

TO COMPARE THE EFFECTIVENESS OF MYOFASCIAL RELEASE TECHNIQUE VERSUS POSITIONAL RELEASE TECHNIQUE WITH LASER IN PATIENTS WITH UNILATERAL TRAPEZITIS

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ABSTRACT: BACKGROUND AND OBJECTIVE: Trapezius pain is the classic stress pain and it is the most common musculoskeletal disorder. It is usually caused by placing too much stress or strain over the trapezius muscle. The upper trapezius muscle is designated as postural muscle and it is highly susceptible to overuse. Trapezius muscles help with the function of neck rotation, side bending and extension. Tightness in the muscles can decrease the range of motion of the neck. The decrease in motion can negatively affect the mobility of the cervical joints. Limited range of motion creates an increase in soft tissue tightness, with an ensuing pain-spasm cycle which can be difficult to break. Physiotherapy techniques like myofascial release technique and Positional release therapy has been proposed as an adjunct to conventional therapy to treat trapezitis. Giving myofascial release technique and positional release therapy along with LASER and exercises improves the cervical range of motion and relieves pain and enhances quality of life in the patient with trapezitis. Hence this study is aimed to determine the effect of myofascial release technique and positional release therapy in trapezitis. **STUDY DESIGN:** Comparative study design **SETTING:** Out Patient Department of Orthopedics, Kempegowda Institute of Medical Science Hospital and Research Center, Bangalore. Out Patient Department of Physiotherapy, Kempegowda Institute of Physiotherapy, Bangalore. **OUTCOME MEASURES:** Visual analog scale (VAS) for pain, Cervical ROM, Neck disability index. **METHOD:** Comparative Study design was used for this study. Inclusion criteria- Age: 20-50 year, Patients with unilateral trapezitis. Exclusion criteria- Traumatic Neck Injury, Fracture of cervical vertebrae, Cervical Spinal Cord Compromise, Cervical Radiculopathy, Spondylolysis of the cervical spine, A history of heart disease or the presence of a pacemaker, epilepsy, a psychological disorder or pregnancy. Sixty subjects with unilateral upper trapezius spasm were randomly allocated into two groups namely Group A and Group B and treated with LASER which was common to both the groups Myofascial release technique was given to group A and Positional Release Therapy was given to the Group B respectively for Alternatively 3 days for four weeks after obtaining informed consent. **RESULT:** This study showed statistically significant improvement in lateral flexion ($p=0.001$), reduction in Pain intensity ($p=0.001$) and improvement in functional ability ($p=0.001$) in both the groups. Myofascial release group was significantly better than the positional release group. **KEYWORDS:** Trapezitis, trigger points, myofascial release, positional release therapy, LASER.

INTRODUCTION: The skeletal muscle is the single largest organ in human body. It accounts for nearly 50% of the body weight. Any of these muscles may develop pain and dysfunction.¹ There are many epidemiologic studies suggesting that myofascial pain syndrome is an important source of musculoskeletal dysfunction.² The prevalence of this syndrome has increased dramatically in recent years and is foremost among the causes of musculoskeletal pain.³ The prevalence varies from 21% of

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patients seen in a general orthopedic clinic to 30% of general medical clinic patients with regional pain to as high as 85% to 90% of patients presenting to specialty pain management center. Women and men are affected equally.⁴The upper trapezius muscle are designated as postural muscle and it is highly susceptible to overuse. Trapezius muscles help with the function of neck rotation, lateral flexion and extension.⁵Because the trapezius muscle works to move the neck in several directions, its degree of tightness or looseness affects neck flexibility. Any position which places trapezius in a shortened state for a period of time without rest may shorten the fibers and lead to dysfunction and restricted movements of neck. For people who work at desks and computers, or who spend many hours driving, the upper trapezius becomes very sore and painful.¹

