10 Meter Walking Test (10 MWT)

Assessment Overview

Assessment Area

ICF Domain: Activity
Subcategory: Mobility

Summary

The 10 Meter Walking Test (10 MWT) assesses short duration walking speed (m/s). It has been used in various patient populations including stroke, Parkinson’s disease, general neurologic movement disorders and SCI.

The 10 Meter Walking Test (10 MWT) is clinician-administered, and measures the time required to walk 10 meters. The test is performed using a “flying start”: the patient walks 14 meters and the time is measured for the intermediate 10 meters.

The individual performing the test:
- Walks at his/her preferred walking speed,
- May use a cane or other assistive device, and
- Must wear shoes.

You Will Need

Length: Less than 5 minutes
Equipment:
- 14m corridor
- Stopwatch
Scoring:
The time (to the nearest second) is reported. Walking speed (m/s) can be calculated.

Availability

http://www.scireproject.com/sites/default/files/worksheet_10_mwt_0.docx
Video: https://www.scireproject.com/outcome-measures/video

Assessment Interpretability

Minimal Clinically Important Difference

0.15 m/s
(Forrest et al. 2014; n=249, 190 male, incomplete SCI, outpatient, median time since injury = 0.7 years)

Statistical Error

Standard Error of Measurement:
0.05 m/s
(Lam et al. 2008, calculated from measurements made in van Hedel et al. 2005; n=22, 14 males, mixed injury types, no information on chronicity)

Minimal Detectable Change:
0.105 m/s
(Tester et al. 2016; N=72, 57 male; 20 sessions of locomotor training; mixed injury type; median (range) time post-SCI = 0.7 (0.1-14.7) years)

Threshold Values:

Not established in SCI, but for stroke patients:
- Household ambulation: < 0.4 m/s
- Limited community ambulation: 0.4 – 0.8 m/s
- Full community ambulation: > 0.8 m/s

(Perry et al., 1995, N=147, stroke patients)
Measurement Properties

Validity – **Low to High**

**High** correlation with Walking Index for SCI:
At 3 months = 0.78
At 6 months = 0.85
At 12 months = 0.77

**High** correlation with Functional Independence Measure-Locomotor Score:
At 3 months = 0.80
At 6 months > 0.80
At 12 months = 0.66

**High** correlation with 6-Minute Walk Test:
At 3 months = 0.95
At 6 months > 0.80
At 12 months = 0.92

*(Ditunno et al. 2007; n=146, 114 males, inpatient, incomplete SCI, within 1 year post-injury)*

**Low to Moderate** correlation with ASIA Motor Scale:
UEMS = 0.24
LEMS = 0.69
ASIA Motor Score = 0.63

*(Harkema et al. 2016; N=152, 123 male; mixed injury type; median (range) time post-SCI = 0.9 (0.1-45.2) years)*

**Number of studies reporting validity data:** 14

Reliability – **High**

**High** Test-retest Reliability:
ICC = 0.977-0.981
*(Musselman and Yang 2013; n=20, 14 males, incomplete SCI, time since injury (SD) = 5.4 (8.8) years)*

**High** Inter-rater Reliability:
ICC = 0.997
*(Sris et al. 2015; n=83, chronic SCI, mixed injury types, mean time since injury (multiple and non-multiple fallers) = 46.72-58.70 months)*

**High** Intra-rater Reliability:
ICC = 0.974
*(Van Hedel et al. 2005; n=22, 14 males, mixed injury types, no information on chronicity)*

**Number of studies reporting reliability data:** 6

Responsiveness

**Floor/Ceiling Effect:** Not established in SCI

**Effect Size:**
Mean change:
1 to 3 months post-injury = 0.92
3 to 6 months post-injury = 0.47

*(Lam et al. 2008, calculated from measurements made in van Hedel et al. 2007; n=51, 42 males, incomplete SCI, 46 with traumatic injury)*

**Standardized Response Mean:**
All individuals: 0.51
AIS-A/B: 0.51
AIS-C: 0.50
AIS-D: 0.98

*(Post locomotor training; Harkema et al. 2016; N=152, 123 male; mixed injury type; median (range) time post-SCI = 0.9 (0.1-45.2) years)*