Walking Index for Spinal Cord Injury (WISCI II)

Assessment Overview

Assessment Area

ICF Domain:
Activity
Subcategory:
Mobility

You Will Need

Length:
30 minutes
Equipment:
Equipment is typically available in the clinical setting: 5-meter parallel bars and mobility aids (e.g. braces, cane, walker).
Scoring:
The clinician observes walking and rates the level (0-20), which the person is considered safe.
Level 0: "patient is unable to stand and/or participate in walking"
Level 20: "ambulates with no devices, with brace and no assistance"

Summary

The Walking Index for Spinal Cord Injury (WISCI) is a functional capacity scale designed to measure improvements in ambulation in persons with spinal cord injury, by evaluating the amount of physical assistance, braces or devices required to walk 10 meters. A score is possible even if the person cannot walk 10 m. However, because the furthest walk distance is 10m, it may not be suitable for people with minor impairments. The WISCI II is currently the most recent version.
People with SCI are progressed systematically through a validated sequence of capacity levels, incorporating devices and personal assistance, to their maximum walking capacity. There is minimal additional burden for clinicians to use the WISCI II as the test falls into typical clinical practice parameters. The purpose of the WISCI II is to understand the severity of underlying impairment on walking rather than the prescription for aids or the need for support.
Given its ceiling effect with incomplete SCI, additional tests may be necessary to assess endurance (e.g. 6MWT) and/or walking speed (e.g. 10MWT), especially for individuals with greater walking capacity.

Availability

Available for free here:
WISCI I: http://scire-nexcess.developmentwebsite.ca/wp-content/uploads/2022/05/worksheet_wisci_i.pdf
WISCI II: http://scire-nexcess.developmentwebsite.ca/wp-content/uploads/2022/05/worksheet_wisci_ii.pdf
Languages: English

Assessment Interpretability

Minimal Clinically Important Difference

0.06 m/s (Musselman, 2007; N=19, chronic incomplete SCI, mean time since injury = 6.97 years)

Statistical Error

Std Error of Measurement:
WISCI level = 0.318 (Scivoletto et al., 2014; N=33, subacute and chronic incomplete SCI, median days since SCI = 40)

WISCI speed = 0.05 m/s
(Musselman, 2007; N=19, chronic incomplete SCI, mean time since injury = 6.97 years)

Minimal Detectable Change:
WISCI level: 0.785 (Comfortable), 0.597 (Max)
Comfortable WISCI speed: 0.254 (Comfortable), 0.163 (Max) m/s

(Burns et al. 2011, N=76, 60 male, 74 chronic

Typical Values

Mean (SD) Scores:
16.9 (3.4); range = 11-20

(Wirz et al. 2010; n=42, 33 male, chronic SCI, mixed injury types, mean time since injury (SD) = 66.5 (66.2) months)

incomplete SCI, mean time since injury (SD) = 6.32 (5.99) years)

Measurement Properties

Validity – Moderate to High

High **correlation with Spinal Cord Independence Measure (SCIM-III):**
r = 0.607

High **correlation with Barthel Index (BI):**
r = 0.633
(Menon et al., 2015; N=66, 20 male, mixed injury types)

High **correlation with 6 Minute Walk Test (6MWT):**
r = 0.68-0.76

High **correlation with Berg Balance Scale (BBS):**
r = 0.89-0.92
(Ditunno et al., 2007; N=146, 114 male, inpatient, incomplete SCI)

Moderate **to** ***High*** **correlation with ASIA Motor Score:**
UEMS: Correlation = 0.496-0.502
(Burns et al., 2011; N=41, tetraplegic only)

LEMS: Correlation =0.572-0.717
(Burns et al. 2011, N=76, 60 male, 74 chronic incomplete SCI, mean time since injury (SD) = 6.32 (5.99) years)

High **correlation with Spinal Cord Independence Measure (SCIM-indoor mobility item):**
r=0.96

Number of studies reporting validity data: 12

Reliability – High

High **Test-retest Reliability:**
ICC = 0.930-0.995
(Burns et al. 2011, N=76, 60 male, 74 chronic incomplete SCI, mean time since injury (SD) = 6.32 (5.99) years)

High **Inter-rater Reliability:**
ICC = 0.975-0.996

High **Intra-rater Reliability:**
ICC = 0.979-0.999
(Scivoletto et al., 2014; N=33, subacute and chronic incomplete SCI, median days since SCI = 40)

Number of studies reporting reliability data: 5

Responsiveness

Floor/Ceiling Effect:
44.8% at ceiling (Lemay & Nadeau 2010; N=32, 25 male, AIS D mixed injury types, mean time since injury (SD) = 77.2 (44.3) days)

95.5% at ceiling (van Hedel et al., 2006; N=22, 18 male, incomplete SCI, within 1-year post-injury)

Effect Size:
0.46 (Musselman, 2007; N=19, chronic incomplete SCI, mean time since injury = 6.97 years)

Number of studies reporting responsiveness data: 6