A COMPARATIVE STUDY TO FIND OUT THE EFFECTIVENESS OF MUSCLE ENERGY TECHNIQUE VERSUS MYOFASCIAL TRIGGER POINT RELEASE OF UPPER TRAPEZIUS IN MECHANICAL NECK PAIN

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INTRODUCTION:-

- Mechanical neck pain is a common problem affecting females more than males , with a lack of proper insight into its exact cause in most patient.
- Mechanical neck pain is also known as nonspecific neck pain, which is used to have an acute or sudden onset of pain
- It is also defined as generalized neck pain provoked by sustained neck posture, neck movement, pain on palpation of cervical musculature without pathologies.
- Aetiological factors are poorly understood and are usually multifactorial, including poor posture, anxiety and depression, neck strain, Occupational injuries.

TRIGGER POINT RELEASE:

Simons *et al* described "trigger point pressure release" as "Application of slowly increasing, non painful pressure over a trigger point until a barrier of tissue resistance is encountered. Contact is then maintained until the tissue barrier releases, and pressure is increased to reach a new barrier to eliminate the trigger point tension and tenderness.

MUSCLE ENERGY TECHNIQUE:

Fryer G (2004) stated that muscle energy technique (MET) is a method of treatment that involves the voluntary contraction of subject's muscles in a precisely controlled direction, against a counterforce.

AIMS AND OBJECTIVE

- **Aim**: The aim of the study is to compare the effectiveness of muscle energy technique and myofascial trigger point release of upper trapezius in mechanical neck pain.

- **Objectives**:

1. To find the effectiveness of muscle energy technique of upper trapezius in mechanical neck pain.

2. To find the effectiveness of myofascial trigger point release of upper trapezius in mechanical neck pain.

3. To compare the effectiveness of muscle energy technique with myofascial trigger point release of upper trapezius in mechanical neck pain.

HYPOTHESIS

- **Alternate hypothesis(HI)**: There will be significant difference between muscle energy technique and myofascial trigger point release of upper trapezius in patient with mechanical neck pain.

- **Null hypothesis(HO)**: There will not be any significant difference between muscle energy technique and myofascial trigger point release of upper trapezius in patient with mechanical neck pain.

MATERIALS AND METHOD

- **a) Subjects:-**

  i) Sample size:- 40 subjects were included in the study.

  ii) Source of sample:- Assam Downtown University OPD, Bonda Charitable Dispensary.

  iii) Study population:-subjects with upper trapezius trigger point in mechanical neck pain.

  iv) Sample design:-simple random sampling.

- **b) Study area:-**Department of Physiotherapy, Assam Downtown University, Panikhaiti and Bonda Charitable Dispensary,Bonda.
- **c) Study duration:-**2 years.
- **d) Study design:-**two groups pre and post treatment experimental design.

- **e) Inclusion criteria:**
  - Age 25-45 years.
  - Both males and females.
  - Patients with a palpable tender spot in the upper trapezius muscle.
  - Limitations of neck movement due to pain.
  - Reproduction and recognition of the pain by the subject's upon palpation.
  - Decreased cervical lateral flexion to the opposite side of the active upper trapezius.
  - Unilateral side neck pain.

- **f) Exclusion criteria:**

  - History of recent surgery or open wounds in the neck region.
  - History of a whiplash injury.
  - History of cervical spine injury.
  - History of trauma/fracture in the neck or back.
  - Skin diseases and lesions in the area of neck.
  - Any sensory disturbances in the neck region.
  - Duration of pain less than 1 month before the study.
  - Diagnosis of cervical radiculopathy.

- **g) Study variables:-**

  * **Independent variables-**

  i) Muscle energy technique (MET)

  ii) Myofascial trigger point realease (MFTr)

  ***Dependent variables-**

  i) Short-form Mc Gill pain Questionaire (SF-MPQ)

  ii) Neck Disability Index (NDI)

- **h) Study tools:-**

  i) Instrumental tool:- Universal Goniometer and Moist hot packs

  ii) Physical tool:- Assesstment form and Consent form

- **Procedure:-**

- **Group A- Myofascial trigger point release**

Position of the patient: patient was place supine/prone on the couch with his head fully on the surface of the couch.

