

# Penn Spasm Frequency Scale (PSFS)

## Assessment Overview

### Assessment Area

**ICF Domain:**

Body Function

**Subcategory:**

Neuromusculoskeletal &  
Movement-related Functions and  
Structures

### You Will Need

**Length:**

< 5 minutes, 2 items

**Training:**

None, but understanding of  
spasticity recommended

**Scoring:**

Item 1: spasm frequency

Scored 0 (no spasms) to 4  
(spontaneous spasms occurring  
more than 10 times per hour)

Item 2: spasm severity

Scored 0 (mild) to 3 (severe);  
not answered if spasm  
frequency scores 0

### Summary

The Penn Spasm Frequency Scale (PSFS) is a 2-component self-report measure of the frequency of reported muscle spasms, which is commonly used to quantify spasticity. The PSFS was developed to augment clinical ratings of spasticity and provide a more comprehensive understanding of an individual's spasticity status, as self-report measures of spasticity, in general, correlate only moderately with clinical examination. This suggests that the elements of spasticity evaluated in the physical examination do not represent what is important to persons with SCI spasticity. The PSFS is often subject to concomitant subclinical conditions such as bladder fullness, symptomatic urinary tract infection development, anxiety level, room temperature, subject comfort, and many other conditions. The spasm frequency item is more commonly reported than the spasm severity item.

### Availability

Available for free here: <https://www.sralab.org/rehabilitation-measures/penn-spasm-frequency-scale>

**Languages:** English

## Assessment Interpretability

### Minimal Clinically Important Difference

Not established in SCI

### Statistical Error

Not established in SCI

### Typical Values

**Mean (SD) Pre-treatment Scores:**  
3.3

(Spasm frequency item, modified from PSFS; Aydin et al., 2005 N=21; 15 females, 6 males; traumatic SCI; mixed injury types, mean (SD) time since injury = 11.48 (13.92) months)

## Measurement Properties

### Validity – **Low** to **High**

**High** correlation with SCI Spasticity Evaluation Tool (SCI-SET):

$r = -0.66$

**Moderate** correlation with Quality of Life Index (QLI) Health & Functioning Subscale:

$r = -0.46$

**Low** correlation with Functional Independence Measure (FIM) Motor Subscale:

$r = -0.05$

(Spasm frequency item; Adams et al., 2007; N=61, 45 male, mixed injury types, community-dwelling, chronic SCI, mean (SD) time since injury = 10.2 (8.6) years)

**Moderate** correlation with Ashworth Scale

Ashworth Hip:  $r = 0.43$

Ashworth Knee:  $r = 0.43$

Ashworth Ankle:  $r = 0.51$

(Spasm frequency item; Benz et al., 2005; N=17; mixed injury types, time since injury = 24-372 months)

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

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

**Moderate** to **High** intra-rater reliability for PSFS Part 1 (spasm frequency):

5-10 days: 0.822 (0.709, 0.935)

4-6 weeks: 0.734 (0.586, 0.883)

**Moderate** to **High** intra-rater reliability for PSFS Part 2 (spasm frequency-severity combination):

5-10 days: 0.812 (0.705, 0.919)

4-6 weeks: 0.729 (0.586, 0.872)

**High** inter-rater reliability within a 3-day time interval:

Part 1: 0.862 (0.759, 0.965)

Part 2: 0.857 (0.762, 0.952)

(Mills et al. 2018; N=66, 17M 49F; age: 44.1±12.3 years; mixed injury types; AIS A/B/C: 54, AIS D: 12)

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

## Responsiveness

### Floor/Ceiling Effect:

Not established in SCI

### Effect Size:

1.11

(Cohen's d; spasm frequency item modified from PSFS; Aydin et al. 2005; intrathecal Baclofen pump implantation; N=21, 6 male; traumatic SCI, mixed injury types; mean (SD) time post-SCI = 11.48 (13.92) months)

### Number of studies reporting

**responsiveness data: 3**