

## MID Achilles Tendon Repair (Bradley)

### Phase 1: Weeks 2–6

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>• Effusion/ecchymosis control</li> <li>• Protect repair</li> <li>• Early mobilization of ankle</li> <li>• Introduce and progress weight bearing</li> <li>• Minimize gastroc/soleus atrophy</li> <li>• Maintain core, hip and knee strength</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>• NWB w/BL axillary crutches in splint for 2 weeks</li> <li>• Splint removed at 2-week post-op visit for CAM boot, heel wedge per PT rec <ul style="list-style-type: none"> <li>• If using heel wedge, remove one per week until flat</li> </ul> </li> <li>• NWB in CAM boot until 6 weeks</li> <li>• At 6-weeks, begin PWB 50# in CAM boot, progress 25-50#/week</li> <li>• Wean CAM boot between 8-10 weeks</li> </ul>
<b>Interventions</b>	<p><b>Modalities:</b> cryo-pneumatic compression (game ready), IFC/Premod</p> <p><b>MT/PROM:</b> STM/edema massage, gentle metatarsal/tarsal/subtalar/TC joint mobs</p> <ul style="list-style-type: none"> <li>• Avoid stretching DF past neutral</li> </ul> <p><b>Gait:</b> PWB step through pattern with BL axillary crutches at 6-weeks</p> <p><b>Ankle/foot AROM:</b> 4-way ankle/alphabet, towel toe curl, doming, toe splay, seated heel/toe raise</p> <p><b>Stretching:</b> Hamstring stretch, prone quad stretch, thomas stretch</p> <p><b>Neuromotor:</b> Quad set, glute set, supine march, dead bug, straight leg bridge, clamshell/reverse, bent knee side plank, bird dog, SLR 4 ways, LAQ, hamstring curl/LAQ with resistance</p> <p><b>NMES:</b> Biphasic or Russian (consider home unit)</p> <p><b>BFR:</b> in the absence of significant effusion/edema, bruising, concern for DVT (use with NMES)</p> <p><b>Conditioning:</b> Stationary bike (no resistance), arms only Aerodyne, UBE</p>
<b>Progression Criteria</b>	<ul style="list-style-type: none"> <li>• Normalize PWB gait pattern with AD</li> <li>• Good tolerance to weight bearing progressions</li> <li>• Adequate muscle activity for PF/DF/inv/ev AROM</li> </ul>

### Phase 2: Weeks 6–9

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>• Resolve majority of effusion/ecchymosis</li> <li>• Progress weight bearing in boot</li> <li>• Progress muscle activation exercises</li> <li>• Prepare patient for transition to sneaker and lace up ASO at 10-weeks post-op</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>• Remain in CAM boot until 10wks post op</li> <li>• Lengthening of repair – will occur at 6-weeks post-op regardless of stretching/weightbearing</li> </ul>
<b>Interventions</b>	<p><b>Modalities/MT:</b> per patient need, minimize effusion/ecchymosis</p> <p><b>ROM:</b> Remove restrictions in DF, gastroc/soleus strap stretch</p> <p><b>Gait/balance:</b> circle/cone/hurdle walking, side stepping, turning</p> <p><b>Neuromotor:</b> band resisted ankle 4-way, seated/standing PWB rocker/wobble board, bridge&gt;hamstring curl on ball, hollow body holds</p> <p><b>Therex:</b></p> <ul style="list-style-type: none"> <li>• PWB: High box squat, leg press, RDL, machine resisted strengthening</li> <li>• FWB: Step up ant/lat, SL RDL, banded side steps</li> </ul> <p><b>Conditioning:</b> Aerodyne arms and legs</p> <p><b>BFR/NMES:</b> continue as indicated</p>
<b>Progression Criteria</b>	<ul style="list-style-type: none"> <li>• Min effusion/pain with activity progressions</li> <li>• Normal, non-antalgic gait pattern in CAM boot (walking and going up stairs)</li> <li>• Adequate ankle AROM against light resistance band (~3+/5 MMT)</li> </ul>

Phase 3: Weeks 10–12	
Rehabilitation Goals	<ul style="list-style-type: none"> <li>Transition to WBAT in ASO/sneaker</li> <li>Normalize gait pattern in sneaker/ASO</li> <li>Initiate weight bearing strengthening in sneaker/ASO</li> <li>Initiate weight bearing stretching in sneaker/ASO</li> <li>Assess LSI with dynamometry</li> <li>Prepare patient for initiation of impact activities at ~3 months</li> </ul>
Precautions	<ul style="list-style-type: none"> <li>Wean out of ASO by end of phase</li> </ul>
Interventions	<p><b>Modalities/MT:</b> Ankle/foot mobilizations as indicated (talocrural, subtalar, metatarsal), normalize ankle AROM in all planes</p> <p><b>ROM:</b> Standing gastroc/soleus stretch, half kneeling DF stretch, prayer stretch for PF</p> <p><b>Gait/neuromotor:</b> Repeat previous gait training/balance in sneaker, SLS, tandem stance, tandem walk, FWB rocker/wobble board, bosu stability</p> <p><b>Therex:</b> Repeat previous strengthening in sneaker</p> <ul style="list-style-type: none"> <li>Step up ant/lat, heel tap lateral&gt;ant</li> <li>PWB UL/BL heel raises on shuttle/leg press</li> <li>Seated soleus heel raise (can use knee ext machine), bridge soleus heel raise</li> <li>Slider lunge, split squat</li> <li>Flat ground heel raise BL &gt; eccentric &gt; SL. On step heel raise BL &gt; eccentric &gt; SL</li> </ul> <p><b>Conditioning:</b> swimming/aquatic program</p> <p><b>BFR/NMES:</b> continue as indicated</p>
Progression Criteria	<ul style="list-style-type: none"> <li>Min effusion/pain with activity progressions</li> <li>Discharge ASO</li> <li>ROM WNL</li> <li>Normal, non-antalgic gait pattern (walking and going up stairs)</li> <li>Ankle DF/Inv/Ev MMT ~4/5, PF ~3+/5</li> <li>PF LSI &gt;= 60%</li> </ul>