Physical therapy has proven effective in trapezitis pain⁶ There are various treatment modalities like Ultrasound, LASER, TENS, and IFT available. Treatment of trapezitis requires a multifaceted approach. In the short term, the aim is to abolish the taut bands, trigger points and tender points for pain relief. In the long term flexibility has to be restored to the muscle. So as to reduce the recurrence rate.¹ Combination of manual therapy like positional release therapy and myofascial release therapy that includes exercises appears to be effective for trapezitis and spasm. However, these therapies have not been studied in sufficient detail to draw firm conclusions.⁷ In clinical settings, low-level laser therapy (LLLT) has been safely used in the treatment of musculoskeletal disorders, with its anti-inflammatory, analgesic, muscle relaxant, and tissue-healing effects.⁸ In order to measure the pain Visual Analog Scale is a good and reliable tool in clinical research.⁹ Normal range of motion (ROM) of the active cervical spines has been often altered by disorders or pathology of the cervical spine which limits the active cervical range of motion The universal goniometer (UG) is commonly used as measurement device for measuring body's joint ROM, as it is accurate, reliable, easy to use, and less expensive.¹⁰ The Neck Disability Index (NDI) described by Vernon & Mior is based on the Oswestry Low Back Pain Disability Index and specifically measures activity limitations due to neck pain.¹¹

MATERIAL AND METHODS: Source of data: Out Patient Department of Orthopedics, Kempegowda Institute of Medical Science Hospital and Research Centre, Bangalore.

Outpatient department of physiotherapy, Kempegowda Institute of physiotherapy, Bangalore.

Measuring scales: VAS scale – To measure the pre and post treatment Pain.

Vernon's neck disability index: To assess the functional outcome.

Universal goniometer: To measure lateral flexion.

Inclusion Criteria: Subjects diagnosed with trapezitis with trigger point by orthopedic surgeon, Taut band palpable in upper trapezius muscle, Excruciating spot tenderness at one point along the length of the taut band of the upper trapezius muscle, Restriction in cervical lateral flexion when measured, Pain elevated by elongating (stretching) the trapezius muscle.

Exclusion Criteria: Traumatic Neck Injury, Fracture of cervical vertebrae, Cervical Spinal Cord Compromise, Cervical Radiculopathy, Spondylolsthesis of the cervical spine, A history of heart disease or the presence of a pacemaker, epilepsy, a psychological disorder or pregnancy.

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METHODOLOGY: Sixty subjects fulfilling the inclusion and exclusion criteria diagnosed with upper trapezius trigger points are considered for the study. The study population consisted of individuals between 20 and 50 years of age. After explaining the subjects about the treatment, written consent is taken. Pre-assessment will be taken prior to the commencement of treatment with self-report outcome measures of VAS, neck disability index, and range of motion with goniometry. After evaluation sixty subjects are divided into two groups i.e., Group-A and group-B. Each group consists of 30 subjects each.

TREATMENT:

GROUP-A: 30 subjects will be treated with myofascial release technique with LASER.

Position of the patient – sitting comfortably with supported back, elbow flexed with forearm placed on a pillow. A low load, long duration stretch is applied along the lines of maximal fascial restrictions. The fascia is palpated and the pressure is applied directly to the skin, into the direction of restriction just until resistance (tissue barrier) is felt. The pressure is applied for 90 to 120 seconds. this procedure is carried out without sliding over the skin or forcing the tissue until the fascia complex starts to yield and a sensation of softening is achieved.



GROUP-B: 30 subjects included in this group will be given with positional release technique with LASER.

The subject lies supine with therapist standing on the affected side; tender points are located along the upper fibres of the trapezius. Pressure is applied by pinching the muscle between the thumb and fingers. The subject's head is laterally flexed toward the side of tender point, then therapist grasps the subject's forearm and abducts shoulder to approximately 90° a slight flexion or extension is added to obtain fine-tune. The ideal position of comfort achieved is held for a period of 90 seconds and followed by a passive return of the body part to an anatomically neutral position continued for 5 minutes. Both group A and group B will undergo LASER treatment.



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LASER THERAPY: Patient is instructed about the beneficial and harmful effects of LASER. Safety precautions are given to patients. Safety goggles are given to patients and worn by therapist also to prevent the exposure to LASER beam. Patient is positioned in a chair with the arm resting on a pillow. Elbow is positioned in flexion with arm abducted. A low power laser is a semiconductor LASER device of 830nm will be applied in such a way that the beam strikes the patients skin at right angles to ensure deep penetration. Treatment will be applied to tender points on the upper trapezius muscle.

