

BROSTROM, MODIFIED BROSTROM, AND MODIFIED BROSTROM-EVANS

Lateral ankle repair & reconstruction

Brostrom developed this technique in 1966 to surgically address chronic ankle instability by performing an anatomical repair of the ATF and CF ligaments. Fifteen to 20% of ankle sprains will require surgical intervention. The procedure was modified in 1980 by Gould to address subtalar instability by suturing the extensor retinaculum to the fibula. In some cases, a tenodesis is performed using the peroneal brevis for additional stability, termed a Modified Brostrom-Evans. This is the surgical reconstruction of your lateral (outside) ankle ligaments. First the ankle is arthroscopically evaluated and any pathology in the joint is addressed. An open incision is then made to stabilize the ankle. Occasionally, the syndesmosis (joint between the tibia and fibula) and the deltoid ligament (on the inside part of the ankle) need to be stabilized as well. Finally, any peroneal tendon injury is assessed and treated if indicated (the peroneal tendons serve to supplement and protect the ankle).

Please note, this is a general guideline but your own protocol may change at the discretion of your surgeon depending on your particular case

Preoperative Physical Therapy

Pre surgical Gait Training, Balance Training, Crutch Training and Knee Scooter Training

Phase I: Protect Healing (Weeks 0-6)

WEEKS 1: strict elevation of the ankle above the heart, 23 hours per day

- ice behind knee (vascutherm or ice bag) to minimize swelling, control pain
- Nonweightbearing (NWB) in splint
- Patient educated on ice, elevation to manage post operative edema (swelling causes pain that typically does not respond to standard pain medication)

1ST POST OP (5-7 DAYS): Dressing and cast application

- Continue ice, elevation

WEEKS 2-3: Sutures out, transition to boot

- NWB in walking boot following first post op visit
- Initiate 4 way SLR, quad and hip strengthening home exercise program (HEP)
- Gentle dorsiflexion/plantarflexion (DF/PF) active range of motion (AROM)
- AROM to toes
- Begin active dorsiflexion/plantarflexion (up and down motion), but avoid side to side motion to allow ligaments to heal properly

Phase II: Early Range of Motion/Gait Training (Weeks 6-8)

WEEK 6: Begin progressive weight bearing, begin therapy

- Partial weightbearing (PWB) in boot
- Progressive weight bearing in boot, using crutches/walker, starting with 25% weight and increasing by 25% every 3-5 days until fully WB in boot
- Use a scale if available to estimate weight bearing. Put most of your weight on the crutches and opposite leg, then load the scale with the operative leg until it reads 25% of your weight. This is a rough guide that should be used for the first 3-5 days, then increase to 50%, etc
- When you hit 75%, begin to use one crutch in the OPPOSITE arm
- With therapy, avoid passive inversion of the foot-this will stretch out the repair that was done
- Continue DF/PF AROM
- Gastroc/soleus stretching in seated, passively and HEP
- Soft tissue mobilization and scar desensitization as needed

WEEKS 6-8:

- Physical therapy is often initiated at 6 weeks
- transition to regular shoe, initially inside the house and then with outdoor activities
- wear ASO ankle brace (or similar) when you start walking outside, as well as for any sports/activities that involve uneven ground or cutting motions for 6 months

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- Progress to FWB, likely with use of ASO brace
- Theraband strengthening for DF, PF and EV
- Avoid inversion AROM and forceful eversion
- Patient may begin aquatic therapy if wound healing is complete

Phase III: Return to Function (Weeks 8 to 12)

WEEKS 8-12:

- May begin biking and swimming, then elliptical trainer at 12 weeks and treadmill at 16 weeks
- Begin inversion ROM, limit to 10 degrees
- BAPS board, progression from sitting to standing
- Gait training
- Balance and proprioception, progressing to unstable surfaces
- Heel raises in standing
- CKC Hip and knee strengthening

*Patients undergoing an Evans procedure will display less inversion and loss of peroneal strength

WEEK 12+:

- Begin straight line running
- Begin plyometrics

PHYSICAL THERAPY: Start at approximately 6 weeks post op, focusing on motion and swelling at first, then gait training and strengthening. At 12 weeks begin gentle running / higher impact activities.

