

# Comparing Dominant to Non-Dominant Shoulder Complex Kinematics in Collegiate Volleyball Players



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## Introduction

- Mobility and function of the shoulder may impact performance and injury in volleyball.
- Most previous research identifying humerothoracic (HT), glenohumeral (GH), and scapulothoracic (ST) kinematics is limited through measurements with a goniometer or inclinometer.

## Objective

- To identify HT, GH, and/or ST differences between DOM and NDOM shoulders of asymptomatic volleyball players.

## Participants

- 22 asymptomatic female NCAA Division II volleyball players from Concordia University St. Paul (CSP)



## Methods

- Demographics: age, height, weight, player position, injury history within past 5 years, years of participation
- Screen: ROM, MMT, special tests for radiculopathy, scapular dyskinesis, impingement, and instability
- The G4 electromagnetic motion capture system was used to measure HT flexion, ST upward rotation (UR) and posterior tilting at 120 degrees of GH scapular plane elevation, and GH external rotation (ER) with arm at 90-degrees abduction.

## Results

- ST UR differences were statistically significantly different ( $p=0.006$ ).
- 10 additional participants would be needed for the difference in GH ER to be statistically significantly different.

## Conclusion

- Female volleyball players demonstrated a significant difference in scapular UR on the DOM side vs NDOM side.
- There were no statistically significant differences between DOM and NDOM HT elevation, posterior tilting at 120 degrees of elevation, and maximal ER of the GH joint with shoulder at 90-degrees of abduction.

## Clinical Relevance

- Scapular upward rotation may be an area that a physical therapist may address to prevent or treat conditions such as shoulder impingement
- Patients presenting with SAIS demonstrate a decrease in ST upward rotation and posterior tilting.

## References

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Mean Value Comparisons

