

Sitting time and patterns of activity in post-stroke rehabilitation: Week versus weekend activity

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Background: High levels of active task practice are recommended after stroke. However, the inpatient rehabilitation day is largely spent sitting. Understanding patterns of sitting across the rehabilitation week may facilitate strategies to promote greater activity. We aimed to compare differences in weekday and weekend sitting time and 24-hour activity patterns during the last week of inpatient rehabilitation.

Methods: Participants with stroke ($n = 34$) from two rehabilitation units wore an activity monitor continuously during the final 7-days of in-patient rehabilitation. Linear mixed models (adjusted for waking hours) were performed with activity time as the outcome and weekday and weekend as the exposure. Patterns of activity accumulation were determined by averaging patient activity in 60-minute epochs, and then generating a heat map of activity level as a function of time.

Results: Participant mean age was 68 [SD 13] years (53% male) mean NIHSS score 7 [SD 5]. There was no significant difference in total sitting time between weekdays and weekends. On the weekend, mean walking time was 8.35 minutes less (95% CI -12.13 , -4.56 $p \leq 0.001$), and steps/day were 624 fewer (95% CI -951 , -296 $p \leq 0.001$) than during the week. Activity patterns were similar across weekdays and weekends, with more morning than afternoon activity observed.

Conclusion: Sitting time did not change in relation to the 7-day rehabilitation week, while walking (time and steps) was less on weekends. Morning activity was observably greater than afternoon activity across the 7-days. Strategies targeting afternoon, evening and weekend activity may increase overall physical activity during rehabilitation.