



Phase 1 --- Initial 2-3 weeks of PT

Cavovarus Foot Reconstruction Protocol

Focus area: Motion		Focus area: Strength		Focus area: Proprioception	
PT	Patient Homework	PT	Patient Homework	PT	Patient Homework
Joint mobilizations of foot/ankle to improve active ROM (plantar/dorsiflexion)	A. Foot on floor (seated or standing) using pain and swelling to guide (if increased then rest)-- **See home exercise video	Toe curls and toe extensions for foot intrinsics (start seated and progress to standing)		BAPs board seated no greater than level 2. Progress to bilateral standing or "surfer" BAPs	
Stationary bike with min to no resistance (pain free)	B. Calf stretch as directed by PT-- **See home exercise video	Pain free Total Gym or leg press		Rocker board bilateral stance; standing; sagittal plane	
Gentle calf stretch (gastroc and soleus) Seated with towel stretch initially progressing to standing runners stretch with medial arch support	C. Seated heel and toe lifts progressing to standing heel and toe lifts with hand support (wall, countertop, etc)-- **See home exercise video**	Pain free forward lunges (progressing to dumbbells)	D. Pain free forward lunges (progressing to dumbbells)	Stepping clocks of non-involved leg (sagittal and frontal plane)	E. Stepping clocks of non-involved leg (forward and to the side)
General lower extremity stretching (hip and knee) as indicated		Standing nose touches to wall with pain free eccentric control			
Seated heel-toe raises progressing to standing heel-toe raises with hand support (wall, countertop, etc)		Treadmill; pain free; no greater than 2 degrees incline		**PT note: Electrical stimulation, ultrasound, GameReady Ice compression, and/or ice is to be utilized for pain and swelling (position patient with 0 degrees of ankle DF)	

Goals of Phase 1 interventions	Common frustrations	Recommendations	Physician Expectations
1. Improve gait to full weight bearing in regular shoes without assistive devices	4. Increase strength and proprioception	Some pain on outside of ankle- this is normal	Symptoms are common with healing process and decrease symptoms with manual therapy and modalities as needed
2. Wean from walking boot, utilizing the boot only when symptoms increase	5. Educate patient on injury and rehabilitation process	Some heel pain with walking-- this is normal	<ul style="list-style-type: none"> Occasional walking in regular shoes with some difficulty and no assistive device. Stable and controlled pain and edema levels.
3. Stabilize pain and joint effusion	6. Increase ankle joint ROM	Transition out of walking boot	<p>Progress patient out of boot 1-2 hours per day as tolerated by the patient.</p> <p>Sx Description: The high arch and varus hindfoot are corrected by making osteotomies to shift the heel laterally and lower the arch through the midfoot. Soft tissue balancing may also involve lengthening the gastrocnemius or the Achilles tendon, releasing the plantar fascia, and performing a peroneus longus to brevis transfer to decrease the pull of the longus on the base of the 1st metatarsal. About 8 wks is needed for the osteotomies to heal. Typically it will take 4 months for the patient to get back to most of their activities comfortably and 1 year for a full recovery. This protocol is a guideline only. You may use your expertise and clinical judgement to progress the patients towards recovery.</p>
		Increased foot symptoms with use of brace	Consult the physician's office for lack of anticipated progress



Phase II -- weeks 4-6 of PT

Cavovarus Foot Reconstruction Protocol

Focus area: Motion		Focus area: Strength		Focus area: Proprioception	
<i>PT</i>	<i>Patient Homework</i>	<i>PT</i>	<i>Patient Homework</i>	<i>PT</i>	<i>Patient Homework</i>
Continue joint mobilizations as needed to improve DF/PF	F. Progress to full weight bearing in regular shoes without assistive device	Total Gym or leg press unilateral heel raises	G. Progression of standing heel lifts (both legs) holding on to countertop progressing to no hold	Continue with single leg stance with opposite extremity reach into frontal and sagittal planes with progression of distance or standing surface	H. Walking to improve normal walking pattern
Gastroc and soleus stretching in standing and continue general LE stretching		Progress from Total Gym or leg press squatting to full body resistance squats and leg press			I. Begin steamboat activity with light resistance
BAPS with no progression beyond Level 2		Progress height of step up activity and begin low level step downs with focus on quality of movement			J. Continue eccentric activities to single leg tasks
Treadmill forward and backward as tolerated. Elliptical as tolerated.		Lunges into different planes or different surfaces			K. Continue single limb balance progressing from modified single leg stance to single leg stance with dynamic movement

