Wheelchair Skills Test (WST, WST-Q)

Assessment Overview

Assessment Area

ICF Domain:
Activity
Subcategory:
Mobility

You Will Need

Administration:
Approx. 30 min. for WST and 10 min. for WST-Q (Questionnaire version)
Number of tasks:
Manual: 33
Power: 25

Scoring
- Each skill is scored from 0-3 (Fail = 0; Pass with Difficulty or Assistance = 1; Pass = 2; Advanced Pass = 3)
- Some skills may be marked NP (Not Possible); they can be subtracted from the denominator to avoid affecting the Total Score
- The tester should also record any comments that are instructive (e.g. reasons for failures, left-right asymmetry).
- To get a percentage WST Capacity Score add up all scores, divide by number of possible skills (minus number of NP scores and number of TE scores) and multiply by 3 (and 100%).

Equipment:
- Approximately 1000 square feet of space
- A standardized wheelchair circuit or access to a variety of natural barriers (e.g. ramps, curbs, potholes, etc.)

Summary

The Wheelchair Skills Test (WST) is a performance-based measure designed to objectively evaluate manual wheelchair skills and safety.

There are multiple versions of this measure for manual chairs, powered chairs, and scooters, for both wheelchair users and their caregivers. The WST may be administered by a tester/trainer that supervises and scores the test or in self-report/questionnaire form (WST-Q). It may be necessary to have a spotter in addition to the tester/trainer for supervision and safety.

The Wheelchair Skills Test assesses the level of wheelchair skills required for daily functioning. The WST can be used during the initial provision of the wheelchair and as necessary at follow-up.

As of August 2024, the current version of all tests and forms is 5.4. The materials are continuously being updated for free so visit www.wheelchairskillsprogram.ca for the latest.

Availability

All manuals and forms are available at: Wheelchair Skills Training Program website – Manuals and Forms page.

Languages: English, French, Brazilian Portuguese (WST-Q 4.3), and Spanish (WST 4.2)

Assessment Interpretability

Minimal Clinically Important Difference

Not established in SCI

Statistical Error

Standard Error of Measurement:
5.0
Smallest Real Difference / Minimal Detectable Change:
6.2

(Rushton et al. 2016; n= 72; 19% SCI; 36 males; mean (SD) age: 60.7 (7.3) years)

Typical Values

Mean (SD) total score:
All participants: 80.7±11.8
Tetraplegia: 72.1±7.9
High paraplegia: 82.8±9.1
Low paraplegia: 84.0±12.4
Threshold Values:
55.6% of participants (28.6% of tetraplegic participants) scored over 80% (empirical cut-off for distinguishing people with advanced MWC skills, mainly skills required to control wheelies)

(Lemay et al. 2011; n=54; 41 males; tetraplegia and paraplegia; 12+ months of manual WC use)

Measurement Properties

Validity – **Moderate** to **High**

Moderate Correlation with Wheeled Distance per Day:
r = 0.36

Moderate Correlation with age:
r = -0.32
(Lemay et al. 2011; n=54; 41 males; tetraplegia and paraplegia; 12+ months of manual WC use)

Moderate Correlation with Measured Speeds:
r = 0.57-0.75
(Absolute values of correlations; Pradon et al. 2012; n=40; 30 males; tetraplegia and paraplegia; mean (range) 79.8 (1-360) months in rehabilitation)

High Correlation between WST and WST-Q:
r = 0.65
(Rushton et al. 2016; n= 72; 19% SCI; 36 males; mean (SD) age: 60.7 (7.3) years)

Predictive validity:
WST predicts CHART and SWLS scores
(Hosseini et al. 2012; n=214; level of injury: C3-L5; 72% with paraplegia, 28% with tetraplegia; mean (SD) 11.7 (11) years post SCI)

Number of studies reporting validity data: 9

Reliability – **Moderate** to **High**

Moderate to **High** Test-retest Reliability:
ICC = 0.84-0.94
(For measured speeds; Pradon et al. 2012; n=40; 30 males; tetraplegia and paraplegia; mean (range) 79.8 (1-360) months in rehabilitation)

α = 0.65
(Kirby et al. 2002; n=24; 3 SCI; 16 males; mixed diagnoses)

ICC = 0.91
(WST v.4.1 for manual wheelchair users; Lindquist et al. 2010; n=11, 9 SCI, 9 males; no info on SCI types)

Moderate to **High** Inter-rater Reliability:
ICC = 0.92-0.95
(For measured speeds; Pradon et al. 2012; n=40; 30 males; tetraplegia and paraplegia; mean (range) 79.8 (1-360) months in rehabilitation)

α = 0.95
(Kirby et al. 2002; n=24; 3 SCI; 16 males; mixed diagnoses)

ICC = 0.855
(WST v.4.1 for manual wheelchair users; Lindquist et al. 2010; n=11, 9 SCI, 9 males; no info on SCI types)

High Intra-rater Reliability:
α = 0.96
(Kirby et al. 2002; n=24; 3 SCI; 16 males; mixed diagnoses)

ICC = 0.95

(WST v.4.1 for manual wheelchair users; Lindquist et al. 2010; n=11, 9 SCI, 9 males; no info on SCI types)

High **Internal Consistency:**

α = 0.90

(Rushton et al. 2016; n= 72; 19% SCI; 36 males; mean (SD) age: 60.7 (7.3) years)

Number of studies reporting reliability data: 7

Responsiveness

Floor/Ceiling Effect:
Not established in SCI

Effect Size:
Not established in SCI

Number of studies reporting responsiveness data: 0