A prospective study evaluating the effects of MRT on the treatment of patellofemoral pain syndrome

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INTRODUCTION
Knee cap pain is the most common knee complaint seen in young adults.\textsuperscript{1,2,3} Knee pain treatment research is vast. However little research has been conducted with a popular and relatively new treatment called the myofascial release technique (MRT). This treatment is a hands-on soft-tissue injury treatment utilized globally by many health care professionals. The objective of this study was to evaluate prospectively the effect of MRT on quadriceps muscle inhibition, pain, strength, electromyography (EMG), and knee function in physically active adults with anterior knee pain or patellofemoral pain syndrome (PFPS).

METHODS
Nine physically active adults diagnosed with uni or bilateral patellofemoral pain syndrome were randomly assigned to either one of three groups consisting of 3 people per group. Two of the groups received commonly used hands on manual therapy treatment, MRT, or trigger point release treatment (TP). The control group received a sham ultrasound treatment. The interpolated twitch technique, a Biodex dynamometer (Biodex Ltd.) and electromyography were used to determine changes in quadriceps muscle inhibition, isometric strength and EMG respectively before and after the intervention. Pain was assessed using a 100mm Visual analogue scale (VAS), and knee pain and function were evaluated using the anterior knee pain scale (AKPS). These clinical questionnaires were completed by all subjects at each visit before the start of the quadriceps muscle testing. All interventions consisted of six treatments applied to the quadriceps muscles three times per week for two weeks. On completion of all six treatment visits, follow-up measurements were taken once every two weeks for the following four weeks (every 14 days from the last visit).

RESULTS
At visit 1, the MRT group (n=3) displayed an average muscle inhibition, knee pain during activity and peak knee extensor torque of 17.5%, 4.3/10, and 235.5Nm respectively. On visit 6 it was 17.2%, 2.7/10 and 270NM respectively.

At visit 1, the TP group (n=3) displayed an average muscle inhibition, knee pain during activity and peak knee extensor torque of 18%, 3.2/10 and 350.6Nm respectively. On visit 6 it was 6.5%, 1.8/10 and 396.1NM respectively.

At visit 1, the control group (n=3) displayed an average muscle inhibition, knee pain during activity and peak knee extensor torque of 10.1%, 3.5/10 and 390Nm respectively. On visit 6 it was 7.7%, 1/10 and 364NM respectively.

Figure 1: The patients perceived scale of knee pain out of a total of 10 from the initial visit to the 6\textsuperscript{th} visit.

DISCUSSION & CONCLUSIONS
The preliminary data showed a decrease in muscle inhibition, knee pain during physical activity and increase in peak knee extensor torque for all three groups from the initial visit to the 6\textsuperscript{th} treatment session. There was one exception where the peak knee torque did not increase in the control group. The greatest differences in all three outcome measures appeared to come from the TP treatment group. However it is still unknown if that is due to the treatment alone or psychological factors, which would be an inherent limitation to this study.

In the MRT group muscle inhibition did not appear to be affected, however the patient’s perceived knee pain measured on the Visual Analogue Pain Scale decreased from the initial treatment visit to the 6\textsuperscript{th} visit with a difference of at least 1.5 which in a comparative study would show clinical significance.\textsuperscript{4} However these differences would however need to be interpreted with caution as the control group showed a decrease in muscle inhibition and knee pain as well. Therefore a larger sample size is required for making firm conclusions.

REFERENCES

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