



**Achilles Tendon Rehabilitation Protocol**  
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**Twin Cities Orthopedics – Foot and Ankle Surgery**

**Pre-Op:**

Gait training

**Post-Op:**

**Week 2**

- post-op splint is removed and removable boot is applied with heel lifts to maintain 20° plantarflexion
- weight bearing is initiated and progressed as tolerated (typically advance 25-50% of weight bearing each week over the next few weeks)
- soft tissue/scar mobilization
- ROM exercises: plantarflexion/dorsiflexion from 20° to full plantarflexion, 2 sets of 20 repetitions; circumduction (both directions), 2 sets of 10 repetitions
- strengthening exercises: isometric inversion/eversion, 2 sets of 10 repetitions with ankle at 20° of plantarflexion; toe curls with towel and weight; hamstring curls in prone with boot on for resistance, 2 sets of 10 repetitions.
- cryotherapy
- use pain as a guideline for advancing activity and weight bearing; don't push through pain

**Week 3**

- progress weight bearing to full weight as tolerated in boot with 2 heel lifts
- soft tissue/scar mobilization
- begin stationary bike in boot with low resistance
- aqua therapy may begin without any weight bearing by using a flotation device, ROM, walking or running in the water are done to preserve fitness level
- ROM exercises: continue as before, may progress to gentle stretch to neutral ankle position with use of strap or towel
- strengthening: isometric inversion/eversion, dorsiflexion/plantarflexion two sets of 10 repetitions to progress to 2 sets of 20 reps over the course of week 3; begin light band resisted inversion, eversion, dorsiflexion and plantarflexion, 2 sets of 10 repetitions; prone knee flexion, 2 sets of 20 repetitions
- cryotherapy

**Week 4 – 6**

- weight bearing to full in boot brace with heel lift
  - take one lift out at week 5
  - take the other lift out at week 6, therefore at 6 weeks you should be in the boot with no lifts

- gentle cross fiber massage to Achilles tendon
- ultrasound, phonophoresis, electrical stimulation used to decrease inflammation and scar formation
- stationary bike up to 20 min. with minimal resistance and aqua therapy as outlined in week 3
- gentle stretching of Achilles tendon with towel or in standing (if limited to less than neutral position only); stretch with knee extended and flexed to 40°
- strengthening: isometric exercise as on week 3; increase resistive band exercise for plantarflexion, dorsiflexion, inversion and eversion, 3 sets of 20 repetitions
- hamstring curls to facilitate gastrocnemius muscle without flexing the ankle; may be done in prone or standing with light resistance, 3 sets of 20 repetitions
- avoid dorsiflexion of the ankle past neutral while doing exercises

### Weeks 6 – 7

- patient progresses from boot to shoe with heel lift
- stationary bike without boot and with progressive resistance
- gentle stretching exercise to neutral ankle position
- BTE PROM, isometric and isotonic exercise
- weight shifting and unilateral balance exercise seated on therapeutic ball
- closed chain, PWB strengthening of plantarflexors (neutral through full plantarflexion)
- seated heel raises
- total gym heel raises (low angle)
- hamstring curls with light resistance
- open chain strengthening of foot and ankle musculature-band (light to medium resistance)
- gait training with concentration on weight shifting heel to toe over involved foot and side to side weight shifting
- begin stair stepper with involved limb only
- aqua therapy (especially good for obese patients to initiate weight bearing activity and athletes to maintain conditioning): walking in water (waist deep or greater), standing heel raises (water at least waist deep or greater), flutter kick with kick board (with or without fins as tolerated), conditioning exercise
- soft tissue mobilization
- modalities to control edema and pain
- do not exceed neutral dorsiflexion with weighted resistance exercises

### Weeks 8 – 9

- patient is wearing shoe full time with heel lift
- stationary bike – increased resistance and time
- gentle stretching up to neutral ankle dorsiflexion if needed
- gait training – step over progressively higher steps as able
- BTE isotonic and isometric exercise for plantarflexion strengthening (eccentric bias)

- band resisted inversion and eversion in seated position with foot flat on the floor and band around ankle
- band resisted dorsiflexion (open chain)
- total gym with increased angle for heel raises and short arc squats; begin unilateral eccentric plantarflexion exercise.
- short arc squats in standing
- hamstring curls (progressive resisted exercise - PRE)
- progress to standing heel raises using uninvolved LE to assist involved LE
- progress to standing balance exercise in tandem and then single leg support
  - use perturbation to increase difficulty
  - close eyes
- aqua therapy (obese patients may progress more slowly and refine ambulation quality in pool): walking in water, standing heel raises (water at least waist deep), flutter kick with kick board (with or without fins), plyometrics, conditioning exercise

#### Weeks 10 – 12

- patient wearing shoe without lift
- stationary bike (warm up and/or aerobic conditioning)
- gentle stretching in standing past neutral
- BTE strengthening
- standing balance exercise with/without eyes closed
- perturbation:
  - BOSU ball
  - Airex pad
- band resist
- ball toss
- squats with moderated resistance (limit ankle dorsiflexion)
- hamstring curls with resistance
- standing heel raises (two feet with progression to single limb for eccentric strengthening, then eccentric/concentric strengthening as able)
- total gym single heel raise
- resisted walking: free motion machine, pulleys, bands
- elliptical trainer
- aqua therapy (for obese patients to progress walking tolerance and endurance, heel raises and aerobic conditioning; for athletes to progress plyometrics and aerobic conditioning)

#### Weeks 12 – 14

- stationary bike (warm up and/or aerobic conditioning)
- gentle stretching
- balance exercise with perturbation in single limb support unless WNL and equal bilaterally
- resisted bilateral heel rises with free motion, calf machine
- unilateral heel rises if able or eccentric unilateral heel rises.

- elliptical trainer
- if patient is able to perform a single leg heel rise 10 times and has low pain rating may progress to:
  - stair stepper
  - plyometrics training (begin with two feet and progress to single limb jumps)
  - jogging – slow speed and limited distance, with progression as symptoms permit

#### Week 16+

- increase dynamic weightbearing exercises, including sport-specific retraining (jogging, weight training, etc.)
- return to normal sporting activities that do not involve contact or sprinting, cutting, jumping, etc. once patient has regained 80% strength
- return to all sports activities (including running, jumping, cutting, etc.) by 6-9 months once patient has regained near-100% strength