

# Immediate Weight-Bearing after Modified-Brostrom Reconstruction: A Retrospective Review of an Accelerated Rehab Protocol

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## INTRODUCTION:

Majority of injuries to the anterior talofibular ligament (ATFL) will go on to heal with nonsurgical management. Nearly a third of these injuries, however, will go on to develop chronic pain and instability; in these cases, operative reconstruction is indicated. An anatomic modified Broström reconstruction has replaced a traditional tenodesis as the standard of care. This reconstruction is often limited by damage to the native tissue and the time required for ligamentous healing, restricting the benefits of early weight-bearing. In order to maximize the benefits of early range-of-motion exercises and weight-bearing while protecting the repair, a suture-tape augmented Broström procedure has been suggested. We hypothesized that a suture-tape augmented Broström procedure would allow early weight-bearing while preventing early failure.

## METHODS:

A retrospective chart review of patients who underwent a suture-tape augmented Broström procedure from August 2020 to January 2023 was conducted.

Our inclusion criteria consisted of MRI confirmation of ATFL injury, a positive anterior drawer, failure of nonsurgical management, and postoperative physical exam consisting of a single leg hop test and single leg heel raise at six and twelve weeks. Patients who had concomitant cartilage injuries with allograft repair, posterior arthroscopic debridement, peroneal tendon repair, syndesmosis repair, or calcaneal osteotomies were excluded from our study.

All patients participated in our accelerated rehab protocol which included immediate postoperative weight-bearing as tolerated (WBAT) in a fracture boot for two weeks followed by WBAT in a lace-up ankle brace for at least four weeks. Physical therapy was initiated two weeks postoperative.

Our primary outcome was the ability of patients to perform a single leg hop test and single leg heel rise at six and twelve weeks. Secondary outcomes included postoperative satisfaction rate, return to sport rate, visual analog scores (VAS), and postoperative complications (DVTs, failure, infection, return to OR, etc.).

## RESULTS:

A total of 119 patients were identified that met our inclusion criteria. Our patients included 34 males and 85 females with a mean age of 37 + 12 (range, 18-68) years; our mean follow up was 16.69 ± 8.18 (range, 4-32) months. (Table 1)

At 6 weeks postoperatively, 88 (90%) of the patients asked could perform a single-leg heel raise and 73 (80%) of the patients asked could perform a single-leg hop. At the end of the follow-up duration, 99% of patients were satisfied with the results of their surgery. Of the patients who were competing in sport prior to their injury, 96% of patients had returned to sport. The average VAS at the final follow up visit was 1.03 + 1.9 (range, 0- 8). (Table 2) Of the 128 patients operated on, 0 patients required a revision surgery. Postoperative complications were neuritis (9 patients) and persistent pain (4 patients). (Table 3) There was no statistical difference in primary and secondary outcomes in patients who had concomitant cartilage injuries not treated with grafting. Male patients were more likely to be able to complete a single leg hop at 6 weeks postoperatively than female patients (p = .04). No significant difference was found among other demographic factors.

## DISCUSSION AND CONCLUSION:

This study demonstrated that a modified-Broström procedure with suture-tape augmentation allowed for immediate weight-bearing without reconstruction failure. The vast majority of patients had excellent long-term outcomes with high rates of patient satisfaction and return to sport. There were no cases of revision surgery, DVTs, postoperative infections, and no patients reported residual instability.

**Table 1. Patient Demographics**

Variable	Patients (N = 119)
<b>Males</b>	34 (29%)
<b>Females</b>	85 (71%)
<b>Tobacco users</b>	34 (29%)
<b>Non-tobacco users</b>	82 (69%)
<b>Tobacco use unknown</b>	2 (3%)
<b>Age (years)</b>	37.02 ± 12.26
<b>Length of follow up (mo)</b>	16.69 ± 8.18

**Table 2. Patient Outcomes Following Modified-Brostrom Reconstruction**

Variable	Patients		All Patients (N = 95)
	without Cartilage Injury (N = 68)	Patients with Cartilage Injury (N = 27)	
Patient satisfaction	50 (99%)	17 (100%)	67 (99%)
Return to sport	26 (96%)	12 (92%)	38 (95%)
Single-leg heel raise at 6 weeks	61 (90%)	24 (92%)	85 (90%)
No single-leg heel raise at 6 weeks	7 (10%)	2 (8%)	9 (10%)
Single-leg hop at 6 weeks	51 (80%)	21 (84%)	72 (81%)
No single-leg hop at 6 weeks	13 (19%)	4 (16%)	17 (19%)
VAS at final follow up	1.12 ± 2.00	0.58 ± 1.26	0.97 ± 1.84

**Table 3. Post-operative Complications**

Variable	Patients (N = 15)
<b>Neuritis</b>	9 (7%)
<b>Seural n.</b>	2 (1.5%)
<b>Peroneal n.</b>	2 (1.5%)
<b>Not specified</b>	5 (4%)
<b>Persistent pain</b>	4 (3%)
<b>Calf tightness</b>	1 (1%)
<b>Calf swelling</b>	1 (1%)