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# ORIGINAL RESEARCH

## CHANGES IN HIP RANGE OF MOTION AND STRENGTH IN COLLEGIATE BASEBALL PITCHERS OVER THE COURSE OF A COMPETITIVE SEASON: A PILOT STUDY.

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### ABSTRACT

**Background:** Adaptations in hip range of motion (ROM) and strength have been shown to influence performance and injury risk in overhead athletes. These adaptations in hip ROM and strength have not been examined longitudinally, and little is known regarding whether these changes are a result of pitching workload.

**Hypothesis/Purpose:** The authors hypothesized that hip rotation ROM and strength would change over the course of a season, and would be associated with pitching workload (number of pitches over the course of a season). The purpose of this exploratory, pilot study was twofold: 1) to examine changes in hip external rotation (ER) ROM, internal rotation (IR) ROM, isometric hip abduction and hip extension strength in pitchers occurring over the course of a competitive season, and 2) to determine the association between changes in hip ROM, strength, and pitching volume.

**Study Design:** Cohort (longitudinal) study

**Methods:** Bilateral hip rotation ROM and hip isometric strength was tested pre- and post-season in fourteen collegiate baseball pitchers. Pearson correlations were calculated to determine the association between changes in hip ROM, strength, and pitching workload.

**Results:** Trail and lead hip ER, trail and lead hip total rotational ROM, and trail and lead hip abduction strength in all pitchers decreased from preseason to postseason ( $p < 0.01$ ). However, these changes were not significantly associated with pitching workload ( $p > 0.05$ ).

**Conclusion:** This study demonstrates that changes occur in hip ROM and strength in collegiate pitchers over the course of a season. These changes were not associated with pitching workload

**Level of Evidence:** 3

**Keywords:** Baseball, hip strength, pitch count, range of motion

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