

## **Instructions for the Use of the Walking Index for Spinal Cord Injury II (WISCI II)** (see attached scale and scoring sheet)

*The information in this manual is based on current observations in clinical studies and recent publications<sup>1,2,3</sup>. This manual will require ongoing modifications based on knowledge gained from future clinical trials as they occur.*

### **Subject Selection**

The purpose of this scale is for use in clinical trials to measure improvements in walking in persons with spinal cord injury. The following outline describes subjects for whom the scale is most commonly utilized.

1. Spinal cord injury subjects who are capable of standing and walking in the parallel bars will be eligible for assessment. Only a reciprocal gait is to be considered in scoring the WISCI scale. Additional inclusion/exclusion criteria may be necessary.
2. Most often ASIA A below T10 and ASIA B, C, and D subjects may qualify<sup>3</sup>. (Ditunno 2004).
3. Individuals with tetraplegia would require motor strength in triceps of at least grade 3 or be able to support their body weight<sup>3,4</sup>. (Ditunno 2004, Dobkin 2003).

### **Standardized Physical Environment and Distance**

This is a functional limitation scale, NOT a disability scale. It must be used in a standardized environment with standardized equipment and definitions, which are observed and recorded by professional staff that are trained. The following requirements are necessary:

1. A flat, smooth, non-slippery surface of 10 meters will be utilized.
2. Individuals walk at their own speed and the 10 meters should not be timed.

### **Standardized Equipment**

1. Walkers should be conventional, but if a rolling walker is used, it should be coded as a walker and identified in the descriptors.
2. Use of a platform walker is equivalent to a walker.
3. Crutches can be Lofstrand (Canadian) or axillary.
4. Braces means one or two braces, either long or short, and should be identified in the descriptors. Other devices used for bracing such as ace wraps or splints should be coded as a brace and described under “other”.
5. Whether long leg braces are locked or unlocked at the knees should be identified in the descriptors.
6. Clothing should not cover braces to allow therapists and other professional staff to make a visual determination that the patient has a brace.

### **Standardized Assistance**

1. Any physical contact with the subject, including “contact guard” is considered physical assistance.
2. Supervision should not be regarded as physical assistance.

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**Scoring** (See attached scoring sheet)

The Walking Index for Spinal Cord Injury Scale (WISCI 2) has demonstrated a response to change in the Spinal Cord Injury Locomotion Trial<sup>5</sup> (ISCOS 2004) and in clinical validation studies<sup>1,6</sup> (Ditunno 2003, 2004). In scoring the WISCI, check the descriptors that apply to current walking performance, and then assign the highest level of walking performance. In scoring one level, one should choose the level at which the patient is safe as judged by the therapist, with patient's comfort level described. If devices other than those stated in the standard definitions are used, they should be documented as descriptors. If there is a discrepancy between two observers, the higher level should be chosen.

The subject is observed by the trained personnel and the WISCI level is recorded on the scale of 0 to 20 at baseline (Baseline WISCI). The subject is observed again at the defined interval (Interval WISCI). The change in score is calculated by subtracting the baseline WISCI from the Interval WISCI, which equals the change in WISCI (Changed WISCI). If a group of subjects are enrolled, medians and means may be calculated.

**References:**

1. Ditunno JF, Ditunno PL, Graziani V, Scivoletto G, Bernardi M, Castellano V, Marchetti M, Brabeau H, Frankel HL, D'Andrea Greve JM, Ko HY, Marshall R, Nance P. Walking Index for spinal cord injury (WISCI): an international multicenter validity and reliability study. *Spinal Cord* 2000;38:234-243.
2. Ditunno PL, Ditunno JF. Walking index for spinal cord injury (WISCI II): scale revision. *Spinal Cord* 2001;39:654-656.
3. Morganti B, Scivoletto G, Ditunno P, Ditunno JF, Molinari M. Walking index for spinal cord injury (WISCI): criterion validation. *Spinal Cord* 2005; 43(1): 27-33.
4. Ditunno JF, West C, Schmidt M, Patrick M. Validation and refinement of the Walking Index for Spinal Cord Injury (WISCI) in a clinical setting. 30th Annual Scientific Meeting of the American Spinal Injury Association, Denver, CO, May 14 – 16, 2004.
5. Doblin BH, Apple D, Barbeau H, Basso M, Behrman A, Deforge D, et al. Methods for a randomized trial of weight-supported treadmill training versus conventional training for walking during inpatient rehabilitation after incomplete traumatic spinal cord injury. *Neurorehabil Neural Repair* 2003; 17(3):153-167.
6. Ditunno JF, Dobkin BH. Walking index for spinal cord injury (WISCI): response to change in a clinical trial (SCILT) and setting (TJU). Inaugural International Campaign for Cures of spinal cord injury Paralysis (ICCP) Clinical Trials Workshop, Vancouver, Canada, February 20-21, 2004.
7. Ditunno JF, Jr., Burns AS, West C, Patrick M. Clinical validation of the Walking Index in Spinal Cord Injury (WISCI) scale: preliminary report. *J Spinal Cord Med* 2003;26(Suppl 1):S37.

