ABSTRACT

**Background:** Impaired trunk motion during pitching may be a risk factor for upper extremity injuries. Specifically, increased forces about the shoulder and elbow have been observed in pitchers with excessive contralateral trunk lean during pitching. Because of the difficulty in identifying abnormal trunk motions during a high-speed task such as pitching, a clinical screening test is needed to identify pitchers who have impaired trunk motion during pitching.

**Hypothesis/Purpose:** The purpose of this study was to determine the relationship between the degree of lateral trunk lean during the single-leg squat and amount of trunk lean during pitching and if trunk lean during pitching can be predicted from lean during the single-leg squat.

**Study Design:** Controlled Laboratory Study; Cross-sectional.

**Methods:** Seventy-three young baseball pitchers (11.4 ± 1.7 years; 156.3 ± 11.9 cm; 50.5 ± 8.8 kg) participated. An electromagnetic tracking system was used to obtain trunk kinematic data during a single-leg squat task (lead leg) and at maximum shoulder external rotation of a fastball pitch. Pearson correlation coefficients for trunk lean during the single-leg squat and pitching were calculated. A linear regression analysis was performed to determine if trunk lean during pitching can be predicted from lean during the single-leg squat.

**Results:** There was a positive correlation between trunk lean during the single-leg squat and trunk lean during pitching ($r = 0.53; p < 0.001$). Lateral trunk lean during the single-leg squat predicted the amount of lateral trunk lean during pitching ($R^2 = 0.28; p < 0.001$).

**Conclusions:** A moderate positive correlation was observed between trunk lean during an SLS and pitching. Trunk lean during the single-leg squat explained 28% of the variance in trunk lean during pitching.

**Level of Evidence:** Diagnosis, level 3

**Key Words:** baseball, biomechanics, clinical screening test, lumbo-pelvic stability, throwing

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The authors report no conflicts of interest.