

## Rehabilitation Protocol for Ankle Fracture with ORIF

This protocol is designed to guide clinicians through the post-operative management of an ankle fracture treated with Open Reduction and Internal Fixation (ORIF). It is structured to be both time-dependent, based on the healing process, and criterion-based, with specific interventions tailored to each patient. Clinicians should base their approach on the individual needs of the patient, considering examination findings and clinical judgment. The timeframes for recovery suggested in this guideline may vary depending on the surgeon's preferences, additional procedures, or any complications that arise. If clinicians require further guidance on a patient's progress, they should consult the referring surgeon.

The interventions outlined in this protocol are not comprehensive. Therapeutic approaches should be selected and adjusted according to the patient's progress, with clinical discretion.

### Key Considerations for Post-operative Ankle ORIF

Outcomes in post-operative rehabilitation for ankle ORIF can be influenced by several factors, including the healing rate, the complexity of the fracture, and whether hardware removal is necessary. Close collaboration with the referring physician is advised to determine the appropriate timing for rehabilitation progression. Patients with simpler fractures may move through these guidelines more quickly.

If a patient develops a fever, experiences persistent numbness or tingling, notices excessive drainage from the incision, has uncontrolled pain, or has any other concerning symptoms, it is important to contact the referring physician.

### PHASE I: IMMEDIATE POST-OP (WEEKS 0-6 AFTER SURGERY)

<p><b>Rehabilitation Goals</b></p>	<ul style="list-style-type: none"> <li>• Demonstrate safe ambulation with prescribed weight bearing precautions</li> <li>• Able to maintain weight bearing status per surgeon with transfers and stairs</li> <li>• Manage swelling</li> <li>• Perform ADLs in a modified independent manner or with minimal assistance</li> <li>• Increase range of motion of foot and ankle</li> <li>• Minimize the loss of strength in the core, hips, knees, and upper extremities</li> <li>• Patient Education:             <ul style="list-style-type: none"> <li>• Modifications for ADLs</li> </ul> </li> </ul>
<p><b>Precautions</b></p>	<ul style="list-style-type: none"> <li>• No joint mobilizations near fracture site or that require stabilizing over the fracture site</li> <li>• NO instrument assisted soft tissue mobilization (IASTM) over fracture sites until at least 6 weeks post-op</li> </ul>
<p><b>Weight Bearing</b></p>	<ul style="list-style-type: none"> <li>• Weight bearing status per surgeon</li> <li>• Boot/cast per surgeon</li> </ul>
<p><b>Interventions</b></p>	<p><i>Swelling Management</i></p> <ul style="list-style-type: none"> <li>• Ice, compression, elevation</li> <li>• Retrograde massage (avoid pressure on healing fracture sites)</li> </ul> <p><i>Gait Training</i></p> <ul style="list-style-type: none"> <li>• Gait training on level surfaces and stairs with emphasis on weight bearing precautions</li> </ul> <p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> <li>• 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"> <li>o Ankle pumps</li> <li>o Ankle circles</li> </ul> </li> </ul>

**PHASE I: IMMEDIATE POST-OP**  
 (WEEKS 0-6 AFTER SURGERY) CONTINUED

<p><b>Interventions</b></p>	<ul style="list-style-type: none"> <li>o Ankle inversion</li> <li>o Ankle eversion</li> <li>o Seated heel-slides for ankle DF ROM</li> <li>• If stiff from boot immobilization, initiate toe stretching (by patient or by therapist)</li> <li>• Foot joint mobilizations may be performed if indicated during this time per therapist discretion</li> <li>- AVOID pressure on healing fracture sites or hardware.</li> <li>• May begin gentle scar mobilization once incisions are healed</li> </ul> <p>Cardio</p> <ul style="list-style-type: none"> <li>• Upper body ergometer</li> </ul> <p><i>Strengthening (in boot/splint)</i></p> <ul style="list-style-type: none"> <li>• May perform upper body strengthening with weights if modified for weight bearing precautions</li> <li>• Lower extremity gym equipment (Ex: hip abductor and adductor machine, hip extension machine, roman chair)</li> <li>• Proximal/core strengthening (maintain precautions)           <ul style="list-style-type: none"> <li>o Quad sets</li> <li>o Straight leg raise</li> <li>o Abdominal bracing</li> <li>o Hip abduction</li> <li>o Clamshells</li> <li>o Prone hip extension</li> <li>o Prone hamstring curls</li> </ul> </li> <li>• Ankle:           <ul style="list-style-type: none"> <li>o Seated heel raises</li> <li>o Seated toe raises</li> <li>o Seated arch doming</li> <li>o Exercises for foot intrinsic muscles to minimize atrophy while in boot</li> </ul> </li> </ul> <p><i>Proprioception</i></p> <ul style="list-style-type: none"> <li>• Joint position re-training</li> </ul>
<p><b>Criteria to Progress</b></p>	<ul style="list-style-type: none"> <li>• Pain &lt;3/10</li> <li>• Minimal swelling (recommend water displacement volumetry or circumference measures such as Figure 8).</li> <li>• Increased ankle ROM</li> <li>• Cleared by surgeon to progress to weight bearing as tolerated (WBAT) or full weight bearing (FWB)</li> <li>• Independence with daily home exercise program</li> </ul>

