Foot & Ankle Center
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Calcaneal Fracture

Phase 1 – Maximum Protection Phase (0-8 weeks)

Goals for Phase 1

- Education of injury and surgical precautions
- Decrease edema
- Pain reduction
- Scar tissue mobility
- Increase ankle ROM
- Prevent muscular inhibition of LE

Precautions

- Boot to be worn at all times for ambulation
- No INV or EVERSION
- No kicking in the pool for 12 weeks
- Prevention of peroneal tendonitis

Post-Op Physical Therapy

- 1st physical therapy visit to occur 6 weeks post-op (PROM check)

Weight Bearing/Immobilization

- **Non-Weight bearing** wearing walking boot for 6-8 weeks

Range of Motion

- PROM check to be performed at 6 weeks post-op
- Dorsiflexion: 0-10°
- Plantarflexion: 0-20°
- **NO inversion** or **eversion** to be performed in this phase
- If **PASS** PROM check, begin follow-up in physical therapy at 8 weeks post-op
- If **DOESN'T** pass PROM check, begin follow-up in physical therapy immediately

Manual Therapy

- Scar mobility following closure of incision
- Gentle flexibility for gastroc/soleus and lower extremity musculature
- PROM/AROM ankle DF/PF within above listed ROM
- Joint mobilization (Grades I-II)
  - Emphasis on enhancing DF ROM if patient does not pass above ROM check

Strengthening

- Stationary Bike
- Limited foot intrinsic strengthening (towel crunches, marble pick-ups, etc.)
- Quadriceps/Glut setting
- Hip strengthening
  - Multi-plane OKC SLR, straight leg bridging, etc
- Core strengthening

Aquatics

- Initiate pain free aquatic therapy program (incisions must be closed)
- Focus on normalizing gait pattern and conditioning

Modalities

- Vasopneumatic compression/intermittent compression for edema management, 2-3x/week (15-20 min)
- Cryotherapy at home, 3 x per day for 20 minutes, ankle elevated above heart
- Contrast baths beneficial to reduce edema

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Phase 2 – Moderate Protection Phase (8-12 weeks)

Goals for Phase 2

- Minimize effusion
- Pain reduction
- Restore ankle AROM
- Progress to full weight bearing in walking shoe

Precautions

- No inversion PROM or AROM
- No kicking in pool for 10 weeks
- Prevention of peroneal tendonitis
- Avoidance of impact activity for 24+ weeks
- Anticipate some heel and anterior ankle pain

Immobilization

- Walking boot: decrease dependence on walking boot as pain permits (8-10 weeks) with gradual progression to full weight bearing out of boot

Weight Bearing

- Slow progression back to full weight bearing, with body weight percentage increasing by 25% every 3-4 days if patient has controlled pain and controlled effusion

Range of Motion

- Dorsiflexion: 0-10°
- Plantarflexion: 0-40°
- Initiate inversion/eversion range of motion exercises to tolerance
- Possible exercise choices: standing gastroc/soleus stretch, sitting rocker board, bilateral BAPS board level 1, ankle ABC's, etc.

Manual Therapy

- Continue scar mobility
- Flexibility of gastroc/soleus and lower extremity musculature
- PROM to patient tolerance
- Joint mobilization to talocrural joint (Grades I-II)
  - Emphasis on enhancing DF ROM to reach 10°

Strengthening

- Ankle and Foot Strengthening
  - Progression from non-weight bearing to full weight bearing
  - Possible exercise choices: bilateral heel raisers, single leg stance, multi-directional step-ups
- Lower Extremity Strengthening
  - Hip strengthening (standing 3-way hip, hip dips, bridging, etc.)
  - Quad strengthening (leg-press, step-ups, wall squats, etc.)
  - Hamstring strengthening (prone hamstring curls, physio-ball curls, etc.)

