OrthoIllinois PODIATRIC SURGERY

Achilles Tendon Repair

Matthew D. Sorensen, DPM FACFAS
Fellowship Trained Foot & Ankle Surgeon
Foot & Ankle Reconstruction, Sports Medicine & Trauma

General Instructions:

This protocol is a general guideline only. If effusion, pain, limited weight bearing status and significant limitations with daily function persist, this exercise progression should be decelerated. Palliative modalities and appropriate modification to home program and day to day activities should also be considered. Dr. Sorensen will be making a 4th re-check with the patient at approximately 9 weeks post-op. **Formal physical therapy is usually initiated at 6 weeks post-op, which is where this protocol begins.**

Patient Name:_____ Date:_____

Surgery Date:___/___/___ Surgeon:_____

Rehabilitation Phase: Dates From___/___/___ to___/___/___

Phase 1
6-9 Weeks Post-Op

Criteria to Progress to this Phase:

- Cleared by physician to initiate therapy
- Tissue is in the end stage of repair and proliferation phase of healing

(Tissue unable to withstand a large passive stretch or eccentric force)

Anticipated Impairments and Functional Limitations:

- Abnormal gait cycle with impaired balance/proprioception
- Decreased joint AROM and muscular flexibility
- Decreased strength and muscular atrophy
- Scar tissue adhesions
- Difficulty with FWB transitioning from walking boot with heel lift to regular shoes
- Unable to safely ambulate over uneven ground or up and down steps reciprocally without walking boot.

Goal:

- Decrease pain and swelling
- Increase ankle joint ROM, (Limiting Dorsiflexion and Plantarflexion to Pain Free Limits)
- Increase scar and soft tissue mobility, particularly with para-tendon and tendon gliding
- Increase strength and proprioception
- Wean from walking boot, utilizing it only 4 hours per day if symptoms allow
- Improve gait to full weight bearing in regular shoes with a heel lift as tolerated
- Increase knowledge and awareness of injury and rehabilitation

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Rationale:

- Modalities decrease pain and swelling
- Heel lift takes stress off healing tendon as FWB is progressed and talo-crural Dorsiflexion is improved
- Soft tissue mobilization improves scar mobility and improves para-tendon and tendon gliding
- PREs and closed chain activities increase strength and improve balance and coordination
- AROM improves ankle joint mobility and flexibility of healing tendon
- Home exercise programs and education improve patient follow-through at home

Intervention:

1. WBAT in regular shoes.
2. Wean from walking boot starting at 4 to 5 hours of wear time per day. If swelling and/or pain are not a problem, wear time can be decreased by 1 hour every 3 days until no pain is experienced without it. Otherwise, continue to wear boot as needed.
3. E-stim, US, Game Ready Compression, and/or ice may also be utilized if effusion and pain are a problem.
4. Initiation of pool program or unweighting apparatus may be necessary to progress towards full pain-free WB.
5. Joint mobilizations of the foot and ankle should be initiated if a limitation of talocrural DF and/or PF are present. (GRADE II/III ONLY WITH NO PAIN) Talocrural distraction and posterior talar mobilizations
6. Soft tissue mobility to the healed scar should be initiated to promote para-tendon-tendon gliding
7. Initiate pain free stationary bike with absent to minimal resistance.
8. AROM EXERCISE ONLY to DF. NO PROM DF.
9. Hamstring, quad, hip flexor, and piriformis stretch.
10. Seated heel-toe raises progressing to mild resistance with no pain.
11. Toe curls and toe extensions for foot intrinsics. (progress seated to standing position)
12. Pain free BAPS board seated, level 1 (progress to bilateral standing BAPS – "surfer BAPS)
13. Pain free double leg total gym leg press. (Start at ~ 30% - 50% body weight)
14. Pain free single leg stance while supporting with bilateral upper extremities. (Initially performed for 5 to 10 seconds each repetitio progressing to 15 seconds or more each repetition)
15. Rocker Board Sagittal Plane with bilateral stance. Limit DF and/or PF if pain (performed in standing)
16. Pain free forward treadmill – **NO INCLINE.**
17. Initiate bilateral standing heel raises with UE support.