**PHASE II: INTERMEDIATE POST-OP**  
(WEEKS 7-12 AFTER SURGERY)

<p><b>Rehabilitation Goals</b></p>	<ul style="list-style-type: none"> <li>• Manage swelling</li> <li>• Full range of motion of foot and ankle</li> <li>• Safely progress strengthening</li> <li>• A normalized gait pattern on all surfaces (wean from boot/brace when healing is adequate)</li> <li>• Minimize the loss of strength in the upper extremities, core, hips, and knees</li> <li>• Gradually return to regular activities if ROM, strength, and gait pattern are sufficient</li> </ul>
<p><b>Precautions</b></p>	<ul style="list-style-type: none"> <li>• No joint mobilizations near fracture site or that require stabilizing over the fracture site</li> </ul>
<p><b>Weight Bearing</b></p>	<ul style="list-style-type: none"> <li>• Progress to FWB per surgeon</li> <li>• Wean boot per surgeon</li> </ul>
<p><b>Additional Intervention</b> *Continue with Phase I interventions</p>	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> <li>• Continue ankle AROM/PROM exercises and toe stretching as needed</li> <li>• Progress to standing ankle dorsiflexion stretch on step</li> <li>• Gentle stretching of proximal muscle groups as indicated: (Ex: standing quad stretch, standing hamstrings stretch, Thomas hip flexor stretch, piriformis stretch)</li> <li>• Standing gastrocnemius and standing soleus stretching once weaned from boot and talocrural joint mobility is normalized</li> <li>• May begin gentle ankle mobilizations at the discretion of the therapist once fracture is radiographically healed or clearance is given by surgeon.</li> </ul> <p><i>Cardio</i></p> <ul style="list-style-type: none"> <li>• Stationary bicycle (in boot if not yet weaned)</li> <li>• Treadmill walking once boot is weaned and gait normalized</li> </ul> <p><i>Strengthening</i></p> <ul style="list-style-type: none"> <li>• Continue Phase I exercises</li> <li>• Isometrics for ankle planes that are not near full active range of motion (AROM).</li> <li>• Ankle exercise with resistance bands once near full ankle AROM:             <ul style="list-style-type: none"> <li>◦ Ankle dorsiflexion with resistance</li> <li>◦ Ankle plantar flexion with resistance</li> <li>◦ Ankle eversion with resistance</li> <li>◦ Ankle inversion with resistance</li> </ul> </li> <li>• Once boot is weaned begin standing calf raise progression:             <ul style="list-style-type: none"> <li>◦ Bilateral standing heel raises (25% body weight thru involved leg)</li> <li>◦ Bilateral standing heel raises (50% equal weight through both legs)</li> <li>◦ Bilateral standing heel raises (75% body weight thru the involved leg)</li> </ul> </li> <li>• Knee Exercises for additional exercises and descriptions</li> <li>• Gym equipment (ex: seated hamstring curl machine and hamstring curl machine, leg press machine, hip abductor and adductor machine, hip extension machine, roman chair )</li> <li>• Lumbopelvic strengthening: (ex: bridges on physioball, bridge on physioball with roll-in, bridge on physioball alternating)</li> <li>• Progress intensity (strength) and duration (endurance) of exercises</li> </ul> <p><i>Balance/proprioception</i></p> <ul style="list-style-type: none"> <li>• Double limb standing balance utilizing uneven surface (wobble board)</li> <li>• Single limb balance - progress to uneven surface as able</li> </ul>
<p><b>Criteria to Progress</b></p>	<ul style="list-style-type: none"> <li>• No swelling/pain after exercise</li> <li>• Normalized gait in supportive sneaker</li> <li>• AROM equal to contralateral side</li> <li>• Progressing strength of lower extremities</li> <li>• Return to all activities (except sports)</li> <li>• Joint position sense symmetrical (&lt;5 degree margin of error).</li> </ul>

