

Spinal Cord Assessment Tool 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 Spinal Cord Assessment Tool for Spastic Reflexes (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

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

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 – **Moderate to 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 years)

Moderate to High correlation of SCATS clonus scores with Modified Ashworth Scale (MAS) scores of:

Hip extensor muscles: $r = 0.709$

Knee flexor muscles: $r = 0.406$

Plantar flexor muscles: $r = 0.754$

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

$r = 0.393$

(Akpınar et al. 2016; $n=47$; mean age (range): 44.19 (18-88) years, mean time since injury (range): 43.96 (6-197) months)

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:

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

(Akpınar et al. 2016; $n=47$; mean age (range): 44.19 (18-88) years, mean time since injury (range): 43.96 (6-197) months)

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: 0