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## Walking Index for Spinal Cord Injury (WISCI II) Descriptors

Physical Limitation for walking secondary to impairment is defined at the person level and indicates the ability of a person to walk after spinal cord injury. The development of this assessment index required a rank ordering along a dimension of impairment, from the level of most severe impairment (0) to least severe impairment (20) based on the use of devices, braces and physical assistance of one or more persons. The order of the levels suggests each successive level is a less impaired level than the former. The ranking of severity is based on the severity of the impairment and not on functional independence in the environment. The following definitions standardize the terms used in each item:

**Physical assistance:** 'Physical assistance of two persons' is moderate to maximum assistance.  
'Physical assistance of one person' is minimal to moderate assistance.

**Braces:** 'Braces' means one or two braces, either short or long leg.  
(Splinting of lower extremities for standing is considered long leg bracing).  
'No braces' means no braces on either leg.

**Walker:** 'Walker' is a conventional rigid walker without wheels.

**Crutches:** 'Crutches' can be Lofstrand (Canadian) or axillary.

**Cane:** 'Cane' is a conventional straight cane.

Level	Description
0	Client is unable to stand and/or participate in assisted walking.
1	Ambulates in parallel bars, with braces and physical assistance of two persons, less than 10 meters
2	Ambulates in parallel bars, with braces and physical assistance of two persons, 10 meters.
3	Ambulates in parallel bars, with braces and physical assistance of one person, 10 meters.
4	Ambulates in parallel bars, no braces and physical assistance of one person, 10 meters
5	Ambulates in parallel bars, with no braces and no physical assistance, 10 meters.
6	Ambulates with walker, with braces and physical assistance of one person, 10 meters.
7	Ambulates with two crutches, with braces and physical assistance of one person, 10 meters.
8	Ambulates with walker, no braces and physical assistance of one person, 10 meters.
9	Ambulates with walker, with braces and no physical assistance, 10 meters.
10	Ambulates with one cane/crutch, with braces and physical assistance of one person, 10 meters.
11	Ambulates with two crutches, no braces and physical assistance of one person, 10 meters.
12	Ambulates with two crutches, with braces and no physical assistance, 10 meters.
13	Ambulates with walker, no braces and no physical assistance, 10 meters.
14	Ambulates with one cane/crutch, no braces and physical assistance of one person, 10 meters.
15	Ambulates with one cane/crutch, with braces and no physical assistance, 10 meters.
16	Ambulates with two crutches, no braces and no physical assistance, 10 meters.
17	Ambulates with on devices, no braces and physical assistance of one person, 10 meters.
18	Ambulates with on devices, with braces and no physical assistance, 10 meters.
19	Ambulates with one cane/crutch, no braces and no physical assistance, 10 meters.
20	Ambulates with no devices, no braces and no physical assistance, 10 meters.

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**Scoring Sheet for the Walking Index for Spinal Cord Injury (WISCI II)**

Name \_\_\_\_\_

Date \_\_\_\_\_

*Check descriptors that apply to current walking performance, and then assign the highest level of walking performance. (In scoring a level, one should choose the level at which the patient is safe as judged by the therapist, with patient's comfort level described. If devices other than those stated in the standard definitions are used, they should be documented as descriptors. If there is a discrepancy between two observers, the higher level should be chosen.)*

Gait: reciprocal \_\_\_\_\_ ; swing through \_\_\_\_\_

**Descriptors**

Devices	Braces	Assistance	Patient reported Comfort level
//bars < 10 meters	Long Leg Braces- Uses 2 Uses 1	Max Assist x 2 people	Very comfortable
//bars 10 meters	Short Leg Braces- Uses 2 Uses 1	Min/Mod assist x 2 people	Slightly comfortable
Walker- Standard Rolling Platform	Locked at knee _____ Unlocked at knee _____	Min/mod assist x 1 person	Neither comfortable nor uncomfortable
Crutches- Uses 2 Uses 1	Other: _____		Slightly uncomfortable
Canes- Quad Uses 2 Uses 1			Very uncomfortable
No devices	No braces	No assistance	

**WISCI Levels**

Level	Devices	Braces	Assistance	Distance
0				Unable
1	Parallel bars	Braces	2 persons	Less than 10 meters
2	Parallel bars	Braces	2 persons	10 meters
3	Parallel bars	Braces	1 person	10 meters
4	Parallel bars	No braces	1 person	10 meters
5	Parallel bars	Braces	No assistance	10 meters
6	Walker	Braces	1 person	10 meters
7	Two crutches	Braces	1 person	10 meters
8	Walker	No braces	1 person	10 meters
9	Walker	Braces	No assistance	10 meters
10	One cane/crutch	Braces	1 person	10 meters
11	Two crutches	No braces	1 person	10 meters
12	Two crutches	Braces	No assistance	10 meters
13	Walker	No braces	No assistance	10 meters
14	One cane/crutch	No braces	1 person	10 meters
15	One cane/crutch	Braces	No assistance	10 meters
16	Two crutches	No braces	No assistance	10 meters
17	No devices	No braces	1 person	10 meters
18	No devices	Braces	No assistance	10 meters
19	One cane/crutch	No braces	No assistance	10 meters
20	No devices	No braces	No assistance	10 meters

Level assigned \_\_\_\_\_

Revised 3/19/2002

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