*Template of the abstract*
*Word limit: 350 words*
*Abstract submission at:* https://forms.gle/AWt7ueiHa71VvQ9X6

# Upper Quarter Functional Performance and Glenohumeral Internal Rotation Deficit in Volleyball Players With and Without Scapular Dyskinesis

Hsing-Ni Lai[1] Tsun-Shun Huang[1] Hsiao-Chen Wei[1] Yuan-Hung Chao[1]
Jiu-Jenq Lin[1,2,*]

[1] School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan University, Taipei, Taiwan
[2] Division of Physical Therapy, Department of Physical Medicine and Rehabilitation, National Taiwan University Hospital, Taipei, Taiwan

**Background and Purpose:** Few studies have investigated the influence of scapular dyskinesis on upper quarter functional performance in overhead athletes. The purpose of this study was to investigate differences in shoulder flexibility, muscle strength, self-reported shoulder questionnaire scores, and upper quarter functional performance in volleyball players with and without scapular dyskinesis. **Methods:** Thirty-eight amateur male volleyball players were recruited and classified into two groups based on dyskinesis (n=24) or no dyskinesis (n=14). The main outcome measures were the shoulder range of motion difference between the 2 sides, self-reported questionnaire scores [Disability of Arm, Shoulder and Hand questionnaire (DASH) and Kerlan-Jobe Orthopaedic Clinic questionnaire (KJOC)] and upper quarter functional assessments, including the closed kinetic chain upper extremity stability test (CKCUEST), Y-balance test–upper quarter (YBTUQ), unilateral seated shot-put test (USSP) and push-up test (PU). **Results:** Our findings indicated lower YBTUQ scores in bilateral arms (8.0–9.3, $p = 0.009$), larger glenohumeral internal rotation deficit (GIRD) (8.1°, $p = 0.029$) and greater prevalence of shoulder symptoms (34%, $p = 0.044$) in the volleyball players with scapular dyskinesis than in those without it. There were no differences in the findings of the other performance tests between the 2 groups. **Conclusions:** Scapular dyskinesis may be more highly associated with core muscle and upper extremity stability than with upper extremity plyometric ability, power and endurance. The causal relationships among scapular dyskinesis, core muscle stability, GIRD, and shoulder injuries in overhead athletes should be further investigated. **Clinical Relevance:** The result of this study can be applied on forming training strategy for volleyball players with scapular dyskinesis, particularly recruit the core stability and upper extremity stability into the training program.