Daily Activity of Individuals With an Amputation Above the Knee as Recorded From the Nonamputated Limb and the Prosthetic Limb

Supplementary Material

Page 2

Supplementary Table 1. Comparison of the number of steps recorded from the device attached to the prosthesis compared to the device attached to the nonamputated limb during seven selected walking sessions and seven selected incidental step sessions

Page 3

Supplementary Table 2.

Example of pitfalls in activity monitoring recordings when individual data were compared between the prosthetic limb, the nonamputated limb, and the diary notes

Pages 3-5

Description of questions included in the self-reported measures on prosthetic mobility:

The Q-TFA prosthetic use score, the Q-TFA Prosthetic Mobility score, the PLUS-M 12-item score and the Prosthetic activity grade

Page 6

The content of the diary sheet and summary questions
Supplementary Table 1. Number of steps recorded from the device attached to the prosthesis compared to the device attached to the nonamputated limb during seven selected walking sessions and seven selected incidental step sessions

*Number of steps recorded during each selected session

**Proportion of number of steps recorded from the prosthesis as compared to the non-amputated limb

<table>
<thead>
<tr>
<th>Session number</th>
<th>Walking sessions</th>
<th>Incidental step sessions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Session duration</td>
<td>Prosthesis</td>
<td>Non amputated limb</td>
</tr>
<tr>
<td></td>
<td>hour:min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1:52</td>
<td>8016</td>
<td>8264</td>
</tr>
<tr>
<td>2</td>
<td>1:19</td>
<td>4364</td>
<td>4328</td>
</tr>
<tr>
<td>3</td>
<td>0:21</td>
<td>2774</td>
<td>2962</td>
</tr>
<tr>
<td>4</td>
<td>0:36</td>
<td>2590</td>
<td>2690</td>
</tr>
<tr>
<td>5</td>
<td>1:24</td>
<td>2156</td>
<td>2728</td>
</tr>
<tr>
<td>6</td>
<td>1:06</td>
<td>4136</td>
<td>4204</td>
</tr>
<tr>
<td>7</td>
<td>1:06</td>
<td>5260</td>
<td>5268</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7:44</strong></td>
<td><strong>29296</strong></td>
<td><strong>30444</strong></td>
</tr>
</tbody>
</table>

*a The walking sessions were noted in the diary and included information such as “30 minutes’ walk at lunchtime” or “walked 4 km in the afternoon and used 2 crutches”. In all cases, the prosthesis was registered as being used during the duration of each session.

*b The Incidental step sessions were noted in the diary and included information such as “worked in the garden for three hours” or “spend the day doing indoor homework”. In all cases, the prosthesis was registered as being used during the duration of each session.
Supplementary Table 2. Example of pitfalls in activity monitoring recordings when individual data were compared between the prosthetic limb, the nonamputated limb, and the diary notes

<table>
<thead>
<tr>
<th>More activity recorded than performed</th>
<th>Prosthetic limb</th>
<th>Nonamputated limb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prosthesis was recorded as standing when it was taken off (and thus identified as upright time)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Example: Prosthesis was recorded as standing during sleep or during hours of physical training when not worn.</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prosthesis was recorded as standing while the participant was sitting on a raised seat and holding the prosthetic limb outside the seat for better sitting comfort (thus identified as upright time)</td>
<td></td>
</tr>
<tr>
<td>Less activity recorded than performed</td>
<td>Physical activity while sitting was recorded as sitting or seated while commuting (and thus identified as sedentary time)</td>
<td>Physical activity while sitting was recorded as sitting or seated while commuting (and thus identified as sedentary time)</td>
</tr>
<tr>
<td></td>
<td><em>Example: Outdoor biking on an adaptive bike with a reclining backrest for prosthetic socket comfort</em></td>
<td><em>Examples: Playing tennis while seated in a wheelchair, kayaking, rowing on a rowing machine</em></td>
</tr>
<tr>
<td></td>
<td>Fewer steps were recorded for the prosthetic limb than the nonamputated limb although the prosthesis was used during the activity (thus, the number of daily steps was too low)</td>
<td>Fewer steps were recorded for the prosthetic limb than the nonamputated limb (see Supplementary Table 1)</td>
</tr>
<tr>
<td></td>
<td><em>Example: Raking the garden led to fewer recorded steps on the prosthetic limb than simultaneous recordings on the nonamputated limb</em></td>
<td></td>
</tr>
</tbody>
</table>
Q-TFA Prosthetic Use score: Questions included the following:

1. How many days per week, on average, do you wear the prosthesis?

Number of days:
0 1 2 3 4 5 6 7
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

2. How many hours per day, on average, do you wear the prosthesis?
☐ 0–3 hours
☐ 4–6 hours
☐ 7–9 hours
☐ 10–12 hours
☐ 13–15 hours
☐ more than 15 hours

Q-TFA Prosthetic Mobility score: Questions included:

Which walking aid do you normally use when walking in your home wearing the prosthesis?
☐ Walking frame or similar
☐ 2 crutches or 2 sticks
☐ 1 crutch or 1 stick
☐ Nothing
☐ Other

If other, please specify:

Which walking aid do you normally use when walking outdoors wearing the prosthesis?
☐ Walking frame or similar
☐ 2 crutches or 2 sticks
☐ 1 crutch or 1 stick
☐ Nothing
☐ Other

If other, please specify:

Can you perform the following movements wearing the prosthesis and with the support of your normal walking aid? Please feel free to try the movement if you are unsure of your answer.

a) Walking up and down stairs without a handrail: ☐ ☐ ☐
b) Walking up a hill: ☐ ☐ ☐
c) Walking down a hill: ☐ ☐ ☐
d) Walking over uneven terrain, e.g., on forest trails or fields: ☐ ☐ ☐
e) Walking quickly over a distance of 50 meters: ☐ ☐ ☐
f) Walking while carrying a bag of food shopping or light suitcase: ☐ ☐ ☐

Can you do the following when wearing the prosthesis?

