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Title: Habitual physical activity in cystic fibrosis

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Body: Introduction. Habitual physical activity has important clinical implications in Cystic Fibrosis (CF) and has therapeutic effects on sputum clearance, respiratory muscle strength and quality of life. While recent studies have shown that aerobic fitness is related to survival, that physically active CF patients have higher peak oxygen uptake (VO₂peak) and lower rate of decline of FEV₁, less is known about the relationship between physical activity levels and patients's functional status, including exercise tolerance. Methods. Eleven stable CF patients (mean (SD) age 32 (9) yrs; FEV₁ 2.7 (0.8) l; IC 3.8 (0.9) l), were studied at rest, during symptom-limited incremental exercise test (CPET) and during 6MWT. We assessed daily physical activity using both SW (SenseWear, SW) that subjects wore for 4 consecutive days from waking until going to bed including weekends, and the Habitual Activity Estimation Scale Questionnaire (HAESQ). Results. There was no difference between the weekdays and weekends recordings in any activity variable. We found no agreement in physical activity measured by SW vs HAESQ. By contrast, we found a close relationship between SW step count and FEV₁ (r²=0.9; p<0.02) and SW energy expenditure vs VO₂peak (r²=0.8; p<0.05) at CPET. Distance at 6MWT was not correlated to any physical activity variables, either at SW or HAESQ. Conclusions. Adults CF patients have similar habitual physical activity levels at weekdays and weekends. Activity levels measured by the subjective methods and by the objective monitoring, i.e., SW vs HAESQ, seems to provide different information on the level of daily physical activity. Physical activity is related to degree of airflow obstruction and to the maximum exercise capacity.