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Post-Operative Protocol: Total Ankle Arthroplasty

*This procedure may cause a lot of pain and swelling
It is normal for the foot and ankle to be swollen 6, 12, up to 18 months*

PRE-OPERATIVE			
PRE-OP (2-4+ WEEKS)	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
	None	<ul style="list-style-type: none"> - Education RE: what to expect & what is expected of you post-operatively - Education & practice RE: use of gait aid, mobility, transfers, and stairs while maintaining post-op WB status - Education re: benefits of strengthening & cardio pre-operatively - Review immediate post-operative exercises 	<ul style="list-style-type: none"> - Prepare for post-op rehabilitation - Procure equipment for post-op rehabilitation <ul style="list-style-type: none"> - "Even up" shoe - Gait aid - Walking boot - Safe ambulation, transfers and stairs with gait aid while maintaining post-op WB status
POST-OPERATIVE			
IMMEDIATE POST-OP (0-4 WEEKS)	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
	<ul style="list-style-type: none"> - NWB - Elevation of affected side in supine <i>"Toes above the Nose"</i> *50+ minutes elevation/hour with a MAXIMUM 2 hours/day non-elevated until follow-up with surgeon - Do not get the foot wet 	<p>MOBILITY</p> <ul style="list-style-type: none"> - AROM of hips and knees - 4-way ankle ROM once transitioned to boot <i>*Transition to boot determined by surgeon</i> <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"> - Compression sleeve/stocking once transitioned to boot - 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 - Promote incision healing - Protect repair - Restore ankle ROM once transitioned to boot - Safe ambulation, transfers and stairs with gait aid while maintaining NWB status
<p>Criteria to Progress:</p> <ul style="list-style-type: none"> - Follow-up appointment with surgeon - Staples/sutures and bandage/splint removed - Adequate pain control (< 5/10) 			

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INTERMEDIATE POST-OP (5-6 WEEKS)	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
	<i>*Continue with Physiotherapy Interventions from immediate post-op phase as appropriate</i>		
	<ul style="list-style-type: none"> - Protected WBAT - Activity as tolerated but continue to elevate when able - Can remove the boot for exercises and hygiene - Boot stays on for sleep - Avoid post-exercise pain and swelling 	<p>MOBILITY</p> <ul style="list-style-type: none"> - 4-way ankle ROM - Foot and ankle joint mobilizations as appropriate <p>STRENGTH</p> <ul style="list-style-type: none"> - 4-way ankle isometrics in neutral - Intrinsic foot strengthening <p>OTHER</p> <ul style="list-style-type: none"> - Stationary cycling in boot - Scar mobilization once incision is fully healed - Swimming/pool exercises once incision is fully healed - Gait retraining in boot, gait aid + "Even up" shoe - Therapeutic modalities as deemed appropriate by physiotherapist 	<ul style="list-style-type: none"> - Restore full ankle ROM <i>*Expected ankle ROM</i> Loaded DF: 10 degrees PF: 35 degrees - Initiate foot and ankle strengthening - Restore cardiovascular endurance - Promote incision healing - Control pain and swelling - Safe ambulation, transfers, and stairs with boot +/- gait aid - Increase scar mobility - Independence with home exercise program to be performed daily
<p><i>Criteria to Progress:</i></p> <ul style="list-style-type: none"> - Adequate pain control (< 5/10) - Decreased swelling (figure 8 measurement) - Incision fully healed - Improving ankle ROM in all planes - Good tolerance of at least 50% WB (static in boot) 			
LATE POST-OP (7-12 WEEKS)	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
	<i>*Continue with Physiotherapy Interventions from intermediate post-op phase as appropriate</i>		
	<ul style="list-style-type: none"> - WBAT - Return to sedentary workplace to be determined by surgeon - Gradually wean out of the boot by 10 weeks - Avoid post-exercise pain and swelling - May remove boot for sleep <p><i>*No strengthening against resistance until 12 weeks if any tendon transfers</i></p>	<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 strengthening against resistance - Seated heel raises <p>OTHER</p> <ul style="list-style-type: none"> - Proprioception (joint position sense) - Bipedal balance exercises - Practice standing, weight shifting - Gait retraining - Stationary cycling 	<ul style="list-style-type: none"> - Progress foot and ankle strength - Restore balance and proprioception - Normalize gait pattern - Restore foot and ankle strength - Restore balance and proprioception

AROM – Active Range of Motion
PF – Plantar Flexion

DF – Dorsiflexion
ROM – Range of Motion

LE – Lower Extremity
WB – Weight Bearing

NWB – Non-Weight Bearing
WBAT – Weight Bearing as Tolerated

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Criteria to Progress: <ul style="list-style-type: none">- Normalized gait pattern and minimal pain (> 3/10) with WB in supportive shoe +/- gait aid- Minimal swelling (> 1cm in figure 8 measurement)- Minimal post-exercise pain and swelling			
TRANSITIONAL (13-16 WEEKS)	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
	<i>*Continue with Physiotherapy Interventions from late post-op phase as appropriate</i>		
	<ul style="list-style-type: none">- No WB restrictions- Return to non-sedentary workplace to be determined by surgeon- No repetitive, high impact activities- Avoid post-exercise pain and swelling	MOBILITY <ul style="list-style-type: none">- As per previous phase STRENGTH <ul style="list-style-type: none">- Standing heel raise progressions- Single leg strengthening as tolerated OTHER <ul style="list-style-type: none">- Single leg balance exercises	<ul style="list-style-type: none">- Normalize gait pattern- Improve balance and proprioception
Criteria to Progress: <ul style="list-style-type: none">- Normalized gait pattern without gait aid- No post-exercise pain and swelling- Good tolerance of single leg exercises- > 90% LSI Y-balance test			
ADVANCED POST-OP (17+ WEEKS)	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	
	<ul style="list-style-type: none">- No repetitive, high impact activities	<ul style="list-style-type: none">- Continue with treatment as per previous phase as appropriate- Sport specific training (no/low impact)- Gradual return to functional activities, and low/no impact sports	
Criteria to Progress: <ul style="list-style-type: none">- No pain or swelling with 30 minutes of fast paced walking- > 30 seconds single leg balance on level surface- > 90% LSI single leg heel raise in both height and number of repetitions			
RETURN TO SPORT (52+ WEEKS)	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERPY INTERVENTION	
	<ul style="list-style-type: none">- No repetitive, high impact activities	<ul style="list-style-type: none">- Continue maintenance program for strength and mobility- Continue to maintain strength and mobility of ankle and foot to preserve the life of the components- Participation in low/no impact sports	

NO PATIENT WITH A TOTAL ANKLE ARTHROPLASTY SHOULD BE DOING A JOB, SPORT, OR ACTIVITY CAUSING SIGNIFICANT, REPETITIVE, HIGH IMPACT TO THE JOINT

The most important aspects of good functional outcome are:

- AROM of the ankle
- Strength of the posterior muscle groups of the leg
- Balance

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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
- *****Not before 13 weeks***
 - o Bipedal standing heel raises with single leg lowering on affected side
 - o Single leg heel raises

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