

# Quantitative Sensory Testing (QST)

## Assessment Overview

### Assessment Area

**ICF Domain:**

Body Function

**Subcategory:**

Sensory Functions

### You Will Need

**Length:**

6 items. Approx. 30min to administer the complete QST in one body part

**Scoring:**

High and low values for each item are recorded. The mean for each item can be calculated

**Equipment:**

Specialized equipment is required. Refer to company website for more information

**Training:**

Use of equipment requires training

### Summary

Quantitative Sensory Testing (QST) is a clinician-administered test used to quantify the neurological dysfunction associated with neuropathic pain, by measuring thresholds for mechanical detection, vibration detection, cool and warm detection and cold and hot pain sensations.

The QST may not be feasible as a general test due to the need for necessary equipment, but may be feasible for specific clinics that focus on pain. Patient burden is extensive; testing must be in person at a clinic or hospital.

The scale was not developed specifically for the SCI population, although preliminary research shows it can be used within this group without adaptations.

### Availability

Available from company:

<http://www.medoc-web.com/about-us/about-qst/technique/>

USA & Canada- Tel: + 1-919-402-9600

E-Mail: [medoc@mindspring.com](mailto:medoc@mindspring.com)

Contact: Mr. Phil Brooks

## Assessment Interpretability

### Minimal Clinically Important Difference

Not established in SCI

### Statistical Error

Not established in SCI

### Typical Values

**Mean (SD) perceptual threshold:**

*Cold threshold (°C):*

L4 (Left)=17.4 (11.1); (Right)=13.7 (11.5)

L5 (L)=19.1 (9.5); (R)=14.7 (11.7)

S1 (L)=17.9 (10.0); (R)=15.3 (9.9)

*Warm threshold (°C):*

L4 (L)=42.4 (4.5); (R)=45.3 (3.8)

L5 (L)=42.6 (4.4); (R)=44.3(4.0)

S1 (L)=42.2 (4.3); (R)=43.4 (4.6)

*Vibration (µm):*

L4 (L)=55.2 (54.5); (R)=56.4 (51.8)

L5 (L)=47.8 (52.8); (R)=45.6 (50.1)

S1 = Not tested

(Hayes et al. 2002; n=33; 27 males, C4-T12; ASIA B-D; mean (SD) time since injury: 88.9 (73.1) months)

## Measurement Properties

### Validity

#### Kappa with ISNCSCI Light Touch:

Warm sensation:  $\kappa=0.31$

Cold sensation:  $\kappa=0.28-0.30$

Vibration:  $\kappa=0.25-0.39$

#### Kappa with ISNCSCI Pinprick:

Cold sensation:  $\kappa=0.29$

Vibration:  $\kappa=0.33$

(Hayes et al. 2002; n=33; 27 males, C4-T12; ASIA B-D; mean (SD) time since injury: 88.9 (73.1) months)

**Number of studies reporting validity data: 2**

### Reliability – Moderate to High

#### Moderate to High Test-retest Reliability:

ICC = 0.84-0.95 (4 items) 0.50 (2 items)

(Felix & Widerstrom-Noga 2009; n=22; 19 males, 3 females; 12 cervical, 10 below cervical; 10 incomplete, 12 complete; mean (SD) time since injury: 6.6 (5.7) years)

ICC = 0.23-0.90

(Krassioukov et al. 1999; n=21; 15 males, 6 females; incomplete SCI, 11 AIS-D, mean (SD) time since injury: 78 (67) months)

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

### Responsiveness

#### Floor/Ceiling Effect:

Not established in SCI

#### Effect Size:

Not established in SCI

#### Number of studies reporting

**responsiveness data: 0**