

## Minimum 5-Year Clinical Outcomes, Survivorship, and Return to Sports after Hamstring Autograft Reconstruction for Sternoclavicular Joint Instability

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**Objectives:** Instability of the sternoclavicular (SC) joint is a rare but potentially devastating pathology, particularly when it occurs in young or active patients, where it can lead to persistent pain and impairment of shoulder function. SC reconstruction using a hamstring tendon autograft is a commonly used treatment option, but mid-term results are still lacking. To assess clinical outcomes, survivorship, and return to sports rate after SC joint reconstruction using hamstring tendon autograft in patients suffering from SC joint instability. We hypothesized that SC joint reconstruction would result in good clinical outcomes, a high survivorship, and a high rate of return to sports.

**Methods:** All patients who underwent SC joint reconstruction with a hamstring tendon autograft for SC joint instability, with a minimum 5-year follow up, were included. Patient reported outcomes were assessed prospectively by the use of the American Shoulder and Elbow Surgeons (ASES) Score, Single Assessment Numerical Evaluation (SANE) Score, Quick Disabilities of the Arm, Shoulder and Hand (DASH) Score, General health physical component of the SF-12 (PCS) and patient satisfaction. Survivorship of reconstruction was defined as no further SC joint dislocation events or revision surgery. Return to sports and pain were assessed using a customized questionnaire.

**Results:** 22 SC joint reconstructions with a mean age of 31.3 (range 15.8 - 57.0 years) at the time of surgery were included. At final evaluation, 18 SC joint reconstructions with a mean follow up of 6.0 years (range 5.0 – 7.3 years) were eligible for minimum 5-year follow-up. All clinical outcome scores improved significantly pre- to postoperatively, ASES (50.0 to 91.0;  $p = .005$ ), SANE (45.9 to 86.0;  $p = .007$ ), QuickDASH (44.2 to 12.1;  $p = .003$ ), and PCS (39.4 to 50.9;  $p = .001$ ). Median postoperative satisfaction was 9 (range 7 - 10). The construct survivorship was 90% at 5-year follow-up. Two patients failed at 82 and 336 days postoperatively and were revised with revision SC joint reconstruction and capsulorrhaphy. Another patient had a superficial wound infection, which was debrided once, and resulted in a good clinical outcome. Of the patients who answered optional sports activity questionnaires, 17 (77%) shoulders participated in recreational or professional sports before injury. At final follow-up, 16/17 (94%) shoulders returned to their pre-injury level of sport or better. The VAS score for pain today ( $p = 0.004$ ) and pain at its worst ( $p = 0.004$ ) improved significantly pre- to postoperatively.

**Conclusions:** SC joint reconstruction with hamstring tendon autograft for SC joint instability resulted in significantly improved clinical outcomes with high patient satisfaction and 90% survivorship at mid-term follow up. Furthermore, a reliable rate of return to previous level of sports was observed in this young and high-demanding patient population. Concerns in terms of advanced post-instability arthritis were not confirmed since a significant decrease in pain was found after minimum 5-year follow-up.

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