**PHASE III: LATE POST-OP**  
(WEEKS 13-16 AFTER SURGERY)

<p><b>Rehabilitation Goals</b></p>	<ul style="list-style-type: none"> <li>• Good balance and control on the involved leg in all planes</li> <li>• Safely progress strengthening</li> <li>• Promote proper movement patterns</li> <li>• Avoid post exercise pain/swelling</li> </ul>
<p><b>Weight Bearing/ Precautions</b></p>	<p>None if healing is complete</p>
<p><b>Additional Intervention</b> *Continue with Phase I-II interventions</p>	<p><i>Range of motion/Mobility</i></p> <ul style="list-style-type: none"> <li>• Joint mobilizations as indicated</li> </ul> <p><i>Cardio</i></p> <ul style="list-style-type: none"> <li>• Stationary bicycle, treadmill walking</li> </ul> <p><i>Strengthening</i></p> <ul style="list-style-type: none"> <li>• Seated calf machine or wall sit with bilateral calf raises</li> <li>• Unilateral heel raises (once heel raise progression in Phase II completed)</li> <li>• **The following exercises are to focus on proper pelvis and lower extremity control with emphasis on good proximal stability:             <ul style="list-style-type: none"> <li>o Hip hike</li> <li>o Forward lunges</li> <li>o Bilateral squats progressing to single leg progression (below)</li> <li>o Single leg progression: partial weight bearing single leg press, slide board lunges: retro and lateral, step ups and step ups with march, lateral step-ups, step downs, single leg squats, single leg wall slides</li> </ul> </li> </ul> <p><i>Balance/proprioception</i></p> <ul style="list-style-type: none"> <li>• Single limb balance on uneven surfaces (ex: balance disc, Bosu, 1/2 foam roll)</li> </ul>
<p><b>Criteria to Progress</b></p>	<ul style="list-style-type: none"> <li>• Good balance and control of the involved leg in all planes with single and double leg exercises</li> </ul>

**PHASE IV: TRANSITIONAL**  
(WEEKS 17-20 AFTER SURGERY)

<p><b>Rehabilitation Goals</b></p>	<ul style="list-style-type: none"> <li>• Progress to plyometrics and sports specific movement patterns</li> <li>• Progress to low impact fitness activities</li> </ul>
<p><b>Weight Bearing/ Precautions</b></p>	<p>None if healing is complete</p>
<p><b>Additional Intervention</b> *Continue with Phase I-II interventions</p>	<p><i>Cardio</i></p> <ul style="list-style-type: none"> <li>• Elliptical, stair climber, treadmill walking</li> </ul> <p><i>Plyometrics</i></p> <ul style="list-style-type: none"> <li>• Initiate Beginner Level plyometrics:             <ul style="list-style-type: none"> <li>o Once able to perform 3 sets of 15 of bilateral standing heel-raises with equal weight bearing progress to rebounding heel raises bilateral stance.</li> <li>o Once able to perform 3 sets of 15 unilateral heel raises progress to rebounding unilateral heel raises.</li> <li>o Once able to demonstrate good performance/tolerance with rebounding heel raises then initiate hopping in place bilateral stance. Progress as able to unilateral hopping in place.</li> </ul> </li> </ul>
<p><b>Criteria to Progress</b></p>	<ul style="list-style-type: none"> <li>• No swelling/pain after exercise</li> <li>• Standing Heel Rise test &gt; 90% of uninvolved</li> <li>• No swelling/pain with 30 minutes of fast-paced walking</li> <li>• Good tolerance and performance of Beginner Level plyometrics</li> <li>• Psych Readiness to Return to Sport (PRRS)</li> </ul>

**PHASE V: EARLY to UNRESTRICTED RETURN TO SPORT**  
 (MONTHS 5+ AFTER SURGERY)

<p><b>Rehabilitation Goals</b></p>	<ul style="list-style-type: none"> <li>• Gradual return to higher impact activities (jogging, running, jumping)</li> <li>• Gradual return to activities with multi-planar on uneven surfaces (hiking)</li> <li>• Safely initiate sport specific training program</li> <li>• Symmetrical performance with sport specific drills</li> <li>• Good lower extremity mechanics with plyometrics, agility, and running gait</li> <li>• Safely progress to full sport</li> </ul>
<p><b>Additional Intervention</b>  <small>*Continue with Phase II-V interventions</small></p>	<p><i>Running</i></p> <ul style="list-style-type: none"> <li>• Interval walk/jog program - Return to Running Program (Phase 1)</li> <li>• Return to Running Program (Phase 2)</li> </ul> <p><i>Plyometrics and Agility</i></p> <ul style="list-style-type: none"> <li>• Criteria to progress to the Agility and Plyometrics Program:             <ul style="list-style-type: none"> <li>◦ Good tolerance/performance of Beginner Level Plyometrics in Phase VI above</li> <li>◦ Completion of Phase 1 Return to Running Program (walk/jog intervals) with good tolerance.</li> </ul> </li> </ul>
<p><b>Criteria to Progress</b></p>	<ul style="list-style-type: none"> <li>• Clearance from MD and ALL milestone criteria below have been met.             <ul style="list-style-type: none"> <li>◦ Completion of the Return to Running Program without pain/swelling.</li> <li>◦ Functional Assessment</li> <li>◦ Lower Extremity Functional Tests should be <math>\geq 90\%</math> compared to contralateral side for unilateral tests.</li> </ul> </li> </ul>

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.