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Accelerated Rehabilitation Program: Non-Operative Treatment of Achilles Tendon Ruptures

0-2 WEEKS	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
	<ul style="list-style-type: none"> - NWB with ankle in padded splint at a minimum 20 degrees PF - Gait aid - Seated shower 	<p>MOBILITY</p> <ul style="list-style-type: none"> - AROM of hips and knees <p>STRENGTH</p> <ul style="list-style-type: none"> - Strengthening of hips, knees and core while maintaining NWB status <p>OTHER</p> <ul style="list-style-type: none"> - Education RE: use of gait aid, mobility, transfers, and stairs while maintaining NWB status 	<ul style="list-style-type: none"> - Control pain and swelling - Minimize loss of core strength - Minimize loss of hip and knee ROM and strength - Safe ambulation, transfers and stairs with gait aid while maintaining NWB status
<p><i>Criteria to Progress:</i></p> <ul style="list-style-type: none"> - Follow-up appointment with surgeon - Transition from splint to walking boot to be determined by surgeon 			
3-4 WEEKS	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
	<i>*Continue with Physiotherapy Interventions from 0-2 weeks as appropriate</i>		
	<ul style="list-style-type: none"> - No active or passive ankle movement - Protected WB in walking boot with 20-degree heel lift (2cm height) + “Even up” shoe - Gait aid - Gradual increase in WB by 25% each week <ul style="list-style-type: none"> Week 3 = 25% WB Week 4 = 50% WB - Seated shower - Boot stays on for sleep - Avoid post-exercise pain and swelling 	<p>MOBILITY</p> <ul style="list-style-type: none"> - As per previous phase <p>STRENGTH</p> <ul style="list-style-type: none"> - 4-way ankle isometrics in boot <p>OTHER</p> <ul style="list-style-type: none"> - Stair practice “good goes up, bad goes down” pattern - Cardiovascular exercise as tolerated while maintaining WB status - Therapeutic modalities as deemed appropriate by physiotherapist 	<ul style="list-style-type: none"> - Restore ankle strength - Control pain and swelling - Normalize gait as much as possible in boot + wedges, with gait aid and “Even up” shoe - Safe ambulation, transfers and stairs with gait aid while maintaining appropriate WB status
<p><i>Criteria to Progress:</i></p> <ul style="list-style-type: none"> - Full knee ROM - Good tolerance of WB progressions - Adequate pain control (< 5/10) 			

AROM – Active Range of Motion
 LSI – Limb Symmetry Index
 WB – Weight Bearing

DF – Dorsiflexion
 LE – Lower Extremity

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 NWB – Non-Weight Bearing

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5-6 WEEKS	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
<i>*Continue with Physiotherapy Interventions from 2-4 weeks as appropriate</i>			
	<ul style="list-style-type: none"> - Avoid DF past neutral - Boot stays on for sleep - May remove boot for ROM exercises - Protected WB in walking boot with 20-degree heel lift (2cm height) + “Even up” shoe - Gradual increase in WB by 25% each week <ul style="list-style-type: none"> Week 5 = 75% WB Week 6+ = WBAT - Seated shower - Avoid post-exercise pain and swelling 	<p>MOBILITY</p> <ul style="list-style-type: none"> - PF as tolerated - DF to neutral - IV and EV with ankle below neutral <p>STRENGTH</p> <ul style="list-style-type: none"> - 4-way ankle isometrics below neutral - Seated heel raises - Intrinsic foot strengthening <p>OTHER</p> <ul style="list-style-type: none"> - Proprioception - Cardiovascular exercise as tolerated while maintaining WB status - Stair practice “good goes up, bad goes down” pattern 	<ul style="list-style-type: none"> - Restore ankle ROM and strength - Restore proprioception - Restore cardiovascular endurance - Normalize gait as much as possible in boot + wedges, with gait aid and “Even up” shoe - Safe ambulation, transfers and stairs with gait aid while maintaining appropriate WB status
<p><i>Criteria to Progress:</i></p> <ul style="list-style-type: none"> - Good tolerance of WB progressions - Adequate pain control (< 3/10) 			
7-8 WEEKS	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
<i>*Continue with Physiotherapy Interventions from 4-6 weeks as appropriate</i>			
	<ul style="list-style-type: none"> - Avoid DF past neutral - Protected WBAT in walking boot with 10-degree heel lift (1cm height) + “Even up” shoe - Gait aid as needed - Seated shower - May remove boot for sleep - Avoid post-exercise pain and swelling 	<p>MOBILITY</p> <ul style="list-style-type: none"> - All AROM and PROM of the ankle to be below neutral <p>STRENGTH</p> <ul style="list-style-type: none"> - Progress ankle strengthening (below neutral) - Standing heel raises as tolerated <p>OTHER</p> <ul style="list-style-type: none"> - Cardiovascular exercise as tolerated 	<ul style="list-style-type: none"> - Maintain ankle ROM - Restore foot and ankle strength below neutral - Normalize gait as much as possible in boot, lift, and “Even up” shoe, with/without gait aid - Normalize stair pattern
<p><i>Criteria to Progress:</i></p> <ul style="list-style-type: none"> - Minimal pain with full WB bipedal heel raises - No post-exercise pain and swelling 			

