Measurement Characteristics and Clinical Utility of the Walking Index for Spinal Cord Injury

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Patients, clinicians, and researchers all aim to maximize recovery of walking after a spinal cord injury (SCI).1 To demonstrate improvement in walking ability, professionals need a reliable, valid, and responsive scale to measure progress. The Walking Index for Spinal Cord Injury (WISCI, revised to WISCI II2) is a scale developed by experts specifically for the SCI population to assess walking ability.3 It is an ordinal scale considering the amount of assist, assistive devices, and braces required to walk 10m, where 0 is unable to walk and 20 is able to walk 10m with no devices, braces, or assist.2,3 The WISCI II has excellent clinical utility and psychometrics, including data indicating a change in one level is considered a real difference.3,6 In individuals with higher walking ability, and further postinjury, the WISCI II is less sensitive to change than timed walking tests, and can potentially have a ceiling effect.7,8 However, the WISCI II is a valued complement to the timed tests. Collecting WISCI II scores, along with timed tests, can be helpful in identifying ways in which a person has improved walking, due to a decrease or change in assist and devices, or due to velocity changes.7

A full review of the WISCI II and reviews of nearly 200 other instruments can be found at www.rehabmeasures.org.

Please address correspondence to rehabmeasures@ric.org.

**BIBLIOGRAPHY**


This instrument summary is designed to facilitate the selection of outcome measures by trained clinicians. The information contained in this summary represents a sample of the peer-reviewed research available at the time of this summary’s publication. The information contained in this summary does not constitute an endorsement of this instrument for clinical practice. The views expressed are those of the summary authors and do not represent those of authors’ employers, instrument owner(s), the Archives of Physical Medicine and Rehabilitation, the Rehabilitation Measures Database, the United States Department of Education, or the Retirement Research Foundation. The information contained in this summary has not been reviewed externally.

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### Walking Index for Spinal Cord Injury

**Measure Name:** Walking Index for Spinal Cord Injury  
**Acronym:** WISCI/WISCI II  
**Summary Authors:** Kahn, J; Tefertiller, C

**Populations Reviewed:** SCI, for a more comprehensive review, see www.rehabmeasures.org

**Admin Time:** 5 minutes  
**Items:** 21  
**Score:** 0/20 (min/max)

**Purpose and Administration Instructions:**
- Assesses the amount of physical assistance needed, as well as devices required, for walking following paralysis that results from SCI.
- Designed to be a precise measure of improvement in walking ability specific to SCI.
- Rank orders the ability of a person to walk 10 m after an SCI from most to least severe impairment.

**Validity:**

**Criterion Validity:** Excellent correlation with the FIM

**Construct Validity:**
- Excellent correlation with TUG, 10MWT, and 6MWT; correlations diminish in individuals who are more impaired, have decreased walking ability, and/or require assistance.
- Excellent correlation of self-selected and max WISCI levels with MMT and LEMS in combined sample of subjects with paraplegia and tetraplegia.
- Adequate correlation of self-selected and max WISCI level with UEMS in sample of subjects with tetraplegia.
- Excellent correlation with walking speed in sample of subjects with tetraplegia.
- Adequate correlation with walking speed in sample of subjects with paraplegia.

**Required Equipment:** Paper and pencil  
**Training Required:** None required

**Reliability:**

**Test-retest Reliability:** Excellent for self-selected and maximum conditions.

**Interrater/Intrarater Reliability:**
- Excellent intrarater reliability.
- Excellent intrarater reliability.

**Standard Error of Measurement (SEM):**

**WISCI:**
- SEM, self-selected conditions = 0.283
- SEM, max conditions = 0.215

**Minimal Detectable Change (MDC):**

**WISCI:**
- MDC, self-selected conditions = 0.785
- MDC, max conditions = 0.597

**Abbreviations:**

SCI: Spinal Cord Injury  
FIM: Functional Independence Measure  
MMT: Manual Muscle Test  
LEMS: Lower-Extremity Motor Score  
UEMS: Upper-Extremity Motor Score  
10MWT: 10 Meter Walk Test  
6MWT: 6 Minute Walk Test  
TUG: Timed Up and Go

**General Cut-off Criteria:**

<table>
<thead>
<tr>
<th>Score</th>
<th>ICC</th>
</tr>
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<tbody>
<tr>
<td>Excellent</td>
<td>≥ 0.6</td>
</tr>
<tr>
<td>Adequate</td>
<td>0.31-0.59</td>
</tr>
<tr>
<td>Poor</td>
<td>≤ 0.3</td>
</tr>
</tbody>
</table>

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