Position of the therapist: At the side/head of the couch.

Technique: To locate a trigger point, palpate the muscle to feel for a taut band or a twitch response in the muscle belly.

Once located on the trigger point apply pressure to the trigger point with thumb.

- Briefly, pressure was progressively increased over the trigger point until a definite increase in tissue resistance (barrier) is perceived by the therapist.
- Keep in communication with the patient, checking to ensure that in staying within the limits of his/her pain tolerance.
- Hold this technique for approximately 20 seconds to 1 minute, patient tells the therapist that pain has diminished, or until the therapist sense a relief of taut band/muscle fibre begins to relax under pressure.
- Once feel this release, gradually release pressure. This process was repeated 3-5times for 3sessions per week for 4 weeks.

- **Group B- Muscle energy technique**

- *Position of the patient*: Patient is placed supine on the couch with his head fully on the surface of the couch.

- *Position of the therapist:* At the head of the couch.

- *Technique*: The therapist stabilized the shoulder on the affected side with one hand, while the ear/mastoid area of the affected side was held by the opposite hand.

- The head and the neck were then side flexed, and rotated ipsilaterally, placing the subject just short of their upper trapezius restriction barrier.

- The subjects then shrugged the involved/stabilized shoulder towards the ear at a sub maximal, pain free, Effort (20%of their available strength).

- The isometric effort is held for 7-10 seconds while a normal breathing rhythm was maintained.

- During the relaxation phase, the head and neck was eased into increasing degrees of side bending, flexion and rotation to advance the stretch place on the muscle.

- Each stretch was held for 30 seconds. This was repeated for 3-5 times for 3 sessions per week for 4 weeks.

- **Conventional therapy:-**

  Moist hot packs were wrapped in towel and placed on the target area for 10 minutes for both groups.

RESULTS

- The assumption of difference in the effects of Myofascial trigger point release (group A) and Muscle energy technique (group B) in terms of reducing pain and improving functional ability and improving range of motion in patients with Mechanical neck pain was tested by comparing SF-MPQ pain score ,NDI score, ROM Cervical lateral flexion values between the groups.