Aquatics

- Continue aquatic therapy program
- Focus on normalizing gait pattern, general lower extremity strengthening, and endurance

Neuromuscular Control

- Double leg balance tasks with soft ankle brace
- Stable surfaces only

Modalities

- Vasopneumatic compression for edema management, 2-3x/week (15-20 min)

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Phase 3 – Minimum Protection Phase (12-16 weeks)

Goals for Phase 3

- Restore ankle ROM
- Increase neuromuscular control tasks in a safe environment
- Restore full strength of ankle and lower extremity

Precautions

- No kicking in pool for 10 weeks
- Prevention of peroneal tendonitis
- Avoid twisting and pivoting motions for at least 16 weeks
- Avoidance of impact activity for 24+ weeks
- Anticipate some heel and anterior ankle pain

Immobilization/Weight bearing

- Full weight bearing in normal walking shoe

Range of Motion

- Restore full ankle ROM in all planes

Manual Therapy

- Continue scar mobility as needed
- Flexibility of gastroc/soleus and lower extremity musculature
- PROM in all planes to patient tolerance
- Joint mobilization to talocrural joint (Grades I-III)
  - Emphasis on enhancing DF ROM to reach 10°
  - Gentle rearfoot distraction to be added in this phase

Strengthening

- Stationary bike or elliptical
- Ankle and Foot Strengthening
  - Full weight bearing strengthening with progression from double leg to single leg as tolerated
  - Possible exercise choices: bilateral/single leg heel raisers, lateral band walking, supinated single leg stance, etc)
- Lower extremity strengthening
  - Hip strengthening (CKC hip strengthening, multi-hip machine, etc.)
  - Quad strengthening (Squats, TRX squat, lunges, single leg squat, etc.)
  - Hamstring strengthening (single leg physio-ball curls, single leg RDL etc.)
- Core strengthening

Aquatics

- Continue aquatic therapy program as needed based on pain and gait deviations

Neuromuscular Control

- Continue proprioception training
  - Progression to unstable surfaces, perturbations, and/or dual tasking (Double leg → Single leg)

Modalities

- Cryotherapy as needed to reduce post exercise inflammation

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Phase 4 – Return to Activity Phase (16-24 weeks)

Goals for Phase 4

- Progress single leg muscle strength, endurance and balance
- Initiate submaximal impact activity
- Work specific tasks with anticipated return to work activities 8-9 months post-op

Home Exercise Program at Discharge

- Continue ROM
- Standing gastroc/soleus stretching
- Step-up progressions
- Straight knee and bent knee heel raisers
- Single leg squat
- Lunge progression
- Single leg deadlift
- SL balance – with movement out of base of support

Post-Op Physical Therapy

- Reduce frequency of physical therapy to one visit each week or bi-weekly

Weight bearing/Range of motion

- Full weight bearing without restriction
- Restore full ankle ROM in all planes

Manual Therapy

- Restore lower extremity flexibility
- PROM in all planes, as needed
- Joint mobilization to talocrural joint (Grades III-IV), as needed

Strengthening

- Stationary bike or elliptical
- Unilateral gym strengthening program (single leg calf raises, single leg squats, eccentric leg press, step-up progression, multi-directional lunges)
- Initiate sub-maximal impact activities
  - 24 + weeks: initiation to impact activity with clearance from physician, sub-maximal bodyweight (pool, GTS, plyo-press, Alter G), sagittal plane only
  - 36 + weeks: progression to light full impact activity with clearance from physician only
- Core strengthening
- Progression to HEP (see side column)

Neuromuscular Control

- Advanced proprioception
  - Un-stable surfaces
  - Perturbations
  - Dual tasking
  - Add sport/work specific balance tasks as able

Modalities

- Cryotherapy after activity to reduce post exercise inflammation

This protocol was updated and reviewed by Dr. Devries and Dr. Scharer of BayCare Foot & Ankle Center and Rebecca Yde, PT, DPT on 2/23/15.

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