**Ajimsha MS, Chithra S, Thulasyammal RP. Effectiveness of myofascial release in the management of lateral epicondylitis in computer professionals. Arch Phys Med Rehabil 2012; 93:604-9.**

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**Design:** Randomized controlled, single-blinded clinical trial

**Objective:** To investigate the effectiveness of myofascial release (MFR) in reducing pain and improving functional disability in computer professionals with lateral epicondylitis (LE) compared to a control group receiving sham ultrasound therapy.

**Population /sample size/setting:**

* A total of 65 participants including 38 females and 27 males, aged 20 to 40 years (mean age 29.9 years) with clinical evidence and provocative signs of lateral epicondylitis were recruited at the clinic of the Myofascial Therapy and Research Foundation, Kottayam, Kerala, India between December 2008 and June 2009.
* The 65 patients were randomly assigned to one of the 2 treatment groups: the MFR group (n = 33), or the control group receiving sham ultrasound therapy (n=32).
* Inclusion criteria included computer professionals with a diagnosis of LE on the mouse-operating arm based on the Southampton examination criteria for LE, pain lasting > 1 day in the last 7 days in the lateral elbow region, tenderness over the lateral elbow region, pain occurring over the lateral elbow region during resisted active extension of the wrist, pain lasting at least 3 months, those working with a personal computer, computer terminal, or equivalent device with a computer mouse, those using a computer for 50% or more of the work day, and those who had completed a baseline Patient-Rated Tennis Elbow Evaluation (PRTEE) scale.
* Exclusion criteria included those with a history of trauma to the affected elbow in the preceding 6 weeks, history of elbow instability, previous elbow surgery, any other pathology involving the affected upper limb or cervical spine, use of oral/systemic steroids, use of analgesics on more than 10 days a month, and any other treatment for LE during the previous 6 months.

**Methods/Interventions/Outcome Measures:**

* Study design was a randomized, single-blind study with 12 weeks of follow-up.
* The 2 interventions were administered by certified, experienced MFR therapists 3 times a week for the first 4 weeks (12 total treatments) with a minimum of a 1 day gap between any 2 sessions. The duration of each treatment session was 30 minutes. All therapists who delivered treatments were aware of the patients’ treatment allocation.
* The MFR treatment protocol consisted of 3 techniques. The first technique began on the humerus, treating from the common extensor tendon to the extensor retinaculum of the wrist. The second technique involved using the knuckles of the hand to work over and through the periosteum of the ulna. The third technique involved spreading the bones apart, that is the radius from the ulna.
* Patients in the control group received sham ultrasound therapy over the extensor aspect of the forearm in the same 3 areas as the MFR treatment for 30 minutes per treatment session. The ultrasound producing quartz crystal was removed from the transducer head of the ultrasound therapy unit to produce sham ultrasound.
* The primary outcome measure was the mean difference in PRTEE scale scores between baseline, week 4, and follow-up at week 12. The PRTEE scale consists of 2 subscales including pain severity and functional disability. A *p* value of less than 0.05 was accepted as statistically significant.
* Assessments were conducted before treatment (baseline), after treatment (week 4), and after 12 weeks (follow-up) using the PRTEE scale where patients rated their pain severity and functional disability.
* Two outcome assessors blinded to the participant’s allocation group analyzed scores from the PRTEE scale. Patients were not blinded to their treatment intervention.
* All study participants were advised to take medications only when they had exacerbations. Participants were asked to maintain a pain and medication diary to monitor and record any medication or change in pain pattern during the 4 week treatment period.

**Results:**

* No significant differences were observed between the groups for the demographic characteristics. Average duration of symptoms in the 2 groups was 8 months. There were no significant baseline differences in the PRTEE score between the 2 groups.
* One participant from the MFR group and 2 from the control group dropped out of the study. No reasons were given.
* No serious adverse events occurred in either of the groups except that 5 patients from the MFR group reported an increase of pain in the first week after initiation of treatment, but this went away within a week.
* The MFR group showed statistically significant improvements in the PRTEE score at both the 4 week and 12 week follow-ups compared to the baseline measurement. They reported a 78.7% reduction in their pain and functional disability as shown in the PRTEE score in week 4, and a 63.1% reduction at the 12 week follow-up. The PRTEE score at baseline was 65.2 and improved to 13.8 at 4 weeks and persisted at 23.9 at 12 weeks.
* The control group reported a small, nonsignificant improvement in the PRTEE score at the 4 week follow-up, and a slightly declined improvement at 12 weeks compared to the baseline measurement. They reported only a 6.8% reduction in their pain and functional disability as shown in the PRTEE score in week 4, and a 2.2% increase in their symptoms during follow-up week 12. The PRTEE score at baseline was 64.5 and improved to only 60.1 at 4 weeks, and showed no improvement at 65.9 at 12 weeks.
* The proportion of positive responders, defined as participants who had at least a 50% reduction in pain and functional disability between weeks 1 and 4, was 100% in the MFR group and 0% in the control group.
* For between group differences, the MFR group significantly improved more than the control group in both weeks 4 and 12 (*p* < 0.001). Statistically significant mean differences in the PRTEE score were observed at week 4 (47.0) and at week 12 (42.7) in favor of the MFR group.

**Authors’ conclusions:**

* This study reported that the MFR intervention was significantly more effective than a control intervention of sham ultrasound therapy for decreasing the pain and functional disability of LE in computer professionals.
* The follow-up at week 12 has shown that the treatment effects were less evident compared with week 4 immediately after the treatment. This may be explained because, at the 12-week follow-up, the treatment effect obtained may be disguised by the continuous use of the computer and mouse or by the natural course of the disease.
* The authors hypothesize that injuries resulting from physical trauma, repetitive strain injury, and inflammation are thought to decrease fascial tissue length and elasticity, resulting in fascial restriction, and that pain relief due to MFR is secondary to returning the fascial tissue to its normative length by collagen reorganization.
* A significant proportion of computer professionals with LE might benefit from the treatment of MFR.

**Comments:**

* This study supports the conclusion that MFR was more effective in decreasing pain and improving function than a control intervention of sham ultrasound at the end of the 4 week treatment and at follow-up at 12 weeks in computer professionals with LE.
* This study supports the conclusion that statistically significant differences between these 2 groups were observed for the PRTEE outcome measure at the end of the 4 week treatment and at 12 weeks follow-up, and these differences demonstrate clinically important improvements in the MFR group.
* Strengths of this study included outcome assessor blinding, the inclusion of a sham control group, a mid-term follow-up time, and a clearly designated primary outcome.
* One limitation of this trial was that the therapists administering the interventions could not be blinded.
* The randomization method was not well-defined which disqualifies this study as a high quality RCT.
* The authors failed to perform sample size power calculations for the study. The sample size was probably adequate, since the results did detect a significant difference in the outcome. It is unlikely that a larger sample size would have changed the results.
* Well-designed larger, studies with long-term follow-up are warranted to determine the long-term effectiveness of MFR.

**Assessment*:***

This adequate study provides some evidence that myofascial release is more effective than a control intervention of sham ultrasound therapy in reducing pain and improving functional disability in computer professionals with lateral epicondylitis (LE).