SOUTH BEND ORTHOPAEDICS

53880 Carmichael Drive ● South Bend, IN 46635
60160 Bodnar Boulevard ● Mishawaka, IN 46544
Phone 574-247-9441 ● Fax: 574-247-9442 ● www.sbortho.com

SUBTALAR/TALONAVICULAR/TRIPLE ARTHRODESIS PROTOCOL

Ankle arthrodesis procedures are used to treat a variety of conditions that have failed conservative measures and cannot be corrected with soft tissue repairs. These conditions include: Valgus and varus foot deformities that cannot be adequately brace, collapsing pes planovalgus deformity, advanced tibialis posterior tendon dysfunction, tarsal coalition, rheumatoid arthritis, degenerative arthritis, posttraumatic arthritis, and chronic pain. Triple arthrodesis is the most extensive and stabilizing procedure fusing 3 joints; the talonavicular, talocalcaneal, and calcaneocuboid joints. Depending on the patient's condition, lesser fusions may allow better functional outcomes by preserving more post op ROM return.

This is the fusion and realigment of two to four joints around the hindfoot and midfoot. It typically includes at least the subtalar joint (between the calcaneus and talus) and the talonavicular joint (between the talus and navicular). The calcaneocuboid joint (between the calcaneus and cuboid on the outside part of the foot), the naviculo-cuneiform joint, and the 1st tarso-metatarsal joint are also realigned and fused as indicated intra-operatively. The Achilles often is also lengthened either at the calf or closer to the heel, and the ligaments of the ankle are sometimes repaired as well. Bone graft (typically allograft/cadaver bone or Augment, a synthetic graft) is used, and screws, staples, and/or plates are inserted to hold the bones together as they heal.

Below is a general outline for these fusion procedures. MD recommendations and radiographic evidence of healing can always affect the timeline.

This is a guideline for recovery, and specific changes may be indicated on an individual basis

Preoperative Physical Therapy

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

Phase I- Protection (Weeks 0 to 6)

GOALS:

- Cast or boot for 6 weeks
- Elevation, ice, and medication to control pain and swelling
- Non-weight bearing x 6 weeks
- Hip and knee AROM, hip strengthening
- Core and upper extremity strengthening

WEEK 1: Nonweightbearing in splint

- elevate the leg above the heart to minimize swelling 23 hours/day
- ice behind the knee 30 min on/30 min off (Vascutherm or ice bag)
- minimize activity and focus on rest

1ST POSTOP (5-7 DAYS): Dressing changed, cast applied

- continue strict elevation, ice, NWB

WEEK 2-3: Sutures removed, cast changed

WEEK 4-5: Return for another cast change (hygiene purposes)

Phase II- Range of Motion and Early strengthening (Weeks 6 to 12)

GOALS:

- Partial weight bearing progress to FWB in boot based on healing and physician instruction
- Active/passive ankle ROM to non-fused joints:
  - Subtalar arthrodesis: all planes; TC, mid and forefoot
  - Triple arthrodesis: DF and PF only
- Isometric all planes allowed and early isotonic ankle planes mentioned above according to procedure
- Foot intrinsic strengthening
- Scar massage
- Joint mobs to NON-fused joints as needed for ROM gains
- Stationary bike **IN** boot start at 6 weeks

WEEK 6-8: Come out of cast, transition to boot if sufficiently healed (**weight bearing begins when xrays demonstrate adequate healing; some patients take longer than others!!**)

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- progressive weight bearing in boot, using crutches/walker, starting with 25% weight and increasing by 25% every 1-2 weeks 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 week, then increase to 50%, etc
- when you hit 75%, begin to use one crutch in the OPPOSITE arm

Phase III- Progressive Strengthening

WEEKS 12-14: transition to a regular shoe, once able to fully weight bear in boot; start using a shoe inside the house and advance to outside activities gradually

- Gradually wean out of boot at 10-12 weeks per MD orders
- Low level balance exercise
- Gait training
- Progressive hip, knee, and ankle strengthening

WEEKS 14-16: Normalize gait mechanics

- Full functional ROM TC joint and other joints as allowed depending on procedure
- Single leg balance and proprioceptive exercises to advance as able
- Bilateral to progress to unilateral heel raises
- Goal of full strength at 16 weeks
- Gradual progression to non-impact cardio-vascular and fitness activities

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 placed cortisone or other steroid on your incision unless directed 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.

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3. Michael B. Canales, DPM. Isolated Subtalar Joint Fusion and Talonavicular Joint Fusion- A Glimpse at the Occurrences and Implications Applied to Adult Acquired Flatfoot and Posterior Tibial Tendon Dysfunction.
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