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9-12 WEEKS	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
<i>*Continue with Physiotherapy Interventions from 6-8 weeks as appropriate</i>			
	<ul style="list-style-type: none"> - Avoid sock/barefoot walking - Avoid DF past neutral - No WB restrictions - Wean out of boot into supportive shoe with 1cm lift - Wean off gait aid if still using - Standing showers permitted once ankle neutral is comfortable 	<p>MOBILITY</p> <ul style="list-style-type: none"> - Stretching for the calf may be added to comfortably attain ankle neutral <p>STRENGTH</p> <ul style="list-style-type: none"> - Progress ankle strengthening as tolerated <p>OTHER</p> <ul style="list-style-type: none"> - Progress proprioception and balance as tolerated 	<ul style="list-style-type: none"> - Restore DF and loaded DF to neutral - Restore full foot and ankle strength - Normalize gait as much as possible in boot, lift, and "Even up" shoe, without gait aid - Restore balance and proprioception
<p><i>Criteria to Progress:</i></p> <ul style="list-style-type: none"> - Normalized gait pattern in supportive shoe - > 80% LSI single leg heel raise in both height and number of repetitions 			
13-16 WEEKS	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
<i>*Continue with Physiotherapy Interventions from 8-12 weeks as appropriate</i>			
	<ul style="list-style-type: none"> - Transition into regular footwear - Sock/barefoot walking as tolerated - DF past neutral permitted 	<p>MOBILITY</p> <ul style="list-style-type: none"> - Gently progress Achilles stretching beyond ankle neutral <p>STRENGTH</p> <ul style="list-style-type: none"> - As per previous phase <p>OTHER</p> <ul style="list-style-type: none"> - Progress to alternating stair pattern as tolerated 	<ul style="list-style-type: none"> - Restore full ankle ROM - Prepare for return to daily activity - Normalize gait pattern
<p><i>Criteria to Progress:</i></p> <ul style="list-style-type: none"> - > 90% LSI single leg heel raise in both height and number of repetitions - > 90% LSI Y-balance test - No pain or swelling with 30 minutes of fast paced walking 			
17+ WEEKS	PREPARE FOR SPORT		
	<ul style="list-style-type: none"> - Increase dynamic WB activity - Beginner level plyometrics 	<ul style="list-style-type: none"> - Sport specific training - Jogging 	
<p><i>Criteria to Progress:</i></p> <ul style="list-style-type: none"> - Good tolerance and performance with beginner level plyometrics - > 80% LSI single hop test for distance and triple hop for distance - > 90% ATRS 			

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6-11 MONTHS	RETURN TO SPORT
	- Return to normal sporting activities that do not involve contact, sprinting, cutting, or jumping
<i>Criteria to Progress:</i>	
<ul style="list-style-type: none">- <i>No post-exercise pain or swelling</i>- <i>> 90% LSI single hop test for distance and triple hop for distance</i>- <i>> 95% ATRS</i>	
12+ MONTHS	RETURN TO CONTACT
	- Return to contact sport that involve running, cutting, and jumping

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Achilles Tendon Rupture Score (ATRS)

Patient's are asked to grade from 0 to 10 according to their level of limitations and/or difficulties

1. Are you limited because of decreased strength in the calf/Achilles tendon/foot?
2. Are you limited because of fatigue in the calf/Achilles tendon/foot?
3. Are you limited due to stiffness in the calf/Achilles tendon/foot?
4. Are you limited because of pain in the calf/Achilles tendon/foot?
5. Are you limited during activities of daily living?
6. Are you limited when walking on uneven surfaces?
7. Are you limited when walking quickly upstairs or uphill?
8. Are you limited during activities that include running?
9. Are you limited during activities that include jumping?
10. Are you limited in performing hard physical labor?

Beginner Level Plyometrics

- 3x15 bipedal heel raises
 - o Move to rebounding bipedal heel raises as tolerated
- 3x15 single leg heel raises
 - o Move to rebounding single leg heel raises as tolerated
- Bipedal hopping in place
- Single leg hopping in place

Single Hop Test

- Jump as far as possible on a single leg, without losing balance and landing firmly
- The distance is measured from the start line to the heel of the landing leg

Standing Heel Raise Progression

- 25 repetitions needed to progress
 - o Bipedal standing heel raises with 25% body weight on affected side
 - o Bipedal standing heel raises with 50% body weight on affected side
 - o Bipedal standing heel raises with 75% body weight on affected side
 - o Bipedal standing heel raises with single leg lowering on affected side
 - o Single leg heel raises

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Triple Hop Test

- Jump as far as possible on a single leg three consecutive times, without losing balance and landing firmly
- The distance is measured from the start line to the great toe of the landing leg

Y-Balance Test

- Patient stands on one leg while reaching out in 3 different directions with the contralateral leg (Directions are anterior, posteromedial, and posterolateral)
- 3 trials in each of the 3 directions for each foot are collected and the maximum reach in each direction is used for analysis