International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2025: 7.089

# Effectiveness of Myofascial Chain Release along the Superficial front Arm Line Followed by Progressive Strengthening in the Management of Medial Epicondylalgia

**Yashi Jain**

**Abstract:** ***Background**: Medial epicondylalgia causes pain around the inner side of the elbow and may make routine hand and arm movements difficult. This case describes the use of myofascial release along the Superficial Front Arm Line (SFAL), followed by strengthening exercises. **Case Presentation**: A 53-year-old female patient presented with pain in the right medial elbow for five months. Her initial pain score was 9/10, and wrist and elbow flexor strength was 3/5. **Intervention**: The treatment included pain-relieving methods, SFAL-based myofascial release, and gradual strengthening of the wrist, elbow, and shoulder. **Results**: After four weeks, pain level decreased from 9/10 to 4/10. Muscle strength and pain-free movement of the wrist, elbow, and forearm also improved, and the patient reported that performing daily activities became easier. **Conclusion**: Improvements were observed in pain, muscle strength, movement, and daily function following the treatment program. Since this was a single case with more than one treatment approach, further studies are needed to confirm these findings.*

**Keywords:** Medial epicondylalgia, myofascial release, superficial front arm line, progressive strengthening, physiotherapy, rehabilitation

## 1. Background

Medial epicondylalgia, usually called golfer's elbow, is a common musculoskeletal problem that affects the inside of the elbow. It causes pain and tenderness over the medial epicondyle of the humerus, where the common flexor-pronator tendon begins. This tendon is the attachment point for the pronator teres, flexor carpi radialis, palmaris longus, flexor carpi ulnaris, and flexor digitorum superficialis muscles. When these muscles are overused, the tendon gets tiny injuries, which leads to pain and limits normal movement. The name sounds like a golf injury, but it occurs more frequently in people who perform repetitive work or sports that strain the forearm and wrist, especially manual laborers, carpenters, plumbers, painters, and athletes.

**Pathophysiology:** The current understanding suggests that medial epicondylalgia is a degenerative condition, not an acute inflammatory one. Histological analysis reveals collagen disorganization, fibroblast proliferation, increased ground substance in the common flexor tendon, neovascularization, and angiofibroblastic proliferation. This results in a tendon with reduced load-bearing capacity.

**Symptoms and Signs:** Patients with medial epicondylalgia may present with local pain and tenderness over the medial epicondyle of the humerus, restricted forearm movements, and pain while gripping, lifting, or carrying objects using an affected upper limb.

In chronic cases, muscle weakness, decreased grip strength, restricted functional fulfilment, and associated myofascial trigger points in the forearm flexor muscles may also be revealed. Differential diagnoses include ulnar nerve entrapment, cervical radiculopathy, medial collateral ligament injury, and elbow osteoarthritis.

**Diagnosis** is mainly based on an elaborated clinical history and physical examination. Provocative clinical tests, such as the Reverse Cozen's test, resisted wrist flexion test, and resisted forearm pronation, are usually used to reproduce symptoms. Palpation of the common flexor tendon reveals local tenderness, and tests of muscle strength, range of motion, and function are also helpful. Ultrasound or MRI can confirm the diagnosis, assess the severity of the condition, and rule out other causes if the clinical picture is not entirely clear.

The treatment of medial epicondylalgia includes conservative measures, such as, modifying painful activities, educating the patient, bracing, manual therapy, and rehabilitation. Physiotherapy includes increasing the tendon's tolerance to load and stretching.

**Aim**

To describe the clinical outcome of treatment in a patient with medial epicondylalgia following myofascial release along the superficial front arm line, followed by progressive muscle strengthening.

**Objectives**

1) To evaluate pain and increase functional mobility.
2) To describe the effects of MFR along SFAL in reducing pain in medial epicondylalgia.
3) To evaluate changes in muscle strength and ROM after completion of treatment.

## 2. Case Presentation

**Patient History:**

A 53-year-old right-hand-dominant female fashion designer presented to the physiotherapy department with a five-month history of gradually progressive pain across the right medial aspect of the elbow. The pain was earlier activity-related, with a baseline Visual Analog Scale (VAS) score of 9/10 during

functional activities and significant relief at rest. The patient had a history of bilateral lateral epicondylalgia, which was previously treated conservatively. The patient's occupation included occasional suture work; however, her daily activities were mostly connected with sitting at a desk as she did not have to do any housekeeping since they were done by a housemaid, apart from cooking. At the same time, the patient could not take care of simple activities of daily living due to pain, such as lifting and bringing the object to the mouth, opening the tightened bottle of water, carrying shopping bags, wringing the wet clothes, and gripping something cylindrical (e.g., a pen) from the middle with effort. The patient noted that pain occurred when lifting the front part of the body with the elbow bent, twisting it when the forearm was pronated, especially when twisted in the mid-position, and when carrying weight on the affected upper limb. By contrast, the pain was less intense when the patient was flexing her wrist on a fixed forearm.

