Recent studies have used portable accelerometers to document low levels of physical activity (PA) in children and youth with cerebral palsy (CP). 1, 2 Ambulatory youth with CP often undergo treatments aimed at improving activity and participation, and portable accelerometers could help document outcome effectiveness of these interventions. There is some debate about optimal length of time to collect PA data. Analyses of PA in youth with CP should define school days separately from non-school days for all gross motor function classification levels (GMFCS). The primary aim of this project was to determine if differences in PA data exist between two consecutive weeks of recording using the StepWatch™ (SW) in youth with CP. Secondary aims were to compare differences in PA by day of the week and by school calendar.

Understanding temporal differences in habitual PA patterns for youth with CP will help shape clinical measurement protocols and allow valid data comparisons pre and post intervention.

METHODS

This was a retrospective review, with IRB approval, of youth with CP wearing a SW for 2 weeks as part of a pre or post-operative clinical gait analysis at a children's specialty hospital.

The SW was calibrated and checked for accuracy against a walking trial of +/- 200 strides.

Data was downloaded and processed using SW software. Data from days with clear problems or < 10 hrs of wear were excluded.

Data was reviewed from 87 patients and categorized into mean daily step totals for Week 1 and Week 2.

Paired weeks with 4 full days within 7 consecutive days for each week and with an equal number of weekend days were included.

Data was analyzed comparing Week 1 vs. Week 2, Weekday vs. Weekend and by school calendar year.

Student t-tests and Pearson correlation coefficients were used with statistical significance set at p < 0.05.

PARTICIPANTS

n = 63 patients with CP: 27 females /36 males
Mean age 12.4 yrs (5 to 20 yrs)
GMFCS levels I (13), II(36), and III (14)
79 paired weeks: 57 pre-operative and 22 from post-op sessions.
School year collection from 51 patients and summertime for 12 patients.

INTRODUCTION

RESULTS

Table 1. Step Totals by Week

<table>
<thead>
<tr>
<th></th>
<th>Week 1</th>
<th>Week 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3259</td>
<td>3361</td>
</tr>
<tr>
<td>SD</td>
<td>607</td>
<td>599</td>
</tr>
<tr>
<td>Min</td>
<td>232</td>
<td>251</td>
</tr>
<tr>
<td>Max</td>
<td>7403</td>
<td>7338</td>
</tr>
<tr>
<td>T Test</td>
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<tr>
<td>R value</td>
<td>0.865</td>
<td></td>
</tr>
</tbody>
</table>

(no statistically significant difference between weeks)

Figure 1. Scatter Plot Week 1 vs. Week 2

Figure 2. Step Totals by Day of Week

REFERENCES