

## **Compartment Syndrome Release with Open Fasciotomy Rehabilitation Protocol**

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This protocol provides you with general guidelines for initial stage and progression of rehabilitation according to specified time frames, related tissue tolerance and directional preference of movement. Specific changes in the program will be made by the physician as appropriate for the individual patient.

\*\*\*\*Please fax initial assessment and subsequent progress notes directly to TCO at 952-944-0460\*\*\*\*

REMEMBER: It can take up to a year to make a full recovery, and it is not unusual to have intermittent pains and aches during that time!

### **PHASE I: WEEKS 1- 2/3**

- Appointments begin 5-7 days after surgery and continue one time every 5-10 days

#### **Goals**

- Rest and recovery from surgery
- Control swelling and pain
- Gradual increase of ADL (activities of daily living)
- Instruction in safe positioning and leg self-management
- Restore normal knee and ankle range of motion
- Able to lift leg involved leg in all directions in standing without pain or compensation
- Restore ability to control leg in open and closed kinetic chain during gait
- Non-antalgic gait

#### **Guidelines**

- Education: surgery, anatomy, healing time, rehab phases
- Will use crutches for gait with progressive weight bearing as tolerated
- Avoid any activity which causes increased swelling
- Avoid any friction on new scar
- Avoid any impact activity including running, jumping, or hopping (6-8 weeks)
- Encourage ADL as much as possible
- Rest and elevation between ADL

#### **Exercises**

- Ankle AROM: begins immediately to maintain extensibility of soft tissues as they heal to prevent postoperative contractures; progress to open kinetic chain strengthening with theraband as able
- Quadriceps sets
- Leg lifts for hip strength
- Elevation, compression, and icing, as needed, for swelling control
- Active muscle pumping for swelling control
- Gentle distal-to-proximal massage to assist with venous return and swelling

### **General Fitness**

- Upper body circuit training or upper body ergometer; Begin with 5-10 minutes, 1-2 times/day, and progress as able

## **PHASE II: WEEKS 2/3 - 6**

- Appointments are one time per week on average

### **Goals**

- Lower extremity circumference within 1 cm of uninvolved side
- Incision 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 & strength of uninvolved muscle groups, as well as cardiovascular endurance
- Perform active or gentle resisted exercises of the hip of the operated lower extremity and resistance exercises of the upper extremities
- Proper lower extremity control and alignment with no pain during functional double leg squats
- Non-antalgic gait on level surface with full weight bearing and no assistive device

### **Guidelines**

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

### **Exercises**

- Scar massage/mobility and desensitization
- Gentle stretching and nerve mobilizations to tissue in involved compartment
- Progress open kinetic chain ankle strengthening as tolerated
- Balance and proprioception exercises: progression of bilateral to unilateral balance 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

### **General Fitness**

- Upper body circuit training or upper body ergometer; Begin with 5-10 minutes, 1-2 times/day, and progress as able
- May begin stationary biking if wound is healed
- Begin treadmill or track walking if wound is healed; progress time & speed as able
- May swim or water walk if wound is FULLY healed

## **PHASE III: WEEKS 4/6 – 8/12**

- Appointments are once every 7-10 days

### Goals

- Prevent post-operative 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 (rated 5/5) ankle strength and pain free
- 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)

### Guidelines

- Avoid friction over scar tissue
- Avoid post-activity swelling
- No strenuous activity until wound is fully healed
- No running until 6-8 weeks postoperatively (patient should be advised by sports rehabilitation provider or physician prior to initiation of any running)
- Avoid pain with any exertional activity

### Exercises

- 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-backs, and single leg squats
- Progress heel rise to single leg
- Progress gait drills
- Initiate plyometric exercises (with focus on lower extremity control and alignment at hip, knee, and ankle) at 6 weeks; begin with 2 feet to 2 feet (jumping) progressing from 1 foot to other (leaping) and then 1 foot to same foot (hopping); and focus on proper landing/deceleration mechanics

### General Fitness

- Initiate or progress swimming or water walking if wound is fully healed
- Progress walking time and speed
- May begin elliptical trainer as tolerated
- Light jogging can be initiated at 6-8 weeks; initially begin on level surface while avoiding hills and speed work; runners should consider interval training involving walking; progress jog interval times, incline, and speed as appropriate for return to sport/activity goals; and for those returning to multi-planar sport, consider progression of multiplanar activity

## PHASE IV: WEEKS 8-12

- Appointments are once every 2-3 weeks

### Goals

- Proper dynamic neuromuscular control and alignment with eccentric and concentric multi-plane activities (including impact) for return to work/sports, without pain, instability or swelling
- Within 90% of pain free plantarflexion and dorsiflexion strength

### **Guidelines**

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

### **Exercises**

- Biomechanical assessment of specific sport activity with video analysis as needed (running, biking, etc.)
- Instruct in proper return to activity progression (incremental running, biking, etc.)
- 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; and begin with forward and backward, progress to side-to-side, diagonals and transverse plane movements
- Integrate movements and positions into exercises that simulate functional activities; and initiate sport-specific training with low-intensity simulated movements

### **General Fitness**

- Replicate sport or work specific energy demands

## **\*\*RETURN TO SPORT\*\***

- Patient may return to sport/work if they have met the above stated goals and have approval from the sports rehabilitation provider or physician
- Precautions to reduce the risk of re-injury when returning to sports or high-demand activities as appropriate; if collision/contact sport, may consider protective padding over area of scar tissue