ACHILLES TENDON REHABILITATION PROTOCOL

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
Soft tissue/scar mobilization
ROM exercise: plantarflexion/dorsiflexion from 20° to full plantarflexion, 2 sets of 20 repetitions; circumduction (both directions), 2 sets of 10 repetitions.
Strengthening exercise: 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

Post-op:
Week 3

Progress weight bearing to full weight as tolerated
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 exercise: 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

Post-op
Week 4 – 6

Weight bearing to full in boot brace with heel lift
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.

Post-op:
Week 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

Post-op:
Week 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

Post-op:
Week 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)

Post-op:
Week 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