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

Phase I: Protection 0-2 weeks

Goals:

1. Maintain integrity of the repair.
2. Diminish inflammation, swelling and pain of the ankle.
3. Gradually increase AROM.
4. Minimize deconditioning.

Precautions/Restrictions:

1. Watch for infection (constant throbbing pain, systemic signs), DVT.
2. Fixed hinge brace or splint
3. Weight bearing: NWB for wk 1, FWN by end of wk 2 (in brace)
4. Limit AROM to neutral

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. Strengthening exercises for hip and core strengthening and upper body strengthening. Toe exercises.
4. Gait training: Includes education in NWB/WBAT with assistive device. Typically NWB until 1 week and WBAT as tolerated in crutches by wk 2.

Phase IIa: Early Range of Motion: 3-4 weeks

Goals:

1. Control Edema and pain
2. Reduce scar tissue adhesions
3. Increased active range of motion of the ankle
4. Initiate strengthening of the ankle musculature
5. Gait training with brace

Precautions/Restrictions:

1. Watch for infection (constant throbbing pain, systemic signs), DVT.
2. WBAT in fixed hinge brace or splint.
3. AROM to 5-10 degree of DF
4. Appropriate intensity to minimize pain..

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.
4. Protective 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. Initiate isometric exercises.
6. Aerobic exercise: acquatics

Phase IIb: Full Range of motion 5-8 weeks

Goals:

1. Control Edema and pain
2. Reduce scar tissue adhesions
3. Full active range of motion of the ankle
4. Progressive strengthening of the ankle musculature
5. Normalize gait

Precautions/Restrictions:

1. FWB out of brace or splint as tolerated
2. Heel lift as needed
3. Appropriate intensity to minimize pain..

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, seated BAPS, toe crunches, marble pick ups.
5. Stretching for flexibility of lower extremity musculature includes but not limited to the following musculature hamstrings, and (gentle) 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 8 weeks if tolerated.
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
9. Gait training: in FWB without assistive devices and increase endurance in ambulation.

Phase III: Functional 9-20 week

Goals:

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

Precautions/possible complications

1. Appropriate intensity to minimize pain, Progress as tolerated

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) mini squats, step ups forwards/sideways and backwards, lunges, tubing walks. Single leg calf raises by wk 12 if tolerated. 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 13 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. Progress from treadmill to track ,flat surfaces to road/field running and finally to hill running.

Criteria for Progression:

1. Possible return to sports at 5 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 ??