

Rehabilitation Guidelines for Total Ankle Arthroplasty

This guideline is designed to assist clinicians and patients throughout the recovery process following an Achilles tendon repair. It utilizes both time-based milestones, aligned with tissue healing, and criterion-based assessments. Interventions should be personalized based on the individual's specific needs, clinical evaluations, and professional judgment. For any questions or clarifications, please consult the referring physician.

Overview of Total Ankle Arthroplasty

Total Ankle Arthroplasty, commonly referred to as Total Ankle Replacement, is a surgical procedure aimed at treating advanced ankle arthritis. During the operation, the damaged surfaces of the lower tibia and the upper talus are removed and replaced with prosthetic components featuring polyethylene interfaces that allow for joint movement. Given that the durability of ankle replacements may not match that of hip or knee replacements, this procedure is typically reserved for older adults with lower activity demands who wish to maintain ankle mobility for engaging in low-impact activities unsuitable for ankle fusion.

Post-Operative Considerations

Patients undergoing this procedure can expect significant pain and swelling, with swelling potentially persisting for 6 to 12 months post-surgery. Effective edema management is crucial in the immediate recovery phase and should involve keeping the ankle elevated above heart level. Patients should be advised to maintain this elevated position for the majority of the day, limiting time with the ankle below heart level to a maximum of 2-3 hours during the first two weeks after surgery. Continued elevation at regular intervals is recommended as long as swelling remains evident.

While this surgery primarily aims to alleviate pain, improvements in ankle range of motion may vary and are not always substantial, as indicated by current literature. In cases where additional procedures such as tendon transfers are performed concurrently, patients should avoid resistance-based strengthening exercises and stretching of the affected muscles until three months post-operation.

If you experience symptoms such as fever, severe calf pain, uncontrolled pain, or any other concerning signs, please contact your doctor immediately.

PHASE I: IMMEDIATE POST-OP (WEEKS 0-2 AFTER SURGERY)

Rehabilitation Goals	<ul style="list-style-type: none"> • Demonstrate safe ambulation with assistive device. • Maintain strength of hip, knee and core. • Manage swelling with elevation "toes above nose."
Weight Bearing	<i>Walking</i> <ul style="list-style-type: none"> • Non-weight bearing (NWB) on crutches in splint.
Interventions	<i>Range of motion/Mobility</i> <ul style="list-style-type: none"> • Supine passive hamstring stretch <i>Strengthening</i> <ul style="list-style-type: none"> • Quad sets • Straight leg raise • Abdominal bracing • Hip abduction • Sidelying hip external rotation-clamshell • Prone hip extension • Prone hamstring curls

PHASE I: IMMEDIATE POST-OP

(WEEKS 0-2 AFTER SURGERY) CONTINUED

Criteria to Progress	<ul style="list-style-type: none"> • Pain < 5/10 • Patient compliant with proper elevation for most of the day.
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PHASE II: INTERMEDIATE POST-OP

(WEEKS 3-5 AFTER SURGERY)

Rehabilitation Goals	<ul style="list-style-type: none"> • Continue to manage pain/swelling with elevation as well as modalities. • Increase range of motion of the foot and ankle. • Minimize the loss of strength of core, hips, knees. • Improve scar mobility once incision is healed. • Initiate some limited weight bearing in boot (standing only) for ADLs.
Weight Bearing/ Precautions	<ul style="list-style-type: none"> • When standing in place ONLY, may weight bear in the boot. Maintain NWB while walking. • May remove boot to perform exercises and hygiene. • Keep boot on at night. • <i>No foot/ankle strengthening against resistance or stretching of involved musculature until 3 months post-operative if there are any tendon transfers.</i>
Additional Intervention *Continue with Phase I interventions	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> • Initiate ankle passive range of motion (PROM), active assisted range of motion (AAROM) and active range of motion (AROM): <ul style="list-style-type: none"> ◦ Ankle pumps ◦ Ankle circles ◦ Ankle inversion ◦ Ankle eversion ◦ Calf stretch with towel or calf stretch with strap ◦ Seated heel-slides for ankle dorsi-flexion ROM • If stiff from boot immobilization, initiate great toe DF and PF stretching. • Scar mobilization once incision healed • Soft tissue mobilization as indicated <p><i>Cardio</i></p> <ul style="list-style-type: none"> • Upper body ergometer <p><i>Strengthening</i></p> <ul style="list-style-type: none"> • Lumbopelvic Strengthening: (ex: abdominal bracing, planks and bridges in Achilles Boot) • Once able sit with foot flat on the floor in neutral (0 degrees) of ankle dorsi-flexion: <ul style="list-style-type: none"> ◦ Seated heel raises ◦ Seated toe raises ◦ Seated arch doming ◦ Seated great toe flexion with lesser toes extension ◦ Seated great toe extension with lesser toes flexion ◦ Seated toe piano ◦ Seated toe abduction/adduction (spreads and squeezes) <p><i>Suggested Modalities (with elevation)</i></p> <ul style="list-style-type: none"> • Electrical stimulation for pain and swelling • Game ready™ cold/compression • Cold pack
Criteria to Progress	<ul style="list-style-type: none"> • Pain < 5/10 • Decreased swelling. • Improving ankle ROM all planes. • Good tolerance with standing in place with 50% of body weight through the involved leg in boot.

