

Ulnar-Sided Wrist Pain in the Athlete



Nicholas E. Crosby, MD^a, Jeffrey A. Greenberg, MD, MS^{b,*}

KEYWORDS

• Wrist • Ulnar • Athlete • Injury • Pain

KEY POINTS

- The athlete's wrist, especially those using bats, sticks, racquets, or clubs, is subjected to extremely high torque loads during athletic activities.
- These loads stress the stabilizing elements of the ulnocarpal and distal radioulnar complexes.
- Lesions of these regions can lead to painful dysfunction and instabilities that negatively impact athletic performance.

INTRODUCTION

Ulnar-sided wrist pain is a common symptom in athletes. Several clinical entities are discussed in this article. These include an understanding of the following:

1. Triangular fibrocartilage complex injuries
2. Extensor carpi ulnaris conditions
3. Ulnocarpal impaction

Each clinical area of focus discusses the following:

- Anatomic structures and relationships that make this an area of focus when treating athletes.
- Biomechanical understanding of the rotation, translation, tension, and impaction forces that are key to pain and injury in these patients.
- A logical clinical approach to ulnar-sided wrist pain that can localize the anatomic structure in question.
- Key diagnostic tests and imaging modalities that assist and confirm the diagnosis.
- Nonoperative and operative interventions used in treating specific conditions, including specific techniques.

^a The Indiana Hand to Shoulder Center Indianapolis, Indiana; ^b The Indiana Hand to Shoulder Center, Department of Orthopedic Surgery, Indiana University, Indianapolis, Indiana

* Corresponding author.

E-mail address: handdr@mac.com

TRIANGULAR FIBROCARILAGE COMPLEX

One of the most common causes of ulnar-sided wrist pain in athletes relates to disorders of the triangular fibrocartilage complex (TFCC). The TFCC, although a separate group of structures, is fully integrated with the function of the distal radioulnar joint (DRUJ) and provides the stabilizing elements of this joint. Injuries of the TFCC range from low-grade sprains to destabilizing tears. The athlete's wrist generates torque, power, and speed by forcefully moving from relative supination to pronation. This maneuver stresses the individual elements of the TFCC. Overload secondary to the overuse or external injurious loads damage the elements of the TFCC.

Anatomy and Biomechanics

The triangular fibrocartilage complex (TFC) is a complex group of interrelated anatomic structures (**Box 1**).

The elaborate interaction and function of the TFCC is integral to stability of the DRUJ (**Fig. 1**). Most notably, the volar and dorsal radioulnar ligaments provide the major support of the joint. As described by Kleinman,¹ the deep ligamentum subcruentum fibers that insert at the fovea have a relatively obtuse angle of attachment onto the volar and dorsal distal radial sigmoid notch. These fibers are the main stabilizing component of the DRUJ. The superficial fibers provide support to the articular disc as well as secondary DRUJ stability.

More importantly, the complex fulfills the role of load and energy transmission from the hand and carpus. In neutral alignment, the TFCC and distal ulna receive approximately 20% of a wrist load. This increases with ulnar deviation of the hand as well as with relative length increase of the ulna in relation to the radius that occurs with pronation.¹

Box 1

Components of the triangular fibrocartilage complex

- Central disc
 - Bound by the volar and dorsal superficial radioulnar ligaments and the distal sigmoid notch of the radius
 - Relative avascular central portion with significant peripheral vascularity
- Superficial radioulnar ligaments: volar and dorsal
 - Attach to the distal volar/dorsal edges of the sigmoid notch and the ulnar styloid
 - Narrow angle of attachment
- Deep radioulnar ligaments: volar and dorsal
 - Also attach to the distal volar/dorsal edges of the sigmoid notch, but at the fovea near the base of the ulnar styloid
 - Wide angle of attachment
- Ulnotriquetral and ulnolunate ligaments
 - Actually attach at the ulnar and volar aspect of the disc, not the ulna
- Extensor carpi ulnaris subsheath
 - Course dorsally similar to the volar ulnocarpal ligaments
- Meniscal homologue
 - Ulnar side of the complex; a reflection of the joint capsule

Download English Version:

<https://daneshyari.com/en/article/4052096>

Download Persian Version:

<https://daneshyari.com/article/4052096>

[Daneshyari.com](https://daneshyari.com)