Beyond the Sprain: When a Routine Ankle Injury Is Something More

Key data highlighting the impact of sports injuries in Australia (2023–24)

~62,100

Sports injury hospitalisations in Australia in 2023–24[1]

>50%

Fractures represented more than half of soccer injury hospitalisations[2]

Rugby & AFL

Among the highest injury hospitalisation rates by participation[3]

Most ankle sprains improve with rest, rehabilitation, and a gradual return to activity. However, when pain, swelling, and instability persist beyond the expected recovery period, clinicians should consider a syndesmotic injury, commonly known as a high ankle sprain.

1. Symptoms Seem Out of Proportion

Unlike a typical lateral ankle sprain, a syndesmotic injury affects the distal tibiofibular joint, where the tibia and fibula meet above the ankle. Patients often report significant anterolateral ankle pain, difficulty weight-bearing, and a persistent sense of instability. A key warning sign is a failure to progress despite appropriate treatment, with disability often exceeding what would be expected from a standard ligament injury.

2. The Hidden Injury: Interosseous Membrane Damage

The syndesmosis is stabilised by several ligaments, including the anterior and posterior inferior tibiofibular ligaments and the interosseous membrane. This membrane acts as a strong connective bridge between the tibia and fibula, helping maintain ankle stability.

Because the interosseous membrane lies deep within the leg, injury can be difficult to detect clinically. MRI plays a crucial role in diagnosis, particularly by identifying oedema or tearing within the membrane, which may not be visible on standard imaging.

3. The Importance of Joint Separation

A serious consequence of syndesmotic injury is diastasis—separation of the tibia and fibula. As the supporting ligaments fail, the ankle mortise widens, compromising joint stability.

On a mortise-view X-ray, the tibiofibular clear space should generally measure less than 6 mm. Widening beyond this threshold may indicate significant instability and, in some cases, the need for surgical fixation to restore alignment and allow healing.

1 https://www.aihw.gov.au/reports/sports-injury/sports-injury-in-australia/data Table 9.
2 https://www.aihw.gov.au/reports/sports-injury/sports-injury-in-australia/contents/featured-sports/soccer.
3 https://www.aihw.gov.au/reports/sports-injury/sports-injury-in-australia/data Table 4_Activity.

Looking Beyond the Initial Diagnosis

Early recognition of syndesmotic injuries is essential to prevent chronic pain, prolonged disability, and long-term joint degeneration. When symptoms are disproportionate to the original injury or recovery is not progressing as expected, further investigation should be considered.

The question may not be how long the ankle will take to heal—but whether its stabilising structures remain intact.

Application of Ottawa rules for acute injury

Ankle radiograph series is indicated if there is pain near either of the malleoli AND either of the following findings:

- Inability to weight bear both immediately and in the emergency department (4 steps). Scan the QR code below to view the acute injury chart.
- Bone tenderness at the posterior edge or tip of either malleolus.

Foot radiograph series is indicated if there is pain in the midfoot AND either of the following findings:

- Inability to weight bear both immediately and in the emergency department (4 steps). Scan the QR code below to view the acute injury chart.
- Bone tenderness at the navicular or the base of the 5th metatarsal.

Acute Injury Chart
Scan to view recommended imaging guide based on the Ottawa rules

What to look for in an inversion injury
Presented by: **Dr Jeremy Lin**
MBBS, FRANZCR
I-MED Radiologist

How to treat inversion injuries
Presented by: **Dr Jeremy Lin**
MBBS, FRANZCR
I-MED Radiologist

View complete webinar

Ankle	
MRI	• Best test for overall assessment of ligaments • Bony contusions • Talar dome osteochondral lesions • Sinus tarsi, spring ligament, Achilles, plantar fascia • Impingement syndromes • Lumps and bumps
CT	• Pre and post-op assessments • Assessing fractures • Soft tissue calcification
Ultrasound	• Good for tendon tears/ tenosynovitis • Limited assessment of ligaments • Can only see ATFL, ant Tib-Fib Syndesmosis, CFL • Acute oedema/haematoma makes extent/grade of sprains hard to assess • Morton's neuroma, ganglia, subcutaneous foreign bodies
X-ray	• First test in screening for acute trauma/inflammatory arthropathies • Soft tissue calcification • Post-operative assessment

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