**Article Full Title**

Comparison of mobilization with movement and Mulligan knee taping on Patellofemoral pain syndrome

**Author Names**

Rehman, Mubarra; Riaz, Huma

**Reviewer Name**

Courtney Mueller, SPT

**Reviewer Affiliations**

Duke University School of Medicine, Doctor of Physical Therapy Division

**Paper Abstract**

Abstract Objective: To compare the effect of mobilisation with movement and Mulligan knee taping on anterior knee pain, hamstring flexibility and physical performance of the lower limb. Methods: The randomised controlled trial was conducted from July to December, 2019, at the physical therapy department of Sahat Clinic, Rawalpindi, Pakistan, and comprise participants of both genders having patellofemoral pain who were randomised into mobilisation with movement group A and Mulligan knee taping group B. Both the groups were treated for 2 days per week for 2 consecutive weeks. Outcome was measured using the numeric pain rating scale, the Kujala pain rating scale, the active knee extension test and the time-up-and-go test. Assessments were taken at baseline, and at 2nd and 6th weeks post-intervention. Data was analysed using SPSS 21. Results: Of the 34 participants, there were 17(50%) in each of the two groups. Overall, there were 6(17.6%) males and 28(82.4%) females with a mean age of 31.17±7.22 years. Group A showed significant improvement (p&lt;0.0001) in terms of pain, while group B had better hamstring flexibility (p&lt;0.0001). Both the groups showed a significant difference (p&lt;0.0001) for all outcome variables post-intervention. Conclusion: Mobilisation with movement was found to be more effective in the treatment of patellofemoral pain and associated knee functional performance. Keywords: Anterior knee pain syndrome, Patellofemoral pain syndrome, Musculoskeletal manipulations, Manual therapy, Physical therapy techniques. (JPMA 71: 2119;2021) DOI: https://doi.org/10.47391/JPMA.04-658

**NIH Risk of Bias Tool**

Quality Assessment of Controlled Intervention Studies

**Was the study described as randomized, a randomized trial, a randomized clinical trial, or an RCT**

Yes

**Was the method of randomization adequate (i.e., use of randomly generated assignment)?**

Yes

**Was the treatment allocation concealed (so that assignments could not be predicted)?**

Yes

**Were study participants and providers blinded to treatment group assignment?**

No

**Were the people assessing the outcomes blinded to the participants' group assignments?**

No

**Were the groups similar at baseline on important characteristics that could affect outcomes (e.g., demographics, risk factors, co-morbid conditions)?**

Yes

**Was the overall drop-out rate from the study at endpoint 20% or lower of the number allocated to treatment?**

Yes

**Was the differential drop-out rate (between treatment groups) at endpoint 15 percentage points or lower?**

Yes

**Was there high adherence to the intervention protocols for each treatment group?**

Yes

**Were other interventions avoided or similar in the groups (e.g., similar background treatments)?**

Yes

**Were outcomes assessed using valid and reliable measures, implemented consistently across all study participants?**

Yes

**Did the authors report that the sample size was sufficiently large to be able to detect a difference in the main outcome between groups with at least 80% power?**

Cannot Determine, Not Reported, or Not Applicable

**Were outcomes reported or subgroups analyzed prespecified (i.e., identified before analyses were conducted)?**

Yes

**Were all randomized participants analyzed in the group to which they were originally assigned, i.e., did they use an intention-to-treat analysis?**

Yes

**Key Finding #1**

Patients that received mobilization with movement showed greater improvements in pain and functional activities involving the knee.

**Key Finding #2**

Patients that received mobilization with movement demonstrated improved hamstring flexibility when measuring active knee extension, but not as significantly as in those that received Mulligan taping.

**Key Finding #3**

**Key Finding #4**

**Please provide your summary of the paper**

This paper sought to evaluate the effects of mobilization with movement and Mulligan knee taping on anterior knee pain, hamstring flexibility and functional performance. The mobilization with movement group received straight leg raise with traction and tibial gliding techniques, while the Mulligan taping group received taping to their anterior knee. Both groups were prescribed home exercise programs consisting of hamstring stretching and quadricep and vastus medialis oblique strengthening. Mobilization with movement was found to improve pain and functional movement involving the knee and Mulligan taping was found to improve hamstring flexibility.

**Please provide your clinical interpretation of this paper. Include how this study may impact clinical practice and how the results can be implemented.**

Depending on the individual needs of the patient, this study provides some validation for the use of mobilization with movement and Mulligan knee taping to improve limitations that present with patellofemoral pain syndrome. It is key to note that a stretching and strengthening program was implemented along with these interventions and could contribute to some of the effects seen. Overall, a multimodal approach can be used to help improve the symptoms and quality of life of those with PFPS.