

TURF TOE REHABILITATION PROTOCOL

Clinical Physical Therapy & conservative Management Guide

PT Ahmad Al Hariri

Orthopedic & Sports Physical Therapy

Clinical Executive Summary

Turf toe is an acute sprain of the first metatarsophalangeal (1st MTP) joint complex resulting from forced hyper-dorsiflexion. As physical therapists, our conservative objective is to protect structural repair of the plantar plate and sesamoid complex, restore non-painful sagittal mobility, and systematically re-condition intrinsic foot mechanics for high-load athletic push-off.

1. INJURY MECHANICS & ACUTE STRUCTURAL PROTECTION

The 1st MTP joint complex consists of the metatarsal head, proximal phalanx, plantar plate, flexor hallucis brevis tendons, and sesamoids. Hyperextension loads exceeding normal physiological limits (typically $> 60^\circ$) strain or tear the inferior soft-tissue constraints.

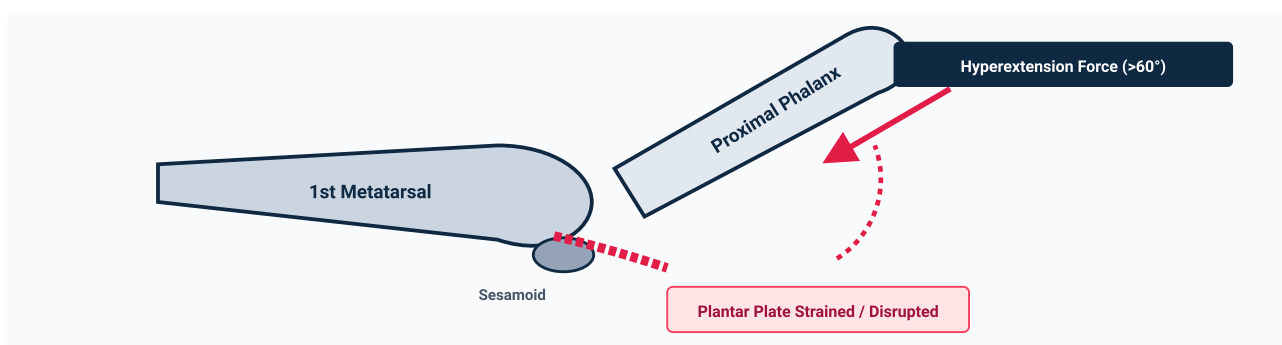


Figure 1: Pathomechanics of First MTP Joint Turf Toe Strain

Illustrating hyper-dorsiflexion force vectors disrupting the inferior plantar plate and sesamoid complex.

Acute Protection Guidelines (Phase 1):

- **Relative Rest & Offloading:** Minimize forefoot weight-bearing during early gait. A rigid carbon-fiber shoe insert or stiff-soled post-op boot is indicated depending on severity grade.
- **Inflammatory Control:** Intermittent cryotherapy and elevation to control localized swelling within the joint capsule.
- **Joint Immobilization:** Restrict dorsiflexion past 0° to prevent tensile stress on healing fiber bundles.

Clinical Pearl: Never aggressively stretch the big toe into dorsiflexion in the acute phase. Protecting the integrity of the scar tissue on the plantar plate is paramount to preventing chronic joint instability.

2. CLINICAL TAPING & MOTION RESTRICTION

Taping provides structural resistance against forced extension while enabling functional gait re-education. Rigid strapping acts as a check-rein to protect the joint during weight-bearing activities.

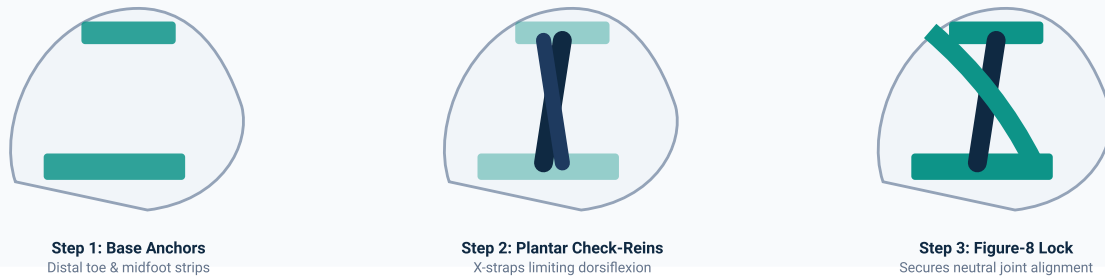


Figure 2: Physical Therapy Turf Toe Taping Technique

Sequential application of non-elastic rigid tape to block hyper-extension of the 1st MTP joint.