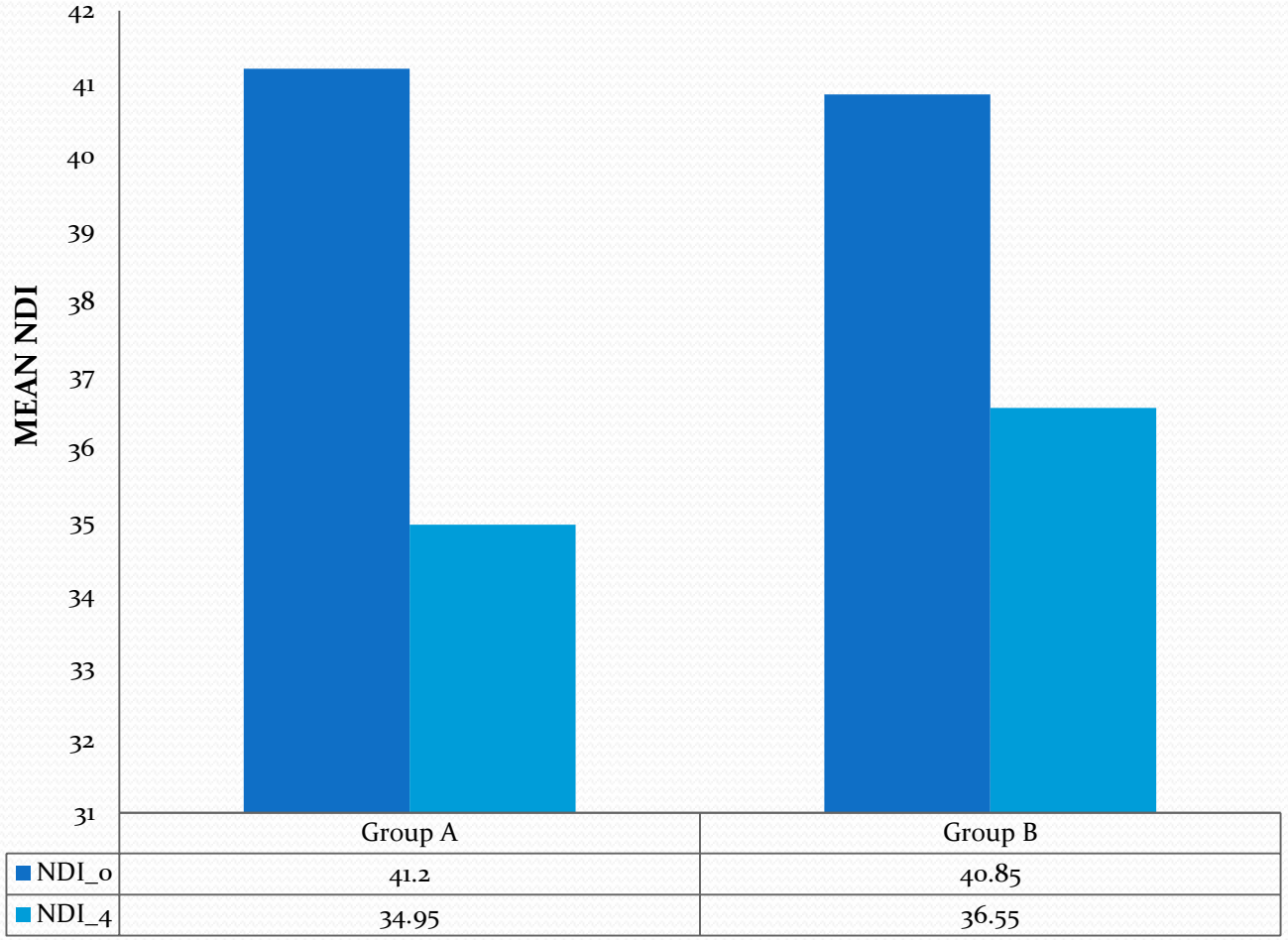
- The mean age of sample for both Group A and Group B are 31.13± 7.70 and 30.05± 6.81 respectively. There was no significant difference in mean age between the groups and showed homogeneity of the subjects in the two treatment groups.

- Paired ‘t’ test was performed for within group analysis.

- The NDI showed significant difference in both group A, mean of (pre=41.2±4.021, post=34.95±3.790) and group B, mean of (pre= 40.85±4.848, post=36.55±4.685) with a ‘p’ value of (0.00).

- The SF-MPQ similarly showed significant difference in both group A, mean of (pre=3.25±1.02,post=0.80±0.95) and group B, mean of (pre=3.30±1.08, post=1.15±0.93) with a ‘p’ value of (0.00).

- The Range of Motion assessment also exhibited statistically significant difference in group A, mean of (pre= 19.55±3.19 and post=23.50±1.96) and group B, mean of (pre=19.45±3.35 and post= 24.70±2.00) with a ‘p’ value of (0.00).



