

Distal Radius Fractures: From Injury to Function

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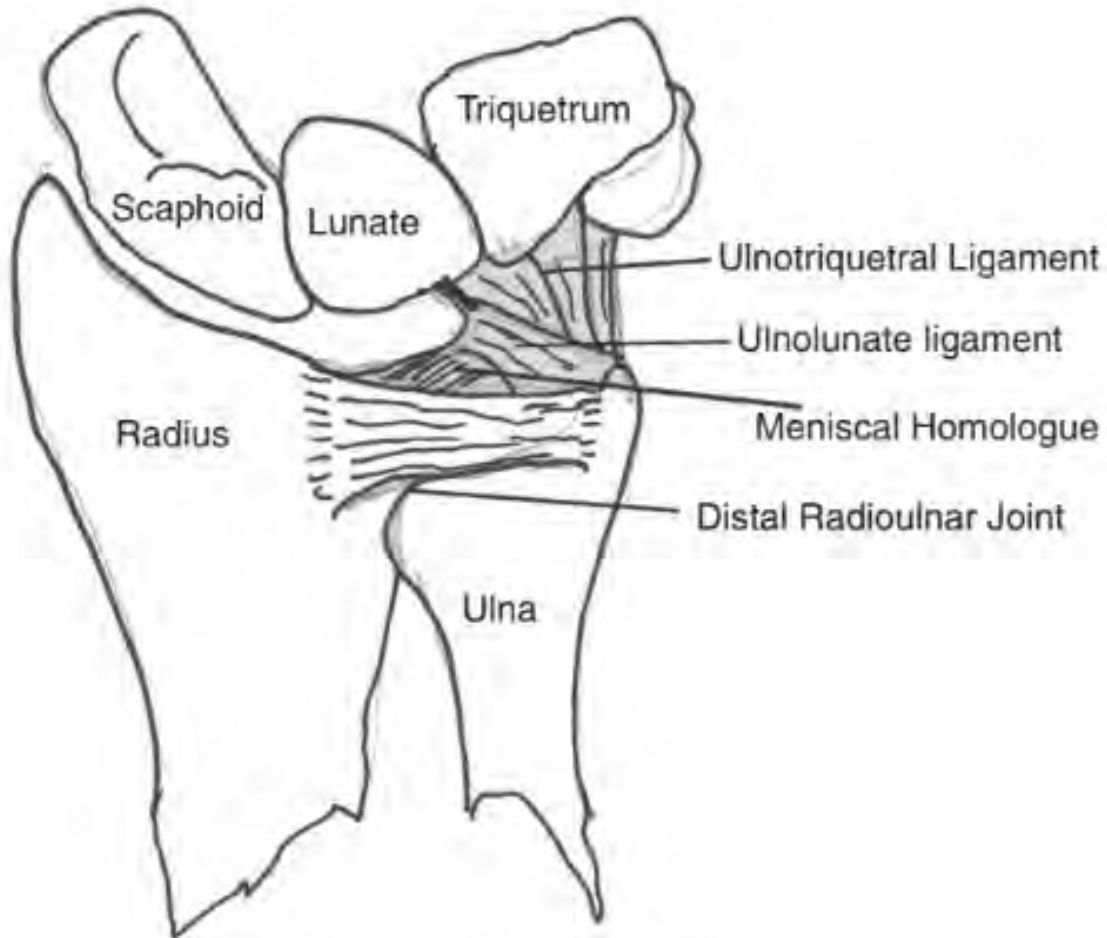
Learning Objectives

- 1. Identify key **anatomical structures** of the wrist relevant to distal radius fractures and functional recovery.
- 2. Describe **common complications** associated with distal radius fractures, including ulnar-sided wrist pain due to TFCC tears, and their impact on rehabilitation and outcomes.
- 3. Explain appropriate **splinting and rehabilitation strategies** and their role in restoring function and supporting coordinated care.

