

Spinal Cord Assessment Tools for Spastic Reflexes (SCATS)

Assessment Overview

Assessment Area

ICF Domain:

Body Functions

Subcategory:

Neuromusculoskeletal and Movement-Related

You Will Need

Length:

Approximately 10 minutes

Scoring:

The SCATS is separated into 3 subscales – each is rated on a scale of 0 (no reaction) to 3 (persistent reaction).

Summary

The SCATS is used to measure the spastic motor reflexes in people with SCI. The SCATS has subscales to measure:

- Clonus: Dorsiflexion of ankle
- Flexor spasms: Flexion of hip and knee
- Extensor spasms: Contractions in quadriceps

Availability

Available for free at:

<https://www.sralab.org/rehabilitation-measures/spinal-cord-assessment-tool-spastic-reflexes>

Assessment Interpretability

Minimal Clinically Important Difference

Not established in SCI

Statistical Error

Not established in SCI

Typical Values

Not established in SCI

Measurement Properties

Validity – High

High correlation range with kinematic and electromyography:

$r = 0.69-0.94$ ($P < .01$)

High correlation of SCATS extensor scores with Ashworth hip flexors:

$r = 0.98$

High correlation of SCATS extensor scores with Ashworth knee flexors:

$r = 0.88$

High correlation of SCATS extensor scores with Ashworth ankle plantar flexors:

$r = 0.61$

(Benz et al. 2005; N=11, age range: 16-65)

High correlation of SCATS clonus scores with Modified Ashworth Scale (MAS) scores of hip extensor muscles, knee flexor muscles, and plantar flexor muscles:

$P < .01$

High correlation of SCATS flexor spasm scores with MAS score of ankle plantar flexor muscles:

$P < .05$

(Akpinar et al. 2016; N=47, mean age (range): 44.19 (18-88), mean no. months post-injury (range): 43.96 (6-197))

Number of studies reporting validity data: 2

Reliability – High

High Test-Retest kappa coefficient:

$\kappa = 0.614 \pm 0.08 - 1.000 \pm 0.08$

High Inter-rater kappa coefficient:

$\kappa = 0.669 \pm 1.000$ ($P < .01$)

(Akpinar et al. 2016; N=47, mean age (range): 44.19 (18-88), mean no. months post-injury (range): 43.96 (6-197))

Number of studies reporting reliability data: 1

Responsiveness

Floor/Ceiling Effect:

Not established in SCI

Effect Size:

Not established in SCI

Number of studies reporting responsiveness data:

Not established in SCI