**Clinical interrogation**

- Palpation revealed a localized tender point in the right medial epicondyle.
- The reverse Cozen's test was positive and reproduced the patient's complaint of dull medial elbow pain, indicating medial epicondylalgia.
- Tight bands and active myofascial trigger points within the biceps brachii, triceps brachii, and anterior forearm flexor musculature. Deep palpation over these regions reproduced sharp, shooting pain at the medial elbow and was associated with reduction of elbow movement due to increased muscular tightness.
- Manual muscle testing demonstrated decreased strength of the wrist flexors and elbow flexors, both ranked 3/5 on the Medical Research Council (MRC) scale.
- Range of motion: During active elbow flexion against a 1 kg dumbbell, the patient was able to perform movement pain-free up to approximately 75° of elbow flexion, beyond which pain progressively increased, limiting further movement. Active forearm pronation elicited mild pain, particularly through 45-90° ROM, 45° was painful. Wrist flexion performed without external resistance was pain-free untill 60°; however, resisted wrist flexion produced pain over the medial epicondyle, indicating involvement of the common flexor pronator tendon. Collectively these findings suggests significant impairment in muscle performance and functional use of the affected upper limb secondary to medial epicondylalgia associated with myofascial dysfunction.

**Table 1:** Pain Grading

| | |
|---|---|
| NPRS (Numeric pain rating scale) | 9/10 |

**Table 2:** Muscle strength through Manual Muscle Testing

| | |
|---|---|
| Wrist flexion | 3/5 |
| Elbow flexion | 3/5 |

**Table 3:** Range of Motion through Goniometry

| | |
|---|---|
| Wrist flexion | Upto 60° pain free |
| Elbow flexion | Upto 75° pain free |
| Pronation | Upto 45° pain free |

**Uniqueness of Study**

- The uniqueness of this case lies in the use of a whole chain myofascial release along the superficial front arm line (SFAL) and not only limiting it to the painful medial epicondyle.
- Trigger points and tender areas were found at multiple aspects of entire SFAL that is, on the anterior forearm muscles, biceps brachii, and pectoral muscles, thus taking them as a part of the treatment protocol.
- After myofascial release, treatment was directed towards progressive strengthening of the wrist and elbow joints, with shoulder joint strengthening also included to avoid shoulder ROM restrictions compensatory to medial epicondylalgia.
- Combined Intervention: Myofascial release along the superficial front arm was combined with progressive muscle strengthening.

**PT Intervention**

In the initial phase, treatment is focused on managing the patient's pain and releasing myofascial restrictions manually, as well as by static cupping, which is followed by progressive strengthening.

**1) Electrotherapy for Pain Management (Day 1-6)**

**a) Ultrasound therapy:**

This is done for myofascial restrictions and the medial elbow region to reduce pain & prepare the tissue for manual therapy.

- Duration → 5-8 min.
- Intensity → 1.2 W/cm².
- Mode → pulse.
- Frequency → 1 MHz.

**b) TENS combined with a hydrocollator pack.**

- TENS is applied over the elbow region and biceps and forearm muscles to reduce pain.
- HCP was administered to reduce pain and increase tissue extensibility.

**c) Icing:**

- The patient was prescribed to perform icing over the painful area of the hand that is, the elbow, as well as the arm and forearm muscles.
- Three times a day for at least 10 min each.

**2) Myofascial Release (Week 2)**

The MFR technique was applied over the superficial front arm line (SFAL), which did not limit the medial epicondyle of the humerus.

The superficial front line includes the following muscles and their releases:

**a) Anterior forearm muscle:**

First, the identification of tight and painful areas was performed by palpation. Taut bands were observed in the forearm. The pressure was gradually released, and pain expression was repeatedly noted.

Release was performed in a circular and longitudinal manner towards the medial epicondyle.

**b) Biceps Brachii:**

- Multiple trigger points were palpated in the biceps. The trigger points were released using a trigger point compression technique.
- This helps reduce muscle tension and mobilize soft tissues.

**c) Pectoral muscles:**

- Palpation and examination of the pectoral muscle revealed that it was very stiff.
- Manual release in the circular and longitudinal directions was performed, and static cupping was applied for approximately 5 min.
- Stretching of upper extremity was also done.

