

**[CASE REPORT]****Combined Effect of Myofascial Release and Muscle Energy Technique in a College going Student with Trapezitis at a Single Session – A Case Study**Datri Bhattacharyya<sup>1</sup>, Aranyak Adak<sup>1</sup>, Saha Shilpasree<sup>2</sup><sup>1</sup>Post Graduate Student, <sup>2</sup>Assistant Professor, Nopany Institute of Healthcare Studies, Kolkata**ABSTRACT :**

**Background:** Improper neck posture for a prolonged time and stressful neck movements can result in a painful condition of the neck, commonly known as Trapezitis. Muscle Energy Technique (MET) and Myofascial Release (MFR) technique are commonly used physiotherapeutic maneuvers to treat stressful muscle and fascia.

**Methods:** A thorough assessment was done for a college-going, 28-year-old female student with neck pain, painful neck movement, and headache and was diagnosed with 'trapezitis'. The case study was conducted to find the effect of both MFR and MET after a single session in Trapezitis. Outcome measures were assessed for headache and neck pain separately using a Numeric pain rating scale-11 (NPRS-11) and cervical lateral flexion ROM using a goniometer. Pre- and post-intervention data were collected. Qualitative analyses of outcome variables were done.

**Results:** Study results showed improvement after intervention in NPRS-11 for neck pain, NPRS-11 for headache, and cervical lateral flexion ROM.

**Conclusion:** The study concluded that a single session of MFR and MET effectively decreases pain and increases ROM in trapezius.

**Keywords:** *Myofascial Release Technique, Muscle Energy Technique, Trapezitis.*

**Introduction:**

Trapezitis is a painful condition of the neck that is so common among college students, commonly because of prolonged improper Posture and stressful movements of the neck.<sup>[1]</sup> People with sedentary lifestyles often have bad Posture, leading to severe discomfort and soreness in the trapezius muscle. Tenderness may arise from the soreness, which may be the primary cause of neck pain and spasms.<sup>[2]</sup> The inflammation of the trapezius muscle results in the formation of trigger points and muscle spasms.<sup>[1]</sup> The symptoms of trapezitis fluctuate with physical exertion and evolve with time.<sup>[3]</sup> Treatment techniques include non-manual therapy techniques like Injections of botulinum toxin, acupuncture, dry needling, ethyl chloride spray, stretching techniques, and manual therapy techniques like Muscle energy techniques (METs), myofascial release, proprioceptive neuromuscular facilitation,

strain-counterstrain (SCS), ischemia compression.<sup>[4]</sup> Muscle Energy Technique (MET) involves the mobilization of soft tissues that may be used to relax the affected muscle.<sup>[5]</sup> Myofascial Release (MFR) is another manual approach that uses minor load and prolonged stretch to the involved muscle and fascia.<sup>6</sup> The purpose of the study is to identify the combined effect of MFR and MET in Trapezitis after a single session.

**Methodology:**

**Research design:** Single case study design.

**Participant:** A 24-year-old female college student complained of neck and bilateral upper arm pain with restricted upper limb movement.

**Case history:** She reported that her pain started from the neck and upper back region and gradually descended to the upper arm, and she also complained of headaches in severe condition. Her pain started a

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few months ago when she started to work on the computer in a sitting position for a prolonged period of time. There was no traumatic history.

Physical examination: Pain was more in left side compared to right. Her pain provoked with upper limb function and relieved with arm and back support. Her pain was dull aching in nature. Pain level rated at NPRS-11 for neck pain was 5 and for headache also it was<sup>[5]</sup>.

On observation of Posture, it was analyzed that she has a forward neck posture with a rounded shoulder.

On palpation, a trigger point was present over the upper and middle fiber of the trapezius, and grade 2 tenderness was present over the suprascapular, suboccipital, and neck regions.

Her cervical lateral flexion ROM was restricted on both sides. Patient did not have any radiological findings. Based on our assessment, we diagnosed the condition as 'Trapezititis'.



**Fig. 1:** Trigger Points



**Fig. 1:** Forward head posture

#### Outcomes:

- Cervical lateral flexion range of motion was measured using a Universal Goniometer.
- Pain was measured separately for headache and neck pain using NPRS-11.

#### Intervention:

Combined Myofascial Release Technique and Muscle Energy Technique were given as intervention on this subject with trapezititis involving the upper and middle fiber. MET was performed for 4 repetitions with 5 seconds relaxation and MFR was done with local sustained myofascial stretch for 20 seconds and repeated 4 times.<sup>(5,6,7)</sup> Treatment was done bilaterally.

#### Myofascial release technique:

The patient was instructed to sit on a chair with their back resting on it, and their hands were positioned comfortably on their thighs with their feet being supported on the floor. The primary researcher stood behind the patient and at the side to be treated. The patient kept their head/neck in a neutral position. The thumb pad of one hand of the therapist was used to apply pressure over the affected shoulder and glided towards the acromion process. Patient was asked to bend her neck at the side and turn her head in opposite direction. With the other hand, therapist helped the patient to do so.

#### Muscle energy technique:

Standing behind the patient, the therapist placed one hand over the affected side of her shoulder and the other over her head while the patient sat upright in a chair with her back supported.