Please feel free to try if you are unsure of your answer.

a) Standing up for 10-15 minutes without support and without discomfort: ☐ ☐ ☐
b) Walking across the room carrying a tray with both hands: ☐ ☐ ☐
c) Sitting comfortably in a low armchair or in the back seat of a car: ☐ ☐ ☐
d) From a seated position, bending down and tying your shoelaces: ☐ ☐ ☐
e) Easily sitting down on the floor and standing up again: ☐ ☐ ☐
f) Cycling: ☐ ☐ ☐
Over the past three months, how often have you used the prosthesis to continuously walk outdoors any of the distances shown below? (Enter one cross for each distance)

<table>
<thead>
<tr>
<th>Distance</th>
<th>Several Daily</th>
<th>Several times/week</th>
<th>Once/week</th>
<th>Less than once/week</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200 m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 km</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 km or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For further information on Q-TFA:

**PLUS-M™ 12-item Short Form (v1.2):** Questions included
1. Are you able to walk a short distance in your home?
2. Are you able to step up and down curbs?
3. Are you able to walk across a parking lot?
4. Are you able to walk over gravel surfaces?
5. Are you able to move a chair from one room to another?
6. Are you able to walk while carrying a shopping basket in one hand?
7. Are you able to keep walking when people bump into you?
8. Are you able to walk on an unlit street or sidewalk?
9. Are you able to keep up with others when walking?
10. Are you able to walk across a slippery floor?
11. Are you able to walk down a steep gravel driveway?
12. Are you able to hike about 2 miles on uneven surfaces, including hills?

The five answer options are as follows:
Without any difficulty/With a little difficulty/With some difficulty/With much difficulty/Unable to do

For further information on the PLUS-M: [www.plus-m.org](http://www.plus-m.org)

**Prosthetic Activity Grade (0-4)**
0 = I do not use a prosthesis
1 = I use the prosthesis to a limited degree for standing/walking and, if so, I am always supported by walking aids. No long walks.
2 = I use the prosthesis most of the day. Walking is performed with or without the support of a walking aid at home, but I always use a walking aid outdoors.
3= I use the prosthesis for the entire day. Walking is often performed without the support of a walking aid, but a walking aid might be used for longer distances. I walk a lot, but I rarely perform other demanding or high-load activities with the prosthesis.
4= I use the prosthesis for the entire day. Walking is performed without a walking aid, I walk a lot and/or routinely perform other demanding or loading activities involving the prosthesis (e.g., cycling or gym exercises).
The content of the diary sheet and summary questions

In this diary sheet, we ask you to note when you have been wearing the prosthesis for each of the 7 days while the activity measurements are ongoing. Note the number of hours you wear the prosthesis in the box for each time for each day. If you were not wearing the prosthesis, note 0.

Example: If you, a certain day, did wear the prosthesis between 11 and 19.30, this will be noted as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>00-03</th>
<th>03-06</th>
<th>06-09</th>
<th>09-12</th>
<th>12-15</th>
<th>15-18</th>
<th>18-21</th>
<th>21-24</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1,5</td>
<td>0</td>
<td>e.g., gym training, longer walk etc.</td>
</tr>
</tbody>
</table>

Make a short comment if you did something special during the day and note the approximal time.

After 7 days have passed, send the devices back in the prepaid envelope.

Please also answer the following questions before sending the devices and diary back to us.
The questions are about the week of activity measurements.
Please make a circle around the alternative best capturing your opinion.

1A. Does the week of measurements approximately represent a normal week? Yes  No
If No – Have you been more active than normal or have you been less active than normal?

More active  Less active

1B. Did you need to change the dressing(s) attaching the devices to the skin and/or the prosthesis?

Yes  No
If Yes: Did you change the dressing on your skin? Yes  No
Did you change the dressing on your prosthesis? Yes  No

2. Currently, which level of prosthetic activity best describes you: Circle one figure below (0-4)

0 = I do not use a prosthesis
1 = I use the prosthesis to a limited degree for standing/walking and, if so, I am always supported by walking aids. No long walks.
2 = I use the prosthesis most of the day. Walking is performed with or without the support of a walking aid at home, but I always use a walking aid outdoors.
3= I use the prosthesis for the entire day. Walking is often performed without the support of a walking aid, but a walking aid might be used for longer distances. I walk a lot, but I rarely perform other demanding or high-load activities with the prosthesis.
4= I use the prosthesis for the entire day. Walking is performed without a walking aid, I walk a lot and/or routinely perform other demanding or loading activities involving the prosthesis (e.g., cycling or gym exercises).

Thank you for participating!