DRIVING: Prior to driving, you must be able weightbear on your right foot without crutches. In addition, you may begin driving at 9 weeks if surgery on right ankle; if left ankle, may drive automatic transmission car when off narcotic pain medication

RETURN TO PLAY: Once you can come up and down on your toes (single heel rise) on the surgical side, or you can hop on the surgical foot (single leg hop), you may return to sports and all activities. There is no guarantee on outcome. All conservative management options have risk of worsening pain, progressive irreversible deformity, and failing to provide substantial pain relief. All surgical management options have risk of infection, skin or bone healing issues, and/or worsening pain. Our promise is that we will not stop working with you until we maximize your return to function, gainful work, and minimize pain.

PHYSICAL THERAPY: start between 4-6 weeks post op, focus on motion and swelling at first, then gait training and strengthening

- focus on hip/knee/core for first 6-10 weeks
- patient specific desires on gait training with/without therapist
- DO NOT attempt to gain motion in the planes that were fused: for subtalar/triple arthrodesis, focus only on dorsiflexion/plantarflexion (DO NOT ATTEMPT side to side motion)

DRIVING: Prior to driving, you must be able weightbear on your right foot without crutches. In addition, you may begin driving at 9 weeks if surgery on right ankle; if left ankle, may drive automatic transmission car when off narcotic pain medication

FULL ACTIVITY: This may take 6 to 18 months. There is no guarantee on outcome. All conservative management options have risk of worsening pain, progressive irreversible deformity, and failing to provide substantial pain relief. All surgical management options have risk of infection, skin or bone healing issues, and/or worsening pain. Our promise is that we will not stop working with you until we maximize your return to function, gainful work, and minimize pain.

SHOWERING: You may shower with soap and water 1 day after surgery. Avoid lotions, creams, or antibiotic ointments on surgical site until directed by your orthopaedic surgeon. No baths or submerging operative site under water until incision has completely healed.

SKIN CARE: Steristrips are typically placed on your incision at your follow up appointment. Steristrips will typically fall off on their own. Remove steristrips in shower after 3 weeks if they remain on incision. Incisions may become sensitive. Some surgical incisions based on their location and patient factors are more likely to require postoperative scar desensitization with physical therapy. You may use Mederma or other skin protectant lotion once incisions have completely healed and approved by your orthopaedic surgeon. Do not place cortisone or other steroid on your incision unless directed

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by your orthopaedic surgeon. Incisions and surgical site scars are more prone to burn by ultraviolet radiation when out in the sun. Always apply sun screen onto the healed incision once fully healed.

STOOL SOFTENERS: While on narcotic pain medication (e.g. Norco/hydrocodone or Percocet/oxycodone) especially within first 72 hours of surgery, you should take stool softener (e.g. Miralax, docusate, senna). Discontinue if you develop loose stool or diarrhea.

Keep in mind that complete recovery may take 6 months to a year before the ankle is as good as it is going to be.

REFERENCES

1. Outcomes of the Modified Brostrom Procedure Using Suture Anchors for Chronic Lateral Ankle Instability—A Prospective, Randomized Comparison between Single and Double Suture Anchors. Cho BK, Kim YM, Kim DS, Choi ES, Shon HC, Park KJ. J Foot Ankle Surg. 2013 Jan-Feb; 52(1): 9-15.
2. Surgical Considerations in the Treatment of Ankle Instability. Baumhauer JF, O'Brien T. J Athl Train. 2002 Oct-Dec; 37 (4): 458-462.
3. Anatomical Reconstruction of the lateral ligaments of the ankle with semitendinosus allograft. Yinghui Hua, Shiyi Chen, Yongjia Jin, Bimeng Zhang, Yunxia Li, Hong Li. Int Orthop. Oct 2012; 36 (10): 2027-2031.

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