

ORIGINAL RESEARCH

HIP AND GLENOHUMERAL PASSIVE RANGE OF MOTION IN COLLEGIATE SOFTBALL PLAYERS

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ABSTRACT

Background and Purpose: Range of motion deficits at the hip and glenohumeral joint (GHJ) may contribute to the incidence of injury in softball players. With injury in softball players on the rise, softball related studies in the literature are important. The purpose of this study was to examine hip and GHJ passive range of motion (PROM) patterns in collegiate softball players.

Hypothesis: It was hypothesized that the position players would exhibit significantly different PROM patterns than pitchers. Additionally, position players would exhibit significantly different side-to-side differences in PROM for both the hip and GHJ compared to pitchers.

Study Design: Prospective cohort study.

Methods: Forty-nine collegiate softball players (19.63 ± 1.15 years; 170.88 ± 8.08 cm; 72.96 ± 19.41 kg) participated. Passive hip and GHJ internal (IR) and external rotation (ER) measures were assessed. Glenohumeral PROM was measured with the participants supine with the arm abducted to 90°. The measurements were recorded when the scapula began to move or a firm capsular end-feel was achieved. The hip was positioned in 90° of flexion and passively rotated until a capsular end-feel was achieved. Total PROM was calculated by taking the sum of IR and ER for both the hip and GHJ.

Results: No significant side-to-side PROM differences were observed in pitchers, at the GHJ or hip joint. Position players throwing side hip IR was significantly greater than the non-throwing side hip ($p = 0.002$). The non-throwing side hip had significantly greater ER compared to the throwing side hip ($p = 0.002$). When examining side-to-side differences at the GHJ, IR was significantly greater in the non-throwing shoulder ($p = 0.047$). No significant differences in total range of motion of the hip and GHJ were observed.

Conclusion: In the current study, position players displayed side-to-side differences in hip and GHJ IR PROM while no statistically significant differences were observed in the softball pitchers. The findings of the current study add to the body of literature related to PROM in throwing athletes, additionally these are the first hip IR and ER PROM data presented in softball players.

Level of Evidence: Level 3

Key Words: pitchers; position players; throwing; upper extremity.

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