The patient was asked to flex and rotate her neck into full, half, and slight rotation towards the side being treated, respectively, for posterior, middle, and anterior fibers. The rotation was accompanied by full side bending away from the side being evaluated. The tense muscle was gently stretched to a length slightly before discomfort or pain or to a point of feeling of resistance to movement. The patient slowly contracted the muscle that was affected, pulling it away from the resistance (i.e., contracting the agonist), holding for 5 to 10 seconds while facing an equal opposing force applied by the therapist. The therapist holds the muscle as it contracts and stretches it in a specific direction without providing any resistance. The patient was advised to limit the use of their strength to just 10 or 20%. The patient was then instructed to release all tension by exhaling completely. Only once complete relaxation was achieved the muscle was gently moved to its new limit without any strain, allowing hypertonic muscles to relax.



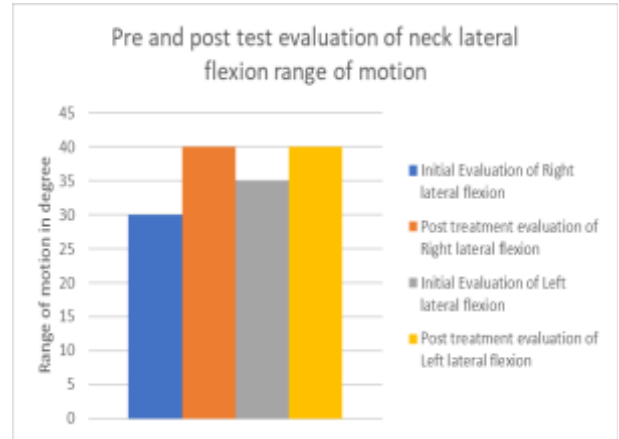
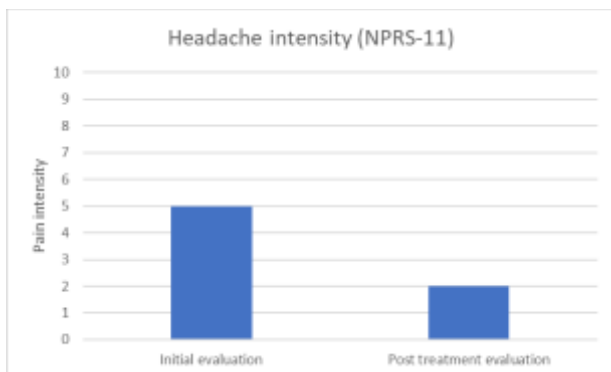
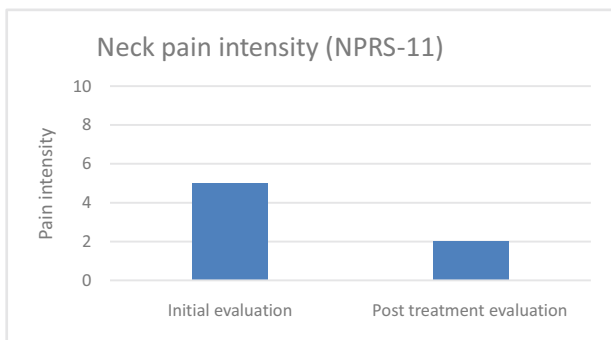
**Fig. 3:** Myofascial release technique



**Fig. 4 :** Muscle energy technique

**Results:**

Study results showed improvement after intervention in all outcome measures which include NPRS-11 for neck pain (Graph-1), NPRS-11 for headache (Graph-2), and cervical lateral flexion ROM (Graph-3).



**Discussion:**

The result showed the combined effect of MFR and MET in a single session in patients with trapezititis in improving neck pain, headache, and neck lateral flexion range of motion. The trapezius muscle fiber is often placed in a shortened position as it is a postural muscle and highly susceptible to overuse and repetitive spasm.<sup>8</sup> The fiber arrangement of the fascia, which resembles a sheet of paper, adapts to the local and tensional demands put on it. The shortened and stressed soft tissue area receives less blood supply, oxygen, and glucose. Therefore, the metabolic waste product accumulates during this process. This series of events results in the development of multiple knots in the muscle called trigger points, which are felt like a taut palpable band. It is theorized that restrictions in the fascia in one area of the body can lead to excessive tension in other regions due to the interconnectedness of the fascial network. The "Myofascial release" (MFR) technique involves manually applying gentle, prolonged stretches to the myofascial complex. This technique aims to restore the optimal length of the fascia, which may be the possible reason for the alleviation of neck pain and headache in patients with trapezititis.<sup>9,10</sup> "Muscle energy technique" (MET) is a manipulative approach designed to lengthen muscle and fascia while mobilizing the joints by increasing their range of motion. MET helps to improve local blood circulation, strengthens weak musculature, decreases muscular tonus, alleviates discomfort, stretches tight muscles and fascia, increases drainage of fluid from peripheral areas, and returns the muscle to its appropriate biomechanical and physiological function.<sup>8</sup>

Reduction of pain by improving the myofascial structure may help increase the patient's cervical range of motion.

**Conclusion:**

The results of this case study conclude that combined application of MFR and MET shows immediate effect on pain and ROM in patient with Trapezitis. These combined methods may be applied clinically for desired immediate effect.

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