### Functional Test Normative Data

#### 6 minute walk test
**Purpose:**
Assesses distance walked over 6 minutes as a submaximal test of aerobic capacity/endorsement

**Age matched Norms:**
- 60-69 yrs: M= 572 m (1876.64 ft), F= 538 m (1765.1 ft)
- 70-79 yrs: M= 527m (1729 ft), F=471 m (1542.28 ft)
- 90-98 yrs: M= 417 m (1368.11 ft), F = 392 m (1286.1 ft)

**MCID:** COPD: 54 meters (177.17 ft)
- Geriatrics and Stroke: 50 meters (164.04 ft)
- SCI: Overall - .10 m/s. Slow -.11 m/s. Fast - N/A
- Stroke: 34.4 m (112.86 ft)

**FGA**
**Purpose:**
Assesses postural stability during various walking tasks

**Age matched Norms:**
- 40-49 years= 28.9/ 50-59 years=28.4
- 60-69 years=27.1/70-79 years=24.9
- 80/89 years=20.8

**MCID:**
- Vestibular disorders: 8 points
- Parkinsonism: 80 m (269 ft)

**Cut-offs:**
- Community dwelling older adults
  - ≤22/30 : predict falls (Sensitivity 85%, Specificity 86%)
  - ≤20/30 (unexplained falls in the next 6 months)
    - (Sensitivity 100%, Specificity 76%)
  - Parkinson’s
    - 15/30 (identify fallers in Parkinson’s)

#### 9 hole peg test
**Purpose:**
Measure finger dexterity

**Age matched Norms:**
- Healthy adults
  - All males: 18.99 seconds
  - All females: 17.67 seconds
- MS: (Dominant side) 17.81 seconds
  - (Non-dominant side) 18.49 seconds

**MCID:** Not established

**MDC:**
- Stroke: 32.8 seconds
- Parkinson’s disease: 2.6 seconds for dominant; 1.3 seconds for non-dominant hand

#### Berg balance scale
**Purpose:**
Assess static balance and fall risk in adults

**Age Matched norms:**
- 60-69 years: 55 / 55
- 70-79 years: 54 / 53
- 80-89 years: 53/ 50

**Normative Data:**
- OA Mean BBS score one week postoperative = 34 (8); 5-7 weeks postoperatively = 50 (6)

**MCID:** not established

**MDC:**
- Community Dwelling Older Adults - Age (MDC)
  - 0-24 (4.6)/ 25-34 (6.3)/35-44 (4.9)/45-56 (3.3)
- Institutionalized Older Adults: 8 points
- Parkinson’s: 5 points
- Acute Stroke:
  - Entire Group: 6.9
  - Individuals who ambulate with assistance: 8.1
  - Individuals with stand-by-assistance: 6.0
  - Individuals who ambulate independently: 6.3
- Chronic Stroke: 2.5

**Cut-Offs:**
- <45 (greater risk of falls)
- History of falls and BBS ≤ 51 or no history of falls and BBS ≤ 42 predictive of falls (91% sensitivity, 82% specificity)
- Score ≤ 40 associated with almost 100% fail risk
- 60-83 years / 53/ 50
- Stroke: 45/56

#### 5 times sit to stand test
**Purpose:**
A measure of functional lower limb muscle strength
- May be useful in quantifying functional change of transitional movements

**MCID:**
- Vestibular disorders: > or equal to 2.3 seconds

**MDC:**
- Healthy adults: 4.2 seconds
- Stroke: 3.6 seconds
- Children w/ CP: .06 (Average of three trials)

**Cut-offs:**
- Community dwelling older adult: > or equal to 12 seconds requires further assessment for falls risk
- Parkinson’s: > 16 seconds (fallers)
- Stroke: 12 seconds
- Vestibular: To identify balance dysfunction
  - Entire sample: 13 sec
  - Younger(< 60 years): 10 sec
  - Older(> 60 years): 14.2 sec

---

*Property of Delaware PT Clinic www.udptclinic.com May be reproduced, as is, for clinical, educational, and research purposes. This Clinical Guideline may need to be modified to meet the needs of a specific patient. The model should not replace clinical judgment.*
4 square step test

**Purpose:**
Test of dynamic balance that clinically assesses the person's ability to step over objects forward, sideways, and backwards

**Age matched Norms:**
- Acute stroke: 20.8 seconds - 17.5 seconds
- Older adults/geriatrics: 32.6 seconds (multiple fallers)/17.6 seconds (non-fallers)
- Parkinson's: On Drug time: 9.6 secs/Off Drug time: 11.02 secs

**MCID:** Not established
**MDC:** Not established

**Cut off scores (for falls risk):**
- Older adults/Geriatric: > 15 seconds
- Vestibular: > 12 seconds
- Transtibial amputations: >24 seconds at risk for falls
- Acute stroke: failed attempt or > 15 seconds
- Parkinson's disease: < 9.68 seconds

Single leg stance (seconds)

**Purpose:** Assess balance on one limb

**Age-matched norms:**

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-39</td>
<td>43.2/10.2</td>
<td>43.5/8.5</td>
</tr>
<tr>
<td>40-49</td>
<td>40.1/7.3</td>
<td>40.4/7.4</td>
</tr>
<tr>
<td>50-59</td>
<td>38.1/4.5</td>
<td>36.0/5.0</td>
</tr>
<tr>
<td>60-69</td>
<td>28.7/3.1</td>
<td>25.1/2.5</td>
</tr>
<tr>
<td>70-79</td>
<td>18.3/1.9</td>
<td>11.3/2.2</td>
</tr>
<tr>
<td>80-99</td>
<td>5.6/1.3</td>
<td>7.4/1.4</td>
</tr>
</tbody>
</table>

