

A COMPARATIVE STUDY ON EFFECTIVENESS OF MUSCLE ENERGY TECHNIQUE VERSUS MYOFASCIAL RELEASE ON NECK PAIN AMONG POST- PARTUM LACTATING WOMEN

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ABSTRACT

In Postpartum women, the forward head posture due to breastfeeding leads to lengthening of the trapezius muscle for prolonged period which causes its weakness and low level activity of trapezius muscle so the most common cause of neck pain in postpartum women is inflamed trapezius muscle which in turn causes tightness of trapezius muscles. A total of 40 subjects were selected wherein Group A (n=20) received muscle energy technique and Group B(n=20) received myofascial release technique for 6 times a week for 6 weeks. Pain, and functional disability were assessed using VAS and neck disability index. Mean post VAS on rest in MET group (2.75) was significantly lower than mean post VAS on rest in MFR group (4.60) (p=0.001). Mean post VAS on activity in MET group (3.85) was significantly lower than mean post VAS on activity in MFR group (5.95) Mean post NDI in MET group (4.50) was significantly lower mean post NDI in MFR group (7.30) (p<0.001). This shows that short term effects of MET is effective on pain and functional ability in postpartum subjects with trapezititis than effect of MFR on pain and functional ability in postpartum subjects with trapezititis. Hence Muscle energy technique is more effective than the myofascial release technique with in postpartum women with trapezititis on pain and functional disability.

KEYWORDS: Muscle energy technique, myofascial release, postpartum women, neck disability index, visual analogue scale.

INTRODUCTION

“Inflammation of trapezius muscle is known as Trapezitis”. It is an inflammatory pain causing severe neck spasm. Trapezius with its shape resembling a big diamond consists of the upper, middle and lower portions. Trapezius forms the slope of the shoulder. It originates from the back of the skull and from the spine of C7 to T2 vertebrae. It has its attachments to the outer one third of the collarbone, the acromion process and the spine of shoulder border. It receives nerve supply from the accessory nerve and the C1 to C4 cervical nerve roots.

In postpartum women, the main cause of trapezititis is due to stress and tension, repetitive movements, forward head

posture, sitting without back support, prolonged head bending activity, using thick pillow, tight pectoral major muscle and severe neck spasm.^[1] Patient may have symptoms of pain and tightness in the trapezius, along with headaches, dizziness, neck pain and mid-back pain. The most distinctively seen features in postpartum women with trapezititis are the mental states, breastfeeding, past history of Premenstrual syndrome, and anemia during pregnancy.^[2] Trigger points are typically located by palpation. Simons described the criteria for identification of taut band - a tender spot on the taut band, referred pain or altered sensation at least 2 cm beyond the spot, which is triggered by the pressure held for 10 seconds and restricted ROM in the joint, the muscle crosses. Recent studies have hypothesized that

the trapezitis pathogenesis results from the overloading and injury of muscle tissue, which further leads to involuntary shortening of localized fibers. The areas which are affected, its soft tissue receive less oxygen, glucose, and nutrient delivery, due to which high levels of metabolic waste products is accumulated in those stressed areas. The final result of this cascade of events is the creation of altered tissue status, pain, and the formation of Trigger Points (TP). Muscle spasm keeps the muscle continuously in contracted state whereas this overload gives a rise to a knot in the muscle.

This cause by Myofascial Release, there is a change in the viscosity of the ground substance to a more fluid state which eliminates the fascia's excessive pressure on the affected area which is sensitive to pain and restores proper alignment. This technique helps in the reduction of trapezius muscle spasm. There are treatment protocols used to reduce neck pain which includes technique like myofascial release(MFR) and muscle energy technique (MET). The most extensive type of pain in non-traumatic musculoskeletal conditions is neck pain, with a frequency of about 75.7%.^[1,2] It has become a major health problem in terms of personal health and the overall well-being of the public.^[3] It affects 14.2-71% of individuals at some point in their lives.^[4] Multiple pathologies are identified as causative factors for neck pain and one of the common factors is upper trapezitis. Trapezitis refers to the pain and spasm in the neck due to the inflammation of the trapezius muscle.^[5]

Muscle energy technique is a direct technique which was originally developed by two osteopathic physicians, Fred Mitchell, Sr. and Fred Mitchell, Jr. The purpose of this technique is to treat hypomobile joint (stiffness) and restore proper biomechanical and physiological function to the joints. A tonus release can be achieved in a muscle before stretching using MET.^[5] This involves the introduction of an isometric contraction to the affected muscle producing post isometric relaxation and a nociceptive response is produced as the pressure.

MFR facilitates the neural, mechanical and psychophysiological adaptive potential as it is interfaced via the myofascial system".^[8] MFR therapy involves specifically guided low load, long duration mechanical forces to manipulate the myofascial complex, which intends to restore optimal length, reduce pain, and improve function. MFR therapy utilises the prolonged stretching of the fascia with manual traction, this breaks the adhesions.

METHODOLOGY

40 subjects were selected based on inclusion and exclusion criteria and were divided into 2 groups. Group A (n=20) received muscle energy technique and Group B (n=20) received myofascial release technique for 6 times a week for 6 weeks.

