



Phase 1: Weeks 1-5 - Early Motion/Protection
 Weeks 1-2: NWB Splint
 Weeks 3-5: NWB in PF cast/boot
 Weeks 5-8: WBAT in walking boot with 30° heel lift.
 Heel lift decreased by 10° every week.

Achilles Tendon Repair: Early Motion

Focus area: Motion		Focus area: Strength		Focus area: Proprioception	
PT	Patient Homework	PT	Patient Homework	PT	Patient Homework
Initial examination completed around week 5 **No PROM DF, AROM only	Ice, elevation, compression as needed for edema	Seated heel-toe rock	Open chain hip & knee strengthening, especially during NWB phase	Gradually incorporate WB, i.e. start with toe touch and progress as tolerated	Gradually wean from assistive device, use pain/swelling as guide
Seated wobble board, BAPS, Bike	Ankle ABCs (2-3x/day)	Marble pick up	Seated heel-toe rock (2-3x/day)	Weight shifts fwd/back, side-to-side	
General talocrual, subtalar, midtarsal, 1st ray, and toe mobilizations	Seated ball roll on foot, cw/ccw (2-3x/day)	Towel pick up with toes	Marble pick up (2-3x/day)		Educate patient on ice massage x 2-3 minutes if pain persists at rest
Soft tissue mobs to improve edema and tendon gliding	Towel pick up with toes	**Focus is HEP. Frequency and duration of treatment based on therapist discretion until patient is full weight bearing in regular shoes		**PT Note: Electrical stimulation, Pulsed Ultrasound, Game Ready may be used to decrease pain/edema	
Goals of Phase 1 interventions		Common frustrations	Recommendations	Physician Expectations	
1. Decrease edema		Pain near the repair- this is normal	Some symptoms are common with healing process and can be minimized with manual therapy and modalities as needed	1. Full weight bearing in boot with no assistive device with decreasing height of heel lift. 2. Stable and controlled pain and edema levels.	
2. Decrease pain		Increased pain with increased weight bearing and decreased heel lift		Surgical Description: Partial or full repair of the Achilles tendon, with or without bone debridement. Depending on the chronicity of the tendon involvement, the Achilles may need soft tissue debridement prior to suturing the tendon together. Flexor Hallucis Longus (FHL) may be used to strengthen the repair. In this case the FHL is cut as distal as possible and the tendon is attached to the calcaneus via a bone screw. This protocol is a guideline only. You may use your expertise and clinical judgment to progress the patients towards recovery.	
3. Improve AROM of ankle & foot while protecting the repair			Consult the Physician if lack of progress		
4. Improve tendon gliding/sliding			**Patient education of 10° wedge removal per week		



Phase 2: Weeks 8-10

1. Full weight bearing in regular shoes
(use heel lift and/or brace in shoe as needed)
2. Therapy in clinic WBAT with regular shoes and without brace

Achilles Tendon Repair: Traditional PT

Focus area: Motion		Focus area: Strength		Focus area: Proprioception	
PT	Patient Homework	PT	Patient Homework	PT	Patient Homework
**No PROM DF, AROM only	Stationary bike or pain free pool exercises	Seated toe curls/extensions	4-way resisted stepping with T-band on uninvolved side	Single leg stance with UE support	Single leg stance (pain free, eyes open)
Manual Therapy as Needed: Edema massage, Soft tissue massage to healed scar	Ice, elevation, compression as needed for edema	Seated BAPS: L1	Sub-max, multi angle isometric plantar flexion	Double Leg Rocker Board in sagittal plane (limit DF and/or PF if pain), frontal plane at 8 weeks post op	
Joint mobs for talocrural DF and PF if limited (no pain to protect the graft),	Self scar massage (if appropriate)	Total Gym Double Leg squat (start with 30-50% bodyweight)	Seated heel/toe rock	**Wean from assistive device prior to weaning from boot. Can begin weaning out of boot when patient is FWB in the boot.	
1st ray & subtalar joint mobs, Plantar soft tissue mobs to decrease soreness from boot	Ankle ABCs	**PT Note: Exercises should be pain free and modified accordingly, progress from seated to standing and intensity as appropriate		** PT Note: First day out of boot for 1 hour, increased daily by 1 hour. Progression based on patient symptoms. Heel lift can be placed in regular shoes to minimize symptoms. Brace may be utilized to help with weaning from boot. If pain persists continue for same amount of time out of boot x 3 days, then continue progression.	
Warm-up: bike, pain free treadmill (no incline), seated stepper	General LE Stretching as appropriate	**PT Note: Electrical stimulation, Pulsed Ultrasound, Game Ready may be used to decrease pain/edema			
Goals of Phase 2 interventions		Common frustrations	Recommendations	Physician Expectations	
1. Normalization of gait with full weight bearing in regular shoes without assistive device		Transition out of walking boot	Heel lift and/or brace can be used to ease transition to regular shoes	<ol style="list-style-type: none"> 1. Full weight bearing in shoes with heel cushion as needed 2. Pain and edema are a normal part of the healing process 3. Gradually increasing gait velocity and improving gait mechanics 	
2. Decrease edema and pain		Persistent swelling and pain	Continue modalities and manual therapy as needed		
3. Increase ankle ROM, strength & proprioception		Decreased ROM	Continue joint mobs to address deficits		



