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ORIGINAL ARTICLE

**TO COMPARE THE EFFECTIVENESS OF INTEGRATED
NEUROMUSCULAR INHIBITION TECHNIQUE VERSUS BOWEN
TECHNIQUE ON UPPER TRAPEZIUS TRIGGER POINT IN SUBJECTS
WITH MECHANICAL NECK PAIN**

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**Usha Nandhini. K¹, M. P. Thenmozhi², D. Kannan Dhasaradharaman³,
R. Ferdinand⁴, S. Kohilavani⁵**

Authors:

^{1*}MPT student, JKKMMRF College of Physiotherapy, The Tamilnadu Dr.M.G.R. Medical University Chennai, Tamilnadu, India

^{2,4,5}Professor, JKKMMRF College of Physiotherapy, The Tamilnadu, Dr.M.G.R. Medical University Chennai, Tamilnadu, India

³Professor and Principal, JKKMMRF College of Physiotherapy, The Tamilnadu, Dr.M.G.R. Medical University Chennai, Tamilnadu, India

Corresponding Author:

^{*1}JKKMMRF College of Physiotherapy, The Tamilnadu, Dr.M.G.R. Medical University Chennai, Tamilnadu, India, Email id: ushanandhu53@gmail.com

ABSTRACT

Background: The Neck pain is one of the common musculoskeletal disorders, it refers to pain along the axis of cervical spine column and it is related to para spinal musculature. Upper trapezius is designated as postural muscle. The trapezius pain is the classic stress pain of the neck and upper back, and it is the most common type of musculoskeletal disorders, it is highly susceptible for overuse. The purpose of this study was to assess and compare these two manual therapy techniques and to determine the efficacy of each therapy for treating trigger points. **Methods:** 30 patients were selected between the age group of 18 to 35 years and having a past history of neck pain for one month. 15 patients were allocated to each group of experiment. Group I was given integrated neuromuscular inhibition technique and Group II was given Bowen technique. Evaluation of the subjects was done using the visual analogue scale (VAS) and Neck disability index scale (NDI). **Results:** Data analysis revealed statistically significant difference between both groups and proved that integrated neuromuscular inhibition technique was more effective than Bowen technique in Mechanical neck pain. **Conclusion:** This study concluded that the Integrated Neuromuscular Inhibition technique was significantly more effective than the Bowen technique in reducing pain and neck disability in subjects with mechanical neck pain.

Keywords: Mechanical neck pain, Integrated neuromuscular inhibition technique, Bowen technique, Visual analogue scale, Neck disability index score.

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INTRODUCTION

The Neck pain is one of the common musculoskeletal disorders, it refers to pain along the axis of cervical spine column and it is related to para spinal musculature¹. The International association for the study of pain defines neck pain as: 'Pain perceived as arising from anywhere within the region bounded superiorly by superior nuchal line, inferior by an unoriginally transverse line through the tip of first thoracic process and laterally by sagittal plane tangential to the lateral border of the neck².

Prevalence is highest in the middle age with the women being affected than the man. Roughly two third of the general population have neck pain at some times in their lives. Population based surveys have shown lifetime prevalence of neck pain 67% to 87%³.

Upper trapezius is designated as postural muscle⁴. The trapezius pain is the classic stress pain of the neck and upper back, and it is the most common type of musculoskeletal disorders, it is highly susceptible for overuse⁵. Any position which places trapezius in a shortened state for some time without rest may shorten the fibres and lead to dysfunction and restricted movement of neck⁶.

MTrps are considered a major source of pain in 30% of individuals with musculoskeletal dysfunction⁷. Clinical signs of MTrps include taut band, reproducing of pain, referred pain, restricted range of motion and muscle weakness⁸.

Bowen Technique is a full-body method that emphasizes the body's soft connective tissue (Fascia). Musculoskeletal and neurological conditions, such as recent sports injuries and chronic or pathological illnesses, can benefit from the Bowen Technique. In this method, we

employ a sequence of minute movements at divergent pressures at predetermined location on the body⁹.

Integrated neuromuscular inhibition technique is the combination of muscle energy technique; ischemic compression and strain counter strain which allows for delivery of the techniques in a single co-ordinated manner. It was support that the refinement in pain intensity, function and range of motion due to the increased blood supply by intermittent pressure, muscle relaxation by SCS and tone reduction by MET¹⁰.

METHODS

The study was conducted at outpatient department in JKKMMRF College of physiotherapy under supervision of concerned authority. A sample of 30 participants within the age group of 18 to 35 years with mechanical neck pain was randomly divided into 2 Groups. A total number of 30 participants were selected by random sampling method after due to consideration to inclusion and exclusion criteria. They were divided into 2 groups. Group A and Group B with 15 participants in each group. Group A received Integrated neuromuscular inhibition technique, Group B received Bowen technique for a total duration of 4 weeks, 3 times in alternative days/week. The parameters used for this study were visual analogue scale and neck disability index score.

