

THE RELATIONSHIP BETWEEN TRUNK ROTATION, UPPER QUARTER DYNAMIC STABILITY, AND THE KERLAN-JOBE ORTHOPAEDIC CLINIC OVERHEAD ATHLETE SHOULDER AND ELBOW SCORE IN DIVISION I COLLEGIATE PITCHERS

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ABSTRACT

Hypothesis/Purpose: The purpose of this study was to assess relationships between active trunk rotation range of motion (TROM), upper quarter dynamic stability, and composite and individual item KJOC scores in collegiate baseball pitchers. A secondary purpose was to determine whether differences exist between baseball pitchers with and without an injury history in terms of their performance on TROM, upper quarter dynamic stability, and composite and individual KJOC scores. It was hypothesized that increased TROM and upper quarter dynamic stability are associated with better (higher) KJOC scores and pitchers with an injury history would exhibit lower KJOC scores compared to uninjured pitchers.

Study Design: Cross-sectional Cohort Study

Methods: Thirty-six college pitchers were assessed for TROM, performance on the Upper Quarter Y-Balance Test (YBT-UQ) and they also completed the KJOC. Subjects were grouped based on previous injury history: injured, required surgery, (IS, n=9), injured, no surgery, (INS, n=6), and uninjured (UI, n=21). Pearson's Correlations were used to assess relationships between clinical measurements and the KJOC. One-way ANOVAs were used to assess differences in TROM, YBT-UQ, and KJOC scores between groups ($P < 0.05$).

Results: No significant relationships were detected between TROM measures and KJOC composite scores (throwing arm: $r = .239$, $p = 0.16$; non-throwing arm: $r = .291$, $p = 0.09$). A moderate relationship was found between the YBT-UQ and the KJOC scores (throwing arm: $r = .413$, $p = 0.01$; non-throwing arm: $r = .380$, $p = 0.02$). The mean KJOC scores for item 1 (warm-up limitations) were significantly different between all three groups (IS: 6.7, INS: 9.7, UI: 9.1; $p = 0.015$). Mean scores on item 5 (strain on relationships with coaches) and item 8 (limitations in competition endurance) were significantly different between the IS and UI groups (Item 5 = IS: 7.8, UI: 9.5, $p = 0.02$; Item 8 = IS: 6.4, UI: 8.8, $p = 0.04$).

Conclusion: A positive moderate association was found between upper quarter dynamic stability as measured by the YBT-UQ and the KJOC. Pitchers with no surgical history had better KJOC scores for warm up time, competitive endurance, and impact on team relationships.

Level of Evidence: 3

Key Terms: Baseball, Throwing, Trunk Mobility, Y-Balance Test

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