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Increasing Physical Activity Amounts and Intensity in Older Adults Using Low Cost Wearable Devices - "Cadence Training"

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Increasing Physical Activity Amounts and Intensity in Older Adults Using Low Cost Wearable Devices - “Cadence Training”

Catrine Tudor-Locke
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Disclosure

I have no actual or potential conflict of interest in relation to this presentation.
New generation consumer tracking devices
Expected values for special populations

Tudor-Locke et al., Preventive Medicine, 2009
Alternative Terms for Cadence

- Step frequency
- Step rate
- Stride frequency
- Stride rate
- Walking tempo
- Steps/min
- SPM
- Steps·min⁻¹
6135 steps/day

24-hour time clock

Cadence (steps/min)

Tudor-Locke et al., in progress
### Bilateral Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step Time (sec)</td>
<td>.59/2.6</td>
<td>.61/1.8</td>
</tr>
<tr>
<td>Cycle Time (sec)</td>
<td>1.19/1.2</td>
<td>1.19/1.1</td>
</tr>
<tr>
<td>Step Length (cm)</td>
<td>65.76/3.1</td>
<td>66.06/2.5</td>
</tr>
<tr>
<td>Stride Length (cm)</td>
<td>131.66/2.1</td>
<td>132.06/8.1</td>
</tr>
<tr>
<td>H-H Base Support (cm)</td>
<td>9.60</td>
<td>9.98</td>
</tr>
<tr>
<td>Single Support (SSC)</td>
<td>34.7/3.1</td>
<td>34.6/3.2</td>
</tr>
<tr>
<td>Double Support (SSC)</td>
<td>30.7/2.2</td>
<td>30.9/1.9</td>
</tr>
<tr>
<td>Swing (SSC)</td>
<td>34.3/3.2</td>
<td>34.9/3.1</td>
</tr>
<tr>
<td>Stance (SSC)</td>
<td>65.7/5.9</td>
<td>65.17/1.7</td>
</tr>
<tr>
<td>Step/Extremity Ratio</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>Toe In/Out (deg)</td>
<td>17</td>
<td>12</td>
</tr>
</tbody>
</table>

### Parameters

- **Distance (cm):** 527.3
- **Ambulation Time (sec):** 4.77
- **Velocity (cm/sec):** 110.5
- **Mean Normalized Velocity:** 0.00
- **Number of Steps:** 0
- **Cadence (Steps/Min):** 180.6

### Temporal

- **Step Time Differential (sec):** 0.02
- **Step Length Differential (cm):** 0.30
- **Cycle Time Differential (sec):** 0.01
Synthesis of 7 treadmill/track/corridor studies

Metabolic Equivalent (MET); 1 MET = 3.5 ml oxygen consumption per kg per minute

Tudor-Locke et al., *IJBNPA*, 2011
THANK YOU!