
**REHABILITATION PROGRAM:
Compartment Syndrome Release with Open Fasciotomy**

NOTE: The following instructions are intended for your physical therapist and should be brought to your first physical therapy visit.

❖ **INTRODUCTION**

The intent of this protocol is to provide the therapist with guidelines of the post-operative rehabilitation course after unilateral or bilateral compartment syndrome release with open fasciotomy. It should not be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam findings, individual progress, and/or the presence of post-operative complications. The therapist should consult the referring physician with any questions or concerns.

PHASE I (surgery to 2-3 weeks after surgery)

Goals

- Protection of the post-surgical compartment(s)
- Non-antalgic Gait
- Minimize post-op swelling, lower extremity circumference within 2 cm of uninvolved side at mid-calf
- Restore normal knee and ankle ROM
- Ability to lift involved leg in all directions in standing without pain or compensation
- Restore ability to control leg in open and closed kinetic chain during gait

Brace

- Boots to be worn whenever ambulating or putting weight on lower extremities.
- Crushed ice in plastic bag or Cryocuff 3 times per day for 20 minutes and ice after every therapy session

Weight-Bearing Status

- Weight-bearing as tolerated while in boots with crutches, walker, or wheelchair as needed

Therapeutic Exercises

- Passive and gentle Active ROM of ankle to maintain extensibility of soft tissues as they heal to prevent postoperative contractures
- Quadriceps sets

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- Leg lifts for hip strength
- Elevation, compression, and icing as needed for pain and swelling
- Active muscle pumping for swelling control
- Gentle distal-to-proximal massage to assist with venous return and swelling

PHASE II (4 weeks following surgery)

Criteria

- Goals from Phase I met

Goals

- Lower extremity circumference within 1 cm of uninvolved side
- Incisions well healed
- Minimize muscle atrophy and flexibility deficits in involved compartment
- Single leg stance control with eyes open
- Full flexibility/mobility of gastrocnemius/ankle
- Maintain motion and strength of uninvolved muscle groups, as well as cardiovascular endurance
- Perform active or gentle resistive exercises of the hip and upper extremities
- Proper lower extremity control and alignment with no pain during functional double leg squats
- Non-antalgic gait on level surface with FWB and no assistive device

Brace/Weight-bearing status

- Full weight-bearing, no crutches or brace as tolerated

Precautions

- Avoid over-stressing new scar formation by avoiding any friction over tissue
- Avoid post-activity swelling by limiting prolonged weight bearing activity as appropriate
- Manage swelling as if occurs with rest, ice, compression, elevation
- Avoid eccentric loading

Therapeutic Exercise

- Scar massage/mobility and desensitization
- Gentle stretching and nerve mobilization to tissue in involved compartment
- Progress open kinetic chain ankle strengthening as tolerated
- Balance and proprioception exercises
 - Progression of bilateral to unilateral activities first on a level, firm surface then on a soft/unstable surface
- Gait drills
 - Begin with sagittal plane and progress to frontal and transverse planes
- May begin stationary bike if wound healed
- Begin treadmill or track walking if wound is healed, progress time and speed as able

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- May swim or water walk if wound is FULLY healed

PHASE III (6 weeks +)

Criteria

- Goals from Phase II met

Goals

- Prevent post-op recurrence of symptoms with all activity
- Tolerate 15-30 minutes of continuous aerobic activity without the onset of symptoms/pain
- Reinforce self-monitoring and review signs of recurrence and complications
- Normal pain-free ankle ROM and strength
- Proper lower extremity control and alignment and no pain with single leg functional movements including squats and lunges
- No residual swelling 12-24 hours following all physical activity, including impact exercises
- No pain 1-2 hours following physical activity, including impact exercises

Precautions

- Avoid friction over scar tissue
- Avoid post-activity swelling
- No strenuous activity until wound is fully healed
- No running until 8 weeks postop
 - Patient must receive clearance from Dr. Kerns to progress with jogging prior to PT initiating
- Avoid pain with any exertional activity

Therapeutic Exercise

- Lower extremity stretching and nerve mobilizations as appropriate
- Lower extremity myofascial stretching/foam rolling
- Progression of lower extremity closed chain functional strengthening including lunges, step-back, and single leg squats
- Progress heel rise to single leg
- Progress gait drills
- Initiate plyometric exercises
 - Focus on lower extremity control and alignment at hip, knee and ankle
 - Progress from 1 foot to other hopping, then single leg hopping
 - Focus on proper landing/deceleration mechanics



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PHASE IV (8-12 weeks)

Criteria

- Goals from Phase III met

Goals

- Proper dynamic neuromuscular control and alignment with eccentric and concentric multi-plane activities including impact for return to sport without pain, instability, or swelling
- Within 90% of pain free planarflexion and dorsiflexion strength

Precautions

- Avoid pain with any exertional activity
- Avoid post-activity swelling

Therapeutic Exercises

- Biomechanical assessment of specific sport activity with video analysis as needed
- Instruct proper return to activity progression
- Progressive strengthening exercises using higher stability, and neuromuscular control with increased loads and speeds and combined movement patterns
 - Begin with low velocity, single plane activities and progress to higher velocity, multi-plane activities
 - Begin with forward and backward, progress to side to side, diagonals and transverse plane movements

PHASE V (12 weeks +)

- Patient may return to sport/work if they have met the above stated goals and have approval from Dr. Kerns
- Precautions to reduce the risk of re-injury when returning to sports or high-demand activities as appropriate