Wrist Joint Overview

- The wrist consists of articulations between the **distal radius, ulna, and eight carpal bones**
- The **radiocarpal joint** is formed by the distal radius with the scaphoid and lunate





Complex Ligaments

Types of fractures



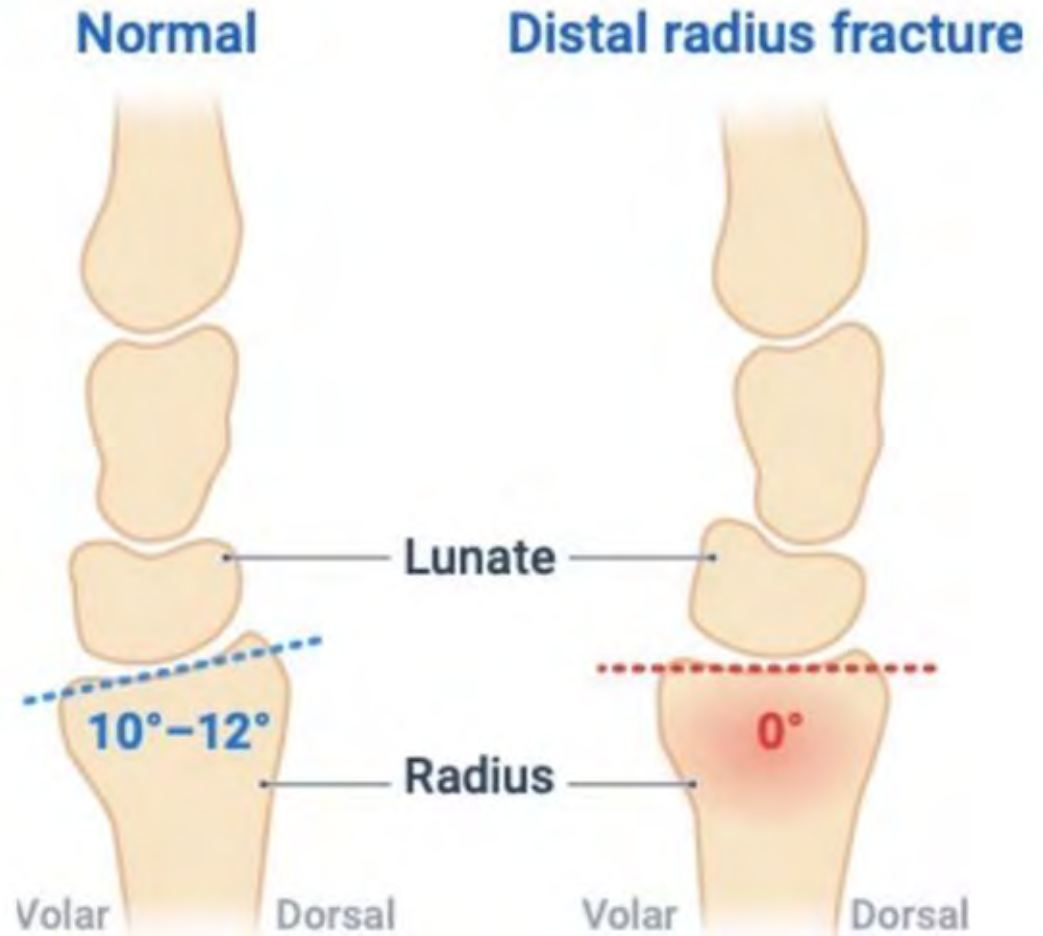
Extra-articular



Simple Intra-articular

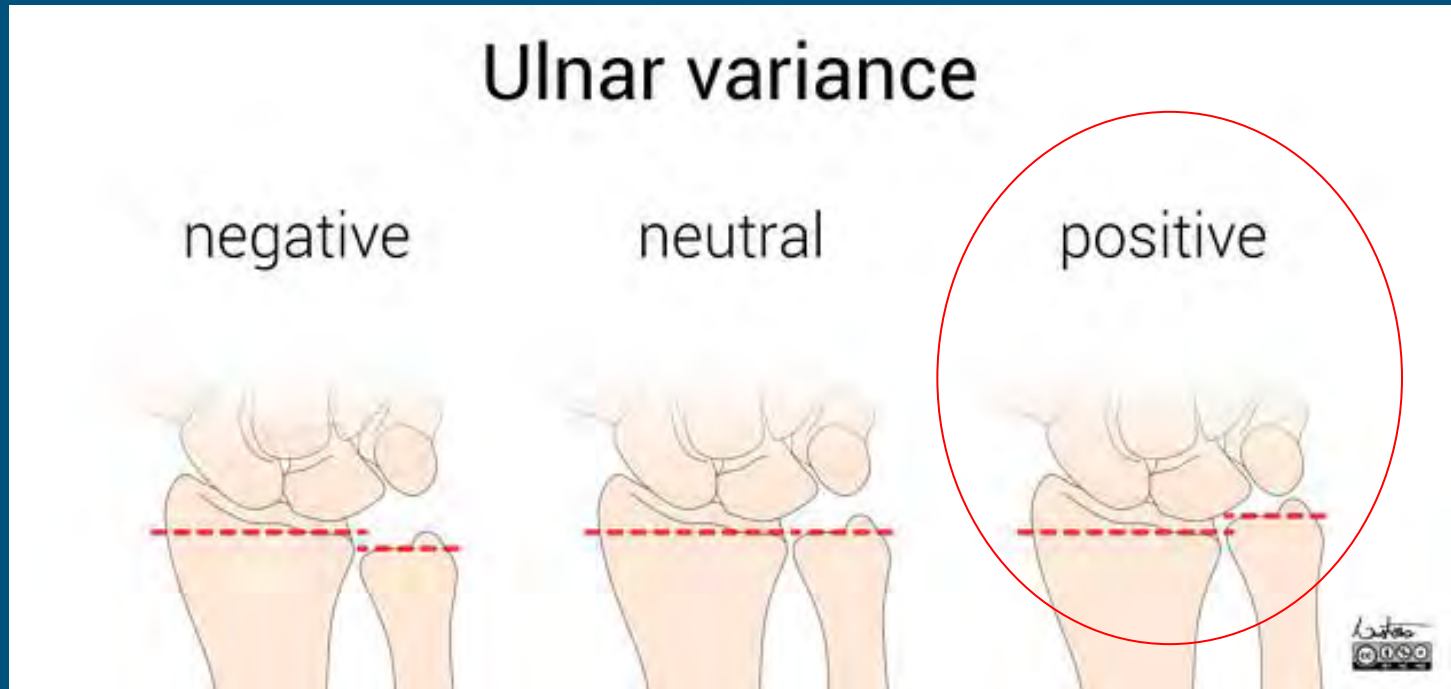
Bony Changes After Distal Radius Fracture:

Loss of Volar Tilt



Bony Changes After Distal Radius Fracture

Loss of Radial Height → Positive Ulnar Variance



Clinical Significance

- Distal radius fx treated with **casting/splinting** or **surgery** based on severity
- Maintaining alignment helps to restore ROM, and return to functional I/ADLs



Splinting Strategies



Post-immobilization:

- Removable wrist splint
 - Allows controlled motion while protecting healing tissues
-

Prefabricated wrist brace “wrist lacer”



Rehabilitation & Splinting for Distal Radius Fractures

Goals of Management

- Protect healing structures
- Promote light functional use of the hand and wrist
- Prevent complications (e.g., stiffness, edema)

