Indiana University Health

IU Health Physicians Orthopedics & Sports Medicine

EXERTIONAL COMPARTMENT SYNDROME RELEASE (FASCIOTOMY)

PHYSICAL THERAPY PROTOCOL

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Patient Name: _____ **Date of Surgery:** _____

___ Evaluate and Treat **___ Provide patient with home program**

Frequency: _____x/week x _____weeks

Weightbearing Guidelines	• WBAT immediately following surgery • Crutches during the first few postoperative days if needed (usually 3-5 days)
ROM Guidelines	• Progress ROM as tolerated starting within the first few postoperative days
Criteria to Discharge Assistive Device	• Pain-free ambulation with normalized gait pattern
Criteria to Initiate Running/Jumping	• Ability to tolerate 15-30 minutes of continuous aerobic activity without onset of symptoms/pain • 5/5 pain-free ankle strength of involved compartment • Ability to complete single leg functional movements (i.e. squats and lunges) with proper mechanics and no pain • No increase in swelling 12-24 hours following physical activity • No pain 1-2 hours following physical activity
Criteria to Return to Sport	• Meet criteria to initiate running/jumping • Proper neuromuscular control of eccentric and concentric multi-planar activities with absence of pain, instability and swelling • At least 90% plantarflexion strength of uninvolved side assessed with unilateral heel raises on leg press or maximum heel raise repetitions with equal heel height
Outcome Tools	• FAAM (ADL and Sports subscales) • LEFS

Weeks 0-3: Protection and Mobility

Weightbearing	• WBAT with progression to full, pain-free weight bearing with ambulation • Axillary crutches (or other AD) if needed in the first few postoperative days • Discontinue crutches when gait is normalized
Precautions	• Avoid activities that increase swelling (i.e. extended sitting, tight clothing proximal to site of surgery, and excessive heat such as a hot pack or bath) • Avoid friction over new scar formation at incision site • Avoid high impact activity such as running, jumping, and hopping
Edema Control	• Gentle distal to proximal massage of lower leg to assist with venous return and reduce swelling • Ankle pumps (can perform with lower extremity elevated to assist with swelling reduction)

ROM	• NWB ankle PROM and AROM
	  • PF, DF, inversion, eversion
	  • Alphabet exercise
	  • Seated BAPS
	• Knee PROM and AROM as needed

Strengthening	• Sub-maximal isometric strengthening
	  • Ankle PF, DF, inversion, eversion
	• Quad sets
	  • Progress to SAQ, LAQ and SLR
	• 4-way hip
	  • Progress from non-weight bearing to standing

Goals to Progress to Next Phase	• Lower leg circumference within 2 cm of uninvolved side • Knee and ankle AROM equal to uninvolved side • Normalized gait mechanics including full pain-free weight bearing on level surface, and equal step length bilaterally

Weeks 4-6: Light Strengthening

Precautions	• Limit swelling by minimizing prolonged weight bearing activity • Continue to avoid friction over new scar formation at site of incision • Avoid excessive weight bearing eccentric loading • Avoid high impact activity such as running, jumping and hopping

ROM	• Initiate scar massage/mobility and desensitization when incision is fully healed
	• Gentle ankle stretching
	  • 30-60 second holds
	• Nerve mobilizations in supine
	  • Focus on involved compartment (i.e. ankle PF and inversion to focus on common peroneal nerve)
	  • Progress repetitions and range of motion as tolerated
	• BAPS progression (seated →standing)

Strengthening	• Start open kinetic chain ankle strengthening
	  • 4 way ankle with theraband resistance
	• Balance and proprioception exercises
	  • Bilateral → unilateral
	  • Level, firm surface → soft/unstable surface (foam or BOSU) → balance board
	  • Eyes open → head turns → eyes closed
	• Double leg squats: mini-squats →full squats
	• Gait drills
	  • Sagittal plane → frontal and transverse planes
	  • Forward and retro marching (sagittal plane), side-stepping (frontal plane), and carioca/grapevine walking (transverse plane)

Cardiovascular	Only initiate the following when incision is fully healed: • Stationary bicycle starting with 5-10 minutes at a low resistance and speed • Treadmill walking starting with 5-10 minutes at 2-3 mph and progress time and speed as able • If desired, may begin aquatic activities/swimming starting with 10-15 minutes and progressing time/amount as able
Goals to Progress to Next Phase	• Lower extremity circumference within 1 cm of uninvolved side • Ability to maintain single leg stance with eyes open on unstable surface for 30-60 seconds • Ankle DF ROM equivalent to uninvolved side measured in weight bearing lunge position • Proper lower extremity mechanics with no pain during functional double leg squats

Weeks 6-8: Progression of Strengthening/Return to Jogging

Precautions	• Continue to limit activities which increase swelling • Limit friction over scar tissue • No strenuous or painful activities
ROM	• Continue stretching and nerve mobilizations as needed • Lower extremity soft tissue mobilization to improve flexibility and soft tissue mobility of the lower leg • Instrument assisted, foam roller, massage stick roller

Strengthening	• Progression of closed chain functional strengthening
	  • Lunges, step-ups, single leg squats
	  • Double leg heel raise → single leg heel raise
	  • Can combine with gait drills such as marching, or heel/toe walking
	• Initiate plyometric exercises at 6 weeks
	  • Plyometric shuttle (DL→SL jumping)
	  • DL jumping →SL jump to contralateral foot (leaping) → SL jump to same foot (hopping)
	  • Progress repetitions, and height/distance as able

Cardiovascular	• Initiate or progress aquatic activities/swimming if wounds are fully healed
	• Progressive treadmill walking time and speed
	• Light jogging can be initiated on level surface
	  • 6-8 weeks for 1-2 compartment release
	  • 8-10 weeks for 4 compartment release
	  • Progressive walk-jog interval training

Goals to Progress to Next Phase	• Complete 15-30 minutes of continuous aerobic activity without symptoms or pain • 5/5 pain-free ankle strength of muscles in involved compartment • Ability to complete SL functional movements (such as SL squats and lunges) without pain, and with proper mechanics • No residual swelling 12-24 hours following physical activity • No pain 1-2 hours after physical activity

Weeks 8-12+: Return to Sport/Impact Training

Precautions	• Continue to avoid pain and increased swelling during and following activity
ROM	• Continue knee and ankle stretching and ROM exercises as appropriate

Strengthening	• Progress strengthening exercises to promote stability and neuromuscular control with increased loads and speeds
	  • Low velocity, single plane activities →higher velocity, multi-plane activities
	  • Forward and backward →side-to-side and transverse plane movements
	• Sport-specific training beginning at a low-intensity
	  • Instruct patient on gradual return to sport/activity progression
	• Biomechanical assessment of specific sport activity with video analysis as needed
	  • Running gait: Forefoot strike running pattern reduces intracompartmental pressure

Goals to Progress to Return to Sport/Work	• Meet criteria to initiate running/jumping • Proper neuromuscular control of eccentric and concentric multi-planar activities with absence of pain, instability, and swelling • At least 90% plantarflexion strength of uninvolved side assessed with unilateral heel raises on leg press or maximum heel raise repetitions with equal heel height

Reference: *https://wexnermedical.osu.edu*

By signing this referral, I certify that I have examined this patient and physical therapy is medically necessary. This patient __ would __would not benefit from social services.

_____ Date:_____

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