

Ankle Case Scenario

Patient History:

A 23-year-old male presents to your outpatient clinic after suffering a right acute inversion ankle injury while playing basketball 5 days ago. He reports he was unable to continue playing and has had significant difficulty putting weight on his right leg due to pain and swelling. His pain is diffuse around the medial and lateral ankle and ranges from 2-8/10. He notes persistent swelling and describes occasional tingling in his lower leg and foot since the injury. He denies prior ankle sprains, has not seen another provider, and has not begun treatment.

He has been icing occasionally but has avoided weight-bearing activities. He reports no systemic symptoms (fever, malaise) and no history of fracture or major medical conditions.

His main goals are to resume running and playing basketball.

Systems Review:

Overall, he is in good health. He denies any recent illnesses or changes in his health. His vitals are normal and he is not taking any medication currently.

Tests and Measures:

The patient demonstrated an antalgic and asymmetric gait pattern with shortened stance time on the right lower extremity, reporting pain at 2-3/10 during midstance. He was unable to maintain single-leg stance on the right due to pain and could not perform a single-leg hop test.

Observation revealed moderate swelling with ecchymosis extending from the lateral malleolus to the dorsum of the right foot. Circumferential girth measurement using the figure-8 method was 60.5 cm on the right compared to 56 cm on the left.

Active range of motion of the right ankle was limited, with dorsiflexion to 1° to 2°, plantarflexion to 30°, and eversion to 10°, all restricted by pain. Inversion was deferred due to significant lateral ankle pain. Passive testing produced similar limitations, with inversion again deferred for the same reason. On the weight-bearing lunge test, the left ankle measured 10.5 cm while the right ankle was 0 cm, reproducing lateral ankle pain.

Strength testing of the right ankle was reduced to 3+ to 4/5 in all planes and limited by pain, while the left ankle demonstrated normal strength. Neurologic testing revealed reduced

sensation only on the dorsum of the right foot compared to the left. Motor function was intact in bilateral toes. Distal pulses were palpable and capillary refill was normal.

Palpation revealed significant tenderness at the anterior talofibular ligament (ATFL), calcaneofibular ligament (CFL), and anterior inferior tibiofibular ligament (AITFL). The patient reported tenderness to the right distal fibula. No bony tenderness of the medial malleolus, navicular, or fifth metatarsal.

1. Based on the findings in this case, what is the appropriate management?
 - a. Initiate range-of-motion exercises.
 - b. Refer for imaging.
 - c. Prescribe an ankle orthosis.
 - d. Begin a trial of manual therapy.

The correct answer is **b. Refer for imaging**. This patient is positive for the Ottawa Ankle Rules: inability to bear weight and tenderness of the distal 6 cm of the fibula.

2. The sensory deficits in this case are most consistent with an injury to which nerve?
 - a. Sural.
 - b. Tibial.
 - c. Deep fibular.
 - d. Superficial fibular.

The correct answer is **d. Superficial fibular**. Tingling in the dorsum of the foot corresponds to superficial fibular nerve involvement, which may be traction-irritated in lateral ankle sprains.

3. Which maneuver will help test the integrity of the anterior inferior talofibular ligament?
 - a. Dorsiflexion external rotation.
 - b. Dorsiflexion internal rotation.
 - c. Plantarflexion external rotation.
 - d. Plantarflexion internal rotation.

The correct answer is **a. Dorsiflexion external rotation**. The dorsiflexion–external rotation stress test stresses the syndesmosis and AITFL.

4. In this case, what is the strongest evidence-supported recommendation to prevent reinjury?
 - a. Balance and proprioceptive training.
 - b. Using a brace.
 - c. Ankle strengthening exercise.
 - d. Dynamic sport-specific exercises.

The correct answer is **b. Using a brace**. While all of these interventions are beneficial, according to the Clinical Practice Guidelines (CPG): Clinicians should recommend the use of prophylactic bracing to reduce the risk of a first-time lateral ankle injury (Grade: A).

5. What manual therapy intervention would best address this patient's primary movement impairments?
 - a. Anterior-to-posterior talocrural mobilizations.
 - b. Posterior-to-anterior talocrural mobilizations.
 - c. Distal fibula anterior-to-posterior.
 - d. Distal fibula posterior-to-anterior.

The correct answer is **a. Anterior-to-posterior talocrural mobilizations**. Posterior talar glide (anterior-to-posterior mobilization at the talocrural joint) is supported by CPGs to restore dorsiflexion.

6. If an osteochondral defect (OCD) of the talus is suspected, what is the best imaging modality to detect the lesion?
 - a. X-ray.
 - b. CT scan.
 - c. Ultrasound.
 - d. MRI.

The correct answer is **d. MRI**. MRI is the gold standard for evaluating osteochondral defects due to superior sensitivity for cartilage and subchondral bone involvement.

7. Which physical agent is specifically not recommended in the acute phase of ankle sprain?
 - a. Cryotherapy (intermittent ice).
 - b. Low-level laser therapy.
 - c. Therapeutic ultrasound.
 - d. Pulsed shortwave diathermy.

The correct answer is **c. Therapeutic ultrasound**. The 2021 CPG strongly advises against ultrasound for acute ankle sprains due to lack of evidence for benefit.

8. In this case, which factor is most predictive of poor recovery or progression to chronic ankle instability (CAI)?
 - a. Patient's age.
 - b. Weight bearing tolerance and motion.
 - c. Presence of ecchymosis and swelling.
 - d. Ankle sprain history.

The correct answer is **b. Weight bearing tolerance and motion**. Baseline inability to bear weight, dorsiflexion limitation, and high pain levels predict prolonged recovery and risk of CAI.

References

1. Martin RL, Davenport TE, Fraser JJ, et al. Ankle Stability and Movement Coordination Impairments: Lateral Ankle Ligament Sprains Revision 2021. *J Orthop Sports Phys Ther.* 2021;51(4):CPG1-CPG80. doi: 10.2519/jospt.2021.0302
2. Bsoul N, Ning L, Cai L, Mazmany D, Porter D. Evidence-based clinical practice guidelines for the management of acute ankle injuries according to: a PRISMA systematic review and quality appraisal with AGREE II. *BMC Musculoskelet Disord.* 2024;25(1):523. doi: 10.1186/s12891-024-07655-z