Spinal Cord Assessment Tool for Spastic Reflexes (SCATS)

- Physiologically based measure for spastic reflexes for use in individuals with SCI.
- Developed in response to the demand for a standardized, simple clinical measure that encompasses the primary spastic reaction in the SCI population.
- The SCATS is split into 3 subscales, each addressing a separate spasm:
  1. Clonus
  2. Flexor spasms
  3. Extensor spasms.
  For each subscale, the spasm is triggered and then rated with a score ranging from 0 – 3.

ICF Domain:


Number of Items:

3

Instructions for Administration and Scoring:

Administration:

- Clinician-administered.
- SCATS clonus is measured by rapid passive dorsiflexion. The degree of spasm is rated between 0 (no spasm) – 3 (severe spasm lasting longer than 10 seconds).
- SCATS flexor spasm is measured by applying a pinprick stimulus to the medial arch with the knee and hip extended straight. The degree of spasm is rated between 0 (no spasm) and 3 (severe spasm, 30 knee and hip flexion).
- SCATS extensor spasm is measured by extending the hip and knee joints from with the knee and hip extended at 90 and 110 degrees. The degree of spasm is rated between 0 (no spasm) and 3 (severe spasm, longer than 10 seconds).

Equipment:

- Equipment to quantitatively measure joint angle changes.

Scoring: N/A

Interpretability:

MCID: not established
SEM: not established
MDC: not established

- Scores in each subscale range from 0 - 3, with scores above zero indicating the presence of spasm.
- Scores of three indicate severe spasms.
• The results of the SCATS will indicate to the clinician the type(s) of spasticity present in an individual, as well as the degree of severity of each type of spasticity.
• No normative data for the SCI population has been reported.

Languages:
N/A

Training Required:
Administration should be done by a trained clinician

Availability:
See the how-to page of this tool.

Clinical Considerations:
• The SCATS does not gather information on patient perspective, an important aspect of spasms, as some spasms are perceived as beneficial to the patient.
• Each subscale is quick (<5 sec) to administer; however, if a spasm is elicited, spasm duration is patient specific and could be enduring.
• The SCATS appears to be comprehensive in differentiating three different spastic responses.
• As spasms are often uncomfortable for individuals with SCI, and the SCATS is recommended to be done in tandem with self reporting measures of spasm, there is the possibility of high respondent burden in terms of both length and comfort. The measure could be conducted during a home visit or at a clinic/hospital.

Measurement Property Summary:
# of studies reporting psychometric properties: 1

Reliability:
No values were reported for the reliability of the SCATS for the SCI population.

Validity:
• SCATS – clonus, flexor spasm and extensor spasm correlated significantly and adequately to excellently with kinematic and electromyographic measures (Spearman’s ρ=0.69-0.94).
• SCATS extension correlated significantly and excellently with Ashworth-hip flexors (Spearman’s ρ=0.98) and Ashworth-knee flexors (Spearman’s ρ=0.88), and adequately with Ashworth-ankle plantar flexors (Spearman’s ρ=0.61).
[Benz et al. 2005]

Responsiveness:
No values were reported for the responsiveness of the SCATS for the SCI population.

Floor/ceiling effect:
No values were reported for the presence of floor/ceiling effects in the SCATS for the SCI population.