LASER PARAMETERS:

Frequency: 10 Hz

Dosage: 7j/cm²

Area covered: 1cm²

Duration: 3 min



Duration of the treatment in a week- Alternatively 3 days for four weeks. Conventional exercises for both the groups includes shoulder girdle protraction, retraction, elevation, and depression movements. Post treatment assessment will be taken for pain with VAS, range of motion with goniometry and functional outcomes with neck disability index on the last day of 2nd and 4th week.

Frequency: Intervention given is for 3 days per week for four weeks for both the groups.

RESULTS: When the comparison was made on the different scales used on group A on day 0, last day of 2nd week and last day of 4th week, they showed significant improvement on Neck disability index which showed me of 19.73 on baseline, 8.13 on 14th day and 4.33 on 28th day. They showed a significant reduction in pain, Visual Analog scale showed a mean of 6.23 on baseline, 3.43 on 14th day and 1.30 on 28th day. There was an improvement in cervical lateral flexion, ROM showed a mean of 33.43 on base line, 37.87 on 14th day and 41.73 On the 28th day.

When the comparison was made on the different scales used on group B on day 0, last day of 2nd week and last day of 4th week, all the scales showed a p value of <0.001 indicating that the results were effective they showed significant improvement on Neck disability index which showed me of 18.80 on baseline, 11.33 on 14th day and 6.37 on 28th day. They showed a significant reduction in pain, Visual Analog scale showed a mean of 6.20 on baseline 4.47 on 14th day and 2.10 on 28th day. There was an improvement in cervical lateral flexion, ROM showed a mean of 32.47 on base line, 36.20 on 14th day and 39.13 On the 28th day.

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DISCUSSION: This study was conducted to compare the effects of myofascial release technique and positional release technique on upper Trapeztitis along with LASER.

This study was conducted on 60 subjects with the age group of 20-50 according to the inclusion criteria and was randomly divided into two groups i.e. group-A and group-B based on sampling method. Subjects of Group-A was treated with myofascial release technique and group-B with positional release technique and both the groups were given LASER neck stabilization exercises.

The mean age of subjects in group-A is 33.13 with 57% male subjects and 43% female subjects and the mean age of group-B is 33.33 with 63% male subjects and 37% female subjects.

In group-A pre intervention mean of NDI was 19.73+2.91. After treating the subject with MRT and LASER, the mean value of NDI improved to 8.13+2.97 at the end of second week and by the end of 4 weeks the mean of NDI improved significantly to 4.33+2.17. The pre intervention mean of VAS was 6.23+0.86 improved to 3.43+0.50 after second week. By the end of fourth week the mean of VAS improved significantly to 1.30+0.84. The pre intervention mean of ROM was 33.43+2.88 post intervention data at the end of second week improved to 37.87+3.56. At the end of four weeks of treatment session the mean of ROM improved significantly to 41.73+2.21, which showed statistical significance within the group.

In group-B pre intervention mean of NDI was 18.80+3.54. After treating the subject with PRT and LASER, the mean value of NDI is improved to 11.33+4.37, at the end of second week. By the end of 4 weeks the mean of ND Improved significantly to 6.67+2.84. The pre intervention mean of VAS was 6.20+0.85 improved to 4.47+0.73 at the end of second week. By the end of fourth week the mean of VAS improved significantly to 2.10+0.71. The pre intervention mean of ROM was 32.45+3.07. post intervention data at the end of second week improved to 36.20+2.71. At the end of four weeks of the treatment session the mean of ROM improved significantly to 39.13+2.32, which showed statistical significance within the group.

Based on the statistical analysis, both group A and B showed a drastic improvement in NDI, VAS and ROM and it has also shown significant improvement clinically in reduction of pain, functional limitation and improved range of motion. Consequently both the groups showed ample improvement over baseline data. However subjects in group-A who received MRT and LASER showed better improvement than the subjects in group-B who received PRT and LASER when both the groups were compared at the end of four weeks.

CONCLUSION: Following the comparative study, to assess the effectiveness of Myofascial release technique with LASER versus Positional release technique with LASER on trapeztitis, it was concluded that both the groups has shown significant improvement in reduction of pain, functional limitation and improved range of motion. However MRT with LASER has shown a better improvement than PRT with LASER when the subjects in both the groups are compared.

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