Phase 3: Weeks 11-14

Achilles Tendon Repair: Traditional PT

Focus area: Motion		Focus area: Strength		Focus area: Proprioception	
<i>PT</i>	<i>Patient Homework</i>	<i>PT</i>	<i>Patient Homework</i>	<i>PT</i>	<i>Patient Homework</i>
Continue manual therapy as needed	Pain free NWB AAROM towel stretch	Single Leg Total Gym or Shuttle leg press	Pain free standing heel/toe raises, limited AROM as indicated	Double Leg Biodex Balance, progress as appropriate	Single leg balance, eyes open or closed
Continue modalities only if pain and edema are a problem	Bike, Treadmill, Pool exercise	Wall squats with or without ball	Step ups and step downs	Steamboats on both LE	Single leg stance with reach
Warm Up: Bike with resistance, Elliptical, Treadmill (fwd or back), Stairmaster	Ice massage as needed	Forward lunges, progress to on foam etc	4 way resisted stepping, progress to steamboats	Single Leg Stance with Anterior and Lateral Reach	Single leg stance on unsteady surfaces or with UE activities
Standing BAPS, no greater than L2		Anterior and Medial Step-downs (begin with 1" step and progress accordingly)		Step ups with knee drive	
Gentle WB Gastroc/Soleus stretch	General LE stretching				

Goals of Phase 3 interventions	Common frustrations	Recommendations	Physician Expectations
1. Increase AROM of Talocrural Dorsiflexion to within 5° of uninvolved lower extremity	Lack of PF strength	Focus on unilateral gastroc/soleus strengthening	1. Walking with some asymmetry of gait mechanics 2. Some remaining lack of plantar flexion strength
2. Increase involved single leg balance to within 15 seconds of uninvolved lower extremity	Continued pain and inflammation in the Achilles	Manual therapy, ultrasound, ice massage as needed	
3. Gait Symmetrical			
4. Wear shoes 100% of the day			
5. Decreased pain with weight bearing and gait			



Phase 4: Weeks 15-18

1. Initiation of jogging and return to sport.

Achilles Tendon Repair: Traditional PT

Focus area: Motion		Focus area: Strength		Focus area: Proprioception	
PT	Patient Homework	PT	Patient Homework	PT	Patient Homework
Perform Discharge Assessment (see last page of protocol)	Standing Gastroc/Soleus Stretch	Standing Single Leg toe raises	Step ups and Step downs	Single Leg stance on unsteady surface, progress to rebounder	Single leg stance with reach on unsteady surface
Discharge use of manual therapy and modalities except for ice as needed	Continue ice as needed	Total Gym and/or Wall Squats on unsteady surface	Initiate forward and lateral lunges	Resisted Carioca Walking	Stairmaster, Bike, Treadmill for LE conditioning
Warm up: Resisted Bike, Elliptical, Ambulation on Treadmill in all 4 directions	Jogging progression in straight line can be initiated when patient can perform 2 sets of 10 single leg heel raises and 10 single leg hops with minimal symptoms.	Forward lunges to Pro Vibe, Lateral lunges		Home Exercise Program at Discharge: 1) pain free SL heel raises 2) pain free frontal and sagittal lunges 3) anterior and medial step downs 4) repeated tubing in standing 5) pain free ambulation, bicycling, jogging, stairmaster, elliptical, etc 6) Return to sport per physician recommendation (usually return to practice at approx 15 weeks) 7) icing as necessary	
General LE stretching as needed		**Plyometrics, short distance jogging, and return to sport activities can be initiated when patient can do 1 set of 20 single leg heel raises and 10 single leg hops with minimal symptoms			
Goals of Phase 3 interventions		Common frustrations	Recommendations	Physician Expectations	
Single Leg balance to within symmetrical limits of uninvolved lower extremity		Continued lack of strength	Continue gastroc/soleus strengthening unilaterally	1. Progression of plantar flexion strength 2. Stabilization of pain and edema	
Patient to perform 10 repetitions single leg heel raise, limited to full motion		Continued pain and inflammation	Manual therapy, ultrasound and ice massage as needed		
Independence and proper performance of home exercise program progression					



Return to Running Program

Walking Program

You must be able to walk, pain free, aggressively (4-5 miles per hour) for 30 minutes, preferably on a treadmill, before beginning the walk/jog program. A mile run generally consists of 1500 total foot contacts or 750 per foot. Advanced strengthening/plyometric exercises should be completed at high reps during Phase III of the PTT protocol totaling between 400 to 500 foot contacts/reps per session. This high repetition count of pain free exercises readies your soft tissues for the stress and strain that you undergo while running.

Walk/Jog Progression

You may begin this program on level ground if:

1. Completed the Walking Program and 1 week of Phase III protocol.
2. You have no pain with normal daily activities. (0 out of 10 on pain scale)

Program Progression

1. If the jogging hurts, stop, apply ice and return to the previous stage the next day. If pain/discomfort remains or increases, continue to return to a previous level until discomfort stabilizes or decreases.
2. If you have no pain when doing this activity level or afterwards, and you have no discomfort or tightness that limits your normal movements the next morning, proceed to the next stage.

	Walk	Jog	Repetitions	Total time
Week 1	5 minutes	1 minute	5 times	30 minutes
Week 2	4 minutes	2 minutes	5 times	30 minutes
Week 3	3 minutes	3 minutes	5 times	30 minutes
Week 4	2 minutes	4 minutes	5 times	30 minutes
Week 5	Jog every other day with a goal of reaching 30 consecutive minutes, begin with 5 minutes of walking, gradually increasing the pace. End with 5 minutes of walking, gradually decreasing the pace to a comfortable walk.			