

REHABILITATION PROTOCOL ACHILLES' TENDON REPAIR

GENERAL PRINCIPLES / PRECAUTIONS

- Avoid dorsiflexion past 0 degrees until week 8
- Avoid barefoot walking for 3-4 months
- Wear posterior splint with foot positioned in 15-20 degrees of plantarflexion worn all day and night. Progress at week 4-6 with 3 heel wedges to be worn day and night.
- Non-weight bearing while in boot for 4-6 weeks. The goal is to progress to FWB in boot by week 8.
- This protocol, as well as most others, is a general guideline. Patients should not be progressed to the next phase until they demonstrate proper form with all activities and all criteria are met in the current phase.
- When clinically appropriate, properly assess the whole body and incorporate treatment for loss of mobility and stability. Not doing so can prevent optimal outcomes and increase risks of future injuries.

IMMEDIATE PROTECTION PHASE (Week 0-4)

- **Goals:**
 - Protect healing tissue
 - Decrease pain and inflammation
 - Retard muscle atrophy
 - Control weight bearing forces
- **Treatment: Days 1 - 14**
 - Elevation and swelling control
 - Patient education / precautions
 - Gait training with appropriate assistive device
- **Treatment: Days 15 -28**
 - ROM
 - Begin AROM of toes, ankle inversion and eversion, knee and hip
 - NO active or passive DF (active begins at 4 weeks and passive at 6 weeks)
 - Modalities as needed for pain and inflammation
 - 4-way straight leg raising

MODERATE PROTECTION PHASE (Weeks 4-8)

- **Goals:**
 - Protect healing tissue
 - Control stresses applied to healing tissues
 - Decrease pain and inflammation
 - Retard muscle atrophy
- **Precautions:**
 - No barefoot walking
 - Dorsiflexion limited to 0 degrees dorsiflexion
 - Weight-bearing: NWB in walking boot until Week 4-6. Goal of FWB in walking boot by Week 8.

- Splint/Brace: Walking boot for ambulation and sleeping. Walking boot with 2 heel wedges with FWB progression.
- **Treatment:**
 - Continue appropriate previous exercises
 - ROM
 - Full plantarflexion, inversion, eversion
 - Gentle plantarflexion AROM (NWB)
 - Weight-shifting in walking boot
 - Mobilization
 - Scar massage
 - Joint mobilization (hindfoot, midfoot, and forefoot)
 - Modalities as needed

STRENGTHENING AND MOTION PHASE (Weeks 9-12)

- **Goals:**
 - Normal AROM
 - Normal gait
 - Improve strength
 - Normal balance
- **Precautions:**
 - Weight-bearing: FWB without use of an assistive device. Progress patient into normal shoe wear with the use of a heel lift if prescribed.
- **Treatment:**
 - Continue appropriate previous exercises
 - ROM:
 - Gentle DF stretching may begin
 - A/PROM WNL by 10-12 weeks
 - Aerobic Conditioning
 - Stationary Bicycle
 - Isotonic strengthening
 - LE strengthening (i.e., 4-way SLR, clamshells)
 - Theraband resistance strengthening
 - Theraband exercises x 4 – gradually increase resistance
 - Light-resisted plantarflexion with isometrics and theraband
 - Proprioception Training
 - Standing balance, single leg stance activities
 - CKC activities
 - Double leg heel raises (week 10)
 - ¼ Mini-squats, total gym, mini-band walking (forward, backward, lateral)
 - Aquatic Therapy
 - Deep-water training, Aquatic treadmill (no jogging)

ADVANCED STRENGTHENING (Months 3-4)

- **Criteria for entering advanced strengthening phase:**
 - Minimum 4/5 ankle manual muscle testing
 - Symmetrical pain-free AROM/PROM
 - Pain-free ADL activities
- **Goals:**
 - Full symmetrical lower extremity strength
 - Advance Proprioceptive drills
 - Gradually initiate return to sport training

- Performance of dynamic movement patterns without deviations (i.e., squatting, lunging, lumbo-pelvic dissociation)
- **Treatment:**
 - Continue appropriate previous exercises
 - Aerobic Conditioning
 - Stationary bicycle, Treadmill, Stairstepper (14 weeks), Elliptical (16 weeks)
 - Proprioception training
 - Single leg stance activities (including unstable surfaces), ankle sweeps, single leg RDL, perturbation training, single leg mini-squats
 - CKC activities
 - Single leg heel raises
 - ½ squats to full squats by week 16
 - Leg Press
 - Mini-band walking
 - Forward step-ups and progressing to lateral step-ups
 - Forward and lateral lunges (week 16)
 - Plyometrics
 - May begin light plyometric progression at week 16
 - Aquatic Therapy
 - Aquatic treadmill running progression
 - Aquatic plyometric progressions

RETURN TO ACTIVITY PHASE (Months 5-7)

- **Goals:**
 - Continue to increase strength, power, and endurance of lower-extremity
- **Treatment:**
 - Continue strengthening program
 - Aerobic conditioning
 - May begin land running program
 - CKC activities
 - Initiate agility drills / sports-specific training and drills
 - May begin weighted squatting and lunging
 - Only if no deviations noted with functional dynamic movement patterns
 - Continue plyometric program
 - Progress plyometric program as tolerated

DISCHARGE TESTING / PLANNING. RETURN TO SPORT

- Based on a patient's age, gender, and level that they are returning to (i.e. recreational, amateur, professional) a decision is made to endorse their return to sport/ higher level activity or to ask the patient to refrain from doing so. Currently our criterion includes, but is not always limited to the following.
 - Demonstrate quality and symmetrical movement throughout the body evaluated with comprehensive movement screen or assessment process.
 - Symmetrical and acceptable comprehensive scores on CKC LE testing
- Biomechanical assessment of their performance helps safe return to sport / higher level activity. Patient's may be videoed and analyzed doing activities such as running, jumping, hitting or throwing to see if sound body mechanics are being utilized.
- Not all patients who have undergone Achilles' repair are candidates for functional testing. Those undergoing these tests should be chosen with proper consideration given to what they plan to return to and their general fitness level.
- No matter how well a patient is doing with return to sport testing it is prudent to remember how important time is to full healing and safe return to sport / activity.
- Patients often schedule periodically during this phase to assess their progress and properly change their program until they are deemed safe to return to all activities.