Roessingh Research and Development

Institute for Research in Rehabilitation Medicine and Technology

DAILY PHYSICAL ACTIVITY PATTERNS OF PATIENTS WITH CHRONIC FATIGUE SYNDROME COMPARED TO ASYMPTOMATIC CONTROLS

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INTRODUCTION

Deviations in daily physical activity patterns in patients with a chronic disease might be related to their health status and adaptations in these patterns could be beneficial. Lot of research has been performed into the overall activity levels of patients. However, information about the overall activity level is not sufficient, as treatment is often focused on balancing activities over the day/week. More information is needed about activity patterns over a single day as well as variability over consecutive days. As such, the aim of this study is to investigate the course of, and variability in, daily physical activity patterns in patients with the chronic fatigue syndrome (CFS) compared to asymptomatic controls.

METHODS

The daily physical activity pattern was measured with a tri-axial accelerometer in 35 patients with CFS and in 35 age- and gender-matched healthy controls. The accelerometer was worn at the hip for seven consecutive days and daily activities were measured at home during daytime (8.00–22.00). In Matlab an algorithm was written to allow calculation of the physical activity level per hour and per day part (morning, afternoon, evening). Moreover, the distribution of physical activities at low, medium and high intensity levels during the day were computed for evaluating activity intensity levels during the morning, afternoon and evening. Finally, the coefficient of variation per quarter of an hour was used to assess the individual day to day fluctuations in physical activities as well as the between subject variability of both groups.

RESULTS

CFS patients were significantly less physically active in the afternoon and evening, spent fewer activities at high intensity levels and more at low intensity levels. Moreover, CFS patients showed more individual day to day fluctuations in the physical activity pattern during the afternoon and evening with respect to controls. However, the variability between subjects did not differ between both groups.

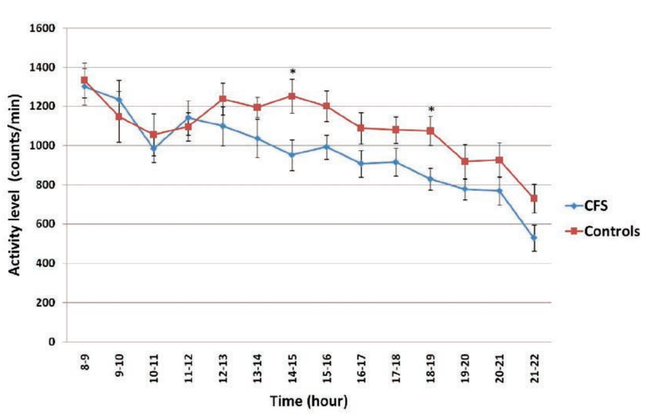

Figure 1
Daily physical activity pattern per hour

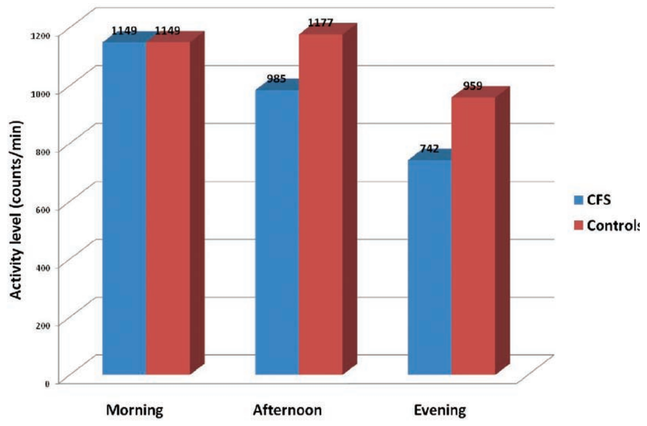

Figure 2
Physical activity levels per day part

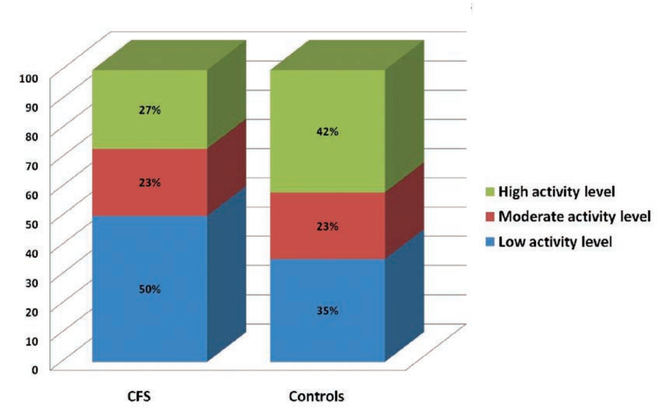

Figure 3
Distribution of hourly activity levels during the day

DISCUSSION

CFS patients show indeed a deviating activity pattern compared to healthy controls which is especially reflected in a reduced activity level during the afternoon and evening. Standardizing physical activity patterns in CFS patients towards healthy patterns might contribute to a more balanced daily activity pattern and reduced fatigue complaints.

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