PHASE III: LATE POST-OP
(WEEKS 6-10 AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> • Initiate weight bearing during ambulation and normalize gait in walking boot using a shoe leveler as needed for the uninvolved side. • Good tolerance with transition from walking boot to supportive sneaker with/without assistive device. • Continue to control edema as weight bearing and activity level progresses. • Continue to progress ankle ROM. • Initiate foot/ankle resistive strengthening (unless tendon transfers have been performed)
<p>Weight Bearing/ Precautions</p>	<ul style="list-style-type: none"> • Week 6: Transition to WBAT in walking boot. • Week 7: Begin to wean boot by spending small amounts of time in supportive sneaker for weight shifting and short distances on level surfaces. • Week 8: Transition to supportive sneaker for all ambulation. May still use assistive device if needed. • <i>No foot/ankle strengthening against resistance or stretching of involved musculature until 3 months post-operative if there are any tendon transfers.</i>
<p>Additional Intervention *Continue with Phase I-II interventions</p>	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> • Begin gentle standing gastrocnemius stretch and soleus stretch once out of the boot • Gentle stretching of proximal muscle groups as indicated: (Examples: standing quad stretch, standing hamstrings stretch, kneeling hip flexor stretch, piriformis stretch) • Ankle/foot mobilizations and as indicated • Scar mobilization and soft tissue mobilization as indicated <p><i>Cardio</i></p> <ul style="list-style-type: none"> • Stationary bicycle (initially in boot and then progress to sneaker once out of boot) • May begin swimming and pool walking at post-op week 8 if incision is fully healed, fully weaned from boot and able to get safely in/out of the pool. <p><i>Strengthening</i></p> <ul style="list-style-type: none"> • Begin 4-way ankle with resistance band - do not begin this until 3 months post-op if any tendon transfers performed • Lumbopelvic strengthening: bridges on physioball, bridge on physioball with roll-in, bridge on physioball alternating • Gym equipment: hip abductor machine, adductor machine, hip extension machine, roman chair, knee extension machine and hamstring curl machine
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • Decreased swelling • No pain during/after exercise. • Good tolerance with transition from boot to supportive sneaker with/without the need for assistive device (<3/10 with walking/weight bearing)

PHASE IV: TRANSITIONAL
(WEEKS 11-13 AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> • Normalize gait in supportive sneaker. • Safely progress strengthening. • Promote proper movement patterns. • Improve balance/proprioception. • Minimize post exercise pain/swelling.
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PHASE IV: TRANSITIONAL
(WEEKS 11-13 AFTER SURGERY) CONTINUED

<p>Weight Bearing/ Precautions</p>	<ul style="list-style-type: none"> • Full weight bearing in supportive sneaker. • No foot/ankle strengthening against resistance or stretching of involved musculature until 3 months post-operative if there are any tendon transfers.
<p>Additional Intervention *Continue with Phase II-III interventions</p>	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> • Ankle/foot mobilizations as indicated • Continue AROM/AAROM/PROM activities per prior phases as needed • Scar mobilization • Standing ankle dorsiflexion stretch on step <p><i>Cardio</i></p> <ul style="list-style-type: none"> • Stationary bike, pool walking, swimming <p><i>Strengthening</i></p> <ul style="list-style-type: none"> • Progress intensity (strength) and duration (endurance) of exercises • Gym equipment: Leg press machine • Romanian deadlift, bilateral mini squats progressing to bilateral squats <p><i>Balance/proprioception</i></p> <ul style="list-style-type: none"> • Double limb standing balance activities on stable surfaces progressing to eyes closed • Double limb standing balance utilizing uneven surface (wobble board, foam, etc)
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • Minimize post-exercise pain/swelling • Normal gait in supportive sneaker without need for any assistive device

