Abstract

**Background:** There is limited quantitative research on joint space measurements to support the use of Kinesio Tape® Space Correction Method. Also, there is limited to no research regarding the use of diagnostic ultrasound to take a numerical measurement of joint spaces, specifically the patellofemoral joint space of the knee.

**Methods:** 32 subjects with bilaterally healthy knees with no reported surgeries or reported allergies to Kinesio Tape®. The subjects reported their dominant knee to the researcher, who then measured their patellofemoral joint space with diagnostic ultrasound. Once the measurement was taken, the Kinesio Tape Space Correction Method® was applied over the dominant joint. This tape was applied and left on for 10 minutes with the patient in a non-weight-bearing position. After 10 minutes, the joint space was re-measured with diagnostic ultrasound.

**Results:** There was a statistically significant difference ($t_{31}=2.823$, $p=0.008$) between pre- and post-taped patellofemoral joint space.

**Conclusion:** Results of this study indicate that the Kinesio Tape® Space Correction Method® creates an increase in the space between the patella to femur measurement. After 10 minutes, the joint space was re-measured (Figure 3).

**Keywords:** Kinesio Tape®, Diagnostic Ultrasound, Patellofemoral Joint Space

**Methods**

**Experimental Design:** A within subject, pre-test post-test, experimental design was followed. Measurements of the dominant patellofemoral joint space was taken via Terason T3200 diagnostic ultrasound unit on high frequency, followed by a Kinesio Tape Space Correction Method® using Kinesio Tex Gold FP 2” tape. 10 minutes following the Kinesio Tape Space Correction Method®, researchers collected a patellofemoral joint space measurement.

**Procedures:**
1. Subjects were seated on the table with their dominant knee in slight flexion.
2. The patellofemoral joint space was measured on the dominant knee using diagnostic ultrasound (Figure 1).
3. Landmarks used for repeatable measure were the distal, medial patellar border and medial femoral condyle.
4. The dominant knee was placed into 120° flexion measured by a goniometer and then was taped by a Certified Kinesio Taping Faculty member using the Space Correction Kinesio Tape Method® over the patellofemoral joint space.
5. 4 squares of Kinesio Tape® was cut with 3 cuts longitudinally keeping the ends in tact. The tape was applied with 25% tension in the middle third of the tape with no tension on the tails (Figure 2).
6. The subject stayed seated for 10 minutes after the tape was applied. After 10 minutes, the joint space was re-measured (Figure 3).

**Statistical Design:** Descriptive statistics were performed for age, gender, and lower extremity dominance. Collected data was analyzed using SPSS version 23 (SPSS Software, 21st edition; IBM, Upper Saddle River, NJ). A paired samples dependent t-test was performed with the level of significance set at $p \leq 0.05$.

**Results**

There was a statistically significant difference ($t_{31}=2.823$, $p=0.008$) between pre- and post-taped patella to femur measurement.

**Conclusions and Clinical Significance**

The primary conclusion drawn from the results of this study indicate that patellofemoral joint space is increased by the Kinesio Tape Space Correction Method® after 10 minutes. Increasing joint space creates opportunity for an increase in range of motion, as well as for a potential positive treatment of plica syndrome, chondromalacia of the patella, other patellofemoral related injuries, and overall pain relief.

**Applications of the Kinesio Taping Method**

1. **Clinical:** Kinesio Taping is often used as a treatment for patellofemoral related injuries, providing a lifting effect to increase tissue below the joint space.
2. **Athletic:** It is also used to prevent patellofemoral related injuries, potentially reducing pain.

**Future Research**

- Future research may examine the success of different application times of Kinesio Tape® methods.
- Future studies may also wish to study the effect of such a treatment on damaged or injured tissue with the use of Kinesio Tape® and the Space Correction Method®.
- A continuation of research should be completed to standardize using diagnostic ultrasound to measure joint spaces.

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**References**