INCLUSION CRITERIA

- Post partum women with trapezitis
- Women willing to participate in the study
- Subject with VAS score from 4
- Age group 20-35 years
- Postpartum lactating women (within 6week to 12months after delivery)
- Women who are actively breastfeeding.

EXCLUSION CRITERIA

- History of whiplash injury
- Radiating pain in upper extremity
- History of recent cervical spine trauma or fracture
- Previous cervical spine surgery
- systemic or inflammatory disorders such as Rheumatoid arthritis
- Non-lactating postpartum women
- Subjects with spondylosis
- Malignancy

Group - A Muscle Energy Technique(MET)

- The subjects lie supine, arm along the side of the trunk, head/neck side bent away from the side being treated to just short of the restriction barrier, while therapist stabilizes the shoulder with one hand and cups the ipsilateral ear / mastoid area.
- With other hand, with the flexed neck fully side bent and fully rotated contra laterally, the posterior fibres of upper trapezius are involved in the contraction.
- This will facilitate subsequent stretching of this aspect of muscle.
- The various contraction and subsequent stretches will be performed with therapist's arm crossed, hands stabilizing the mastoid area and shoulder.
- The effort towards the movement is important in order to introduce a contraction of the muscle from both ends simultaneously.
- The degree of effort should be mild and no pain should be felt.
- The contraction is sustained for 7 to 10 seconds and upon complete relaxation of effort, the therapist gently eases the head/ neck into an increased degree of side bending and rotation, where it is as stretching is introduced, the subject can usefully assist in this phase of treatment by initiating on instruction, "the stretch of the muscle" (as you breathe out please slide your hands towards your feet).
- Once the muscle is in a stretched position, the subject relaxes and stretch is held for up to 30 seconds. 3 repetitions should be given of MET.



Figure 1



Figure 2

Group-B Myofascial Release (MFR)

- MFR will be applied with patient in long sitting with support, Therapist will stand behind the patient close on the side to be treated.
- Forearm and/or ulnar border of the palm will be used to apply the pressure and glide medially towards the base of the neck and/ or towards the upper scapular region.
- As the glide is given, patient is asked to do side bending and to turn the head in opposite direction while sitting in erect position. Glides are given for 3-4 times. MFR for middle and lower trapezius fibres
- Have the client forward bending in sitting position.
- Place one hand, skin on skin, with the palm of your hand lateral to the spine and your fingers lying across the medial border of the scapula and onto the scapula.
- Place your other hand in the same place on the opposite side.
- Lean into the client to the tissue depth barrier, wait and follow each subtle release three-dimensionally.
- Avoid forcing the tissue or slipping or gliding over the skin.
- Apply the technique for at least five minutes for optimal results.

