Achilles Tendon Repair Rehabilitation Post-Operative Guideline

This rehabilitation program is designed to return the individual to their activities as quickly and safely as possible. It is designed for rehabilitation following Achilles tendon repair. Modifications to this guideline may be necessary depending on physician-specific instructions, the location of the repair, concomitant injuries or procedures performed. This evidence-based Achilles tendon repair is criterion-based. Time frames and visits in each phase will vary depending on many factors including patient demographics, goals and individual progress. This guideline is designed to progress the individual from rehabilitation to full sport and activity participation. The therapist may modify the program appropriately depending on the individual's goals for activity following Achilles tendon repair.

This guideline is intended to provide the treating clinician with a frame of reference for rehabilitation. It is not intended to substitute clinical judgment regarding the patient's post-operative care based on exam or treatment findings, individual progress and/or the presence of concomitant procedures or post-operative complications. If the clinician should have questions regarding post-operative progression, they should contact the referring physician.

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General Guidelines/Precautions:

1. The immediate post-operative phase will be NWB in a post-operative splint, transitioning per surgeon to CAM boot with wedging.

2. If available and per physician approval, blood flow restriction (BFR) training can begin after suture removal and progress along with recommendations. Please refer to the BFR guidelines for more detailed information.

3. AROM only for plantarflexion and dorsiflexion for the first six weeks. No PROM.

4. Limit dorsiflexion to neutral for the first six weeks.

5. Assistive device and CAM boot should be able to be discontinued with controlled environments by eight weeks post-surgery.

6. Gait pattern and return to all activities is anticipated at 14-16 weeks post-surgery.

7. Begin progressing into sports participation at 24 weeks.
    - Range: 22-26 weeks, starting with sport-specific noncontact drills.

Achilles Tendon Repair
Rehabilitation Post-Operative Guidelines

PHASE	SUGGESTED INTERVENTIONS	GOALS/MILESTONES FOR PROGRESSION
Phase I *Acute Post-Op Phase and Weeks 0-2* *Expected visits: 1*	***Discuss:*** Anatomy, existing pathology, post-op rehab schedule and expected progressions ***Immediate post-operative instructions:*** Patient will receive education and gait training with appropriate assistive device. ***Weight-bearing:*** Non-weight-bearing until minimum of 2-4 weeks (per physician).	***Goals of Phase:*** 1. Patient will demonstrate appropriate functional mobility to manage proper weight-bearing with an assistive device and/or will have an alternative means of mobility (wheelchair) pending PT recommendations.
Phase II *Maximum Protection Phase* *Weeks 2-6* *Expected visits: 3-6*	***Specific Instructions:*** • At week two, educate the patient on how to ride stationary bicycle with a boot on and heel on pedal, formal PT to then start at week three. If concerned with patient's ability to safely ride, schedule a one-time visit to assess safety and provide instruction on stationary bicycle. Begin at 10 minutes per day and add two minutes per day until reaching a maximum of 20 minutes per day. • Emphasize that the patient uses pain as a guideline. If in pain, back off activities and weight-bearing exercises. • Weight-bearing with crutches and walking boot with heel lift to 30 degrees plantar flexion and 0 degrees dorsiflexion. If possible, 30 degrees PF with mobility to 0 degrees within brace is optimal during weight-bearing progression. o Week 2-4: 25% 2" wedge o Week 4-6: 50% 1" wedge ***Suggested Treatments:*** **Modalities as indicated:** Edema-controlling treatments. **Manual therapy:** Scar mobilization. **AROM:** Plantarflexion and dorsiflexion to neutral. **AROM:** Inversion and eversion with ankle in plantar flexed position to 30 degrees. ***Exercise Examples:*** • Knee and hip exercises with no ankle involvement, then progress to resisted exercises as needed. • Toe extension to pain-free limits. • Start light seated soleus stretching and NWB gastroc stretching to neutral. • NuStep with weight-bearing and ROM restrictions followed. ***Other Activities:*** • May do hydrotherapy within motion and weight-bearing limitations such as deep water running.	***Goals of Phase:*** 1. Provide environment for proper healing of repair site. 2. Prevention of post-operative complications. ***Criteria to Advance to Next Phase:*** 1. Full-knee AROM. 2. Minimal to no edema present. 3. AROM ankle 0-30 degrees plantarflexion.

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Phase III *Protected Motion Phase* *Weeks 7-9* *Expected visits: 3-6*	***Specific Instructions:*** • Continue with previous exercise program. • Weight-bearing: o Week 6-7– 100% with walking boot WBAT 1/2" wedge o Weeks 7-8 – 100% with walking boot WBAT 1/4" wedge o Week 8-10 – progress to normal shoe as pain allows o Week 8 – normal shoe with 1/4" wedge o Week 10 – shoe without wedge as pain allows ***Range of Motion (ROM):*** • Full passive ROM in all planes (except into dorsiflexion). • Full active ROM (except into dorsiflexion). • Continue to limit forced and passive dorsiflexion to neutral until three months. ***Suggested Treatments:*** • Modalities indicated: Swelling and pain control. ***Exercise Examples:*** • Isometric/isotonic ankle exercises for DF/inversion/eversion. • Progress active PF to seated heel raises.	***Goals of Phase:*** 1. Achieve normal gait mechanics. ***Criteria to Advance to Next Phase:*** 1. Able to complete bilateral heel raise without pain.
Phase IV *Motion and Muscle Activation Phase* *Weeks 10-14* *Expected visits: 5-10*	***Specific Instructions:*** • Educate patient that this is time for most re-ruptures. • Avoid extreme dorsiflexion combined with active plantar flexion. • Eccentric exercise when concentric heel raises are able to be performed (no sooner than 12 weeks, starting to neutral DF progressing to past neutral DF as tolerated). ***Suggested Treatments:*** **ROM:** May begin weight-bearing gastroc and soleus stretching as needed (at 12 weeks). ***Exercise Examples:*** • Lower-limb muscle strength work with specifics to plantar flexors with progression of seated heel raise to bilateral standing heel raise and single heel raise. • Ankle stability exercises. ***Other Activities:*** • Continue to avoid ballistic motions (running and moderate plyometrics)	***Goals of Phase:*** 1. Full active ROM. ***Criteria to Advance to Next Phase:*** 1. Able to perform 75% height with involved single heel raise compared to non-involved side.

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Phase V	Specific Instructions:	Goals of Phase:
Advanced Strengthening and Eccentric Control Phase *Weeks 14+* *Expected visits: 13-20*	• Continue previous exercises. • Educate patient that it may take one year or more and up to 18 months to return to full activity to prevent re-injury. **Suggested Treatments:** • Alter-G anti-gravity treadmill beginning with 50% body weight at week 14. • Can start jogging on flat surfaces at five months post-op if strength is 70% of uninvolved leg (based on the number of single-limb calf raises). **Exercise Examples:** • Sports-specific rehabilitation exercises. **Other Activities:** • Single leg hopping and higher level plyometrics can be progressed to at 24 weeks if strength and stability goals are achieved.	1. Achieve >90% strength of non-involved ankle strength. 2. Girth of calf within 1/2 cm of non-involved. 3. Normal stair climbing. **Criteria to Advance to Next Phase:** 1. Horizontal single-leg hop x 3 with 75% of non-involved leg. 2. Vertical hop is 75% of non-involved leg. 3. Single heel raise. 4. Sprint with toe off phase of gait. 5. Open chain AROM of 20° DF and 50° PF.

NOTE: Progression of functional activities should be performed only as pain and proper biomechanics allow.

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