TOTAL ANKLE ARTHROPLASTY POST-OPERATIVE GUIDELINES

The following total ankle arthroplasty guidelines were developed by HSS Rehabilitation. Total ankle arthroplasty is primarily intended to maximize gait efficiency while maintaining functional ankle mobility. Post-operative ankle strength will allow for functional gait and stair climbing although will likely remain somewhat limited. Return to impact activities/sports is not recommended as these activities may shorten the survivability of the implant. Although residual pain from soft tissue degeneration or adjacent joint disease may persist, pain at the talocrural joint will be reduced.

Progression is both criteria-based and patient specific. Phases and time frames are designed to give the clinician a general sense of progression. The rehabilitation program following total ankle arthroplasty emphasizes restoration of motion and gait. The program should balance the aspects of tissue healing and appropriate interventions to maximize function.

Follow physician modifications as prescribed.
TOTAL ANKLE ARTHROPLASTY POST-OPERATIVE GUIDELINES

Pre-Operative Phase

PRECAUTIONS

- Non-weight bearing (NWB) post-operatively with splint/boot
- Elevation of operated lower extremity (LE) 80%-90% of the time (follow MD guidelines)

ASSESSMENT

- Foot and Ankle Disability Index (FADI)
- Lower Extremity Functional Scale (LEFS)
- Numeric Pain Rating Scale (NPRS)
- Ankle active and passive range of motion (AROM, PROM)
- Upper extremity (UE) and LE strength screen
- UE and LE AROM screen
- Pre-operative function
- Safety with assistive devices (crutches, rolling walker, knee scooter)

TREATMENT RECOMMENDATIONS

- Familiarize with post-operative plan of care and set expectations
- Immediate post-operative support plan for return to work or school
- Safety and falls prevention education
- Home environment modification (e.g. access including bathroom, removal of throw rugs, taping of electrical cords on floors, lighting, grab bars)
- Education regarding modifications of activities of daily living (ADLs) (e.g. food preparation, groceries, shower chair or bench, cast cover for bathing, elevated toilet seat or commode)
- Gait and stair training with weighted boot and assistive devices (crutches, rolling walker, knee scooter)
- Removable external shoe lift for non-operative foot
- Optional rental of wheelchair with elevating leg rests
- Education regarding pain management, edema control, wound care, weight bearing (WB) restrictions, and signs and symptoms of infection and deep vein thrombosis
- Proximal LE and core strengthening, UE strengthening as needed (e.g. chair push-ups)
CRITERIA FOR ADVANCEMENT
  • Patient able to verbalize post-operative plan of care

EMPHASIZE
  • Familiarity with post-operative plan of care and expectations
  • Preparation for NWB post-operatively
  • Patient safety and falls prevention
TOTAL ANKLE ARTHROPLASTY POST-OPERATIVE GUIDELINES
Acute Care Phase (Days 0-2)

PRECAUTIONS
- LE must be elevated on at least two pillows for 80%-90% of the time (follow MD instructions)
- Avoid having lower extremity in prolonged dependent position
- Keep knee extended when resting- pillows should be placed from calf down
- Walking is for functional home mobility and short distances only- wheelchair or knee scooter should be used for longer distances
- Non-removable splint must be kept dry at all times

ASSESSMENT
- Mental status (alert and oriented x 3)
- NPRS
- Activity Measure for Post-Acute Care (AM-PAC)
- Dressing check
- Swelling
- Post-anesthesia UE and LE sensory motor screening
- Functional status- bed mobility, transfers, ambulation, stair mobility if required

TREATMENT RECOMMENDATIONS
- Transfer training: in and out of bed and sit to stand- chair, toilet
- Gait training with appropriate device on level surfaces while maintaining NWB status
- Stair training if required NWB with crutch and rail or seated bump up method
- ADL training and home modifications
- Cryotherapy for pain control over soft portion of splint and/or proximally
- Elevation of LE to prevent swelling (educate patient in “toes above nose”)
- Promotion of knee extension while elevated
- Therapeutic exercise with focus on maintaining non-operative LE and bilateral UE motion, flexibility and strength (with MD approval)
CRITERIA FOR ADVANCEMENT

