Timed Up and Go for Adults with Lower-Limb Amputations

Description: The Timed Up and Go (TUG) may be used to measure physical mobility, assess fall risk, and predict prosthetic nonuse in patients with a lower-limb amputation who are using a prosthesis.

Equipment: Standard chair (seat height at 40-50 cm with armrests); a line on the floor indicating 3-meters; stopwatch

Test Set-Up: Have the patient sit on the chair with his or her back against the chair, arms resting on the chair's arms, & if applicable, assistive device at hand.

Patient Instructions: “On the word “go”, I would like you to get up from a chair and walk to the line on the floor 3 meters away, turn around, return to the chair and sit down again. Please walk at a normal comfortable pace.”

Clinician Instructions: Start the timer on the word “go” and stop the timer when the patient’s buttocks first hits the seat surface when they return to sit. The patient may the armrests & an assistive device if needed. Allow 1 practice and then time and record at least 1 trial.

Predictive Ability:
-Risk of multiple falls at 6 months post-discharge in patients with a unilateral transtibial amputation who are ≥18 years: ≥19 seconds (s)3
   Sensitivity: 85%
   Specificity: 74%
   Positive Predictive Value: 61%
   Negative Predictive Value: 91%

-Prosthetic nonusers in patients with a transtibial amputation (or more proximal amputation) or bilateral amputations 1 year follow-up post-discharge from rehabilitation: ≥21.4s4

Psychometric Properties:
Intrarater, Between-Days Reliability: 0.93
Interrater, Within-Day Reliability: 0.96
Test-Retest Reliability: ICC (95% CI): 0.88 (0.80-0.94)5
Concurrent Validity: 1.6 s6,7
Standard Error of Measurement: 1.6 s6
Minimal Detectable Change (at 90%): 3.6 s5
Ceiling Effect: Higher-Functioning Patients8,9

Reference Values: Longer-Term Unilateral Prosthesis Users (s)11

<table>
<thead>
<tr>
<th>K-level</th>
<th>mean±SD</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>K3 (n=35; age: 60±12 y)</td>
<td>12.8±0.54</td>
<td>(11.74-13.89)</td>
</tr>
<tr>
<td>K4 (n=20; age: 46±12 y)</td>
<td>9.45±0.76</td>
<td>(7.92-10.98)</td>
</tr>
</tbody>
</table>

Reference Values: Prosthesis Users (s) mean±SD

| Unilateral Transtibial; age: 73 y (range: 61-86)1 | 23.1±23.0 |
| Unilateral Transfemoral; age: 72 y (range: 68-81)1 | 28.3±12.2 |

Reference Values: Unilateral Transtibial, Transfemoral, or Knee Disarticulation; mean age: 66 y (range: 31-85); 95% male5

Unilateral Transtibial, Transfemoral, or Knee Disarticulation; mean age: 66 y (range: 31-85); 95% male5

Normative Data for Able-Bodied, Community-Dwelling Adults (s)10

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Sex</th>
<th>Mean±SD</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-69</td>
<td>Male</td>
<td>8±2</td>
<td>7-9</td>
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<tr>
<td></td>
<td>Female</td>
<td>8±2</td>
<td>7-9</td>
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<tr>
<td>70-79</td>
<td>Male</td>
<td>9±3</td>
<td>7-11</td>
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<tr>
<td></td>
<td>Female</td>
<td>9±2</td>
<td>8-10</td>
</tr>
<tr>
<td>80-89</td>
<td>Male</td>
<td>10±1</td>
<td>9-11</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>11±3</td>
<td>9-12</td>
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