A Program to Measure Walking Activity pre & post Surgery in Youth with Cerebral Palsy

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PURPOSE
Describe a clinical program to measure mobility performance in youth with cerebral palsy

Learning Objectives
1. Gain an understanding of typical walking activity (WA) levels in children and youth with cerebral palsy
2. Describe differences in WA for youth with CP by age groups, disability levels, and pre / post surgery.
3. Develop knowledge-based skills in methods to measure and interpret (WA) for children and youth with cerebral palsy.

BACKGROUND

- Program Rationale
  - Outcomes of Gait Surgery
  - Physical Activity and Health

- Device Selection
  - Dimensions of physical activity

PROGRAM DEVELOPMENT

- Devive Performance
  - Data accuracy, reliability, and validity
  - Feasibility and durability

- Measurement Protocol
  - Settings
  - Timing

KNOWLEDGE BASE

- Literature Reports
  - Walking Activity in Children and Youth with CP

- Laboratory Specific Data
CLINICAL APPLICATION

- Clinical Cases
  - long term outcomes of walking performance
  - short term patterns of losses / gains
  - recovery insights
  - therapy implications
  - surgical planning considerations
  - family education and motivation

PROGRAM STATUS

- Overview of one & two-year outcomes
- Future Directions

QUESTIONS / DISCUSSION

Additional Handouts:

- Calibration Form
- Family Instructions / Home Log
- Sample Results Letter & Data
## Step Watch Data Sheet

Name: _______________________________  Date: ________________

E-mail: _______________________________

MRN: _______________________________

Height (inches): ___________  GMFCS: ___________

Serial #: ___________

<table>
<thead>
<tr>
<th>Quick Step</th>
<th>Walk Speed</th>
<th>Speed Range</th>
<th>Leg Motion</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>Slow</td>
<td>Rarely Varies</td>
<td>Geriatric</td>
</tr>
<tr>
<td>NO</td>
<td>Normal</td>
<td>Moderate</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Fast</td>
<td>Both Extremes</td>
<td>Severely Impaired</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fidgety/Dynamic</td>
</tr>
</tbody>
</table>

Cadence: ___________  # Observed Steps: ___________  Accuracy: ___________

Sensitivity: ___________  # Measured Steps: ___________
STEPWATCH INSTRUCTIONS

Please wear the Step Watch tomorrow ___________ and keep it on everyday through the end of the day on______________.

How to Wear the Step Watch

- Wear the Step Watch **ALL DAY** (except when swimming or bathing).
  - Take it off before going to bed.
- **Please do not put it in the dryer if it gets wet.**
- The Step Watch is worn just above your **RIGHT** ankle, on the side of your calf.
  - Wear the device face up as shown.
  - It needs to stay on the **SIDE** of your leg and should not slip around.
  - Wear over bare skin, socks, or an AFO, but **not** over pants.

Additional Daily Requirement

- Please answer the questions on the back of this sheet **daily**.

How to Return the Step Watch

After the 8 days are up on ________________, (don’t wear it that day)

- Please put the Step Watch and the completed Question Sheet into the small bubble envelop (this will protect the Step Watch during shipping)
- Put the small bubble envelope into the pre-addressed FedEx mailing envelope.
- Deposit the FedEx mailing envelop in a FedEx pickup box or location.

Gait Lab Follow-Up

- We will be in contact with you throughout the next 2 weeks. Thank you again for participating. Please call if you have any questions.
<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
<th>Day 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>I put the StepWatch on at: 8:00am</td>
<td>I put the StepWatch on at:</td>
<td>I put the StepWatch on at:</td>
<td>I put the StepWatch on at:</td>
<td>I put the StepWatch on at:</td>
<td>I put the StepWatch on at:</td>
<td>I put the StepWatch on at:</td>
<td>I put the StepWatch on at:</td>
</tr>
<tr>
<td>I took the StepWatch off at: 10:00pm</td>
<td>I took the StepWatch off at:</td>
<td>I took the StepWatch off at:</td>
<td>I took the StepWatch off at:</td>
<td>I took the StepWatch off at:</td>
<td>I took the StepWatch off at:</td>
<td>I took the StepWatch off at:</td>
<td>I took the StepWatch off at:</td>
</tr>
<tr>
<td>Comments: I forgot to put on the StepWatch when I first got up at 7:00am</td>
<td>Comments:</td>
<td>Comments:</td>
<td>Comments:</td>
<td>Comments:</td>
<td>Comments:</td>
<td>Comments:</td>
<td>Comments:</td>
</tr>
</tbody>
</table>

**Comments:** Were you sick during the last week? Any special activities/events?
To The Parents / Guardians of __________________________,

Enclosed are the results of your child’s recent assessment of walking activity. Thank-you for your cooperation in having your child wear the Step Watch© monitor. The results have been reviewed by the physician in the Gait Lab and have been added to your child’s medical record.

The first page shows your child’s walking activity data from this recent episode. The top bar graph shows the number of strides for each day. The black horizontal line provides a comparison to other children with CP whose condition is similar. The three graphs below show how many strides taken at low intensity (< 15 steps/min), medium intensity (15 – 40 steps/min), and high intensity (> 40 steps/min). The comparison lines on these three graphs are to typically developing children of similar age.

The second page shows summarized data from each Step Watch monitoring episode. We use these graphs to evaluate how the child is recovering from surgery. The box on the left side lists the dates that go along with each bar in the graph. The surgeons would like to monitor walking activity using the Step Watch for 24 months post-surgery. The span from one to two years after surgery is when we expect the child to exhibit the highest walking totals. Every child is different though and having data to evaluate recovery will help the surgeons and therapists direct rehabilitation efforts to reach the best outcome.

The surgeon who referred you to the Gait Lab can discuss this with you in more detail. Thank-you again for your cooperation in completing this testing,

Sincerely yours,

__________________________          __________________________
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