

# Wheelchair Skills Test (WST)

## 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

### 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 July 2019, the current version of all tests and forms is 5.0. The materials are continuously being updated for free so visit [www.wheelchairskillsprogram.ca](http://www.wheelchairskillsprogram.ca) for the latest.

- 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.)

**Availability**

As of July 2019, the current version is 5.0 and a full instruction manual are available at:

[www.wheelchairskillsprogram.ca](http://www.wheelchairskillsprogram.ca)

**Languages:** English, French

**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))

**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 male; mixed injury types; 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 male; mixed injury types; 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 male; mixed injury types; 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))

#### **Predictive validity:**

WST predicts CHART and SWLS scores

(Hosseini et al., 2012; N=214; mixed injury types; mean(SD) 11.7(11) years post SCI)

**Number of studies reporting validity data: 8**

### 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 male; mixed injury types; mean (range) 79.8 (1-360) months in rehabilitation)

$\alpha = 0.65$

(Kirby et al., 2002; N=24, 3 SCI; 16 male; mixed diagnoses)

ICC = 0.91

(WST v.4.1 for manual wheelchair users; Lindquist et al., 2010; N=11, 9 SCI, 9 male; 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 male; mixed injury types; mean (range) 79.8 (1-360) months in rehabilitation)

$\alpha = 0.95$

(Kirby et al., 2002; N=24, 3 SCI; 16 male; mixed diagnoses)

ICC = 0.855

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

#### **High** Intra-rater Reliability:

$\alpha = 0.96$

(Kirby et al., 2002; N=24, 3 SCI; 16 male; mixed diagnoses)

ICC = 0.950

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

#### **High** Internal Consistency:

$\alpha = 0.90$

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

#### **High** Inter-rater Reliability for Spanish Version:

ICC = 0.998

(Passuni et al. 2018; N=11, 10 male, mean (SD) age: 29.81 (12.18) years, 11 wheelchair users, 10 cannot walk)

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

## Responsiveness

#### **Floor/Ceiling Effect:**

Not established in SCI

#### **Effect Size:**

Not established in SCI

#### **Number of studies reporting**

**responsiveness data: 0**

