Advanced Orthopedics and Sports Medicine
Achilles Tendon repair delayed -Treatment Guideline

Phase I: Protection 0-7 weeks

Goals:

1. Maintain integrity of the repair.
2. Diminish inflammation, swelling and pain of the ankle.
3. Initiate gait training when appropriate
4. Gradually increase PROM (restore full ankle dorsiflexion)
5. Minimize deconditioning.

Precautions:

1. Watch for infection (constant throbbing pain, systemic signs), DVT.

Treatment Summary:

1. Modalities include electrical stimulation for pain relief (IFC, TENS) or edema control (HVPG). Ice and compression (elevation) for pain control should also be used as appropriate. Pulsed Ultrasound for promoting healing and pain relief.
2. Mobs/MFR: Initiate manual retrograde massage (efflurage) for swelling, soft tissue massage for muscle guarding and pain, scar tissue massage.
3. Range of motion exercises include but not limited to ankle heel slides, ankle pumps, windshield wipers, prone ankle pumps, seated BAPS, seated ankle to taps, toe crunches, marble pick ups starting week 4
4. Stretching for flexibility of lower extremity musculature includes but not limited to the following musculature hamstrings. Initiate NWB gastrocnemius stretches as tolerated at end of phase.
5. Strengthening exercises for hip and core strengthening and upper body strengthening.
6. Gait training: Includes education in weight bearing as tolerated when appropriate 4-6 weeks in brace (PF to neutral) with assistive devices. Typically NWB until 4 weeks.

Phase II: Range of Motion: 8-16 weeks

Goals:

1. Control Edema and pain
2. Reduce scar tissue adhesions
3. Obtain full range of motion of the ankle
4. Increase strength of the ankle musculature
5. Restore independent ambulation with normal gait
6. To return patient to normal function.

Precautions/possible complications:

1. Appropriate intensity of exercise to minimize pain (re-rupture, tendonitis)
2. Possible use of heel lift during initial weeks of walking to protect the repair.

Treatment Summary:

1. Physician/physical therapist will determine when to discontinue the crutches, and brace.
2. Modalities include electrical stimulation for pain relief (IFC, TENS), or edema control (HVPG), ultrasound for deep heating/pain management. Ice and compression (elevation) for pain control should also be used as appropriate.
3. Mobs/MFR: Includes but not limited to subtalar and talocrural joint mobilization for normal ankle joint mobility, manual retrograde massage (efflurage) for swelling, soft tissue massage for muscle guarding and pain, scar tissue mobilization. Initiate perturbation training.
4. Range of motion exercises include but not limited to ankle heel slides, ankle pumps, windshield wipers, prone ankle pumps, seated ankle to taps, toe crunches, marble pick ups.
5. Stretching for flexibility of lower extremity musculature includes but not limited to the following musculature hamstrings, and gastrocnemius. Progress to WB DF stretches as appropriate.
6. Strengthening exercises for ankle and lower extremity strengthening. Progress NWB (elastic bands) to PWB tolerated. Functional strengthening exercises like step ups forwards and sideways and progress to step downs and multihip (contrakicks) to end of phase. FWB bilateral calf raises by 12-16 weeks.
7. Balance training includes weight shifting, progression to single leg balance (upper extremity and lower extremity movement eg ball throws), balance board
8. Aerobic exercise can include leg bike (initially for ROM progressing to aerobic conditioning).
9. Gait training: in FWB without assistive devices and increase endurance in ambulation.

Phase III: Function 17-24 weeks

Goals:

1. Achieve functional total lower extremity strength
2. Initiate cutting and running.
3. 10-15% difference in Isokinetic testing
4. 85% of uninvolved lower extremity on functional tests (one legged distance hop, one-legged timed hop, % limb symmetry)
5. Return to sports safely and with confidence (at 6 months)

Precautions/possible complications

1. Appropriate intensity to minimize pain

Treatment Summary:

1. Modalities: Ice and compression (elevation) PRN
2. Mobs/MFR: Progress perturbation training. Use of soft tissue/scar tissue massage as appropriate.
3. ROM and stretching: Continue prior phase.
4. Strengthening exercises : Progress prior phase especially closed chain exercises (CKC) single leg heel raise, mini squats, step ups forwards/sideways and backwards, lunges, tubing walks. Advanced strengthening exercises can be added on unstable surfaces (eg squats on BOSU or balance board), lunges per patient tolerance. Emphasize single leg exercises to decrease compensation.
5. Balance training includes single leg balance, balance board, BOSU, reaction ball, star balance.
6. Aerobic exercise can include leg bike, water walking, swimming , elliptical.
7. Gentle plyometric exercises on level surfaces double legged by week 17 if < 20% deficits on isokinetic testing. Plyometric training (box hops), sports specific drills if < 15% deficits on isokinetic test.
8. Initiate and progress sports specific training: running/cutting/agility drills. Gradual return to sports drills..

Criteria for Progression:

1. Possible return to sports at 6 months.
    a. Balance and proprioception should be within 10% of the uninvolved lower extremity.
    b. Functional tests 90% of uninvolved LE
    c. Isokinetic tests of ??