

Modified Broström Procedure

* Special consideration to be taken if a Microfracture procedure is performed in conjunction with the Modified Broström Procedure. See below weight-bearing and impact restrictions to be considered. *

Phase 1 – Maximum Protection Phase (0-3 weeks)

Goals for Phase 1

- Protect integrity of graft
- Minimize effusion
- ROM per guidelines
- Prevent muscular inhibition
- Scar tissue mobility

Precautions

- No inversion or eversion PROM or AROM to be performed in Phase 1
- Boot to be worn at all times for ambulation

Post-Op Physical Therapy

- 1st physical therapy visit to occur 2 weeks post-op (PROM check performed)

Immobilization

- Walking boot: worn 0-6 weeks at all times, including while sleeping

Weight Bearing

- Full weight bearing in walking boot
- Non-weight bearing when not wearing boot (therapy, bathing, changing attire, etc)
- **If Microfracture Procedure performed: NWB for 2-4 weeks, per physician**

Range of Motion

- Dorsiflexion: 0-10°
- Plantarflexion: 0-20°
- **NO inversion or eversion** to be performed in this phase
- If **PASS** PROM check, begin follow-up in physical therapy at 4 weeks post-op
- If **NOT** pass PROM check, begin follow-up in physical therapy immediately
Emphasis on early ankle PROM and talocrural joint mobility

Manual Therapy

- Scar mobility following closure of incision
- Gentle flexibility for lower extremity musculature
- PROM/AROM ankle DF/PF within above listed ROM
- Joint mobilization (Grades I-II)
 - Emphasis on enhancing DF ROM if patient does not pass above ROM check (10°-0°-20°)

Strengthening

- Quadriceps/Glut setting
- Hip strengthening
 - Weeks 0-3: Multi-plane OKC SLR, straight leg bridging, etc
- Core strengthening

Modalities

- Vasopneumatic compression for edema management, 2-3x/week (15-20 min)
- Cryotherapy at home, 3 x per day for 20 minutes, ankle elevated above heart

Modified Broström Procedure

Phase 2 – Maximum Protection Phase (3-6 weeks)

Goals for Phase 2

- Protect integrity of graft
- Minimize effusion
- ROM per guidelines listed
- Prevent muscular inhibition
- Scar tissue mobility

Precautions

- No inversion PROM or AROM
- No kicking in pool for 10 weeks
- Avoid twisting and pivoting motions for at least 12 weeks
- Avoidance of impact activity for 10 weeks if isolated Modified Broström Procedure performed, 12 weeks if **Microfracture** procedure performed

Immobilization

- Walking boot: worn 0-6 weeks at all times, including while sleeping

Weight Bearing

- Full weight bearing in walking boot
- Non-weight bearing when not wearing boot (therapy, bathing, changing attire, etc)
- PWB with supervision at therapy and while wearing soft ankle brace
- **If Microfracture Procedure performed: NWB for 2-4 weeks, per physician**

Range of Motion

- Dorsiflexion: 0-10°
- Plantarflexion: 0-40°
- Initiate eversion AROM – no PROM to end range
- **NO** inversion in Phase 2

Manual Therapy

- Scar mobility when incisions closed
- Gentle flexibility using deep tissue mobilization for lower extremity musculature
- PROM within restrictions above
- Joint mobilization to talocrural joint (Grades I-III)
 - Emphasis on enhancing DF ROM to reach 10°

Strengthening

- Limited ankle and foot strengthening (towel crunches, marble pick-ups, DF/PF light band strengthening, etc)
- Lower Extremity Strengthening
 - Hip strengthening (continue OKC hip strengthening)
 - Quad strengthening (quad sets, leg-press, wall squats, etc)
 - Hamstring strengthening (prone hamstring curls, physio-ball curls, etc)
- Core strengthening

Aquatics

- Initiate aquatic therapy program when incisions closed
- Focus on normalizing gait pattern at reduced body weight (<50%)

Neuromuscular Control

- Double leg balance tasks with soft ankle brace
- Stable surfaces only
- Allow UE support for balance as needed

Modalities

- Vasopneumatic compression for edema management, 2-3x/week (15-20 min)
- Cryotherapy at home, 3 x per day for 20 minutes, ankle elevated above head



Modified Broström Procedure

Phase 3 – Moderate Protection Phase (6-12 weeks)

Goals for Phase 3

- Protect integrity of graft
- Restore full ankle ROM
- Increase neuromuscular control tasks in a safe environment
- Restore full strength of ankle and lower extremity

Precautions

- No kicking in pool for 10 weeks
- Avoid twisting and pivoting motions for at least 12 weeks
- Avoidance of impact activity for 10 weeks if isolated Modified Broström Procedure performed, 12 weeks if **Microfracture** procedure performed

Immobilization/Weight bearing

- 6-8 weeks (WBAT): Soft ankle orthosis (ASO, Impact, etc) to be purchased for gradual progression out of walking boot
- 8-12 weeks (WBAT): Soft ankle orthosis (ASO, Impact, etc) to be worn when walking on uneven surfaces, busy environments, and during all athletic or sporting activities

