

ORIGINAL RESEARCH

BASEBALL PLAYERS WITH ULNAR COLLATERAL LIGAMENT TEARS DEMONSTRATE DECREASED ROTATOR CUFF STRENGTH COMPARED TO HEALTHY CONTROLS

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ABSTRACT

Background: Ulnar Collateral Ligament (UCL) tears are common in baseball players. Alterations in rotator cuff strength are believed to be associated with injury to the shoulder and/or elbow in baseball players.

Hypothesis/Purpose: Baseball players diagnosed with a UCL tear will demonstrate decreased internal (IR) and external rotation (ER) force as an indication of isometric muscular strength in the throwing arm compared to IR and ER force of the throwing arm in healthy baseball players. The purpose of this study was to examine isometric IR and ER strength of the shoulder in baseball players with UCL tears at the time of injury compared to healthy baseball players.

Study Design: Case-control study design

Methods: Thirty-three of the participants were diagnosed with a UCL tear and thirty-three were healthy, age- and positioned-matched controls. All of the participants played baseball at either the high school or collegiate level and volunteered for the study. Isometric rotator cuff strength measurements for internal (IR) and external rotation (ER) were performed with the arm held to the side at 0° of shoulder abduction. All measurements were taken bilaterally and the means of the throwing and non-throwing arms for IR and ER in the UCL group were compared to the means of the throwing and non-throwing arms in the healthy group. One-way ANOVAs were used to calculate differences between groups ($p < 0.05$).

Results: Baseball players with UCL tears demonstrated significant rotator cuff strength deficits on their throwing arm IR ($p < .001$) and ER ($p < .001$) compared to throwing arm IR and ER in the Healthy (UCL IR = 131.3 ± 31.6 N; Healthy IR = 174.9 ± 20.7 N) (UCL ER = 86.4 ± 18.3 N; Healthy ER = 122.3 ± 18.3 N). On the non-throwing arm, the UCL group was weaker in both IR (135.0 ± 31.1 N; $p < .001$) and ER (93.4 ± 22.8 N; $p < .001$) than IR (172.1 ± 24.1 N) and ER (122.3 ± 19.1 N) in the Healthy group.

Conclusion: Participants with a UCL tear exhibit lower force values as an indication of isometric rotator cuff strength in both the throwing and non-throwing arms than a healthy cohort.

Level of Evidence: Level 4

Keywords: Overhead athlete, rotator cuff strength, UCL

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