

# The Spinal Cord Injury Spasticity Evaluation Tool (SCI-SET)

## Assessment Overview

### Assessment Area

**ICF Domain:**

Body Function

**Subcategory:**

Neuromusculoskeletal & Movement-related Functions and Structures

### You Will Need

**Length:**

35 items (SCI-SET)

33 items (Modified SCI-SET)

**Scoring:**

Total score (-3 to +3) is generated by summing all the responses from the applicable items then dividing the sum by the number of applicable items.

The Modified SCI-SET score is the same, but you are summing item scores ranging from -2 to +1.

Note: Both scales limit the client's ability to report on specific areas where spasticity is positive or negative.

### Summary

The Spinal Cord Injury Spasticity Evaluation Tool (SCI-SET) is a self-report questionnaire that assesses the impact of spasticity on daily life in people with SCI. It requires participants to recall their past 7 days when rating spasticity on a scale ranging from -3 (extremely problematic) to +3 (extremely helpful), including a 0 rating for 'no effect'.

The Modified SCI-SET was proposed by Sweatman et al. (2020). After Rasch analyses, they removed two items from the original version (the effects of spasticity on ability to stand/weight bear, and on your sex life). They also shortened the scale to range from -2 (very problematic) to +1 (helpful), including a 0 point for 'no effect'.

### Availability

**SCI-SET:** Can be found [here](#)

**Modified SCI-SET:** Can be found in the appendix of the following article: <https://pubmed.ncbi.nlm.nih.gov/32497601/>

**Languages:** English, Turkish, and Persian

## Assessment Interpretability

### Minimal Clinically Important Difference

Not established in SCI

### Statistical Error

**Standard Error of Measurement:**

0.17-0.30

**Minimal Detectable Change:**

0.47

(Adams et al. 2007; N=61, 45 males, mixed injury types, community living, mean (SD) time since injury = 10.2 (8.6) years)

### Typical Values

**Mean (SD) Scores:**

Across groups: -0.65 (0.56)

Patients with Paraplegia = -0.62 (0.57)

Patients with Tetraplegia = -0.67 (0.57)

Range: -2.35 to 0.00

(Adams et al. 2007; N=61, 45 males, mixed injury types, community living, mean (SD) time since injury = 10.2 (8.6) years)

## Measurement Properties

### Validity – **Moderate** to **High**

#### **High** correlation between SCI-SET scores and:

Self-assessment of Spasticity Impact:  $r = -0.61$

Quality of Life Index health and functioning subscale:  $r = 0.68$

Penn Spasm Frequency Scale:  $r = -0.66$

#### **Moderate** correlation between SCI-SET scores and:

Self-assessment of spasticity severity:  $r = -0.41$  ( $p < .001$ )

Self-assessment of spasticity impact:  $r = -0.47$  ( $p < .001$ )

Self-assessment of Spasticity Severity:  $r = -0.48$

(Adams et al. 2007; N=61, 45 males, mixed injury types, community living, mean (SD) time since injury = 10.2 (8.6) years)

(Akpinar et al. 2017; N=66, 40M; mean age  $44.06 \pm 11.0$  years; type: 45 paraplegic, 21 tetraplegic)

(Ansari et al. 2017; N=100, 58M; mean age =  $39.0 \pm 11.0$ ; duration since SCI =  $14.4 \pm 11.5$ ; mixed injury types)

#### **Moderate** to **High** correlation to the Modified PRISM:

Physical:  $-0.492$

Psychological =  $-0.640$

Social =  $-0.561$

(Sweatman et al. 2020, N = 1239, 760 males, 358 females; injury level: cervical and thoracic; ASIA A-D)

**Number of studies reporting validity data: 4**

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

#### **High** Test-retest Reliability:

ICC = 0.91

#### **High** Internal Consistency:

$\alpha = 0.90$

(Adams et al. 2007; N=61, 45 males, mixed injury types, community living, mean (SD) time since injury = 10.2 (8.6) years)

#### **Moderate** to **High** test-retest reliability for transfer-related variables:

Spasm duration:  $\rho = 0.846$

Spasm magnitude:  $\rho = 0.705$

Percent of transfer:  $\rho = 0.807$

Transfer duration:  $\rho = 0.656$

(Tibbett et al. 2019; N=19, 17M; mean age  $39.5 \pm 10.2$ ; mean time since injury  $15.6 \pm 11.0$ , mixed injury types)

#### **High** Internal Consistency:

Original SCI-SET: 0.96

Modified SCI-SET: 0.96

(Sweatman et al. 2020, N = 1239, 760 males, 358 females; injury level: cervical and thoracic; ASIA A-D)

**Number of studies reporting reliability data: 5**

## Responsiveness

### Floor/Ceiling Effect:

#### Original SCI-SET

At ceiling (%) = 0.0

At floor (%) = 0.4

#### Modified SCI-SET

At ceiling (%) = 0.4

At floor (%) = 0.4

(Sweatman et al. 2020, N = 1239, 760 males, 358 females; injury level: cervical and thoracic; ASIA A-D)

### Effect Size:

Not established in SCI

### Number of studies reporting

responsiveness data: 0