Inclusion criteria: Individuals with myofascial trigger points in the upper trapezius muscle, Age group of 18- 35 years, Sex both sexes, Jump sign at pressure, limited ROM, referred pain, Duration of pain less than 3 month.

Exclusion criteria: Fracture of cervical spine, Neck pain with radiation into arms or upper extremity, Diagnosed cases of disc prolapse, Any neurological impairment, Tumours in cervical region, Spondylolisthesis cases, Any known psychiatric condition under treatment.

Procedure: Before the intervention the therapeutic ultrasound was given as a conventional treatment for both groups.

U/S Head size- 1cm, Mode- continuous, Intensity- 0.1- 1.5 watts/cm², Treatment time- 8mins and Patient position- Sitting

GROUP- A

(Integrated neuromuscular inhibition technique)

Trigger point pressure release was applied by using Pincer grip between thumb and index finger intermittently until the patient reported that the local or referred symptoms have reduced. The pressure was applied in an intermittent manner initially and then continuously for 90secs according to patient's tolerability. After this the patients head was passively flexed towards the affected side; the therapist then held the patient's forearm and moved the affected side shoulder passively to approximately 90° of abduction while monitoring the trigger point pain with the other hand.

The upper trapezius was stretched using muscle energy technique. The patient was asked to take the stabilized shoulder towards the ear (a shrug movement), the degree of contraction should be mild and pain free. The contraction was sustained for 10 seconds and upon complete relaxation effort, the therapist

gently eased the head/neck into an increased degree of side bending and rotation and the shoulder was stretched caudally the stretch was maintained for 10-30 secs.

GROUP-B

Bowen technique

Bowen technique was given in the following steps:

- 1) The patient position was prone lying with small pillow for neck support.
- 2) Place the thumb on the affected side muscle
- 3) Hook the thumb on the lateral edge of the muscle to form pressure against the muscle.
- 4) Creates a slight pause as the nervous system registers a tension. As the thumb begins to flatten in a medial direction, the muscle will pluck or plop or respond in some manner.
- 5) Carry the skin and challenge the muscle first with the thumbs followed by the fingers.
- 6) The hands are placed with an inch of space between the thumb and index fingers so that the hands can play the muscles simultaneously.

RESULT AND TABLES

Comparison of visual analogue scale measurement between group A and group B

Sl. no	Visual analogue scale	Mean	Mean difference	Standard deviation	Unpaired "t" value
1	Group A	4.53	1.92	0.78	6.82
2	Group B	2.61			

Table 1: Comparison of visual analogue scale measurement between group A and group B

The comparative mean values, mean difference, standard deviation, and unpaired 't' value between group A and group B on visual analogue scale.

The above table shows the analysis of group A and group B with visual analogue scale. The unpaired 't' value of 6.82 was greater than the tabulated 't' value of 2.05 at 0.05 level of significance which showed that there was statistically significant difference between group A and group B.

Comparison of neck disability index score between group A and group B

The comparative mean values, mean difference, standard deviation, and unpaired 't' value between group A and group B on Neck disability index.

The above table shows the analysis of group A and group B with Neck disability index. The unpaired 't' value of 4.90 was greater than the tabulated 't' value of 2.05 at 0.05 level of significance which showed that there was statistically significant difference between group A and group B.

Sl. no	ODI	Mean	Mean difference	Standard deviation	Unpaired "t" value
1	Group A	17	6.2	3.45	4.90
2	Group B	10.8			

Table 2: Comparison of neck disability index score between group A and group B

DISCUSSION

The purpose of the present study was to compare the effectiveness of Integrated Neuromuscular Inhibition Technique versus

Bowen technique on upper trapezius trigger points in subjects with Mechanical neck pain. A total number of 30 subjects who met inclusion criteria were selected and randomly allocated into two groups of 15 in each and named as group A and group B respectively.

Group A patients were subjected to Integrated Neuromuscular Inhibition Technique and group B patients were subjected to Bowen technique. The patients were treated for 3 sessions per week for 4 weeks. The visual analogue scale and Neck disability index score were taken as the parameters to assess pain and functional disability.

The study by Jyothirmay, et.al., evaluate the effectiveness of Integrated Neuromuscular Inhibitory technique along with specific strength training exercises in subjects with upper trapezius trigger points. The study concluded that INIT along with specific strength training is proved to be effective in reducing pain, decreasing disability and improving ROM in individuals with upper trapezius trigger points¹¹.

