

# THE RELATIONSHIP BETWEEN PITCHING VOLUME AND ARM SORENESS IN COLLEGIATE BASEBALL PITCHERS

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## ABSTRACT

**Background:** Excessive baseball pitch volume has been associated with increased risk of injury in adolescents. However, many collegiate athletes report non-time loss injuries over the course of the season. It is unknown how pitch volume throughout a collegiate baseball season affects arm soreness.

**Purpose:** The primary purpose of this study was to determine the relationship between pitch volume and self-reported arm soreness. A secondary purpose was to determine the relationship between change in pitch volume and change in arm soreness over the course of the season for collegiate baseball pitchers.

**Study Design:** Prospective Cohort

**Methods:** Seven collegiate baseball pitchers volunteered to participate in a yearlong prospective study. The seven pitchers reported daily pitch volume and level of soreness from the fall through spring collegiate baseball season during practices and games. The athletic trainer, a member of the research team, tracked athletic exposures and injuries for the entire season. Frequency counts of athletic exposures were categorized by game, practice, conditioning and injury status. Frequency counts of pitch volume was categorized by game, game bullpen, practice bullpen, flat ground, long toss and warm-up pitches. The pitch volume and soreness levels for each athlete were used to determine the relationship between these two variables using a Pearson correlation.

**Results:** The seven pitchers were involved with 1,256 athletic exposures and a total of 54,151 throws, averaging 7,735 throws per player for the entire season. The pitch volume and self-reported arm soreness for the entire season revealed a correlation of  $r = .72$  ( $p = .004$ ). The relationship between change in pitch volume and change in arm soreness was  $r = .635$  ( $p = .001$ ) over the season.

**Conclusion:** There was a moderate significant correlation between arm soreness and pitch volume across the whole season. This relationship was maintained when evaluating weekly changes.

**Level of Evidence:** 4

**Keywords:** acute workload, non-time loss injury, overhead throwing, pitch counts

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