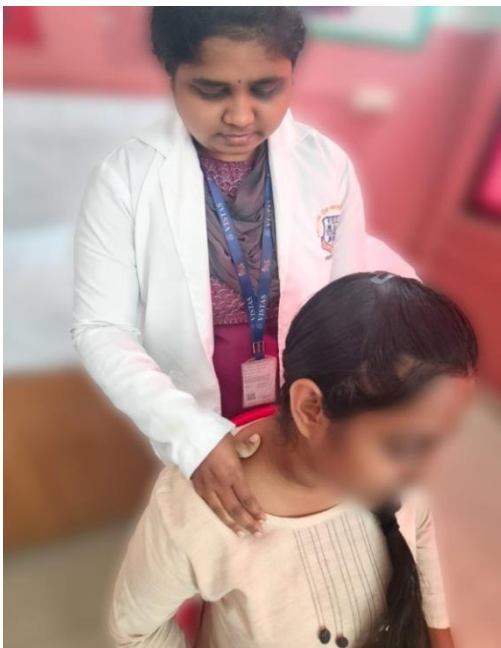


Figure 3



Figure 4

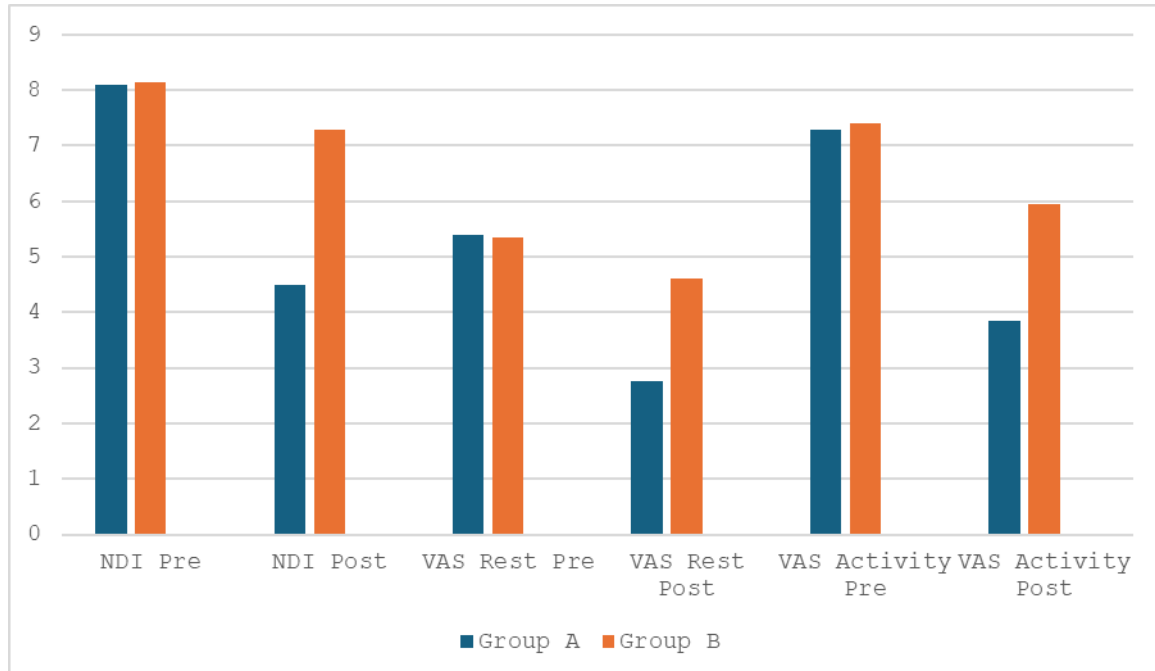
DATA ANALYSIS

The collected data were tabulated and analyzed using both descriptive and inferential statistics. All the parameters were assessed using statistical package for

social science (SPSS) version 28.0. Paired t-test was adopted to find the statistical difference within the groups & Independent t-test was adopted to find the statistical difference between the groups.

Table 1: Comparison of Ndi and Vas Scores Between Group A And Group B In Pre-Test And Post-Test.

Outcome Measure	Test Phase	Group A (Mean ± SD)	Group B (Mean ± SD)	t-value	p-value	Significance
NDI	Pre-test	8.10 ± 0.71	8.15 ± 0.67	0.228	0.821	Not Significant
	Post-test	4.50 ± 0.94	7.30 ± 1.08	8.718	0.000	Significant
VAS (Rest)	Pre-test	5.40 ± 0.50	5.35 ± 0.48	0.319	0.752	Not Significant
	Post-test	2.75 ± 0.71	4.60 ± 0.68	8.373	0.000	Significant
VAS (Activity)	Pre-test	7.30 ± 0.47	7.40 ± 0.50	0.650	0.520	Not Significant
	Post-test	3.85 ± 0.74	5.95 ± 0.82	8.445	0.000	Significant

**Graph 1: Comparison of Ndi and Vas (Rest & Activity) Scores Between Group A and Group B In Pre-Test and Post-Test.**

DISCUSSION

This study aimed to compare the short-term effects of Muscle Energy Technique (MET) and Myofascial Release (MFR) on pain and functional disability in postpartum women with trapezitis. The findings indicate that MET produced significantly greater improvements in pain reduction and cervical functional ability compared to MFR after six treatment sessions.

In the MET group, there was a significant reduction in pain intensity, with VAS scores decreasing both at rest (5.40 to 2.75) and during activity (7.30 to 3.85). Functional disability, measured using the Neck Disability Index (NDI), also showed marked improvement (8.10 to 4.50). These outcomes may be attributed to mechanisms such as reflex muscle relaxation mediated by Golgi tendon organs, improved muscle extensibility, and enhanced circulation. The combination of isometric contraction and stretching in MET likely contributes to greater viscoelastic changes and increased range of motion. Previous studies, including those by Aneri Jhaveri *et al.*, support the superior effectiveness of MET over MFR in reducing pain and improving cervical function. The observed hypoalgesic effects may also be

linked to activation of descending pain inhibitory pathways and mechanoreceptor stimulation.

The MFR group also demonstrated significant improvements, though less pronounced. VAS scores decreased at rest (5.35 to 4.60) and during activity (7.40 to 5.95), while NDI scores improved from 8.15 to 7.30. These effects may be due to improved fascial mobility, increased blood flow, and reduction of adhesions, as described by John Barnes. Between-group analysis confirmed that MET was significantly more effective than MFR across all outcome measures. The greater efficacy of MET may be due to its combined neuromuscular and mechanical effects compared to the primarily fascial approach of MFR. However, both MET and MFR are effective in managing trapezitis in postpartum women.

Hence, the present study concludes that muscle energy technique showed more reduction in pain, improvement in functional ability. While conducting this study we learned some common aetiology of trapezitis in postpartum women. The major benefit of the treatment seeing as the treatment can be performed by the individual herself, according to their need. In our study it

was seen that muscle energy technique showed more reduction in pain, improvement in functional ability than the myofascial release technique. This treatment protocol is beneficial for postpartum women which will help them in reducing pain, and their functional ability as it will be convenient and easier.

CONCLUSION

This study supported alternate hypothesis i.e. we found a significant difference between the short term effects of Muscle energy technique and Myofascial release technique on pain and neck disability index in postpartum women with trapezitis. This study concluded that, muscle energy technique is more effective than the myofascial release technique in postpartum women with trapezitis and can be a treatment of choice to effectively reduce the pain and neck disability index among postpartum women.

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