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Post-Operative Protocol: Cavus Foot Reconstruction

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 (0-3 WEEKS)	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
	<ul style="list-style-type: none"> - NWB - Elevation of affected side in supine "Toes above the Nose" *50+ minutes elevation/hour with a MAXIMUM 2 hours/day non-elevated until follow-up with surgeon - Do not get the foot wet - Do not change bandage *Blood drainage through bandage can occur 	<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 - Promote incision healing - Protect repair - 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) 			
INTERMEDIATE POST-OP (4-6 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"> - NWB in boot - Avoid passive & active IV - May remove boot for ROM exercises 	<p>MOBILITY</p> <ul style="list-style-type: none"> - Toe, foot, and 3-way ankle ROM <p>*Avoid IV</p>	<ul style="list-style-type: none"> - Restore foot and ankle ROM - Promote incision healing - Control pain and swelling

AROM – Active Range of Motion
 NWB – Non Weight Bearing

EV – Eversion
 WBAT – Weight Bearing as Tolerated

IV – Inversion
 WB – Weight Bearing

MMT – Manual Muscle Testing

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INTERMEDIATE POST-OP (4-6 WEEKS)	<ul style="list-style-type: none"> - Seated shower - Activity as tolerated but continue to elevate when able - Elevation of affected side in supine “Toes above the Nose” - Boot stays on for sleep - Avoid post-exercise pain and swelling 	<p>STRENGTH</p> <ul style="list-style-type: none"> - 3-way ankle isometrics in neutral <i>*Avoid IV</i> - Intrinsic foot strengthening <p>OTHER</p> <ul style="list-style-type: none"> - Stationary cycling as tolerated - Scar mobilization once incision is fully healed - Pool exercises once incision is fully healed <i>*Avoid IV</i> - Therapeutic modalities as deemed appropriate by physiotherapist 	<ul style="list-style-type: none"> - Restore foot and ankle strength - Restore cardiovascular endurance - 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 (< 3/10) - Minimal swelling (< 1cm difference in figure 8 measurement) - Incision fully healed 			
LATE POST-OP (7-12 WEEKS)	<p style="text-align: center;">RESTRICTIONS & PRECAUTIONS</p> <ul style="list-style-type: none"> - Protected WBAT in walking boot and “even up” shoe +/- gait aid - May remove boot for sleep - Continue to avoid passive and active IV - Avoid post-exercise pain and swelling 	<p style="text-align: center;">PHYSIOTHERAPY INTERVENTIONS</p> <p><i>*Continue with Physiotherapy Interventions from intermediate post-op phase as appropriate</i></p> <p>MOBILITY</p> <ul style="list-style-type: none"> - Joint mobilizations to foot and ankle as appropriate (do not directly stress repair) <p>STRENGTH</p> <ul style="list-style-type: none"> - 3-way ankle strengthening against resistance <i>*Avoid IV</i> - Seated heel raises <p>OTHER</p> <ul style="list-style-type: none"> - Proprioception (joint position sense) - Bipedal balance exercises 	<p style="text-align: center;">REHABILITATION GOALS</p> <ul style="list-style-type: none"> - Maintain ankle ROM - Increase foot and ankle strength - Restore balance and proprioception - Normalize gait as much as possible in boot and “even up” shoe +/- gait aid - Control pain and swelling
<p><i>Criteria to Progress:</i></p> <ul style="list-style-type: none"> - Minimal post-exercise pain and swelling - Normalized gait pattern +/- gait aid - Symmetrical joint position sense (< 5 degree error) 			

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TRANSITIONAL (13-16 WEEKS)	RESTRICTIONS & PRECAUTIONS	PHYSIOTHERAPY INTERVENTIONS	REHABILITATION GOALS
<i>*Continue with Physiotherapy Interventions from the late post-op phase as appropriate</i>			
	- WBAT - Transition into a regular shoe as tolerated	MOBILITY - Unrestricted 4-way ankle ROM STRENGTH - Unrestricted 4-way ankle strengthening - Standing heel raise progressions OTHER - Gait retraining - Progress to single leg balance exercises as tolerated	- Restore full ankle ROM - Restore full ankle strength - Normalize gait pattern - Return to low-impact activity as tolerated
Criteria to Progress: - Normalized gait pattern without use of gait aid - No post-exercise pain and swelling - Ankle ROM equal to unaffected - > 90% LSI single leg heel raise in both height and number of repetitions - > 90% LSI Y-balance			
ADVANCED POST-OP (17-20 WEEKS)	- No restrictions - Restore full functional ROM in weight bearing	MOBILITY - As per previous phase STRENGTH - Single leg balance and strengthening on stable and unstable surfaces	OTHER - Jogging - Beginner level plyometrics
RETURN TO SPORT (21+ WEEKS)	- No restrictions	- Continue to progress strength, balance and proprioception as tolerated - Sport specific movements/patterns	

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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

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

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