ABSTRACT

Background: Adaptive changes may occur to the throwing shoulder of overhead athletes that can influence range-of-motion (ROM). Shoulder ROM characteristics of Division III softball (SB) and baseball (BB) players are unique.

Hypothesis/Purpose: To report the passive ROM characteristics of Division III SB and BB players and identify similarities and differences between these two populations.

Study Design: Descriptive, observational research on measurement

Methods: Participants included healthy Division III BB (n=50) and SB (n=24) players. Passive shoulder internal rotation (IR) and external rotation (ER) ROM were measured in the supine position with the arm in 90° of abduction and the scapula stabilized. Descriptive statistics and frequency distributions were used to describe ROM. Paired and independent t-tests were also used to compare throwing and non-throwing shoulder ROM for athletes of each sport and to compare the shoulder ROM of SB and BB players, respectively.

Results: The IR and ER ROM for BB players throwing shoulders (IR 54.1 ± 10.9°; ER 94.1 ± 9.1°) were significantly different (p < 0.001) from their non-throwing shoulders (IR 63.3 ± 11.1°; ER 87.6 ± 9.2°) while SB players were not (p= .06 & .08, respectively). Compared to the BB players, the throwing shoulder of SB players demonstrated statistically significantly higher IR ROM (p < .001, mean difference = 11.8°, 95% CI: 6.4-17.2°) as well as higher total range of motion (TRM) (p < .001, mean difference = 14.4°, 95% CI: 8.6-20.2°) when compared to BB players. Glenohumeral internal rotation deficit (GIRD) was significantly higher in BB players when compared to SB players (p = .042, 95% CI: 2.0-10.8°). There were no significant differences in IR, ER, TRM, GIRD and ER gain between SB or BB pitchers and all other field positions (p > .05).

Conclusions: SB players have more ROM and bilateral symmetry when compared to BB players. TRMD occurred more often than GIRD in BB players, indicating that they did not adaptively gain the same amount of ER while losing IR. The throwing shoulder ROM characteristics of both SB and BB players in this study were not influenced by the player's position (pitcher vs. field player).

Level of Evidence: Level III

Keywords: Baseball, college, movement system, range of motion, shoulder, softball.

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