--Refer to phase I home maintenance program in back of protocol--

Rehabilitation Phase: Dates From___/___/___ to___/___/___

Phase II
10-13 Weeks Post-Op

Criteria to Progress to this Phase:

- Patient progressing with decreased pain and stable edema
- Progressing with AROM ankle, particularly DF
- Progressing with Single Leg Balance
- Progressing with pain free standing heel-toe raises
- Patient demonstrating progression towards FWB and normalized gait in regular shoes without use of assistive device

Anticipated Impairments and Functional Limitations:

- Moderate restriction in joint and/or muscle flexibility
- Limited strength and muscular atrophy
- Moderate scar tissue adhesions limiting para-tendon-tendon gliding
- Proprioception not symmetrical with uninvolved lower extremity creating instability with ambulation
- Decreased mid-stance and toe-off in gait cycle of involved lower extremity

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Goal:
- Increase AROM of Talocrural Dorsiflexion to within 5 degrees of uninvolved lower extremity
- Increase muscular flexibility throughout bilateral lower extremities to close within symmetrical limits
- Increase involved single leg balance to within 15 seconds of uninvolved lower extremity
- Mid-stance and toe-off phase of gait close to within symmetrical limits.
- Pt to utilize regular shoes 100% of time with day to day activities.
- Decrease pain with weight bearing and gait

Rationale:
- Modalities decrease pain and swelling
- Aerobic activity promotes improved blood flow and decreased edema via muscular pump mechanism
- Repetitive functional patterns promote improved timing, coordination, and control of lower extremity
- Strengthening in functional patterns provide neuromuscular re-education and strengthening of weakened musculature
- Flexibility improves talocrural joint function which improves pain with ambulation, squatting, and stair climbing

Intervention:
1. Continue with palliative modalities after therapy if pain and effusion remain a problem.
2. Increase resistance of stationary bike within pt's tolerance
3. ***Initiate*** Pain Free Stairmaster
4. Talocrural mobilization if DF deficit (Grade III only)
5. Gastroc/soleus, quads, hamstrings, hip flexor, and piriformis stretch in clinic as needed
6. ***Initiate*** single leg standing BAPS no greater than level #2 (opposite toe can touch; progress with weights placed anterior, posterior, a medially)
7. Progress resistance of pain free Single Leg Total Gym leg press (Double Leg can be D/C'd)
8. ***Initiate*** pain free wall squats (can progress to stance on cushion and/or therapy ball on wall)
9. Progress pain free single leg stance time per repetition and/or stand on unstable surface.
10. Progress bilateral stance Rocker Board to holding a weight or a ball
11. ***Initiate*** repeated tubing hip 3-way standing on involved leg (start at 30 seconds each direction and progress to 1 to 2 minutes)
12. ***Initiate*** pain free forward lunges (progress to mildly unstable surface)
13. Progress pain free forward Treadmill MPH
14. ***Initiate*** pain free Retro Treadmill (optional----sometimes helpful if ant joint pain present with squatting or stairs)
15. ***Initiate*** pain free Anterior and Medial step downs (begin with 1 or 2 inch step and progress up to 8 inch step)
16. ***Initiate*** pain free Single Leg Stance with Anterior Reach and lateral reach for strengthening
17. ***Initiate*** treadmill running if symptom free and able to perform single leg heel raise **(12-14 weeks)**

--Refer to phase II home maintenance program in back of protocol—

Rehabilitation Phase: Dates From___/___/___ to___/___/___

Phase III
14-16 Weeks Post-Op (Last 3 weeks)

Criteria to Progress to this Phase:
- Abolished pain with ambulation over flat ground
- AROM dorsiflexion close to within symmetrical of uninvolved lower extremity
- Single Leg balance to within 10 seconds of uninvolved lower extremity
- Single leg balance to within 10 seconds of uninvolved lower extremity
- Patient able to perform limited single leg heel raise and lower themselves in a controlled fashion
- Mid-stance and toe-off of gait close to within symmetrical limits
- Patient utilizing regular shoes 100% of the time with normal day to day activities