	Group A	Group B
NDI_0	41.2	40.85
NDI_4	34.95	36.55

Fig : Between groups mean difference of NDI Questionaire pre and post treatment

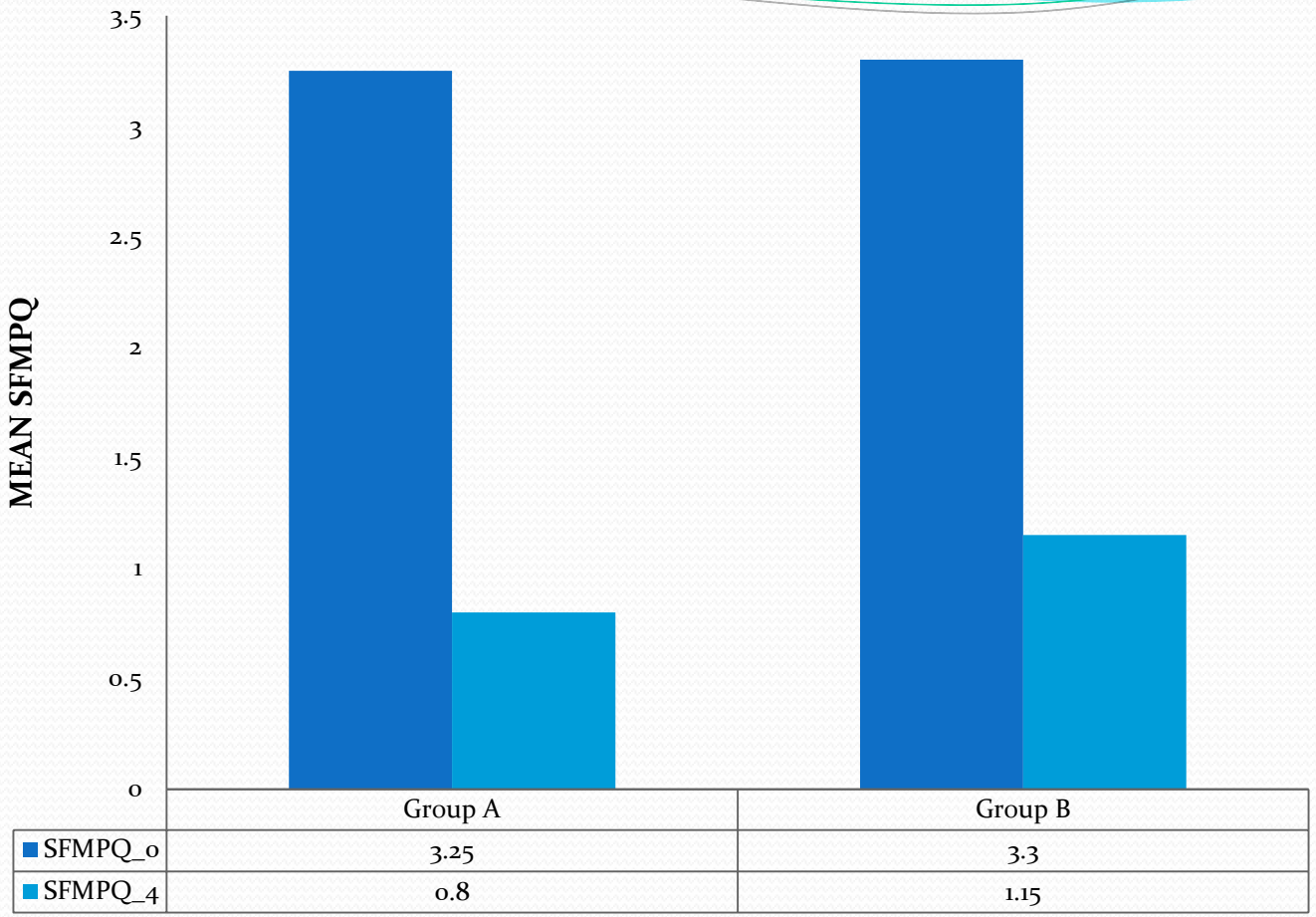


Fig : Between groups mean difference on SF-MPQ pre and post treatment.

