



NICK AVALLONE, M.D.

www.dravallone.com

755 Memorial Pkwy
Suite 201
Phillipsburg, NJ 08865

22 Walmart Plaza
2nd Level
Clinton, NJ 08809
908-847-8884

Brostrom Repair

DISCLAIMER: The following physical therapy protocol is intended to be utilized by the clinician as a guideline in the treatment of this disorder. It is based on current research and has been formulated as a collaborative effort between Physicians and Physical Therapists. It is not intended to serve as a substitute for sound clinical decision making. Every patient is a unique case, and it should be anticipated that not all patients will fit into the timelines set forth in this protocol. If the physical therapist has any questions regarding the course of treatment, the referring physician should be contacted for further guidance

Phase I: Post op: weeks 0-6

Goals:

- Edema control/reduction
- Protect repair: foot is placed in neutral in short leg cast
- Independent transfers and ambulation NWBing with assistive device
- Identify patient's goal for return to recreational and/or sport specific activities

Bracing/Assistive Device/ weightbearing:

- Foot place in neutral in short leg cast
- NWB with use of appropriate assistive device

Physical Therapy Interventions:

- Proximal LE, upper extremity, core muscle strengthening exercises
- Aerobic upper body conditioning
- Transfer and gait training with appropriate assistive device, NWBing progressing to independence

Criteria for progression to Phase II:

- Decreased pain
- Decreased edema
- Independence in HEP
- Independence with transfers and ambulation NWB on involved Lower extremity

Phase II: weeks 6-8: Initiate Physical Therapy

Goals:

- Protect healing tissue: protect CFL (calcaneofibular ligament) from inversion, ATFL (anterior talofibular ligament) from plantarflexion
- Progressive, protected normalization of gait
- Edema control and patient education regarding skin/wound care and prevention of infection
- Pain reduction
- Prevention of scar adhesions and myofascial restriction
- Prevention of deconditioning
- Patient education of restricted motions

Precautions:

- No passive, active assisted or active inversion exercises
- No active assisted or passive stretching into plantarflexion or inversion
- Avoid standing or walking for extended periods of time

Bracing/Assistive Device/ weightbearing:

- Transition from cast to walking boot
- Progress weight bearing from NWBing to WBAT in walking boot and assistive device transitioning over next 4 weeks. Week 10: transition to protected weightbearing in a semi-rigid ankle stirrup orthotic (with assistive device as needed)

Physical Therapy Intervention:

- Protect the CFL from inversion and ATFL from plantarflexion,
- Edema control with use of modalities such as interferential current, cryotherapy
- AROM: Ankle Dorsiflexion, Eversion only
- Gastroc and soleus stretch NWbing progressing to weight bearing
- Sub max isometrics *in neutral* all planes **EXCEPT INVERSION**
- Proprioception activities involving bilateral stance

- Cross training: aquatics (ambulating in pool with orthotic and assistive ambulatory device as needed), and UBE

Manual Treatment:

- Joint mobilizations as identified by surgeon, adhering to precautions and avoiding the tension of CFL and ATFL
- Soft tissue mobilization as indicated

Criteria to advance:

- Normalized gait without pain: surgical ankle in a semi-rigid ankle stirrup, with or without assistive device
- Pain-free eversion against gravity

Phase III: weeks 8-12

Goals:

- Restore full ROM by 12 weeks
- No edema post-activity
- Normalized, pain-free gait on stairs and inconsistent surfaces, with or without ankle stirrup orthotic.
- 5/5 strength all ankle muscle groups

Precautions:

- Gentle AROM inversion and plantarflexion ***initiated*** beginning week 9
- Patient education regarding caution with pacing and progression of weight bearing activities
- To protect the ankle during progression of activities, patients should wear ankle stirrup orthotic in the event of persisting pain, edema and muscle weakness to promote normal gait mechanics and increased weight bearing without assistive devices.
- No plyometrics prior to week 11

Bracing/Assistive Device/ weightbearing:

- Week 10: transition to protected weightbearing in a semi-rigid ankle stirrup orthotic (with assistive device as needed)

Therapeutic Exercises:

