

ACHILLES TENDON REPAIR REHABILITATION PROTOCOL

PHASE I: IMMEDIATE POST-OP (0–2 weeks)

Rehabilitation Goals:

- Protect repair
- Minimize muscle atrophy in the quadriceps, hamstrings, and glutes

Weight Bearing / Walking:

- Non-weight bearing on crutches
- Stair guidance:
 - Going up: lead with non-surgical side
 - Going down: lead with crutches and surgical side

Intervention:

Range of Motion / Mobility:

- Supine passive hamstring stretch

Strengthening:

- Quadriceps sets
- NMES high intensity (2500 Hz, 75 bursts), supine knee extended 10 sec/50 sec, 10 contractions, 2x/week
- Straight leg raise (do not perform if knee extension lag present with brace/cast removed)
- Hip abduction
- Prone hamstring curls

Criteria to Progress:

- Pain < 5/10

PHASE II: INTERMEDIATE POST-OP (3–6 weeks)

Rehabilitation Goals:

- Continue to protect repair
- Avoid over-elongation of the Achilles
- Reduce pain, minimize swelling
- Improve scar mobility
- Restore ankle plantarflexion, inversion, and eversion
- Dorsiflexion to neutral

Weight Bearing / Walking:

- Partial-weight bearing on crutches in a boot
- Gradually wean heel lift: start with 3 wedges, remove one per week

Additional Interventions:

- Continue Phase I interventions

Range of Motion / Mobility:

- PROM / AAROM / AROM: ankle dorsiflexion*, plantarflexion, inversion, eversion, ankle circles
- *Do not dorsiflex ankle beyond neutral (0°)

Cardio:

- Upper body ergometer

Strengthening:

- Lumbopelvic strengthening: side-lying hip external rotation (clamshell), plank

Balance / Proprioception:

- Joint position re-training

Criteria to Progress:

- Pain < 3/10
- Minimal swelling
- Full ROM PF, eversion, inversion
- DF to neutral

PHASE III: LATE POST-OP (7–8 weeks)

Rehabilitation Goals:

- Continue to protect repair
- Avoid over-elongation of the Achilles
- Normalize gait
- Restore full ROM
- Safely progress strengthening
- Promote proper movement patterns
- Avoid post-exercise pain/swelling

Weight Bearing:

- Weight bearing as tolerated in boot without lift

Additional Interventions:

- Continue Phase I–II interventions

Range of Motion / Mobility:

- Gentle long-sitting gastrocnemius stretch as indicated
- Gentle stretching of all muscle groups (prone and standing quad stretch, kneeling hip flexor stretch)
- Ankle/foot mobilizations (talocrural, subtalar, midfoot)

Cardio:

- Stationary bicycle
- Flutter kick swimming / pool jogging (with full healing of incision)

Strengthening:

- 4-way ankle exercises
- Short foot exercises
- Lumbopelvic: bridges on physioball, roll-ins, alternating bridges
- Gym equipment: hip abductor/adductor, hip extension, roman chair
- Progress intensity (strength) and duration (endurance)

Balance / Proprioception:

- Double limb standing balance on uneven surfaces
- Single limb balance progressing to uneven surfaces including perturbation training

Criteria to Progress:

- No swelling/pain after exercise
 - Normal gait in standard shoe
 - ROM equal to contralateral side
 - Joint position sense symmetrical (<5° margin of error)
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PHASE IV: TRANSITIONAL (9–12 weeks)

Rehabilitation Goals:

- Maintain full ROM
- Normalize gait
- Avoid over-elongation of Achilles
- Safely progress strengthening
- Promote proper movement patterns
- Avoid post-exercise pain/swelling

Weight Bearing: Weight bearing as tolerated

Additional Interventions: Continue Phase I–III interventions

Range of Motion / Mobility:

- Gentle standing gastrocnemius and soleus stretch

Strengthening:

- Concentric calf raises
- Gym equipment: seated hamstring curl, leg press, Romanian deadlift

Criteria to Progress:

- No swelling/pain after exercise
 - Full ROM during concentric calf raise
 - Normal gait
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PHASE V: ADVANCED POST-OP (3–5 months)

Rehabilitation Goals:

- Safely progress strengthening
- Promote proper movement patterns

- Avoid post-exercise pain/swelling

Additional Interventions: Continue Phase II–IV interventions

Cardio:

- Elliptical, stair climber

Range of Motion / Mobility:

- Standing gastrocnemius and soleus stretch

Strengthening:

- Eccentric calf raises, seated calf machine
- Focus on proper control and proximal stability:
 - Squat to chair
 - Hip hike
 - Lateral lunges
 - Single leg progression: partial weight bearing single leg press, slide board lunges (retro/lateral), step-ups with march, lateral step-ups, step downs, single leg squats, single leg wall slides

Criteria to Progress:

- No swelling/pain after exercise
- Standing Heel Rise test
- No swelling/pain with 30 min fast-paced walking
- Achilles Tendon Rupture Score (ATRS)
- Psychological readiness to return to sport (PRRS)

PHASE VI: EARLY TO UNRESTRICTED RETURN TO SPORT (6+ months)

Rehabilitation Goals:

- Continue strengthening and proprioceptive exercises
- Safely initiate sport-specific training
- Symmetrical performance in sport-specific drills
- Safely progress to full sport

Additional Interventions: Continue Phase II–V interventions

- Interval running program
- Return to running program
- Agility and plyometric program

Criteria to Progress:

- Clearance from MD and all milestone criteria met
- Completion of jog/run program without pain/swelling
- Functional assessment:
 - Standing Heel Rise test $\geq 90\%$ of contralateral side
- Return-to-sport testing if necessary (e.g., MGH Sports PT)