Phase 4: Months 3–6	
Rehabilitation Goals	<ul style="list-style-type: none"> <li>Progressive gastric/soleus strengthening</li> <li>Progress functional activity</li> <li>Complete functional testing for return to impact activities</li> <li>Initiate impact activities</li> </ul>
Precautions	<ul style="list-style-type: none"> <li>Impact activities once pt passes functional testing</li> </ul>
Interventions	<p><b>MT/ROM:</b> as needed to restore functional mobility, consider banded self-mobilizations</p> <p><b>Therex/NMR:</b></p> <ul style="list-style-type: none"> <li>Airex/beam/bosu/disc- squat, SLS, SL RDL, step up, lunge, heel tap</li> <li>Heel/toe walk, sled push on toes/heels flat, sled pull, lateral sled pull</li> <li>BL rebounding heel raise, SL rebounding heel raise (once able to complete 15x BL)</li> </ul> <p><b>Conditioning:</b> Elliptical</p>
Criteria for Plyometrics	<ul style="list-style-type: none"> <li>ROM WNL</li> <li>Trace discomfort/effusion at most with activity progression</li> <li>15x SL heel raise (normal and rebounding) with adequate ROM</li> <li>Strength: Symmetrical squat/lunge, 10x shrimp squats to at least 60 degrees, 10x ant heel tap on 6-8" with minimal compensatory patterns</li> </ul>
PWB Plyometrics	<ul style="list-style-type: none"> <li>Single plane and PWB (on shuttle or with band assistance)</li> <li>&lt;= 100 foot contacts initially</li> <li>1-2 sessions per week, 5-10% progression of foot contacts per week</li> </ul>
Sagittal Plyometrics	<ul style="list-style-type: none"> <li>PWB &gt; box jump up &gt; box jump down &gt; 2 to 1 box jump &gt; in place jumps &gt; scissor hops &gt; in place jog &gt; line jumps &gt; line hops &gt; single leg box jumps &gt; squat jumps &gt; sagittal plane ladder drills &gt; jogging</li> </ul>

### Phase 4: Months 3–6 (continued)

<b>Frontal Plane Plyometrics</b>	<ul style="list-style-type: none"> <li>• PWB &gt; lateral box jumps &gt; single leg lateral box jumps &gt; lateral line jumps &gt; lateral line hops &gt; Frontal plane ladder drills &gt; lateral shuffling</li> </ul>
<b>Hop Testing</b>	<ul style="list-style-type: none"> <li>• Single hop for distance, triple hop for distance, crossover hop for distance, 6m hop for time</li> </ul>
<b>Progression Criteria</b>	<ul style="list-style-type: none"> <li>• Min effusion/pain with activity progressions</li> <li>• Ankle DF/Inv/Ev MMT WNL, PF 4+/5</li> <li>• PF LSI &gt;/= 80%</li> <li>• &gt;/= 70% LSI on hop testing</li> </ul>

### Phase 5: (6+ months)

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>• Continue to progress gastric/soleus strength</li> <li>• Initiate interval running program</li> <li>• Initiate cutting/pivoting/agility</li> <li>• Initiate sprinting</li> <li>• Transition to self-management/strength and conditioning</li> </ul>
<b>Return to Run</b>	<ul style="list-style-type: none"> <li>• 1 mile ~1500 foot contacts, initiate interval program once pt demonstrates tolerance to this foot contact volume as well as 30-minute walk without pain/effusion</li> <li>• Further clearance via metronome set to 60-90BPM, complete heel raise and heel tap to this cadence</li> <li>• Cue against asymmetrical running pattern due to decreased load acceptance on affected limb</li> <li>• See return to run protocol for volume progression</li> </ul>
<b>Agility</b>	<ul style="list-style-type: none"> <li>• Change of direction, multiplanar movements, cutting, pivoting</li> <li>• Progress to multiplanar ladder drills and cone drills</li> <li>• Reaction activities, buddy exercises, sport specific drills</li> <li>• Track progress with T-drill and 5-10-5</li> </ul>
<b>Sprinting</b>	<ul style="list-style-type: none"> <li>• See return to sprinting protocol</li> </ul>
<b>Progression Criteria</b>	<ul style="list-style-type: none"> <li>• No effusion with progressions made</li> <li>• Good tolerance and performance of interval running program</li> <li>• Good tolerance and performance of agility exercises</li> <li>• Good tolerance and performance of interval sprinting program</li> <li>• Hop testing LSI &gt;/= 85%</li> <li>• PF strength LSI &gt;/= 85%</li> <li>• ACL RSI &gt;/= 60% at 6 months or use FAAM sport subscale</li> </ul>
<b>Return to Sport Criteria</b>	<ul style="list-style-type: none"> <li>• PF strength LSI 90-100%</li> <li>• Hop testing LSI 90-100%</li> <li>• Restore pre-injury conditioning/performance</li> <li>• Return to sport specific activities- non-contact practice, full practice, full play</li> </ul>