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Anticipated Impairments and Functional Limitations:

- Moderately to mildly limited gait cycle
- Mild restriction in joint and muscular flexibility
- Moderate muscular weakness and atrophy
- Unable to perform repeated single leg heel raise
- Moderate limitations with proprioception

Goal:

- Mid-stance and toe-off phase of gait to within symmetrical limits
- Soft tissue flexibility of bilateral lower extremities to symmetrical limits of uninvolved lower extremity
- Patient to perform 10 repetitions with single leg heel raise, limited to full motion
- Independence and proper performance with home exercise program progression
- Discharge palliative modalities in clinic

Rationale:

- Aerobic activity promotes improved blood flow and decreased edema via muscular pump mechanism
- Repetitive functional patterns promote improved timing, coordination, and control of lower extremity
- Strengthening activities ensures a safe return to all occupational/sporting activities

Intervention:

1. Continue Stairmaster and/or bike for warm-up
2. Progress joint mobilizations only as needed Most patients will have close to full available motion at this time)
3. Lower kinetic chain flexibility as needed.
4. Forward and/or retro TM, progressing if no increase in pain or edema
5. Pain free standing one leg toe raises progressing to added resistance if no pain or edema present
6. D/C standing toe cur/ext.
7. Progress standing BAPS with weight at medial, lateral, and anterior positions; no greater than level #2
8. Progress Total Gym leg press and/or Wall Squats with resistance and/or unsteady surface
9. Progress time of Single Leg Stance on unsteady surface
10. Progress rocker board with T-band around pt's waist in various positions.
11. Progress repeated tubing in standing to stance leg on cushion
12. Progress repetitions and/or surface of forward lunges
13. ***Initiate*** pain free lateral lunges
14. Progress with step height of anterior and medial step downs
15. Progress with repetitions, time, or surface of lower extremity reaching
16. ***Initiate*** hopping, jumping, and agility drills if treadmill jogging painfree

--Refer to phase III home maintenance program in back of protocol—

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Suggested Home Maintenance Program

Phase I:

1. General pain free AROM exercise in non-WB and PWB positions (alphabet, seated heel/toe etc…)
2. AROM only for DF, no PROM DF
3. Teach patient self scar massage if needed
4. Sub-max, multi angle isometric ankle plantarflexion, pain free
5. Pain free SL stance eyes open
6. Stationary bike or pain free pool exercise can be performed to improve conditioning
7. Ice, elevation and compression as needed
8. Wean from boot, using heel lift in boot and shoe as indicated

Phase II:

1. Pain free NWB AAROM towel stretch for improved DF
2. Pain free standing heel/toe raises, limited AROM as indicated
3. Single leg balance, eyes open and/or closed
4. Pain free repeated tubing in standing
5. Pain free Step-ups and Step-downs, limiting height of step
6. Pain free Single Leg stance with reach
7. Bike, Treadmill, or pool exercise for LE conditioning
8. Ice massage as needed
9. Continue to wean form walking boot if necessary, using heel lift only to patient's tolerance

Phase III:

1. Standing heel/toe raises
2. Pain free standing gastroc-soleus stretch
3. Repeated tubing in standing
4. Step ups and Step downs
5. Single leg stance with reach
6. Initiate forward and lateral lunging
7. Stairmaster, Bike, Treadmill for LE conditioning
8. Jogging progression in straight line can be initiated if patient can perform 3 sets of 10 repetition single leg heel raises without pain or edema
9. Ice as needed
10. Wear regular shoes entire day

Home Exercise Program at D/C:

1. Pain free toe raises, double and/or single
2. Repeated Tubing in Standing
3. Pain free Lunges frontal and sagittal planes
4. Anterior and Medial step downs
5. Pain free ambulation, bicycling, jogging, stairmaster, etc…
6. Return to sport as per physician recommendation (usually return to practice only at approx. 15 weeks)
7. Icing as necessary

Sorensen 02.2023