measures that contribute in determining PAL were identified, this might be a valuable addition to the routine assessment of patients. Aims and objectives The aim was to describe PAL and potential determinants in a sample of COPD patients. Furthermore these predictors were used as independent variables in a hierarchical multiple regression model to investigate their ability to determine PAL (dependent variable) beyond that of lung function (FEV1, % pred.). Methods In 69 patients (FEV1 % pred. 43±16) resting metabolic rate (RMR) was assessed by indirect calorimetry, and total energy expenditure (TEE) by activity monitor (ActiReg) during a 7-day period. PAL was derived from TEE/RMR. Walking speed (30-meter Walk Test, m/s) and isometric quadriceps strength (SteveStrong, N) were assessed. Results (Preliminary data) Mean PAL was 1.47±0.18, self-selected walking speed 1.01±0.23m/s and quadriceps strength 305±110N. The overall fit of the final model was R²=0.34 (p<0.001).

Multiple regression model

Step		B	SE B	Beta
Step 1	Constant	1.259	0.059	
	FEV1 (%-predicted)	0.005	0.001	.415**
Step 2	Constant	1.028	0.092	

	FEV1 (%-predicted)	0.004	0.001	.326**
	30mWT (self-selected speed)	0.272	0.087	.341**
Step 3	Constant	0.968	0.092	
	FEV1 (%-predicted)	0.004	0.001	.315**
	30mWT (self-selected speed)	0.208	0.087	.260*
	Quadriceps strength	0.000	0.000	.262*

R2 = .17 for step 1, R2-change = .11 for step 2, R2-change = .06 for step 3 (p<.001) **p<0.01, *p<0.05

Conclusion Measures of physical capacity and/or function are valuable complements to lung function in understanding PAL in COPD.