6 Minute Walk Test for Adults with Lower-Limb Amputations

**Description:** The 6 Minute Walk Test (6MWT) is used to assess aerobic capacity and walking function in various populations. In patients with lower-limb amputations, it can be used to assist with functional level classification and prediction of prosthetic nonuse at 1 year follow-up.

**Equipment:** Stopwatch, rolling tape measure, long hallway or loop walkway, vital sign equipment

**Patient Instructions:** “This test assesses your walking capacity. Cover as much ground as possible in 6 minutes. While I want you to walk as fast possible, I want you to do so safely. You may rest at any point and sit if absolutely necessary, but the clock will not stop so please start walking again as soon as you are able. To avoid limiting your speed, we will refrain from conversation. I will give you time updates. [I will walk with you (if loop walkway or safety concerns)]. Begin.”

**Clinician Instructions:** Assess vital signs pre- and post-6MWT. Time the subject for 6 minutes, then say “stop.” Measure the distance walked. If repeating the test, use the same course as the baseline test as the number of turns may affect the distance walked. Patient may use assistive device if needed.

**Do not perform if:** systolic BP >180mmHg, diastolic BP >100mmHg, OR resting heart rate >120bpm.

**Procedure:**

<table>
<thead>
<tr>
<th>Do</th>
<th>Do NOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk behind the patient if using a loop hallway</td>
<td>Pace the patient if using a loop hallway (i.e. walk on their side)</td>
</tr>
<tr>
<td>Provide standardized encouragement every 30 seconds (i.e. “you’re doing great” or “you’re doing fine” or “keep going”) and notify patient of time remaining every minute (i.e. “5 min remaining”)</td>
<td>Conversely with the patient other than to give standard encouragement, give time check points, and to check symptom status.</td>
</tr>
<tr>
<td>Roll measurement wheel along the patient’s path &amp; stop where he/she stops.</td>
<td>Roll the measurement tool close to the patient in case they stop suddenly</td>
</tr>
</tbody>
</table>

**STOP testing based on the following criteria:**
1. Angina symptoms (chest pain or tightness)
2. Any of the following symptoms:
   - Light-headedness
   - Pallor
   - Cyanosis
   - Ataxia, staggering unsteadiness
   - Pallor
   - Nausea
   - Marked dyspnea
   - Unusual fatigue
   - Signs of peripheral circulatory insufficiency
   - Claudication or other significant pain
   - Facial expressions signifying distress
3. Abnormal cardiac responses
   - Systolic BP drops > 10 mmHg
   - Systolic BP rises to > 250 mmHg
   - Diastolic BP rises to > 120 mmHg
   - Heart rate drops more than 15 bpm (given patient was walking the last minutes of the test)

*Notify physician if test is terminated for above reasons.*

**Outpatient Amputee Clinic Data Reference Values (m)**

<table>
<thead>
<tr>
<th>K-level</th>
<th>Mean±SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1-2 (n=30)</td>
<td>271±96</td>
<td></td>
</tr>
<tr>
<td>K3 (n=34)</td>
<td>408±82</td>
<td></td>
</tr>
<tr>
<td>K4 (n=22)</td>
<td>540±79</td>
<td></td>
</tr>
</tbody>
</table>

**Amputation Cause**

- Trauma/Congenital (n=45) 457±120
- Dysvascular (n=21) 345±104
- Diabetes (n=9) 256±122
- Infection (n=6) 261±76
- Cancer (n=5) 444±88

**Sex**

- Male (n=66) 400±53
- Female (n=20) 373±106

**Age**

- < 50 years (n=23) 513±112
- ≥ 50 years (n=63) 350±115

**Ampuation Level**

- Syme (n=4) 503±100
- Transtibial (n=63) 363±136
- Knee Disarticulate (n=3) 441±98
- Transfemoral (n=13) 343±52
- Bilateral Transtibial (n=3) 451±111

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**Reference Values (m)**

<table>
<thead>
<tr>
<th>K-level</th>
<th>Mean±SD (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>K3 (n=35; age: 60±12)</td>
<td>311±18 (273-349)</td>
</tr>
<tr>
<td>K4 (n=20; age: 46±12)</td>
<td>427±26 (373-481)</td>
</tr>
</tbody>
</table>

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**Note:**

5. Roll measurement wheel along the patient’s path & stop where he/she stops.

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**Handout may be used and distributed without modification for clinical and educational purposes. Updated January 2019.**

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This handout is the property of Dr. J. Megan Sions, PhD, DPT, PT, Director of the Delaware Limb Loss Studies at the University of Delaware in Newark, DE: msions@udel.edu.