**Article Full Title**

The Effect of a Manual Therapy Knee Protocol on Osteoarthritic Knee Pain

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**Paper Abstract**

**Background:** Knee osteoarthritis is a highly prevalent condition with a significant socioeconomic burden to society. It is known to effect sufferers through pain, loss of function and changes in health related quality of life. Management typically involves pharmacologic and/or exercise based therapy approaches to reduce pain. Previous studies have shown multimodal treatment approaches incorporating manual therapy to be efficacious. The aim of this study is to determine if a manual therapy technique knee protocol can alter the self reported pain experienced by a group of chronic knee osteoarthritis sufferers in a randomised controlled trial. **Methods:** 43 participants with a chronic, non-progressive history of osteoarthritic knee pain, aged between 47 and 70 years were randomly allocated following a screening procedure to an intervention group (n=26; 18 men and 8 women, mean age 56.5 years) or a control group (n=17; 11 men and 6 women, mean age 54.6 years). Participants were matched for present knee pain intensity measured on a visual analogue scale. The intervention consisted of the Macquarie Injury Management Group Knee Protocol whilst the control involved a non-forceful manual contact to the knee followed by interferential therapy set at zero. Participants received three treatments per week for two consecutive weeks with a follow up immediately after the final treatment. Post-treatment Participants completed 11 questions including present knee pain intensity and feedback regarding their response to treatment utilizing a visual analogue scale. Results were analysed using descriptive statistics. **Results:** Prior to the intervention, there was no significant differences in age or present knee pain intensity. Following treatment, the intervention group reported a significant decrease in the present pain severity (mean 1.9) when compared to the control group (mean 3.1). Response to treatment questions indicated that compared to the control group, the intervention group felt the intervention had helped them (intervention mean 7.0; control mean 3.4), felt it decreased their knee symptoms such as crepitus (intervention mean 6.0; control mean 3.4) and improved their knee mobility (intervention mean 6.4; control mean 3.4) and their ability to perform general activities (intervention mean 6.5; control mean 3.8). Importantly the MIMG Knee Protocol intervention group reported no adverse reactions during treatment. **Conclusions:** A short-term manual therapy knee protocol significantly reduced pain suffered by participants with osteoarthritic knee pain and resulted in improvements in self-reported knee function immediately after the end of the 2 week treatment period.

**NIH Risk of Bias Tool**

Quality Assessment of Controlled Intervention Studies

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

Yes

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

Yes

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

Cannot Determine, Not Reported, or Not Applicable

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

No

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

Cannot Determine, Not Reported, or Not Applicable

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

Yes

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

Cannot Determine, Not Reported, or Not Applicable

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

Cannot Determine, Not Reported, or Not Applicable

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

Yes

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

No

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

No

1. **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

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

No

1. **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**

There was a significant difference between groups for those who received the Macquarie Injury Management Group Knee Protocol (MIMG).

**Key Finding #2**

Short term outcomes were measured (immediately following 2 weeks of treatment).

**Key Finding #3**

Co-occurring treatment methods were not considered when looking at outcomes.

**Key Finding #4**

**Please provide your summary of the paper**

This study examined the effect of manual therapy on pain and functionality in participants with knee osteoarthritis. The study found a significant difference in pain reduction in individuals who received manual therapy. However, there were limitations identified that decrease the reliability and validity of this study. The authors do not identify exclusion criteria for the participants. For this reason, we cannot confidently say that manual therapy resulted in the reduction of pain because we do not know what other treatments these participants were receiving in addition to manual therapy. Additionally, this study only looks at short-term outcomes. While this study does a good job of presenting manual therapy as a plausible option for treatment of knee OA, additional studies should further investigate whether manual therapy provides long term relief. Additionally, further exclusion criteria should be implemented to ensure that any effect produced is produced by manual therapy.

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

This study proposes manual therapy as a plausible treatment option for short term relief in individuals with knee osteoarthritis. More research will need to be done on the long term effects of manual therapy in individuals with knee osteoarthritis, but it is useful to know that manual therapy can provide short term relief, especially if you have a patient who presents to your clinic flared up.