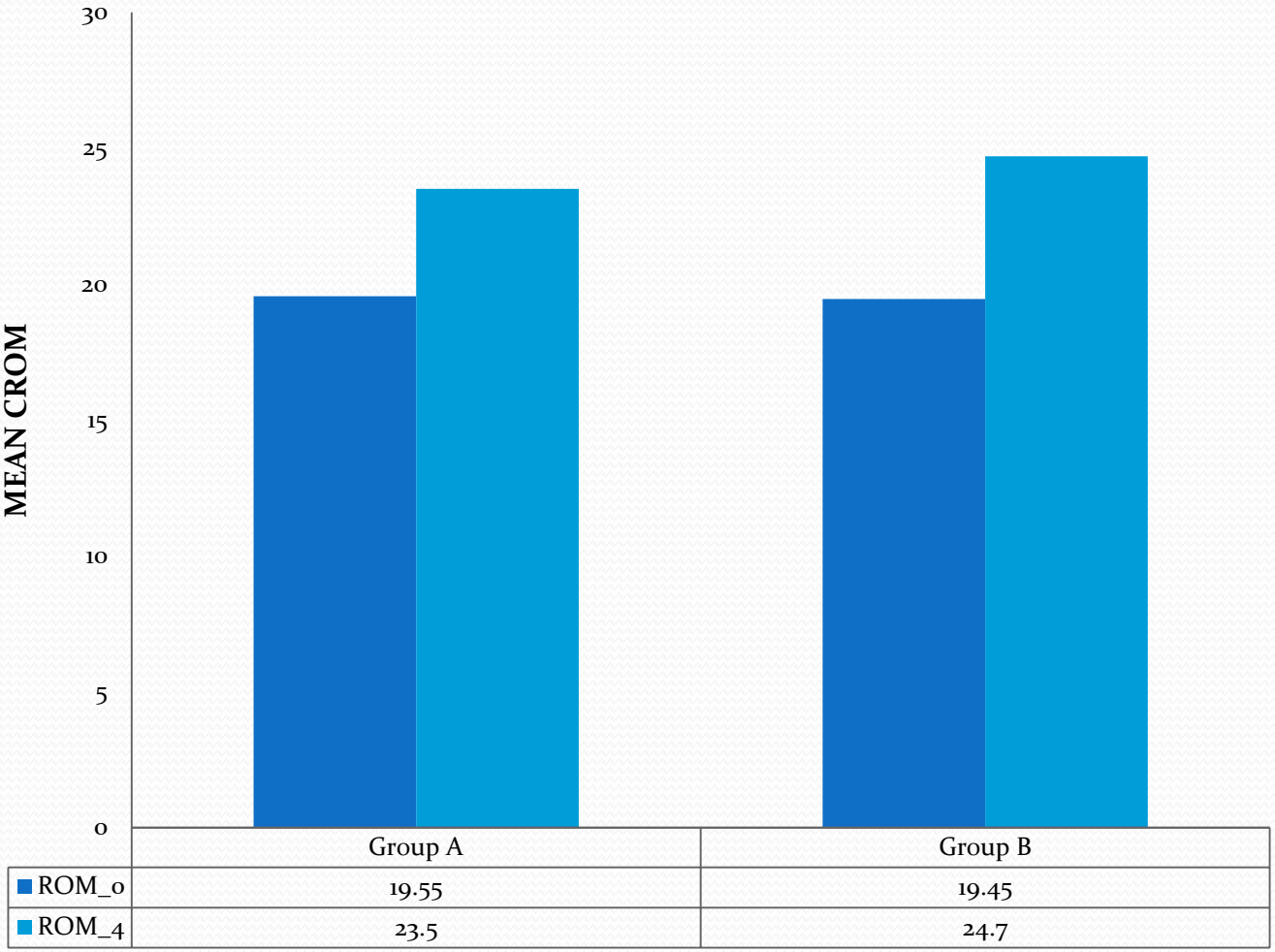


Fig : Between groups mean difference on ROM-Cervical lateral flexion pre and post treatment

- Independent ‘t’ test was performed for between group analysis.
- The NDI did not show significant difference in post analysis of group A, mean value = 34.95±3.790 and group B, mean value = 36.55±4.685 with a ‘p’ value of 0.243.
- Similarly in SF-MPQ group A, mean value = 0.80±0.951 and group B, mean value = 1.15±0.933 did not show any significant difference with ‘p’ value of 0.248.
- The post ROM assessment in group A, mean value = 23.50±1.960 and group B, mean value = 24.70±2.003 also showed insignificant difference with a ‘p’ value of 0.063.

CONCLUSION

- In this study, the Neck Disability Index, Short form Mc Gill pain questionnaire and cervical lateral range of motion showed significant difference in within group analysis in both the treatment groups. But, in between group analysis all the above mentioned scores exhibited insignificant differences .

- So, the study concludes that Myofascial trigger point release and Muscle energy technique are effective physical therapy regimen for the treatment of Mechanical neck pain.

- But when both the techniques are compared, the techniques proved to be equally effective without any significant difference.

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