**3) Strengthening → Exercise Therapy (Week 3-4)**

After week 1 of managing pain and week 2 of releasing myofascial restrictions, treatment progressed towards muscle strengthening.

**For 3 days in week 3,** only movements were directed to patients without any resistance.

- Wrist flexion with wrist open × 10 reps × 3 sets
- Supination & pronation of elbow × 10 reps × 3 sets
- Elbow flexion × 10 reps × 3 sets

**Another 3 days of Week 3 and Week 4 movements were directed with resistance using theraband and dumbbells.**

**Shoulder exercises**

Performed to maintain its ROM & avoid any compensation due to elbow pain

**Wand exercises**

- All movements performed, that is, flexion, extension, abduction, and adduction.
- After 3 days of normal movements, a certain amount of resistance was added.

**4) Isometrics**

**Elbow Joint**

- The patient was asked to keep the elbow in slight flexion of approximately 90° and to flex the hand fully, and then to resist the motion in the opposite direction.
- Same was done for the extension of the elbow by restricting the motion in the direction of extension.

**Shoulder joint →**

Done by restricting the motion in all movements that is,

1) Flexion
2) Extension
3) Abduction
4) Adduction

- Biceps curls were performed to increase strength and improve ROM of elbow joint, with 0.5 kg dumbbell × 10 reps × 3 sets with 3-s hold.
- Wrist curls were performed to increase ROM and muscle strength of wrist joint, with a 0.5 kg dumbbell for 10 reps in 3 sets with a 3-s hold.

- Ball-squeezing exercises were performed to enhance hand grip and precision activity.
- Supination and pronation was instructed with wrapping a theraband around the wrist and

## 3. Result

| Scales | Baseline | Post-treatment |
|---|---|---|
| NPRS (Numeric Pain Rating Scale) | 09/ 10 | 04/ 10 |
| ROM | | |
| • Wrist flexion | 60° pain free | 85° |
| • Elbow flexion | 75° pain free | 140° |
| • Pronation | 45° pain free | 80° |
| MMT | | |
| • Wrist flexion | 3/5 | 4/5 |
| • Elbow flexion | 3/5 | 5/ 5 |

Clinical improvement was observed in muscle strength and range of motion after a 4- week long treatment protocol with NPRS reduced by 5 points.

**Outcome Measures:**

- **NPRS (Numerical Pain Rating Scale):** used for pain grading.
- **Manual muscle testing:** used for the assessment of muscle strength.
- **Goniometer:** used for assessing range of motion.
- **Tenderness:** assessed through a painful stimulus generated by trigger points or taut bands on palpation.

## 4. Discussion

In the present case, the patient showed an approximately 80% reduction in pain and improvement in functional activities following myofascial release and progressive strengthening. Tyler et al. (2014) described medial epicondylalgia as pain around the medial epicondyle that is aggravated by resisted wrist flexion and forearm muscle contraction.

The use of myofascial release was based on the Superficial Front Arm Line concept described by Thomas Myers, which includes the pectoral region, medial humeral epicondyle, and forearm flexor group.

## 5. Limitation of Study

- The study was conducted on a single patient; therefore, the findings cannot be limited to all patients with medial epicondylalgia.
- Myofascial release was combined with other physiotherapy interventions and progressive strengthening; therefore, the individual effect of myofascial release could not be determined.
- The long-term effects and recurrence of symptoms were not assessed.
- Pain was assessed mainly using the VAS, which depends on the patient's perception and may vary between different assessments.

## 6. Future of the Study

As this study was conducted on a single patient, further studies are needed to test the effectiveness of SFAL- based myofascial release is for medial epicondylalgia. This method can be compared to local treatments to observe the real results.

## 7. Conclusion

Myofascial chain release followed by strengthening exercise in the superficial front arm line improved the patient's pain, strength, ROM, and function. However, further research on patients with medial epicondylalgia is needed because the study had only one subject, and multiple interventions were used.

## References

[1] Shiri R, Viikari-Juntura E. Lateral and medial epicondylitis: role of occupational factors. Best Practice & Research Clinical Rheumatology. 2011;25(1):43–57.
[2] Amin NH, Kumar NS, Schickendantz MS. Medial epicondylitis: evaluation and management. Sports Health. 2015;7(4):343–348.
[3] Myers TW. Anatomy Trains: Myofascial Meridians for Manual and Movement Therapists. 4th ed. Elsevier; 2020.
[4] Magee DJ. Orthopedic Physical Assessment.
[5] Brukner & Khan's Clinical Sports Medicine.