Achilles-Tendon Repair

Post-operative Protocol

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I.   Phase I: Recovery (weeks 0-6)

- Goals:
    1.
    2.

- Immobilization Device:
    I.   **Week 1**: Splint post-op and return to clinic 1 week post-op
    II.   **At first Post-Op Visit:** Splint removed. Boot locked at maximum plantarflexion (45 degrees).
    III. At Week 2 to 4: Decrease plantarflexion to 30 degrees and then 15 degrees. Goal is to have boot at neutral at end of 6 weeks.
    IV.   **Weeks 5 to 6:** Boot in neutral position worn during WB activities at 6 weeks.

- Weight Bearing Status:
    I.   **Weeks 0 to 2:** Non-weight bearing in splint
    II.   **Week 2 to 4:** NWB in boot with crutch assistance
    III. **Week 5 to 6:** Toe-Touch weight bearing in boot, and pending progress and evaluation by Dr. Wolcott, she may advance to WBAT in boot. This should be discussed with Dr. Wolcott prior to advancing weight bearing status.

- Exercises:
    I.   **Weeks 0-2:**
        1. *ROM: No ankle or foot ROM*
        2. *Strengthening: Hip and knee open-chain ROM and strengthening only within boot*
        3. *Cardiovascular activity:* UBE

    II.   **Weeks 2-4:**
        1. *ROM*: *Gentle progressive PROM limiting* **DF to 0 degrees with knee flexed to 90, no passive Achilles stretching. No active PF**:
            - Joint mobilizations: talocrural; subtalar, for maintenance of accessory motions as needed. Continue mobilizations until associated motion has full AROM
            - Scar mobilization
        2. *Strengthening*: **No resisted EVERSION:**
            - Ankle AAROM limiting DF to 0 degrees
            - Isometrics of *uninvolved* muscles
        3. *Cardiovascular Activity:* UBE

    III. **Weeks 5-6:**
        1. *ROM*: **A/PROM to tolerance, forefoot and hindfoot mobilizations:**
            - Gait training with boot to minimize deviations with discharge of crutches.
            - Manual passive stretching to DF; increase intensity with knee flexed, gentle with knee in extension.
        2. *Strengthening:*
            - Begin gentle stretches to calf/Achilles
            - Isometrics of uninvolved muscles
        3. *Cardiovascular Activity:* Stationary bike within boot (remaining seated)

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II. Phase II: Rehabilitation (weeks 7-12)

- Goals:

    1. Protect

- Boot/Device:
    I. **Weeks 7-8**: Can d/c boot at 8 weeks using shoe with heel lift

- Weight bearing status:
    I. **Weeks 7-8**: Wean from boot to FWB
    II. **Weeks 9-12**: FWB

- Exercises:
    I. Weeks 7-8:
    1. *ROM:* A/PROM to tolerance, **slowly progress DF ROM/calf stretches,** forefoot and hindfoot mobilizations
    2. *Strengthening:* Avoid aggressive eccentric loading to Achilles tendon
        - Begin stationary bike w/o boot for ROM
        - Begin foot/ankle strengthening: therabands, seated heels raises (or with < body weight) progressing to bilateral with body weight, then unilateral.
        - Begin bilateral standing proprioception progressing to unilateral: then progress from stable to unstable surfaces.
        - Progress to closed-chain proximal and LE strengthening, beginning with < body weight progressing to bilateral standing
    3. *Cardiovascular Activity:* Stationary biking, pool aquajogging, progressing to elliptical trainer

    II. Weeks 9-12:
    1. *ROM:* A/PROM to tolerance, **slowly progress DF ROM/calf stretches,** forefoot and hindfoot mobilizations
    2. *Strengthening*:
        - Progress heel raises from bilateral to unilateral with body weight
        - Begin sub-maximal closed-chain acceleration/deceleration exercises beginning with < body weight (e.g. shuttle, pilates)
    3. *Cardiovascular Activity:* Elliptical trainer, treadmill walking with incline progression.

III. Phase III: Restoration (weeks 13-16)

- Goals:
    1. F
- Boot/Device: none
- Weight bearing status: FWB
- Exercises:
    I. Weeks 13-16:
    1. *ROM: Full ROM, mobilizations as needed*

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- Remove heel lifts from shoes
2. *Progress strengthening:*
    - CKC, **progressing unilateral heel raises with body weight or greater** – gradually increasing DF range and resistance
    - **Continue low-impact acceleration/deceleration hops with < body weight** (e.g. shuttle, pilates, etc.) once pt is able to perform 3 sets of 15 repetitions of unilateral heel raises in standing.
3. *Proprioception:* Unilateral standing with perturbations
4. *Begin Alter-G Run Progression:*
    - Starting at 50-75% body weight and speed once pt is able to perform 3 sets of 15 repetitions of unilateral heel raises in standing with minimal to no heel/Achilles pain.
5. *Cardiovascular Activity:* Alter-G treadmill running

IV.   Phase IV: Return to Play (weeks >17)

- Goals:
    1.
- Boot/Device: none
- Weight bearing status: FWB
- Exercises:
    1. *ROM:*
    2. *Continue strengthening with sport-specific movement patterns and equipment*
        - Combined motions: adding resistance, speed, and complexity of patterns
    3. *Running progression:*
        - **Progress to standard treadmill running** once pt is able to perform Alter G running at 95% body weight and 75-90% speed with minimal to no heel/Achilles pain.
        - Progress **dry land running to 75-100% intensity.**
    4. *Proprioception/Agilities:*
        - Progress acceleration/deceleration to submaximal **bilateral hops with body weight.** Progress from concentric to eccentric, bilateral to unilateral, from uniplanar to multiplanar.
        - **Progress to linear dry-land running progression at 50-75% intensity** once pt is able to perform standard treadmill running at 85-90% intensity with minimal to no heel/Achilles pain.
        - **Begin sub-maximal cutting (cone and ladder drills: box shuffles, typewriters, icky shuffles) at 50-75% speed** once pt is able to perorm unilateral hops with body weight with minimal to no heel/Achilles pain.
        - Progress unilateral **sport-specific agilities/cutting and hopping to 75-100% intensity.**
    5. *Cardiovascular Activity:*
        - Standard treadmill running progressing to dry land running, versaclimber.
        - Running advancement is dependent on the return of balance, agility and the ability to run 2 miles at each level without pain or swelling.

- Return to field/court activities when functional testing criteria met