Achilles Tendon Repair

Goals: Control edema and pain, Protect repair and facilitate healing, Normalize core/hip muscle, Normalize LE nerve restrictions

Acute tear (primary repair): A spontaneous rupture in a patient after vigorous contraction of the muscle and tendon. These patients typically do not have a pre-existing condition or tear prior to rupture.

Chronic achilles (secondary repair): Usually defined as a rupture that occurs in 4-6 weeks after initial injury with pain, decreased strength, fatigue, and ankle stiffness

- **Precautions:** If flexor hallicus longus (FHL) transfer was performed during surgery, this technique was likely used due to the patient having excessive dorsiflexion. This technique reinforces Achilles stability and proper length. Avoid trying to achieve >10 degrees dorsiflexion in efforts to protect the integrity of the transferred tendon.

Phase I (1 – 3 weeks post-op)

- Goals: pain control, edema management, ensure healing process, maintain safe weight bearing restrictions, minimize atrophy, address LE and core muscle imbalances, and address LE neurodynamic impairments as necessary
- Wound care: Observe for signs of infection and begin scar management techniques when incision is closed
- Modalities: PRN for swelling (ice and elevation)
- Brace/Boot: Short legged cast
- Gait: For 3 weeks, NWB with cruthces
- Exercises
    - Address LE/core muscles
    - Address LE neurodynamic impairments PRN

Phase II (3 – 6 weeks post-op)

- Goals: pain control, edema management, ensure healing process, maintain safe weight bearing restrictions with safe wean from assistive device as allowed,

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minimize atrophy, address LE/core muscle imbalances, address LE neurodynamic impairments as necessary, normalize LE nerve restrictions

- Wound care: Observe for signs of infection and begin scar management techniques when incision is closed
- Modalities: gentle distal to proximal massage to control edema; ice and elevation to control pain/edema
- Brace/Boot:
    - Dr. Incandela:
        - Transition to CAM boot with 3 wedges (3 inch heel lift)
            - May remove CAM boot for showering
        - Starting at week 4, may remove 1 heel lift weekly
            - If increased symptoms occur in Achilles for >2 days re-add wedge and keep in boot for 1 more week with again gradual removal
    - Dr. Pacaccio: Transition to CAM boot, no wedges unless specified
    - Dr. Thom:
        - Transition to CAM boot with 2 wedges
            - May remove CAM boot for showering
        - Starting at week 4, may remove 1 heel lift weekly
            - If increased symptoms occur in Achilles for > 2 days re-add wedge and keep in boot for 1 more week with again gradual removal
- Gait:
    - Use of crutches, walker, or knee scooter:
        - Week 3-4: TTWB (25%)
        - Week 5-6: PWB (50%)
- ROM:
    - No ankle PROM
    - Toe AROM only
    - AROM gentle inv/eve
    - NO AROM DF/PF
    - Focus on getting heel to ground in NWB positions (seated, neutral DF position)

- Strengthening/exercises:
    - NO calf strengthening
        - NO single or double leg heel raises
        - Dr. Pacaccio: no BAPS board
    - Gentle weight shifting only for weight bearing strengthening, in boot, with wedge(s), within weight bearing restriction

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- Hip/knee ROM (4 way SLR, LAQs, Prone hip/knee strengthening, etc.)
- LE stretching (hamstring, hip flexors, quad, glutes, and hip rotators)
- Pelvic and core stabilizing exercises (Supine PPT, dead bugs, LE leg lifts, Total gym squatting with boot if pain-free)
- Pain-free, sub-max isometrics: Inversion, eversion, DF, PF

Phase III (6 – 10 weeks post-op)

- Goals: transition FWB in supportive shoe and no assistive device, normalize gait, and increase ROM at ankle/foot
- Brace/Boot: CAM boot, but may begin transitioning to normal footwear as tolerated
- Gait:
  - By week 8-10, transition to regular shoe gear
    - Drs. Incandela & Thom: 1 inch heel lift in shoe
  - Progress weight shifting onto affected extremity as tolerated
- ROM:
  - AROM DF limited to 10 degrees
  - At 8 weeks, can initiate PROM
- Strengthening:
  - Foot intrinsic strengthening (towel scrunches, short foot exercises, etc)
  - Initiate and advance closed-chain exercises as tolerated (partial squats- to 30* knee flexion, partial lunges- to 30* knee flexion, fwd/retro walking, step overs, side stepping, leg press, calf raises, etc)
  - Aerobic exercise (recumbent stepper and stationary bike)
  - Core/LE strengthening
  - No single or double leg heel raises
- Balance/Proprioceptive Activities:
  - Dr. Pacaddio: No standing BAPS board (seated OK)
  - Initiate at 8 weeks post-op
    - Progress 2-legged static exercises to single leg as tolerated
    - Focus on ankle strategies (static and reaching outside BOS)
    - Balance board, compliant foam surfaces, and ½ foam roll

Phase IV (10-16 weeks)

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- Goals: Normal ankle and foot mobility, full ankle strength, increased balance and proprioception, normal stair negotiation, and return to recreational activities
- Brace/Boot: normal footwear
- Gait: FWB without gait deviations, OK for barefoot in home
- ROM: AROM DF limited to 10 degrees
- Strengthening:
    - Dr. Pacaccio: No single leg heel raises, double leg OK if pain-free
    - Resisted ankle strengthening (4-way ankle PREs)
        - Use care with PF and inversion combined if flexor tendon transfer was performed
    - Advance closed-chain exercises (steps, leg press, valslides, functional lunges, eccentric calf strengthening, SL heel raises)
    - Aerobic exercise (elliptical and treadmill)
    - Core/LE strengthening
    - At 12-14 weeks, Squat depth may be increased to 60-70* knee flexion
- Balance/Proprioceptive Activities
    - Dr. Pacaccio: Standing BAPS board OK if using both feet, no single leg
    - Progress 2-legged exercises to single leg as tolerated (SLS, BAPS board, ball toss to rebounder)
- Return to Activity:
    - Low impact activities such as walking, biking, or swimming
    - Avoid impact activities that affect the joint unless otherwise advised per referring physician's office education and tolerance to plyometric and agility tasks
    - At 16 weeks, initiate plyometrics
        - Begin single plane, low velocity and progress to multi-planar and higher velocity
    - At 20 weeks, initiate running program & sport-specific training/drills

Adapted From:

1) Consultation with Drs. Incandela, Pacaccio, & Thom, OrthoIllinois
2) Willis K, Amendola A, Bryant D, Mohtadi N, Giffin JR, Fowler P, Kean C, Kirkley A. Operative versus Nonoperative Treatment of Acute Achilles Tendon Ruptures. A Multicenter Randomized Trail Using Accelerated Functional Rehabilitation. J Bone Joint Surg Am. 2010; 92:2767-75.
3) Bortzman SB, Wilk KE. Clinical Orthopedic Rehabilitation Second Edition. Philadelphia: Mosby; 2003.
4) University of Delaware. Rehab Practice Guidelines for: Achilles Tendon Repair. Univ. of Delaware Physical Therapy Clinic, Neward, DE.

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5) UW Health Sports Medicine Center: Rehabilitation Guidelines for Achilles Tendon Repair, updated 09/2019
6) Advanced Continuing Education Institute, LLC; Postoperative Rehabilitation Following Achilles Tendon Repair
7) Advanced Continuing Education Institute, LLC; Postoperative Rehabilitation Following Achilles Tendon Repair- Accelerated

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