

# Spinal Cord Injury Functional Ambulation Inventory (SCI-FAI)

## Assessment Overview

### Assessment Area

**ICF Domain:**

Activity

**Subcategory:**

Mobility

**Areas measured:**

Gait parameters

Assistive device use

Walking mobility

### You Will Need

**Length:**

5 minutes, 10 items

**Scoring:**

Scores within each component are summed. Component scores range from 0 to 20 in the gait parameter component, 0 to 14 in the assistive device component, and 0 to 5 in the walking mobility component. It is not meaningful to combine component scores into an overall total score.

### Summary

The Spinal Cord Injury Functional Ambulation Inventory (SCI-FAI) is a clinician-administered, self-report and performance-based SCI-specific ambulation measure focusing on gait abnormalities.

The areas measured by SCI-FAI consist of gait parameters, assistive device use, and walking mobility. This scale only applies to people with SCI who can ambulate independently.

### Availability

**Worksheet:** Can be found [here](#).

**Languages:** English

## Assessment Interpretability

### Minimal Clinically Important Difference

Not established in SCI

### Statistical Error

**Standard Error of Measurement:**

Gait Parameter Subscale = 0.7

**Minimal Detectable Change:**

Gait Parameter Subscale = 1.9

(Calculated by Lam et al. 2008, data from Field-Forte et al. 2001; n=22; 17 males, 5 females; incomplete SCI)

### Typical Values

**Mean (SD) Scores:**

Gait parameter component = 18.5 (3.3); range: 7-20

Assistive devices component = 11.4 (2.7); range: 7-14

Walking mobility component = 3.7 (1.2); range: 2-5

(Lemay & Nadeau 2010; n=32, 25 males, 7 females; AIS D; level of injury: 17 cervical, 10 thoracic, and 5 lumbar; mean (SD) time since injury: 77.2 (44.3) days)

## Measurement Properties

### Validity – **Low** to **Moderate**

#### **Low to Moderate** correlation with Berg Balance Scale (BBS):

SCI-FAI Gait:  $r = 0.31$

SCI-FAI Assistive Device:  $r = -0.10$

SCI-FAI Walking Mobility:  $r = 0.44$

(Datta et al. 2009;  $n=97$ ; 71 males, 26 females; Incomplete SCI; AIS-C/D; mean time since injury: 11.9 months)

#### **High** correlation with instruments measuring the same construct as the SCI-FAI: Gait Score & Walking Speed:

VS1:  $r = -0.742$

VS2:  $r = -0.700$

Gait Score & Subject self report on walking mobility:

VS1:  $r = 0.697$

(Field-Forte et al. 2001;  $n=22$ ; 17 males, 5 females; incomplete SCI)

#### **Low to High** correlation with other walking scales:

##### **SCI-FAI Parameter:**

Berg Balance Scale:  $r = 0.747$

2 Minute Walk Test (2MWT):  $r = 0.805$

Walking Index for SCI II (WISCI II):  $r = 0.761$

10 Meter Walk Test (10MWT):  $r = 0.777$

Timed Up and Go (TUG):  $r = -0.761$

##### **SCI-FAI Assistive devices:**

BBS:  $r = 0.714$

2MWT:  $r = 0.740$

WISCI II:  $r = 0.980$

10MWT:  $r = 0.788$

TUG:  $r = -0.802$

##### **SCI-FAI mobility:**

BBS:  $r = 0.740$

2MWT:  $r = 0.740$

WISCI II:  $r = 0.980$

10MWT:  $r = 0.788$

TUG:  $r = -0.802$

(Lemay & Nadeau 2010;  $n=32$ , 25 males, 7 females; AIS D; level of injury: 17 cervical, 10 thoracic, and 5 lumbar; mean (SD) time since injury: 77.2 (44.3) days)

**Number of studies reporting validity data: 3**

### Reliability – **Moderate** to **High**

#### **Moderate to High** Inter-rater Reliability:

ICC = 0.703-0.840

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

ICC = 0.850-0.956

(Field-Forte et al. 2001;  $n=22$ ; 17 males, 5 females; incomplete SCI)

**Number of studies reporting reliability data: 1**

---

## Responsiveness

---

**Floor/Ceiling Effect:**

Subscale Ceiling:

Gait Parameter: 68.8% at ceiling

Assistive Devices: 34.4% at ceiling

Walking Mobility: 34.4% at ceiling

(Lemay & Nadeau 2010; n=32, 25 males, 7 females; AIS D; level of injury: 17 cervical, 10 thoracic, and 5 lumbar; mean (SD) time since injury: 77.2 (44.3) days)

**Effect Size:**

Not established in SCI

**Number of studies reporting  
responsiveness data: 3**