

## Achilles Tendon Repair Rehabilitation Protocol

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### Postoperative Week 0-2 (or 0-4 for complex repairs)

#### ***Immediate Post-op plan or STANDARD achilles repair:***

1. Patient will be in a splint or cast, NWB for at least 2 weeks in 5-10 degrees of plantar flexion
2. Patient may not shower nor wet the splint but may take baths seated with foot on chair and covered
3. Formal Physical therapy doesn't begin until the cast is off, replaced by a tall boot with an "achilles set up" (ie. Heel lift, compression stocking, plantar flexed ankle hinge). The non-op limb may be provided with an even-up under the shoe to level the pelvis out. Patient is touch-down weight bearing to begin with once cast is off and gradually progresses in Phase II.

#### ***Immediate Post-op plan or COMPLEX achilles repair (+/- FHL transfer or V-Y Lengthening):***

1. Patient will be in a splint or cast, NWB for at least 4 weeks in plantar flexion
2. Patient may not shower nor wet the splint but may take baths seated with foot on chair and covered
3. Patient will be placed in Gravity Equinus in plantarflexion hinged boot at 4 weeks and start therapy at this point. For **gentle** dorsiflexion with goal of neutral dorsiflexion at 6-8 weeks.
4. Once at neutral dorsiflexion, may begin touch down weight bearing (**no sooner than 6 weeks**) and progress in the delayed Phase II.
5. **Please delay starting below protocol by 2 weeks or when cast/splint off**
6. **Please keep in mind to adjust below protocol based on pain prior to progression and take care to protect repair, especially first 6-8 weeks post-operatively.**
7. **Please also keep in mind, return to daily activities, especially for complex achilles tears may be up to 6 months and return to sport may take up to a year.**

### Phase I: Weeks 3-6 (Delay appropriately per above instructions if complex repair)

#### ***Precautions:***

1. Do not start until incision healed completely and stable edema and pain levels
2. No stretching of achilles tendon beyond neutral dorsiflexion (0 degrees)
3. No barefoot walking
4. Protect healing tissue

#### ***Goals:***

1. Manage edema
2. Minimize scar adhesions
3. Initiate early ROM of ankle and foot
4. Initiate gentle strengthening
5. Encourage weight bearing preparedness
6. Improve cardiovascular endurance

**Treatment:**

- Ice, elevation, compression
- Scar mobilization
- Ultrasound and other modalities to the repaired tendon
- Gentle AROM in all planes, with care to limit DF to 0 degrees with knee extended
  - o Toe curls and towel sweeps
  - o Gentle stretching in all planes except DF
  - o Ankle pumps in NWB
- Hip and knee OKC exercises
- Upright bike with boot on for endurance (using heel – NO toe push off), no resistance
- Gentle mobilization of tarsus and metatarsals to reduce joint stiffness
- Gentle strengthening of plantarflexors with light resistance rubber bands or manual resistance, isotonicly
- Late Phase (5-6 weeks) 0 encourage partial closed chain weight bearing through plantigrade foot with heel lift in shoe.
- Wean off crutches by 6 weeks post-op (standard achilles repairs)
- Pool therapy, if available and incision completely healed:
  - o Weight bearing on operated leg in deep water (greater than 75% buoyant)
  - o Gait in deep water
  - o Hip and knee ROM in pool

**Phase 2: Weeks 6 – 16 (Delay appropriately per above instructions if complex repair)**

***Progression to Phase II Criteria:***

1. *No worsening of pain or neurovascular symptoms*
2. *Stable and reducing edema in leg*
3. *No increase in pain with touchdown weight bearing in boot*
4. *Dorsiflexion to neutral or better*

***Goals:***

1. *Full symmetric ROM in all planes by end of phase*
2. *Begin partial weight bearing and progress to full weight bearing on level surfaces and controlled environments*
3. *Begin to wean off walking boot*
4. *Improve muscular strength and endurance*
5. *Improve cardiovascular conditioning*
6. *Improve Proprioception*
7. *Late phase: normalize gait patterns*

