

# CHANGES IN SUPRASPINATUS TENDON PATHOLOGY AND SHOULDER PAIN AFTER TRAUMATIC SPINAL CORD INJURY

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## Background and Aims

Shoulder pain affects between 30-78% of individuals with spinal cord injury (SCI). Over time, repetitive use of the upper extremities, for wheelchair propulsion and transfers, can contribute to increases in pain in persons with SCI. The Aim of this study was to evaluate the change in shoulder pain and supraspinatus (SS) tendon pathology from inpatient discharge to one-year post-discharge.

## Methods

This was an observational, prospective study. Individuals at least 20 years old who had a traumatic SCI and who were completing inpatient rehabilitation at the study hospital were recruited. Participants were evaluated regarding SS tendon health (Ultrasound Shoulder Pathology Ratings Scale and quantitative ultrasound (QUS) metrics) and shoulder pain and function (Disabilities of the Arm, Shoulder, and Hand; Wheelchair Users Shoulder Pain Index; and 0-10 ratings of shoulder pain). All measures were repeated 12 months later, and differences across the two time points were evaluated.

## Results

The SS tendon in the non-dominant shoulder showed significant changes for QUS metrics of width, contrast, and homogeneity across the first year after traumatic SCI, but the dominant SS tendon exhibited no significant changes during this time period. Clinical measures of shoulder pain and function did not significantly change between baseline and 12-month follow-up. No significant correlations were found between changes in SS QUS measures and changes in shoulder pain across time for either shoulder.

## Conclusion

Changes in non-dominant SS tendon width during the first year after SCI were detected in this study, but were not found for the dominant shoulder and were not significantly related to patient-reported shoulder pain. These results suggest that non-invasive and inexpensive ultrasound methods may be useful for monitoring pre-clinical signs of rotator cuff tendinopathy in individuals with SCI, and that special attention should be paid to the health of the non-dominant SS tendon during the first year after injury.

**Keywords:** ultrasonography, supraspinatus, spinal cord injury