

Short Communication

Walking index for spinal cord injury (WISCI II): scale revision

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Introduction

A walking scale for use in multi-center trials was recently published and documented face validity, concurrent validity, and inter-rater reliability.¹ A subsequent retrospective analysis of 103 spinal cord subjects recovering from spinal cord injury (American Spinal Cord Association classification (ASIA) A = 14, B = 18, C = 52, D = 19) showed the Walking Index for Spinal Cord Injury (WISCI) to be responsive to change (longitudinal validity) within a clinical setting. Correlation of ASIA grades with WISCI levels were significant at initial ambulation ($P < 0.03$) and at maximum recovery of walking function ($P < 0.001$). Initial ASIA grades and final WISCI levels correlated at $P < 0.001$. Improvement occurred in one direction (monotonic function) in 94% of subjects demonstrating clinical concurrent validity. An additional level, which was not one of the original 19 levels, 'Ambulates with no devices, with braces and no physical assistance' was observed in six of the 103 subjects.

In addition, the WISCI is currently being employed in a randomized clinical trial of Body Weight Support Training and it has been suggested that a zero level be added, that splints be allowed to be substituted for braces and that the braces be described as locked or unlocked (BH Dobkin, personal communication). The international study group that originally developed the WISCI scale considered these recommendations and

reached consensus that these changes be incorporated in a revised scale (see Appendix). Furthermore, they recommended that the changes be communicated in a brief report to allow others to implement these modifications in clinical trials.

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Reference

- 1 Ditunno JF *et al.* Walking index for spinal cord injury (WISCI): an international multicenter validity and reliability study. *Spinal Cord* 2000; **38**: 234–243.

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Appendix

Walking Index for Spinal Cord Injury (WISCI II)

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 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 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 no devices, no braces and physical assistance of one person, 10 meters.
18	Ambulates with no 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.

Scoring Sheet (WISCI II)

Patient Name _____ Date _____

Check descriptors which apply to current walking performance, 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 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.)

Descriptors

Gait: reciprocal ____; swing through ____

Devices	Braces	Assistance	Patient reported comfort level
// bars < 10 mtrs	Long Leg Braces- Uses 2 Uses 1	Max assist x 2 people	Very comfortable
//bars 10 mtrs	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 _____