

POSTER 81

Feasibility and Inter-Device Reliability of Activity Monitoring in Pediatric Patients

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INTRODUCTION

Return to activity after surgery is an important outcome. However, patient-reported activity levels are often inaccurate. Few studies have used commercial activity trackers in pediatric patients, and no studies have validated the concurrent use of the two models required for pediatric versus adolescent populations. The aim of this study is to demonstrate the inter-device reliability of these models and document participant compliance to assess the feasibility of future studies. Secondary aims include documenting average daily step count and determining whether activity prompts influence activity level.

METHODS

Twelve healthy children and adolescents were enrolled. Participants completed a 5-minute walk while wearing both models to assess inter-device reliability. Participants were then fitted with the model appropriate for their age and asked to wear the activity tracker continuously for eight weeks. A randomized crossover design was used to investigate the effect of activity prompts.

RESULTS

The intraclass correlation coefficient (ICC) demonstrated high inter-device reliability. Wear compliance was 57.0%. The average daily step count in the group was 6860 steps per day. No correlation was found between activity level and age or sex. Activity prompts resulted in a statistically significant increase in activity level (8179 vs 5767 steps per day). This finding remained significant after adjusting for participant ID.

DISCUSSION and CONCLUSION

Although compliance must be addressed in future projects, the two models demonstrated excellent inter-device reliability. Overall, participants in this study did not meet the recommended daily steps per day for their age group. However, enabling activity prompts increased average daily step count by 2412 steps, representing a 41.8% increase in activity. This study validates the concurrent use of the two commercially available activity tracker models in research involving both children and adolescents and highlights the challenges with compliance that must be addressed by investigators in future projects.