The pilot study by Nitsure et.al., investigated the effectiveness of Bowen technique as an adjunct to conventional physiotherapy on pain and functional outcome in subjects with Acute trapezititis. They found that Bowen technique provides a significant reduction in pain and improvement in CROM and neck disability by restoring a proper resting tone of muscle with reduction of pain and tension cycles along with regaining more optimal function¹².

The result from present study showed that there was a statistically significant difference between both groups.

In the analysis and interpretation of visual analogue scale in group A group B

The unpaired 't' value of 6.82 was greater than the tabulated 't' value of 2.05 at 0.05 level of significance which showed that there was statistically significant difference between group A and group B.

In the analysis and interpretation of neck disability index in group A group B

The unpaired 't' value of 4.90 was greater than the tabulated 't' value of 2.05 at 0.05 level of significance which showed that there was statistically significant difference between group A and group B.

The result obtained from statistical analysis indicates that there was a statistically significant difference between two groups in improving pain and neck disability in subjects with mechanical neck pain.

Ethical clearance: Ethical clearance was obtained from the Institutional ethical committee, JKKMMRF College of Physiotherapy, Komarapalayam with reference No. IRB/MPT/O-508/24, dated 03/03/2023.

Conflicts of Interest: There was no personal or institutional conflict of interest for this study.

Fund for the study: This was a self funded study.

CONCLUSION

This study concluded that the integrated neuromuscular inhibition technique was more effective than the Bowen technique in reducing pain and neck disability in subjects with mechanical neck pain.

Limitations:

This study was conducted in small sized sample.

The study was done only on age groups between 25-40 years.

The study duration was only 4 weeks.

Lastly, intervention was given only to upper trapezius muscle.

Recommendation:

The further study is recommended with large sample size.

Future research is required to determine long lasting effects of the treatment by taking follow up assessments for longer duration.

The study can be done with other age groups. Giving interventions to other group of muscles (of neck) which might give more beneficial results is recommended.

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REFERENCE

1. Raja Rao. Pathophysiology, Natural History, and Clinical Evaluation Neck Pain, Cervical Radiculopathy, and Cervical Myelopathy. J Bone Joint Surg Am. 84:1872-1881, 2002.
2. Phadke A, Bedekar N, Shyam A, Sancheti P. Effect of muscle energy technique and static stretching on pain and functional disability in patients with mechanical neck pain: A randomized controlled trial. Hong Kong Physiother J. 2016;35:5-11.
3. Mahajan R, Kataria C, Bansal K. Comparative effectiveness of muscle energy technique and static stretching for treatment of subacute mechanical neck

- pain. *Int J Health RehabilSci* 2012 Jul;1(1):16-21.
4. Kumaresan A, Deepthi G, Anandh V, Prathap S. Effectiveness of positional release therapy in the treatment of trapezius. *Int J Pharmac Sci Health Care*. 2012;1(2):71-81
 5. Shagun Aggarwal, Garima Bansal. Efficacy of Integrated neuromuscular inhibition technique in improving cervical function by reducing the trigger points on upper trapezius muscle: A randomized controlled trial. 2018;9:1-6.
 6. Thaker S, Dave Y, Patel S. A study to compare the effect of muscle energy techniques and positional release technique on pain and cervical ROM in patients with the chronic upper trapezius. *Int J Sci Res*. 2019; 8(6):13-17
 7. Basak T, Pal TK, Sasi M. A Comparative study on the efficacy of Ischemic Compression and Dry needling with Muscle energy technique in patients with Upper trapezius myofascial trigger points. *Int J Health Sci Res*. 2018;8(4):74-81.
 8. Shah N, Shah N. Comparison of two treatment techniques: Muscle energy technique and Ischemic compression on upper trapezius trigger point in subjects with non-specific neck pain. *Int J Therap Rehabil Res*. 2015;4(5):260-264.
 9. Nida Aslam, Yasir Kazmi, et al. Effects of Bowen technique in postural neck pain among dentists. *Pakistan journal of medical health and science*; Jan 2023
 10. Jyostna M, Viswanath Reddy A, Madhavi K et al., Effectiveness of integrated neuromuscular inhibitory technique (INIT) on pain, range of motion and functional abilities in subjects with mechanical neck pain. *International Journal of Pharmaceutical Research and Bioscience*. 2014; 3(2): 32-41.
 11. Jyothirami B, Senthilkumar K, Raghav Krishna S, Madhavi K., Nagrale AV, Glynn P, Joshi A, Ramteke G. Effectiveness of Integrated neuromuscular inhibition technique with specific strength training exercises in subjects with upper trapezius trigger points. *Int J Physiother* 2015; 2(5).
 12. Nitsure P, Kothari N. The Effectiveness of Bowen Technique As an Adjunct To Conventional Physiotherapy on Pain and Functional Outcomes in Subject With Acute Trapezitis – a Pilot Study 2015; 21 (36):5-11.

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