

## Anatomic Study of Extensor Carpi Radialis Brevis in Relation to Etiology of Lateral Epicondylitis

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### Summary:

In relation to the etiology of the lateral epicondylitis, ECRB tendon originated with the simple tendinous portion compared to other extensors and the only thin capsule was underlying under the anterior side of the ECRB origin. This portion seems to be fragile to repetitive stress or micro trauma, and could be the lesion for the etiology of the lateral epicondylitis.

### Abstract:

The pathogenesis of the lateral epicondylitis remains controversial. So far, the enthesopathy of the origin of extensor carpi radialis brevis (ECRB) is mainly suspected to be the etiology of the lateral epicondylitis. Pathological findings of the lesion have been described as angiofibroblastic tendinosis.

To understand why such changes specifically occurred in the ECRB origin, anatomic knowledge about it becomes important. Anatomic knowledge about the ECRB origin has been explained that it simply starts from the lateral ridge of the humerus same as other extensors. Characteristics of each tendons were not actually well-known, because ECRB and other extensors could not be clearly divided to form the common tendon around their origins. Objectives of this study are to analyze anatomic features of the ECRB origin compared to other extensors, and to identify relationships between the ECRB origin and other deeper structures like as the joint capsule and the supinator. A total of 20 elbows of 10 embalmed cadavers were analyzed with macroscopically dividing into the each extensor. Histological observations using Masson-Trichrome staining were also performed.

Extensor carpi radialis longus (ECRL) originated from the relatively broad origin proximal to the lateral epicondyle. Extensor digitorum and digiti minimi (ED/EDM), and extensor carpi ulnaris (ECU) did distal to the ECRL origin. And ECRB started from the most distal part of ECRL and ED/EDM adjoined to and originated from the tendon of ECRB. The ECRB origin was simply composed of tendinous portion without muscular parts. The tendinous slip of the supinator originated from the postero-distal part of the ECRB origin. Interestingly, the supinator did not run over the anterior part of the ECRB origin. Histological findings revealed that the joint capsule showed very thin at the anterior part of the ECRB origin.

In conclusion, ECRB tendon originated with the simple tendinous portion. The only thin capsule was underlying under the anterior side of the ECRB origin. This portion seems to be fragile to repetitive stress or micro trauma, and could be the lesion for the etiology of the lateral epicondylitis.