**MCID:** Not established
**MDC:** Not established

10MWT (m/s)

**Purpose:** Assess gait speed over a short duration

**Age-matched norms:**

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>20s</td>
<td>1.39</td>
<td>1.41</td>
</tr>
<tr>
<td>30s</td>
<td>1.46</td>
<td>1.42</td>
</tr>
<tr>
<td>40s</td>
<td>1.46</td>
<td>1.39</td>
</tr>
<tr>
<td>50s</td>
<td>1.39</td>
<td>1.40</td>
</tr>
<tr>
<td>60s</td>
<td>1.36</td>
<td>1.30</td>
</tr>
<tr>
<td>70s</td>
<td>1.33</td>
<td>1.27</td>
</tr>
<tr>
<td>Maximal</td>
<td>2.53</td>
<td>2.47</td>
</tr>
<tr>
<td>20s</td>
<td>2.45</td>
<td>2.34</td>
</tr>
<tr>
<td>30s</td>
<td>2.46</td>
<td>2.12</td>
</tr>
<tr>
<td>40s</td>
<td>2.07</td>
<td>2.01</td>
</tr>
<tr>
<td>50s</td>
<td>1.93</td>
<td>1.77</td>
</tr>
<tr>
<td>60s</td>
<td>2.08</td>
<td>1.74</td>
</tr>
</tbody>
</table>

**MCID:**
- Geriatrics .13m/s
- Stroke .14m/s
- SCI .06 m/s
- TBI: Change is reflected in .15 and .25 m/s increase in comfortable and fast-paced walking speed respectively

**MDC:**
- Hip Fractures: .17 m/s
- Parkinson's Disease: Comfortable Gait Speed: .18 m/s.
- Fastest Gait Speed: .25 m/s
- SCI: Change of .13 m/s

**Cut-off scores:**
- <.4m/s likely household ambulator
- .4-.8m/s limited community ambulator
- >.8m/s community ambulator

Timed up and go (seconds)

**Purpose:** Assess mobility, balance, falls risk

**Age-matched norms:**

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-69</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>70-79</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>80-99</td>
<td>10</td>
<td>11</td>
</tr>
</tbody>
</table>

**MCID:** Not established
**MDC:**
- Chronic CVA(2.9s)
- Parkinson's(4.85s)
- Alzheimers (4.09s)
- SCI (3.9s)

**Falls risk cut-off:**
- Community dwelling adults > 13.5s
- Older stroke >14s
- Frail elderly >32.6s
- LE amputees >19
- Parkinson’s > 11.5s
- Hip OA >10s
- Vestibular disorders >11.1s
Functional Reach (inches)

**Purpose:** Assess pts stability with maximal reaching outside BOS

**Age Matched norms** - (Age/ M/ F)

<table>
<thead>
<tr>
<th>Age</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-40</td>
<td>16.7 + 1.9</td>
<td>14.6 + 2.2</td>
</tr>
<tr>
<td>41-69</td>
<td>14.9 + 2.2</td>
<td>13.8 + 2.2</td>
</tr>
<tr>
<td>70-87</td>
<td>13.2 + 1.6</td>
<td>10.5 + 3.5</td>
</tr>
</tbody>
</table>

**MCID:** not established

**MDC:** Diagnosis (MDC)
- Parkinson’s(9cm)
- Stroke(2.67cm)

**Likelihood of falling:**
- If unable to reach, 8x more likely
- If reaches< 6", is 4x more likely
- If reaches 6–1 0", 2x more likely
- If reaches> 10", unlikely to fall

30 second sit to stand test (#stands)

**Purpose:** Measure of functional lower extremity strength in older adults

**Age-matched norms** - (Community Dwelling Elderly)

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-69</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>70-79</td>
<td>12.9</td>
<td>14</td>
</tr>
<tr>
<td>80-89</td>
<td>11.9</td>
<td>11</td>
</tr>
</tbody>
</table>

**Cut-off scores:**

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-69</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>70-79</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>80-89</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>90-94</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

**MCID:** for pts with hip OA 2.0-2.6

**MDC:** not established

Montreal cognitive Assessment (MOCA)

**Purpose:** to screen for mild cognitive impairment

**MCID:** Not established

**MDC:** Not established

**Cut-off scores:**
- Healthy adults >26
- Mild Cognitive Impairment <26
- Alzheimer’s <26
- Parkinson’s <22.2

5x sit to stand test (seconds)

**Purpose:** Measure of functional lower extremity strength in older adults

**Cut-off scores (fall risk):**
- Community dwelling older adults > 12s
- Recurrent falls >15s
- Parkinson’s >16s
- Stroke >12s
- Vestibular Disorders in Elderly (>60) >15s

**MCID:** for vestibular disorders 2.3s

**MDC:** elderly 4.2s, stroke 3.6s

Balance Error Scoring System (BESS test) (# errors)

**Purpose:** Assess static postural stability (designed for mild head injury population)

**Age-matched norms:**

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>10.4</td>
<td>11.9</td>
</tr>
<tr>
<td>30-39</td>
<td>11.5</td>
<td>11.4</td>
</tr>
<tr>
<td>40-49</td>
<td>12.4</td>
<td>12.7</td>
</tr>
<tr>
<td>50-54</td>
<td>13.6</td>
<td>15.1</td>
</tr>
<tr>
<td>55-59</td>
<td>16.4</td>
<td>16.7</td>
</tr>
<tr>
<td>60-64</td>
<td>17.2</td>
<td>19.3</td>
</tr>
<tr>
<td>65-69</td>
<td>20.0</td>
<td>19.9</td>
</tr>
</tbody>
</table>

**MCID:** Young Athletes: 3 points

**MDC:** Athletes: Intrarrater (7.3), Interrater (9.3)