- Week 9: sitting: AROM exercises all planes of movement
 - Sitting: straight plane and Multidirectional AROM: Bapps board alphabet, circles, rocker board,
 - standing : Bapps Board
- Strengthening: foot intrinsics, progressive resisted ankle exercises in all planes with Theraband, core stabilization, bilateral heel raises progressing to unilateral heel raises at week 12
- Continue edema control
- Stretches for gastroc, soleus and tibialis posterior
- Week 10: Progress strengthening all major muscle groups supporting the ankle with use of closed and open kinetic chain exercises, unilateral eccentric heel raises, rhythmic stabilization; use of Stairmaster and Elliptical , treadmill, and VersaClimber for muscle endurance
- Proprioception activities: unilateral stance: Eyes Open/Eyes Closed , external perturbations, foam block, rocker board, ball toss, Star Balance Excursion test
- Week 11: Plyometrics with bilateral and unilateral jumps: plyometric progression initiated with less than full body weight with double leg progressing to full body weight, double leg. Then progress to single leg less than body weight, progressing to full weight single leg: plyometric progression should continue into the next phase as outlined below with monitoring proper form and control throughout each progression. Avoid combining high level plyometrics and excessive strengthening in the same treatment session. ¹
 - Horizontal leg press jumps bilateral leg
 - Bilateral jumps:
 - Up to a 4-inch box progress to a 6 inch box
 - Vertical jumps in place
 - Jumps up to and down from fro 4 inch box progressing to a 6 inch box
 - Vertical jumps in series
 - Depth jumps up and down from 8-inch to 12-inch
 - Lateral jumping bilaterally over a line
 - Up and over 4 inch box
 - Jump in series in multiple planes: four quadrant box jumps
 - Unilateral jumps may be initiated with the same progression as outlined above

If there is any discomfort with the initial plyometric exercises, delay them until the patient is able to perform at least 10 repetitions pain-free.

Manual:

- Mobilizations as indicated
- Soft tissue mobilization/scar massage as indicated

Criteria for progression to next phase:

- Full active and passive ROM
- No residual edema or pain after activity
- Normalized gait without assistive device on level surfaces, stairs and inconsistent surfaces without orthotic or assistive device

Phase IV:weeks 12-16

Goal:

- Return to prior to injury activities

Precautions:

- Continue use of brace (lace-up, sport brace or standard stirrup) during sports for 6 months, for increased stability and proprioception
- Patient to be independent with activity progression and/or modification in general, and especially in the event of pain or swelling

Physical Therapy Interventions:

- Initiate jogging with progression to running
- Strengthening: increased workload, resistance and intensity in progressive resisted exercises
- Testing: dynamometry, isokinetic, functional***
- Endurance: jumping rope (bilateral, alternating and unilateral skips)
- Proprioception: see phase II and progress as appropriate.
- sport-specific drills
- Plyometrics: see progression outlined in phase III
- Return to sports functional progression and testing

Criteria for discharge from skilled therapy:

- Running to sprinting
- Multiplane activities

- Regain full cardiovascular and muscular endurance
- Strength \geq 85% limb symmetry through functional testing
- No apprehension with high level activity and with direction changes
- Return to full sport and high level activities

**** Return to Sport Functional Progression and Clinical Testing**

1. Retro jog
2. Side shuffles
3. Carioca
4. Bilateral Bounding (A-P the lateral)
5. Run
6. Unilateral quadrant jumps
7. Jog-sprint-jog
8. Sprint- jog
9. Sprint-stop
10. Figure eights
11. Unilateral bounding (A-P then lateral)
12. 45-degree cuts
13. Single-leg hop test for time and distance
14. Multiple Hip test
15. 90-degree cuts
16. Shuttle run test

1. Edelstein J, Noonan D. *Postsurgical Rehabilitation Guidelines for the Orthopedic Clinician. Chapter 39: Lateral Ankle Reconstruction.* Philadelphia: Mosby, Inc.; 2006.
2. Modified Brostrom-Gould Repair for Chronic Lateral Ankle Instability. Access 2/12/20.
<https://www.brighamandwomens.org/assets/BWH/patients-and-families/pdfs/ankle-brostrom-gould-repair-for-lateral-ankle-instability.pdf>