3. INTRINSIC MUSCLE & JOINT RE-CONDITIONING

Restoring localized muscle control around the foot arch stabilizes the 1st ray. Exercise progression focuses on activating the flexor hallucis longus/brevis and abductor hallucis without overloading structural tissue.

A. Short Foot (Arch Lift)

Phase 1-2

Pull the 1st MTP joint head toward the heel without curling the toes. Focus on elevating the medial longitudinal arch.

Dosage: 3 sets × 10 reps (5-sec hold).

B. Isometrics Toe Flexion

Phase 1-2

Press the pad of the big toe straight down into a firm surface in neutral position. Avoid forcing range into extension.

Dosage: 3 sets × 12 reps (3-sec hold).

C. Towel Crunches & Pickups

Phase 2-3

Seated towel scrunches using intrinsic toe flexors. Progress to picking up small objects to build muscular endurance.

Dosage: 2 sets × 2 minutes continuous.

D. Band Resisted Flexion

Phase 3

Loop elastic band over the proximal phalanx. Perform controlled planar flexion against light-to-moderate resistance.

Dosage: 3 sets × 15 controlled reps.

Monitoring Rule: Pain during or after mobility drills must not exceed 2/10 on the Visual Analog Scale (VAS). Any morning-after stiffness indicates excessive mechanical load.

4. REHABILITATION TIMELINE & PHASED PROGRESSION

Progression across rehabilitation phases is criteria-based rather than purely time-based. Tissues must demonstrate adequate tensile recovery before advancing to dynamic impact.

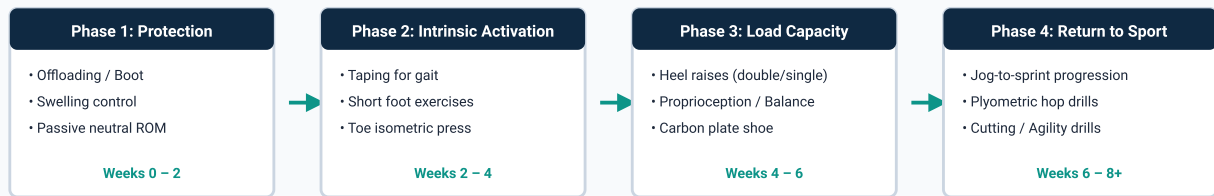


Figure 3: Phased Rehabilitation & Milestone Progression Pathway

5. RETURN-TO-SPORT ASSESSMENT MATRIX

Prior to clearing an athlete for full sports participation or high-impact sprinting, the following functional criteria must be fulfilled without dynamic compensation:

Functional Test / Parameter	Target Clinical Threshold	Status
Passive 1st MTP Extension	50°–60° of non-painful dorsiflexion (equal to contralateral side)	Required
Single-Leg Calf Raise	20 reps with full body weight and clean forefoot push-off	Required
Y-Balance Test (Lower Quarter)	> 95% composite symmetry compared to uninjured limb	Required
Straight-Line Sprinting	100% speed execution without antalgic gait deviation	Required
Pro Agility / Shuttle Run	Pain-free deceleration and push-off in dynamic change of direction	Required

Author & Practitioner Sign-Off

PT Ahmad Al Hariri — Lead Physical Therapist, Orthopedic & Sports Rehabilitation

Clinical Disclaimer: This document provides conservative physical therapy guidelines for turf toe management. Physical therapists do not provide surgical interventions or medical diagnoses. Cases with suspected Grade III total plantar plate rupture, sesamoid fracture, or persistent joint instability require formal orthopedic surgeon evaluation.