

HOW DO COPD PATIENTS DISTRIBUTE THEIR DAILY ACTIVITIES?

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INTRODUCTION

Patients with Chronic Obstructive Pulmonary Disease (COPD) need to remain physically active to prevent physical deconditioning. Increasing physical participation in everyday activities is therefore among the key goals of rehabilitation treatment in patients with COPD. Better insight in daily activity behaviour of COPD patients is needed as a first step to enable a tailoring of their treatment. The objective of this study was to measure the daily activity of COPD patients and to compare the daily activity distribution with asymptomatic controls, using triaxial accelerometry.

METHODS

Twenty-five COPD patients (66.0 years; FEV₁%: 46.3%) and eighteen healthy controls (57.2 years) participated. Daily activity was assessed in the daily environment (in- and outdoors) by triaxial accelerometry (MTx-W sensor, Xsens) over four consecutive days, from waking until 20:00h. Daily activity was expressed as the *amount* of activity in counts per minute (cpm) [1]. Differences in daily activity between patients and controls and differences over day parts were investigated, as well as differences in activity levels: low (<1000 cpm), moderate (1000-3000 cpm) and high (>3000 cpm) [2].

RESULTS

COPD patients were significantly less active compared to controls during the day (863±244 cpm vs. 1189±320 cpm, p<0.001) and for each day part (p<0.05). Both groups were most active in the morning, but this decreased rapidly towards the afternoon and evening for the COPD patients (figure 1). Their mean activity in the evening was significantly lower compared to the morning (p<0.001). The activity of the controls lowered in the evening, but not statistically significant. Further analysis of the data showed a typical decline in activity around noon for the COPD group only. Furthermore, COPD patients spent less time in high-activity levels (3.1±2.8% vs 9.4±4.6%, p<0.001) compared to controls.

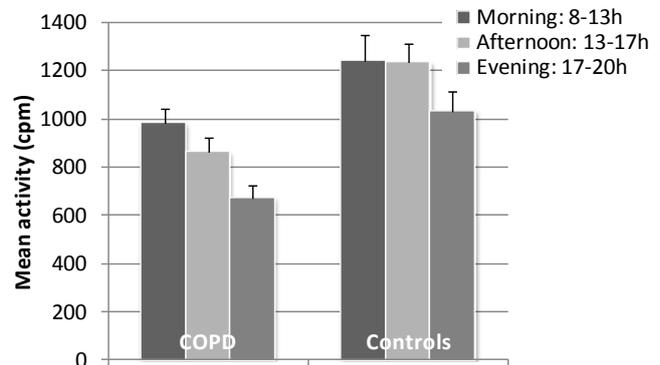


Figure 1 Distribution of daily activity in mean activity per day part for COPD and control group with SE of the mean.

DISCUSSION AND CONCLUSION

Our study showed that COPD patients have a lower activity level that is less evenly distributed compared to asymptomatic controls. Our accelerometer data suggests that treatment should aim at improving the activity level and promoting a more uniform distribution of activities over the day. The next step could be to use ambulatory activity monitoring in COPD treatment: to change the activity behaviour by providing direct feedback to the patient about his/her activity levels in daily life.

REFERENCES

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