

Effect of Kinesio®tape on Scapular Kinematics of the Asymptomatic Shoulder in Healthy Younger Adults

Cormick Eaton, SPT, Sam Lemminger, SPT, Bella Lott, SPT, Ryan Smith, SPT, Natalie Zitzer, SPT, Peter Rundquist, PT, PhD



Concordia
UNIVERSITY SAINT PAUL

Introduction

- Limited scapular upward rotation and posterior tilting during upper extremity elevation are correlated with subacromial impingement syndrome (SAIS)
- Previous research found significant increases in scapular posterior tilting with Kinesio®tape (KT) application
- Purpose: To find a taping method that increases scapular upward rotation and posterior tilting
- Hypothesis: KT application for mechanical facilitation will increase scapular upward rotation during upper extremity elevation

Objective

- Investigate the effects of KT on scapular kinematics during upper extremity elevation

Participants

- Twenty asymptomatic participants aged 23-36 years old (mean 25.45)
- No cervical, thoracic, or shoulder conditions affecting shoulder ROM
- Right hand dominant



Figure 1: Experimental Setup

Methods

- Kinesio® tape was applied to the dominant upper extremity
- 3D motion of the humerus and scapula were measured using the G4 electromagnetic motion capture system and MotionMonitor software
- Upper extremity elevation was performed in the sagittal, frontal, and scapular planes without tape and with tape. The non-tape condition was repeated
- Repeated measures ANOVA utilizing SPSS v 28 for statistical analysis

Results

- No statistically significant difference in scapular upward rotation with upper extremity elevation between KT, non-KT, and repeated non-KT conditions ($p=0.603$)
- No statistically significant difference in scapular posterior tilting with upper extremity elevation between KT, non-KT, and repeated non-KT conditions ($p=0.376$)
- Results are outlined in figure 2.

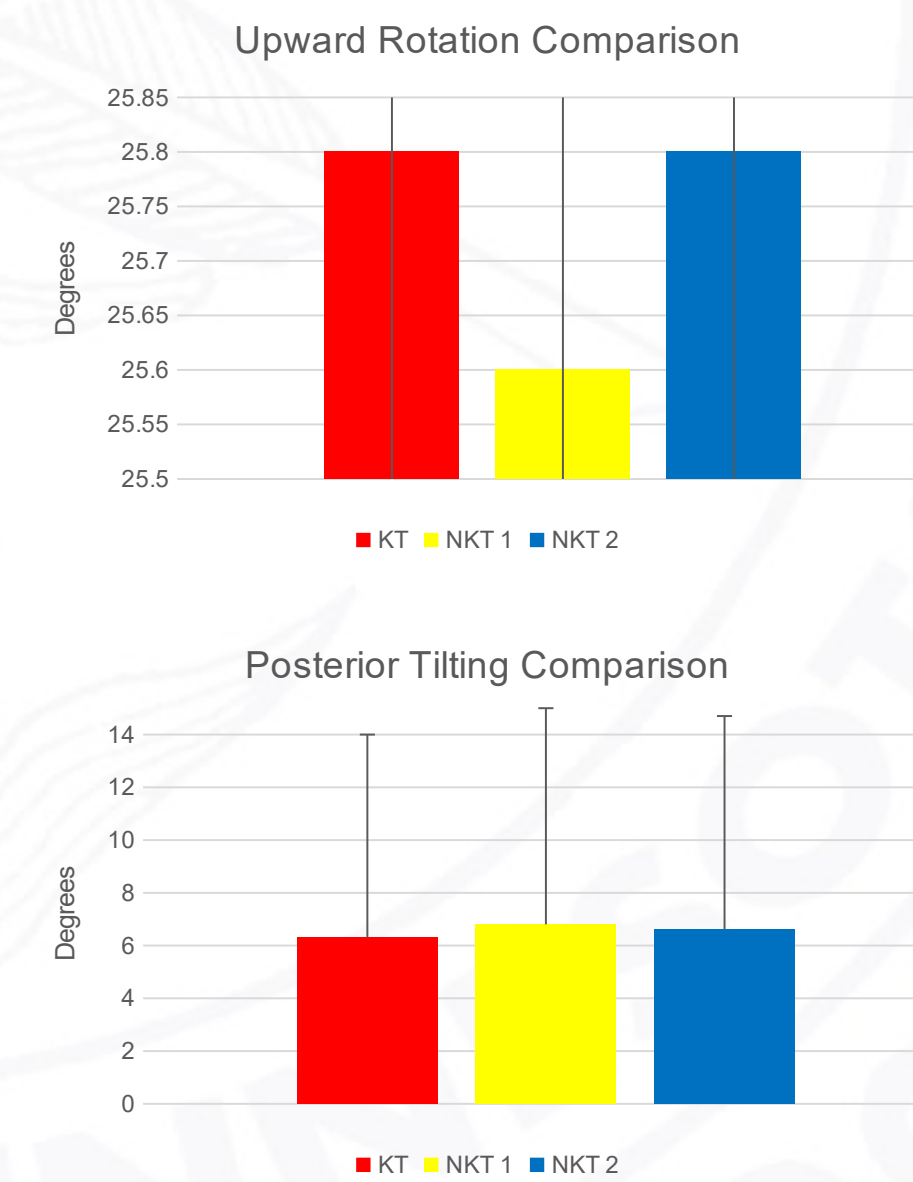


Figure 2: ROM Comparisons

Conclusion

- It is hypothesized that KT can alter the kinematics of the scapula and could be used to help treat individuals with SAIS
- The current literature has not reached a consensus as to whether or not KT has the ability to alter the kinematics of the scapula
- Current study found no change in either scapular posterior tilting or upward rotation
- Further research is needed to see if this taping method would be effective at reducing pain in individuals with symptomatic SAIS

Clinical Relevance

- Increasing posterior tilt and upward rotation of the scapula may improve SAIS symptoms
- Kinesiotape may provide improvements in scapular motion during UE elevation

Acknowledgements

- Peter Rundquist, PT, PhD
- Shani Johnson, PT, DScPT, COPT

References

1. Keshavarz R et al. The role of scapular kinematics in patients with different shoulder musculoskeletal disorders: A systematic review approach. *Journal of Bodywork and Movement Therapies*. 2017; 21(2):386-400.
2. Shaheen A et al. Rigid and Elastic taping changes scapular kinematics and pain in subjects with shoulder impingement syndrome; an experimental study. *Journal of Electromyography and Kinesiology*. 2015; 25(1):84-92.
3. Yildiz TI et al. Does scapular corrective taping alter periscapular muscle activity and 3-dimensional scapular kinematics? A systematic review. *Journal of Hand Therapy*. 2020;33(3):361-370.