Clinical Complications



Decreased
functional
use of
hand/wrist



Decreased
ROM

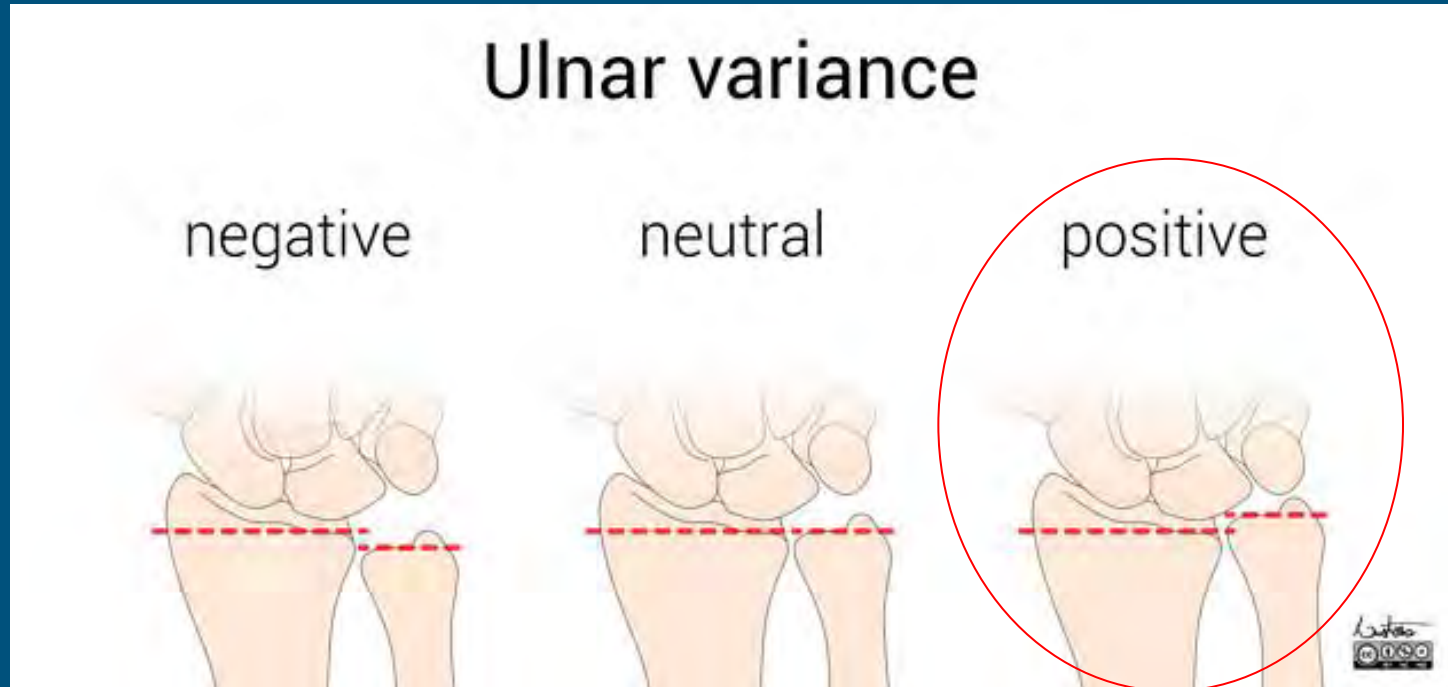


Nerve
pain

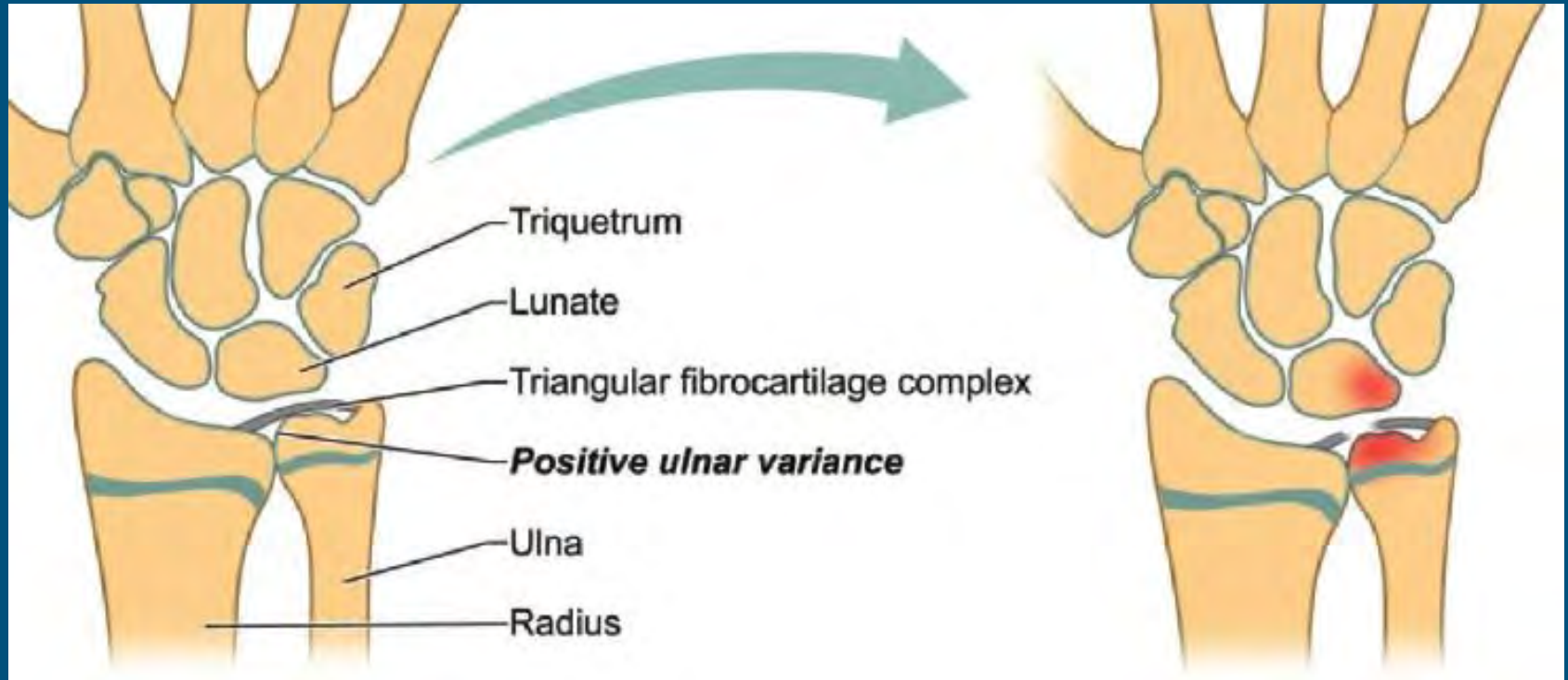


Decreased
grip strength

Review slide: relating anatomy to complications after a DRF



Triangular Fibrocartilage Complex (TFCC)



Soft Tissue Complications

In a study of 70 patients with DRF with arthroscopic exam, the **TFCC (Triangular Fibrocartilage Complex)** was injured in 45 patients (64%) – These patients demonstrated greater pain and disability at 3 and 12 months post injury

Kasapinova & Kamiloski, 2020

Load bearing through the wrist

- A distal radius fracture isn't just a "bone problem on one side" it disrupts the entire load-sharing system of the wrist.
- Ignoring the ulnar side, especially the TFCC, can lead to persistent pain and functional limitations even after the fracture heals.

Wrist Widget

Provides **stability**
without limiting motion

- Helps decrease pain for patients return to:
 - Repetitive work
 - Heavy lifting tasks



Rehabilitation pillars of the wrist

Mobility

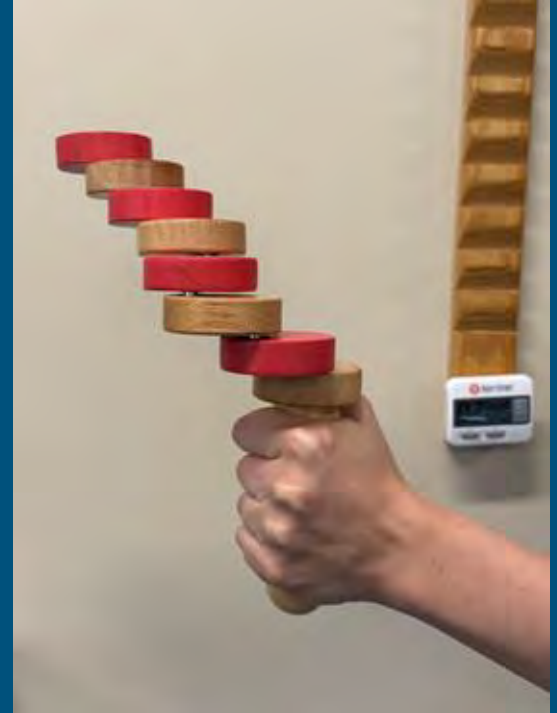
Strength

Functional use

Proprioception is essential for coordination and stability after distal radius fracture

Role of Proprioception in Recovery

- Body awareness in space
- Supports return to functional and dynamic tasks



Stabilization drills



Important for:

- “Weak” or “unreliable” wrist
 - Improving motor control, prevent re-injury
-

Gyroball

Constant adjustments to stabilize the wrist with multi-directional resistance



Game-ify proprioception-Labyrinth



Proprioception examples

- True balance
- Frisbee and golf ball
- Gyroball
- Labyrinth maze game
- Hammer rotations



Key Takeaways

- Ligaments can be injured in distal radius fracture acutely or delayed onset
- Splinting protects healing fracture while allowing for staged recovery

Key Takeaways

- Proprioception activities for coordination and stability restoration
- A worker with poor proprioception after a DRF might have full range of motion and good strength—but still struggle with real job tasks because their wrist can't automatically adapt to changing loads and positions.

A photograph of a beach at sunset. The sun is a bright orange orb on the horizon, casting a warm glow across the sky and water. Waves with white foam are breaking onto the shore. The foreground is filled with sand, showing many footprints. The entire image is framed by a dark blue border.

Thanks for your time! :)

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