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ORIGINAL RESEARCH

BASEBALL PLAYERS DIAGNOSED WITH ULNAR COLLATERAL LIGAMENT TEARS DEMONSTRATE GREATER SIDE TO SIDE DIFFERENCES IN PASSIVE GLENOHUMERAL ABDUCTION RANGE OF MOTION COMPARED TO HEALTHY CONTROLS

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ABSTRACT

Background: Numerous studies have shown that baseball players develop range of motion adaptations in their throwing arm. While some of these shoulder range of motion adaptations can lead to greater throwing velocity, excessive changes in shoulder range of motion can increase the risk of injury to the ulnar collateral ligament (UCL).

Purpose/Hypotheses: The purpose of this study was to compare the passive GH-ABD ROM measures of baseball players with a diagnosed UCL tear (UCL group) to a group of age, activity, and position matched healthy controls (CONT group). The primary hypothesis was that baseball players with an UCL tear would have a greater loss of passive glenohumeral abduction range of motion in their throwing shoulder than healthy controls. A secondary hypothesis was that baseball players with an UCL tear would demonstrate similar glenohumeral abduction range of motion in their non-throwing arm and increased side-to-side glenohumeral abduction differences compared to the healthy cohort.

Study Design: Retrospective prospective case-control study.

Results: The UCL group had significantly greater glenohumeral abduction range of motion on their throwing shoulder (132.5° ± 8.3°) than the CONT group (120.19° ± 11.2°, p = 0.000). Similarly, the UCL group had increased glenohumeral abduction range of motion on their non-throwing shoulder (141.2° ± 9.5°) compared to the CONT group (124.1° ± 11.4°, p = 0.000). Additionally, the UCL group had a greater glenohumeral abduction difference (-8.7° ± 8.4°) than the CONT group (-3.8° ± 7.7°, p = 0.001).

Conclusion: In contrast to the original hypotheses, high school and collegiate baseball players that sustained an UCL injury presented with greater glenohumeral abduction range of motion in both their throwing and non-throwing shoulders compared to healthy controls. However, the finding of greater side-to-side glenohumeral abduction range of motion deficits in the UCL group when compared to the matched healthy controls confirms the secondary hypothesis.

Level of Evidence: Level 3.

Key Terms: baseball players, glenohumeral abduction, ulnar collateral ligament tear

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