

# EFFECTS OF THE QUADRICEPS FEMORIS TAPING IN THE ELDERS DURING CHAIR RISING

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## SUMMARY

The effects of Kinesio taping on quadriceps femoris on joint kinematics and kinetics of the lower limbs during chair rising were evaluated in this study. The taping did not change the knee and hip joint's loadings. It changed the movement patterns of knee and hip joints during sit-to-stand.

## CONCLUSIONS

Kinesio taping on quadriceps femoris might change the joint proprioception. The range of motion of knee flexion and maximum ankle plantarflexion moments were increased after taping during sit-to-stand movement.

## INTRODUCTION

Knee taping is one of short term or intermittent treatment for knee pain since it is believed to relieve pain by improving alignments of the patellofemoral joint [1]. The quadriceps femoris taping is one of common taping for reducing knee pain. The purpose of this study is to evaluate the effect of quadriceps femoris taping on the joint kinematics and kinetics during chair rising.

## PATIENTS/MATERIALS and METHODS

Eight elders were recruited in this study. Each subject was asked to perform the movement of sit-to-stand in the motion analysis laboratory. The seat height was adjusted to the knee height of each subject in neutral standing position. Twenty-one reflective markers were placed on selected anatomic landmarks bilaterally of the lower limbs for each subject. The VICON612 motion analysis system was used to collect the marker's trajectories at 250 Hz before and after quadriceps femoris taping. Two AMTI force plate was used to record the ground reaction forces and moments at 1000 Hz sampling rates. Five useful repetitions were collected for each testing condition at least. Euler angles are used to describe the orientation of a distal segment reference frame relative to a proximal segment reference frame. Inverse dynamic method was used to calculate the joint forces and joint moments of the lower limbs.

## RESULTS

The results in Figure 1 are the range of motion of hip, knee, and ankle joints. There was significant difference on the range of motion of knee flexion-extension between non-taping tests and taping tests. There was significant difference on the maximum ankle plantarflexion moment. No significant difference was found in the maximum hip and knee joint moments.

## DISCUSSION

The results showed that the subjects changed the movement patterns after quadriceps femoris taping. After taping, the range of motion for hip and knee flexion movements were increased since the subjects moved more forward after seat-off. It indicated that the quadriceps femoris taping might change the joint proprioception. The maximum ankle plantarflexion moment was increased resulting from that forward movement of the center of pressure.

## REFERENCES

- [1] Hinman RS et al., Rheumatology 2003; 42:865–869
- [2] Callaghan MJ et al., Journal of Athletic Training 2002; 37(1):19–24.

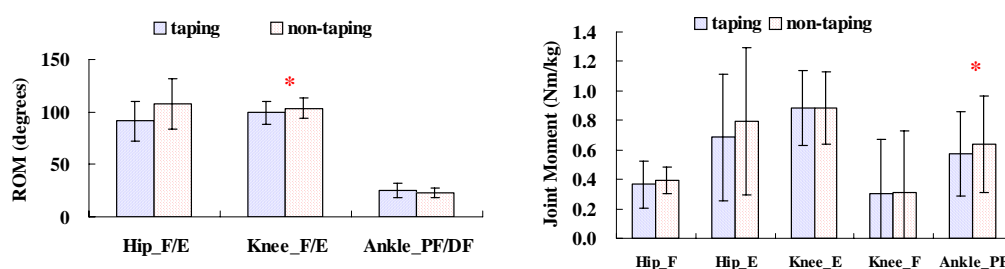


Figure1: The range of motion (ROM) and joint moment during chair rising