- Understanding of elevation protocol and other precautions
- Good pain control
- Safe ambulation NWB with appropriate device on level surfaces independently or with assistance of family member/friend if consistently present at home
- Safe stair negotiation if required while maintaining NWB status independently or with assistance of family member/friend if consistently present at home
- Independent with transfers
- Discharge home within 1-2 days when goals have been achieved and with MD clearance
- Note that acute care phase protocol is maintained for approximately 4 weeks (until patient is cleared by MD to begin outpatient physical therapy)

EMPHASIZE

- Control swelling
- Elevation protocol
- Independent transfers
- Gait training NWB
- Safe stair mobility if required
TOTAL ANKLE ARTHROPLASTY POST-OPERATIVE GUIDELINES

Post-Operative Phase 1: Weeks 4-8

PRECAUTIONS

- Partial weight bearing (PWB) progression increases approximately 25# per week
- If calcaneal osteotomy is performed, phase 1 is typically delayed to weeks 6-10
- If diabetic, healing times and WB progression is typically delayed
- Be mindful that concomitant surgeries such as ligament repairs or reconstructions may affect treatment choices and rate of progression

ASSESSMENT

- FADI
- LEFS
- NPRS
- Wound status
- Swelling
- Screen for deep vein thrombosis
- Sensory screen
- LE AROM/PROM and flexibility focusing on ankles and hips
- Ankle joint mobility
- Strength – manual muscle testing (MMT) focusing on ankles and hips
- Gait PWB with crutches

TREATMENT RECOMMENDATIONS

- Progressive gait training
- Ankle AROM
- Seated closed chain ankle AROM, progressively adding upper body weight resistance (e.g. heel raise progression, ankle inversion and eversion, multidirectional wobble board)
- Joint mobilizations with focus on talocrural and tibiofibular joints when wound is closed
- Progress hip flexibility with emphasis on extension
- Progress to standing exercises respecting WB status
  - Runners gastrocnemius stretch with rear LE within WB restrictions when 25% WB
  - Progress to toe articulation (push off motion with rear foot)
  - Progress to soleus stretch when 50% WB
  - Bilateral mini-squats when 50% WB
• Initiate balance/proprioception exercise training respecting WB status
  o Multidirectional wobble board
  o Weight shifting (using scale to assess load)
• Strengthening
  o Proximal LE
  o Bilateral heel raise progression: seated, seated with load, leg press, standing with upper body support, standing unsupported
  o Intrinsics
    ▪ Arch doming progressing from seated to standing
    ▪ Marble pick ups
• Bike when 50% WB
• Aquatic exercise if accessible when incision healed and cleared by MD
• Desensitization
  o Ball massage on sole of foot
• Scar mobilization, silicone strips, moisturizing when wound is healed

CRITERIA FOR ADVANCEMENT
• Stable/controlled swelling
• Wound closure
• Bilateral standing heel raises
• Full weight bearing (FWB) in from controlled ankle motion (CAM) boot with or without assistive device

EMPHASIZE
• Gait training with gradual progression of WB
• LE ROM and flexibility exercises emphasizing ankle and hip while respecting WB and wound status
• Progression to closed chain exercises
TOTAL ANKLE ARTHROPLASTY POST-OPERATIVE GUIDELINES
Post-Operative Phase 2: Weeks 9-12

PRECAUTIONS
- Avoid weaning off assistive device and CAM boot when excessive pain or compensatory movements persist
- Monitor for plantar fasciitis and metatarsal head pain

ASSESSMENT
- FADI
- LEFS
- NPRS
- Wound/scar status
- Swelling
- Screen for deep vein thrombosis
- Open and closed chain ankle AROM/PROM
- Ankle, mid-foot and metatarsophalangeal (MTP) joint mobility
- Functional strength of LE
- Movement strategies for squats and stairs
- Single leg stance (SLS) with assessment of foot tripod (calcaneus, 1st and 5th metatarsal heads)
- Gait quality FWB without assistive device