PHASE V: TRANSITIONAL
(WEEKS 14-16 AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> • Safely progress strengthening. • Initiate single limb standing exercises. • Promote proper movement patterns. • Avoid post exercise pain/swelling.
<p>Additional Intervention *Continue with Phase II-IV interventions</p>	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> • Standing ankle DF mobilization on step <p><i>Cardio</i></p> <ul style="list-style-type: none"> • May implement pool jogging in addition to previously recommended cardio <p><i>Strengthening</i></p> <ul style="list-style-type: none"> • Begin bilateral heel raises, bilateral squats • Seated calf machine <p><i>Balance/proprioception</i></p> <ul style="list-style-type: none"> • Begin single limb balance exercises on level surfaces (ex: single leg balance).
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • No increased swelling post-exercise that exceeds pre-exercise baseline. • No pain during or after exercise. • Good tolerance with addition of single limb exercises.

PHASE VI: ADVANCED POST-OP
(MONTHS 4-6 AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> • Safely progress strengthening. • Promote proper movement patterns. • Minimize post exercise pain/swelling. • Good tolerance with progression to single limb strengthening • Progress single limb balance/proprioception to unstable surfaces.
<p>Additional Intervention *Continue with Phase II-V interventions</p>	<p><i>Cardio</i></p> <ul style="list-style-type: none"> • Elliptical, stair climber, walking on treadmill <p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> • Continue per prior phases as needed <p><i>Strengthening</i></p> <ul style="list-style-type: none"> • If able to perform bilateral standing heel raises with 75% of body weight shifted through the involved (plantar flexion through range available - it is expected to be reduced), progress to eccentric calf raises (bilateral raises, unilateral lowering) on level surface followed by progression to unilateral heel-raises. <ul style="list-style-type: none"> • **The following exercises to focus on proper pelvis and lower extremity control with emphasis on good proximal stability: <ul style="list-style-type: none"> o Hip hike o Forward lunges: Begin leading with injured leg only then progress to leading with uninjured leg o Lateral lunges o Single leg strengthening progression: partial weight bearing single leg press, slide board lunges: retro and lateral, step ups, step ups with march, lateral step-ups, step downs, single leg squats, single leg wall slides <p><i>Balance/proprioception</i></p> <ul style="list-style-type: none"> • Progress unilateral balance activities to unstable surfaces
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • No increased swelling/pain with 30 minutes of fast-paced walking • Standing Heel Rise test > 90% of uninjured in available ankle range • 5/5 ankle strength (in available range) and lower extremity strength • Single leg balance on level surface > 30 seconds

PHASE VII: EARLY to UNRESTRICTED RETURN TO SPORT
(MONTHS 6+ AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> • Safely initiate low impact sport specific training program. • Safely progress to low impact full sport participation once cleared by MD. Patients participating in no impact sports may begin prior to this phase.
<p>Additional Intervention *Continue with Phase III-VI interventions</p>	<ul style="list-style-type: none"> • Continue strengthening and progress cardiovascular endurance. • Progress to higher level balance and proprioceptive exercises. • Initiate sports specific training - low/no impact
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • Clearance from MD (timeframes will vary depending on the sport) • Psych Readiness to Return to Sport (PRRS) • Functional Assessment (examples for low impact sports - i.e. golf, yoga, etc) <ul style="list-style-type: none"> o Y-Balance Test o Star Excursion Balance test
<p>Recommendation</p>	<ul style="list-style-type: none"> • Patients with total ankle arthroplasty should not return to any sport, occupation or activity with repetitive, high impact to the lower extremity.



For further assistance or to schedule an appointment, please contact **iOrtho - The Orthopedic Institute** at **833-464-6784** or visit our website at **iorthomd.com** to text/email us. Our team is dedicated to providing personalized care and guidance throughout your rehabilitation journey.