Goals of Phase 2 interventions	Common frustrations	Recommendations	Physician Expectations
1. Increase dorsiflexion/plantarflexion to within 5 degrees of uninvolved ankle	Limited forefoot progression with toe-off phase	Continue with DF mobilizations to improve motion	Walking with increased velocity with minimal difficulty and deviations
2. Progress single limb stance to within 10 seconds of uninvolved limb	Lateral foot pain with walking	Continue with modalities and joint mobilizations	Expected discharge for normal clients if patient has met their own goals
3. Minimal to zero gait deviations with focus on midstance and toe-off phase	Heel pain with walking-- this is normal!	Continue with modalities and joint mobilizations	Do not expect to be able to perform a single leg heel raise at this point
4. Patient to be progressing toward use of regular shoe use 100% of day	Foot symptoms with use of brace	Contact physician office	Swelling and discomfort are a normal part of the healing process
5. Patient to be experiencing minimal pain with every step		Use of modalities as needed for pain management and joint edema	Emphasis must be placed on continuation of independent home exercise program



Phase III --- Return to Sport or Advance Activity Level

Cavovarus Foot Reconstruction Protocol

Focus area: Motion		Focus area: Strength		Focus area: Proprioception	
<i>PT</i>	<i>Patient Homework</i>	<i>PT</i>	<i>Patient Homework</i>	<i>PT</i>	<i>Patient Homework</i>
Joint mobilizations as needed for restricted ROM in any plane at foot and ankle	L. Lower extremity flexibility as needed with stretches learned in Phase I and Phase II	Multiplaner lunges or on dynamic surfaces		Dynamic balance activities on different surfaces with trunk and arm movement	
Treadmill and elliptical trainer as warm-up activities	M. Treadmill and elliptical trainer as warm-up activities	Progression of calf strengthening with focus on single leg heel raises	N. Single leg heel lifts	Begin sport/work specific activities	
		Jogging progression provided patient is able to perform 10 sing leg hops without increased symptoms			
		Plyometric training in frontal plane			
		Resisted leg press or prolonged hold wall squats			
		Eccentric gastroc activities such as controlled SL heel raise or controlled trunk leans in multiplaner positions			
		Begin sport/work specific activities			

<i>Goals of Phase 3 interventions</i>	<i>Common frustrations</i>	<i>Recommendations</i>	<i>Physician Expectations</i>
1. Return to sport or previous activity level	Gastrocnemius/Plantar Flexion weakness	Educate patient that it is a slow recovery process for strength (up to 1 year for strength)	



Return to Running Program

Walking Program

You must be able to walk, pain free, aggressively (4-5 miles per hour) for 30 minutes, preferably on a treadmill, before beginning the walk/jog program. A mile run generally consists of 1500 total foot contacts or 750 per foot. Advanced strengthening/plyometric exercises should be completed at high reps during Phase III of the PTT protocol totaling between 400 to 500 foot contacts/reps per session. This high repetition count of pain free exercises readies your soft tissues for the stress and strain that you undergo while running.

Walk/Jog Progression

You may begin this program on level ground if:

1. Completed the Walking Program and 1 week of Phase III protocol.
2. You have no pain with normal daily activities. (0 out of 10 on pain scale)

Program Progression

1. If the jogging hurts, stop, apply ice and return to the previous stage the next day. If pain/discomfort remains or increases, continue to return to a previous level until discomfort stabilizes or decreases.
2. If you have no pain when doing this activity level or afterwards, and you have no discomfort or tightness that limits your normal movements the next morning, proceed to the next stage.

	Walk	Jog	Repetitions	Total time
Week 1	5 minutes	1 minute	5 times	30 minutes
Week 2	4 minutes	2 minutes	5 times	30 minutes
Week 3	3 minutes	3 minutes	5 times	30 minutes
Week 4	2 minutes	4 minutes	5 times	30 minutes
Week 5	Jog every other day with a goal of reaching 30 consecutive minutes, begin with 5 minutes of walking, gradually increasing the pace. End with 5 minutes of walking, gradually decreasing the pace to a comfortable walk.			