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POST-OPERATIVE REHABILITATION PROTOCOL

Fasciotomy

Exertional Compartment Syndrome Release

WEIGHTBEARING GUIDELINES

- WBAT immediately following surgery; crutches during 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 12024 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.

Phase I

- 0–3 weeks - Protection and Mobility; weightbearing
- WBAT with progression to full, pain-free weight bearing with ambulation.
- Auxillary 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 SL.
- 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.

Phase II

- 4–6 weeks - 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 mobilization 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 to standing); strengthening
- Start open kinetic chain ankle strengthening; 4 way ankle with theraband resistance.
- Balance and Proprioception exercises; bilateral to unilateral.
- Level, firm surface to soft/unstable surface (foam or BOSU) to balance board; eyes open to head turns to eyes closed.
- **Double leg squats:** mini-squats to full squats; gait drills; sagittal plane to frontal and transverse planes.
- Forward and retro marching (sagittal plane), side-stepping (frontal plane), and carioca/grapevine walking (transverse plane).

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.

Phase III

- 6–8 weeks - Progression of Strength/ 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 g single leg raise; can combine with gait drills such as marching, or heel/toe walking.
- Initiate plyometric exercises at 6 weeks; plyometric shuttle (DLg SL jumping).
- DLg SL jump to contralateral foot (leaping) g SL jump to same foot (hopping).
- Progress repetitions, and height/distance as able; cardiovascular
- Initiate or progress aquatic activities/swimming in 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 or 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.

Phase IV

- 8–12+ weeks - 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
- Progression strengthening exercises to promote stability and neuromuscular control with increased loads and speeds.
- Low velocity, single plane activities g higher velocity, multi-plane activities.
- Forward and backward g 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.

Return to Sport & Discharge Criteria

- Wounds healed; compartments soft and pain-free with activity
- Pain-free return-to-running progression; cleared by Dr. Kelly

Time frames are guidelines — progress when phase goals are met, per Dr. Kelly and the treating therapist.