

The Effectiveness of Kinesio Tape on Isometric Vastus Medialis Strength During Knee Extension

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BACKGROUND

- Patellofemoral pain syndrome (PFPS) is described as pain in the anterior knee, posterior to the patella, or along the patellar borders due to excessive lateral tracking^{1,3}
- PFPS occurs more frequently in females than males; however, recent evidence is scant supporting this oft-quoted gender discrimination^{2,3}
- Quadriceps strength plays an important part in an individual's quality of life
- PFPS has been attributed to VMO weakness
- Hand-held dynamometry is used to assess isometric muscle strength⁴
- KT tape is an elastic tape with texture that mimics properties of the skin^{5,6}
- The use of Kinesio Tex (KT) tape to facilitate muscle strength is still a controversial issue due to inconsistency in the literature⁷

PURPOSE

- The purpose of this study was to determine the effectiveness of Gripit K tape on isometric VMO strength during knee extension.

HYPOTHESIS

- Our hypothesis was that Gripit K tape will facilitate VMO activation, which will increase VMO strength during knee extension.

RESEARCH DESIGN

- **Study Design:** Randomized Control
- **Independent Variable:** Gripit K Tape
- **Dependent Variable:** Average maximum quadriceps strength

PARTICIPANTS

- **Inclusion Criteria:** Daemen College students and staff, over the age of 18, and healthy individuals that participate in physical activity two to three times a week
- **Exclusion Criteria:** Any kind of lower extremity injury within the last 6 months or previous surgeries, excessive amounts of hair on the quadriceps, and possible allergy to the tape adhesive

INSTRUMENTATION

- Hand-Held Dynamometer
 - Lafayette Manual Muscle Testing (MMT) System® Hand Dynamometer, Lafayette, IN
- Kinesiology Tape
 - Gripit K Tape, Thomastown, Australia
- Goniometer
 - Sammons Preston, Bolingbrook, IL

PROCEDURE

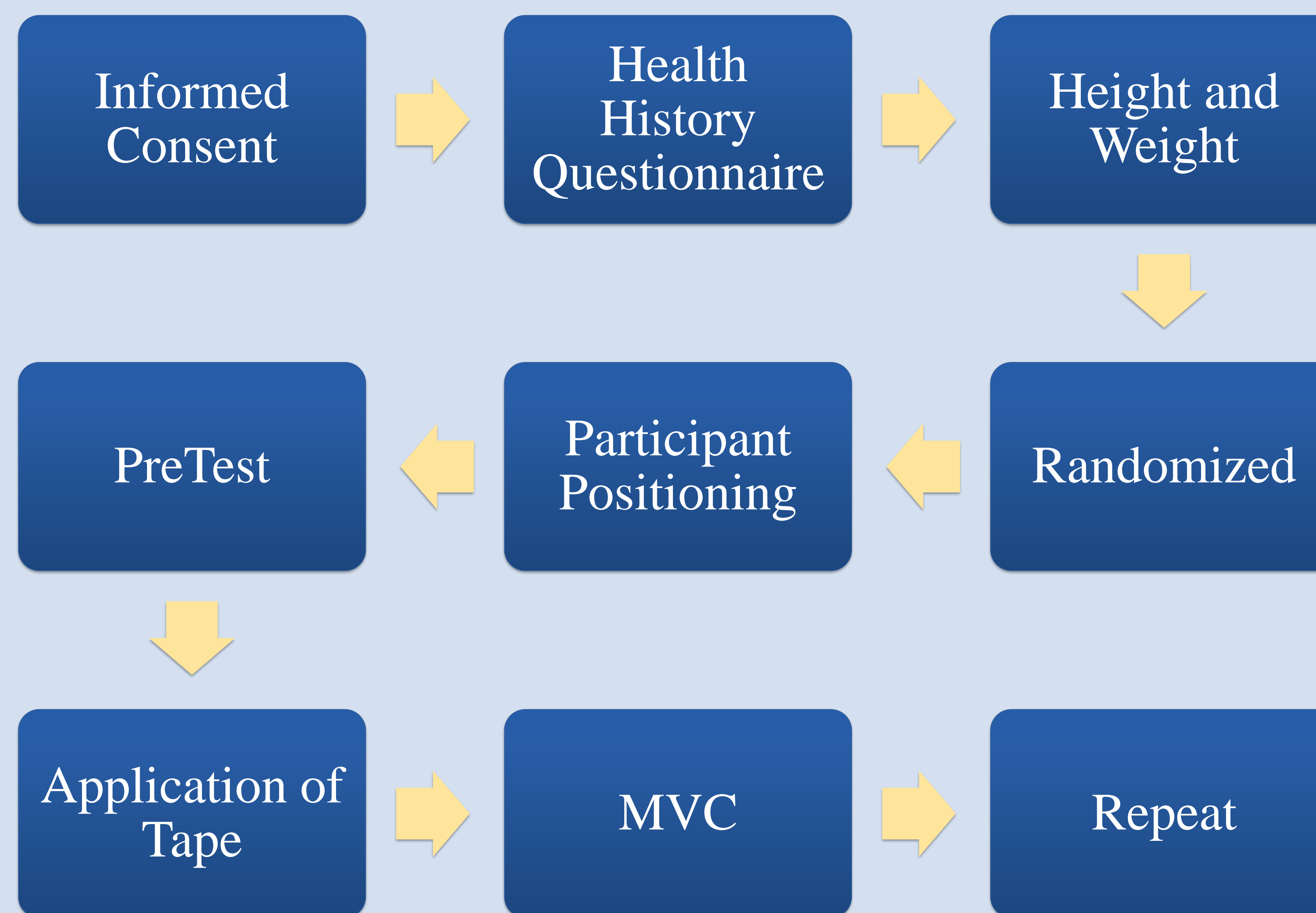


Figure 1. Application of Gripit K tape



Figure 2. Start position of the patient.

RESULTS

- IBM SPSS 23 was used for data analysis
- Statistical significance was defined as $p \leq 0.05$
- A repeated measures ANOVA was used to determine the statistical significance of average maximal quadriceps strength between the experimental and control limb
- A statistically significant difference was observed between the pretest and posttest across both the control and experimental group ($p = 0.011$)
- There was a large magnitude of difference between the pretest and posttest results.

	Group	Mean	Std. Deviation	N
PreTest	Experimental	32.700	5.7420	3
	Control	32.667	8.8546	3
	Total	32.683	6.6746	6
PostTest	Experimental	42.933	10.0550	3
	Control	39.033	8.4347	3
	Total	40.983	8.5710	6

Table 1. This table represents the mean, standard deviation, and number of participants in the control and experimental group during pretesting and posttesting.

CONCLUSION / DISCUSSION

- A greater change in strength was observed in the experimental group compared to the control group.
- Larger number of participants could show a greater separation between the control and experiment groups.
- More research is necessary to understand the relationship between kinesiology tape and muscle strength.

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