

Paper #175

## Variations in Blood Supply from Proximal to Distal in the Ulnar Collateral Ligament of the Elbow: A Qualitative Descriptive Cadaveric Study

Patrick S. Buckley, MD, UNITED STATES  
Elizabeth Morris, BA, UNITED STATES  
Colin Robbins, BA, UNITED STATES  
Bryson R. Kemler, MS, UNITED STATES  
Salvatore J. Frangiamore, MD, UNITED STATES  
Michael G. Ciccotti, MD, UNITED STATES  
Johnny Huard, PhD, UNITED STATES  
Robert F. LaPrade, MD, PhD, UNITED STATES  
Thomas R. Hackett, MD, UNITED STATES

Steadman Philippon Research Institute  
Vail, CO, UNITED STATES

### Summary:

Our study found a difference in the vascular supply of the ulnar collateral ligament; the proximal UCL was well vascularized, while the distal UCL was hypovascular.

### Abstract:

### Background

The vascular supply of the ulnar collateral ligament (UCL) is unknown. Previous studies have reported varying success in patient return to play rates after non-operative management of partial UCL tears and suggest a varying healing capacity as possibly related to UCL injury location.

### Purpose

To analyze the macroscopic vascular anatomy of the ulnar collateral ligament of the elbow.

Study Design: Descriptive laboratory study

### Methods

Eighteen, fresh-frozen, male cadaveric elbows from nine donors were sharply dissected 15 cm proximal to the medial epicondyle. Sixty mL of India Ink was injected through the brachial artery of each elbow. Arms were then frozen at -10 °C, radial side down in 15-20° of elbow flexion. A bandsaw was used to section the frozen elbows into 5 mm coronal or sagittal sections. Sections were cleared for visualization using the modified Spalteholz technique. Images of specimens were taken and the qualitative description of the UCL vascularity was undertaken.

### Results

We consistently found a dense blood supply to the proximal UCL, while the distal UCL was hypovascular. We observed a possible osseous contribution to the proximal UCL from the medial epicondyle in addition to an artery

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from the flexor/pronator musculature that consistently appeared to provide vascularity to the proximal UCL.

### Conclusion

Our study found a difference in the vascular supply of the ulnar collateral ligament. The proximal UCL was well vascularized, while the distal UCL was hypovascular. This difference in vascular supply may be a factor in the differential healing capacities of the UCL based on the location of injury.

Clinical Relevance: An improved understanding of the macroscopic vascular supply of the UCL may aid in the clinical management of partial UCL tears and suggest an indication for these treatments with respect to location of UCL injuries.