Range of Motion

- AROM ankle DF, PF, and Eversion
- Restore full ankle ROM in all planes

Manual Therapy

- Scar mobility when incisions closed
- Gentle flexibility using deep tissue mobilization for lower extremity musculature
- PROM in all planes with focus on restoring full ROM
- Joint mobilization to talocrural joint (Grades I-III)
 - Emphasis on enhancing DF ROM to reach 10°
 - Gentle rearfoot glides to be added in this phase

Strengthening

- Stationary bike or elliptical
- AROM of ankle in all planes (sitting rocker board, ½ foam roller rocks, BAPS board, etc)
- Ankle and foot strengthening (band strengthening, bent & straight knee heel raises, supinated single leg stance, etc)
- Lower extremity strengthening
 - Weeks 6-9: Focus on CKC activities in the sagittal plane
 - Weeks 9-12: Progression to multi-directional CKC activities as able (based on observed single leg strength and dynamic stability)

Aquatics

- Continue aquatic therapy program
- Focus on normalizing gait pattern at reduced body weight

Neuromuscular Control

- Continue proprioception training
 - Weeks 6-9: Focus on stable surfaces with decreasing UE support and progression to SL balance
 - Weeks 9-12: Progression to unstable surfaces, perturbations, and/or dual tasking (Double leg → Single leg)

Modalities

- Vasopneumatic compression for edema management, 2-3x/week (15-20 min)
- Cryotherapy at home, 3 x per day for 20 minutes, ankle elevated above heart



Modified Broström Procedure

Phase 4 – Return to Activity Phase (12-24 weeks)

Goals for Phase 4

- Progress single leg muscle strength, endurance and balance
- Initiate impact activity
- Sport or work specific tasks

Return to Function Testing

- Week 12-16: per MD approval
- Criteria to pass: pain-free, full ROM, minimal joint effusion, 5/5 MMT strength, jump/hop testing at 90% compared to uninvolved, adequate ankle control with sport and/or work specific tasks

Weight bearing/Range of motion

- Full weight bearing without restriction
- Restore full ankle ROM in all planes

Manual Therapy

- Restore lower extremity flexibility
- PROM in all planes, as needed
- Joint mobilization to talocrural joint (Grades III-IV), as needed

Strengthening

- Stationary bike or elliptical
- Unilateral gym strengthening program (single leg calf raises, single leg squats, eccentric leg press, step-up progression, multi-directional lunges)
- Initiate impact activities
 - 10 + weeks: initiation to impact exercise, sub-maximal bodyweight → maximal (pool, GTS, plyo-press, Alter G), sagittal plane jogging only
 - 12 + weeks: multi-directional agility drills, cutting, pivoting and plyometrics
 - If **Microfracture Procedure** performed sub-maximal impact not to start until 12 weeks, sagittal plane jogging at 12 weeks, multi-directional agility at 14 weeks

Core strengthening

Neuromuscular Control

- Advanced proprioception
 - Un-stable surfaces
 - Perturbations
 - Dual tasking
 - Add sport/work specific balance tasks as able

Modalities

- Cryotherapy after activity
- Soft ankle orthosis (ASO, Impact, etc) to be continued during all athletic or sporting activities

This protocol was updated and reviewed by Dr. Devries and Dr. Scharer of BayCare Foot & Ankle Center and Rebecca Yde, PT, DPT on 01/19/16.

Modified Broström Procedure

References:

1. Clanton TO, Matheny LM, Jarvis HC, Jeronimus AB. Return to play in athletes following ankle injuries. *Sports Health*. 2012 Nov;4(6):471-4. Review.
2. De Vries JS, Krips R, Sierevelt IN, Blankevoort L, van Dijk CN. Interventions for treating chronic ankle instability. *Cochrane Database Syst Rev*. 2011;(8):CD004124. Review.
3. DiGiovanni BF, Partal G, Baumhauer JF. Acute ankle injury and chronic lateral instability in the athlete. *Clin Sports Med*. 2004;23(1):1-19, v. Review.
4. Hall EA, Docherty CL, Simon J, Kingma JJ, Klossner JC. Strength-training protocols to improve deficits in participants with chronic ankle instability: a randomized controlled trial. *J Athl Train*. 2015;50(1):36-44.
5. Petrera M, Dwyer T, Theodoropoulos JS, Ogilvie-Harris DJ. Short-to medium-term outcomes after a modified Broström repair for lateral ankle instability with immediate postoperative weightbearing. *Am J Sports Med*. 2014;42(7):1542-1548.
6. Sandrey MA, Crockett NJ. Prophylactic ankle brace use during a high school competitive basketball season on dynamic postural control. *J Sport Rehabil*. 2015 Jan 5. Epublished.
7. Wester JU, Jespersen SM, Nielsen KD, Neumann L. Wobble board training after partial sprains of the lateral ligaments of the ankle: a prospective randomized study. *J Orthop Sports Phys Ther*. 1996;23(5):332-6.