**Treatment:**

- Wean off CAM boot to tennis shoes with ½” heel lift in shoe, patient to be FWB without assistive devices before end of phase
- Use of AlterG (if available) to promote gait in a 50% weight reduced environment with shoes on (heel lift in shoe) 5-15 min twice weekly, progressing over time to gradually more weight.
- Increase resistance and variety of exercises to strengthen ankle and foot
  - o Seated closed chain heel raises, no weights initially

- Medium resistance rubber bands in all planes
- Closed chain wall squats (boot on or heel lift in shoe)
- Hip and knee exercises with ankle weights or other resistances as tolerated (incline leg press machine, NK table for knee, multi angle hip strengthening machine)
- Begin stretching achilles tendon gently using towel or strap, now pas 0 degree dorsiflexion but not to discomfort
- Proprioceptive and balance training exercises
  - Single leg balance exercises on flat surface with shoe on, heel lift inside
  - Small ROM on BAPS board or wobble board
  - If tolerated, progressively graduated weight bearing and shifting on trampoline
- Joint mobilization and soft tissue management
  - Talocrural mobilization
  - Subtalar mobilization
  - Cross friction massage to maturing scar
- Modalities (Ultrasound, continuous dose for 5 minutes) if applicable
- Upright bike (shoes on) with light resistance for time to improve cardiovascular endurance
- If continuing pool therapy
  - Heel raises bilaterally with 50% buoyancy
  - Regular gait in pool in different directions
  - Squats and lunges
  - Open and closed chain hip and knee exercises
  - Deep water swimming and kicks gently if tolerated

**Phase III: Weeks 16 – 24 (Delay appropriately per above instructions if complex repair)**

***Progression to Phase III Criteria:***

1. *No pain with walking FWB in shoes with heel lift*
2. *Full and symmetric ROM to contralateral ankle in all planes (10 degrees of DF with knee extended or better)*

***Goals:***

1. *Normalize gait pattern*
2. *Initiate fast walking/jogging program*
3. *Full and symmetric closed chain dorsiflexion range*
4. *Repeated single legged heel raise from and back to level surface*
5. *Increased plantar flexion strength and endurance at higher velocities*
6. *Improved cardiovascular fitness*
7. *Improved balance and proprioception*

***Treatment:***

- Walk on treadmill, progressing over time to faster speeds and low grade incline. No running until cleared by MD
- If Alter G available, possibly running with 50-60% body weight, progressively increased
- Bike or swim for cardiovascular fitness
- Closed chain strengthening of hip-knee-ankle musculature in all planes
  - Closed chain cable or sports cord pulls
  - Leg presses and calf presses, double as well as single legged
  - Heel raises, single legged, both concentrically as well as eccentrically from level surface
  - Stair climbing/stepping up on progressively bigger steps

- Short to medium range squats
- Short lunges
- Trampoline shifting/jogging
- Balance and proprioceptive exercises
  - Dynamic balancing on AIREX foam pad or BOSU ball, single legged
  - BAPS board or wobble board done in standing, minimal support, large ROM
  - Ball toss against rebounder, single legged
- Pre-agility drills
  - Quick steps, forward, backward and laterally
  - Braiding or weaving in and out of ladder patterns
  - **No jumping or single legged hopping at this time until cleared by MD**

**Phase IV: Weeks 24 – onwards (Delay appropriately per above instructions if complex repair)**

***Progression to Phase IV Criteria:***

1. *Normal gait patterns on all sorts of surfaces and inclines*
2. *Absolutely no operative site pain with walking*
3. *Able to walk fast and jog, depending on their progress*
4. *Otherwise asymptomatic with all ADLs*

***Goals:***

1. *Resolve all residual impairments of strength, ROM or proprioception and functional limitations related to the same*
2. *Prepare for return to sport*

***Treatment:***

- Single legged heel rise and fall, below the horizontal with eccentric loading, done to max number of repetitions
- Plyometric jumps on floor or off trampoline (if cleared by MD)
- Single legged hopping if cleared by MD and drills around the same
- Progressively increased running pace and time, low grade inclines
- High level sport specific activities and drills (soccer drills, sled pulls or pushes, etc) later in phase

**Return to Sports: Patient needs to demonstrate full proprioception and ability to work in sport specific drills at full speed in all planes without evidence of favoring prior to be released to sports.**