TREATMENT RECOMMENDATIONS
- Patient education on appropriate footwear
  - Consider supportive sneakers, foam padding, taping, rocker bottom shoe if difficulty with rollover/push off phase of gait
- Gait training weaning from CAM boot and assistive device
  - Encourage step through pattern
- Forward step up progression and stair ascension
- AROM/PROM and mobilization
  - Progress closed chain ROM: half-kneel, step stretching, flat footed squat with knees over toes and UE support
  - Progress great toe ROM
  - Mobilization of 1st MTP, talocrural and subtalar joints
  - Lunging with elastic band or strap for talocrural self-mobilization
• Progress unilateral static and dynamic standing balance/proprioceptive exercises
  o Unstable surfaces e.g. foam, rocker board
  o Single leg activities with attention to equal weight bearing on 3 points of foot tripod
• Strengthening
  o Progress from bilateral to unilateral standing exercises, e.g. heel raises
  o Progress to dynamic, closed chain proximal LE strengthening and discontinue table exercises
• Progress cardiovascular conditioning
  o Elliptical (forward and backward)
  o Encourage gym program
• Continue aquatic exercises or antigravity treadmill (if available) if pain or gait deviations are persistent
• Scar mobilization, silicone strips, moisturizing when wound is healed

CRITERIA FOR ADVANCEMENT
• Ankle AROM dorsiflexion ≥ 0°; plantarflexion, inversion and eversion 50% of contralateral uninvolved side
• Household ambulation FWB without CAM boot or assistive device
• Community ambulation FWB without CAM boot with or without cane
• Ascend 6-inch steps reciprocally

EMPHASIZE
• Wean from crutches to cane/no assistive device and CAM boot to supportive shoe
• Functional single LE articulation in weight bearing emphasizing 1st MTP joint dorsiflexion with ankle plantarflexion as well as standing ankle dorsiflexion
TOTAL ANKLE ARTHROPLASTY POST-OPERATIVE GUIDELINES
Post-Operative Phase 3: Weeks 13-18

PRECAUTIONS
• Avoid impact activities, e.g., running, jumping

ASSESSMENT
• FADI
• LEFS
• NPRS
• Scar status
• Swelling
• Open and closed chain ankle AROM/PROM
• Ankle, mid-foot and MTP joint mobility
• Functional strength of LE
• Movement strategies for squats and stairs
• Single leg stance SLS with assessment of foot tripod
• Star Excursion Test
• Gait quality FWB without assistive device

TREATMENT RECOMMENDATIONS
• Patient education on appropriate footwear
  o Progression from sneakers to alternative options
• Gait training
  o Maximize symmetry and efficiency e.g. stride length, cadence, push off, trunk rotation
• Forward step down progression and stair descension
• A/PROM and mobilization focusing on:
  o Ankle dorsiflexion and plantarflexion ROM
  o Great toe ROM
  o Talocural and subtalar joint mobility
• Progress to single leg closed chain activities, e.g. single leg squat, loaded forward lunge
• Progress dynamic balance/proprioceptive exercises and activities
  o Exercises such as cariocas, tandem walking, heel walking, toe walking, single leg balance with multidirectional challenges
  o Dynamic activities on unstable surfaces
• Continue to progress functional strengthening
  o Encourage healthy compensatory patterns in adjacent joints
• Progress cardiovascular conditioning
  o Add retro treadmill
  o Establish walking program
• Scar mobilization, silicone strips, moisturizing

CRITERIA FOR DISCHARGE
• Ankle AROM dorsiflexion ≥ 15°; plantarflexion, inversion and eversion 75% of uninvolved side
• Ability to perform ≥ 5 consecutive unilateral heel raises
• SLS ≥ 75% of uninvolved side with minimal foot, hip or core strategies
• Community ambulation FWB without assistive device with minimal to no compensations
• Descend 6-inch steps reciprocally
• Independent management of residual symptoms
• Independent home exercise program

EMPHASIZE
• Symmetry and efficiency in gait cycle without assistive device
• Dynamic stability
• Maximizing ankle dorsiflexion and plantarflexion ROM
References


