COMPARISON OF 3D SHOULDER KINEMATICS BETWEEN DOMINANT AND NON-DOMINANT SHOULDERS IN DIVISION-II COLLEGIATE WOMEN’S VOLLEYBALL PLAYERS

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None

Study approval was obtained from the CSP Institutional Review Board prior to initiation of the study. Research was conducted in compliance with IRB standards.

Purpose: Shoulder overuse injuries account for up to 20 percent of injuries that occur in volleyball athletes. Humerothoracic shoulder kinematic changes have been identified in the literature in these athletes. The purpose of this study was to investigate the differences between the glenohumeral joint kinematics of the dominant and non-dominant arm in Division II female volleyball players.

Participants: 14 NCAA Division II women’s volleyball players (X=19.9 years, s.d. = 1.2) participated in the study. All players were right-hand dominant.

Methods: Each participant completed one data collection session in a motion analysis lab using the Polhemus G4 3-D electromagnetic motion capture system. Kinematics of the dominant and non-dominant glenohumeral joints were collected during flexion, frontal plane abduction, scapular plane abduction and rotation. Data analyses were completed using paired t-tests.

Results: Participants demonstrated a statistically significant decrease in dominant glenohumeral frontal plane abduction, flexion, and scapular-plane abduction by 9.64 degrees (t= 5.91, ρ <0.01), 6.81 degrees (t= 4.41, ρ<0.01), 10.27 degrees (t= 4.62, ρ<0.01), respectively, when compared to non-dominant shoulders.

Conclusion/Clinical Relevance: Division-II collegiate female volleyball players demonstrated significant differences in glenohumeral kinematics between their dominant and non-dominant shoulders. Understanding and addressing altered kinematics found in glenohumeral flexion, frontal plane abduction, and scapular plane abduction may lead to decreasing injury risk and/or development of new intervention strategies.