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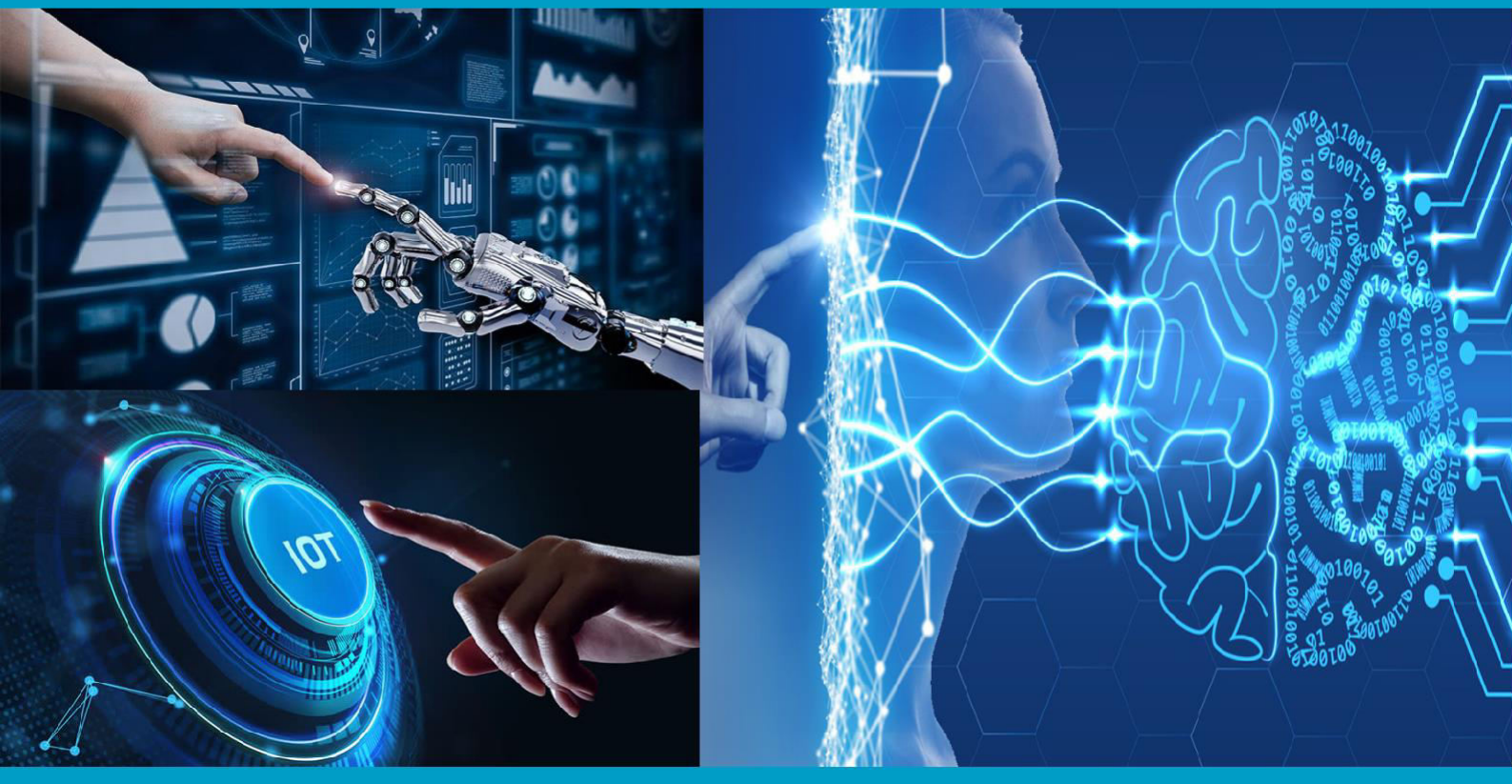

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Effectiveness of Strong Surge Faradic Stimulation V/S Muscle Energy Technique on Pain, Range of Motion and Function on Myofasical Trigger Point of Upper Tarapezius in Inidividuals- A Pilot Study

Khushbu Bhanushali, Dr. Sneha Kumbhani, Shruti Soni, Megha Sharma

MPT Scholar Physiotherapy [Musculoskeletal and Sports Science], Parul Institute of Physiotherapy, Vadodara, Gujarat, India

Assistant Professor, Physiotherapy, Parul Institute of Physiotherapy, Gujarat, India

ABSTRACT: BACKGROUND: -A myofascial trigger point is like hyperirritable spot which is present inside the tight band of skeletal muscles, during compression it produce the pain also referred pain in a specific pattern with motor dysfunction. Upper trapezius muscle is most commonly affected by the MTPs. People who work at desks and computers, or the persons who spends many hours in driving in them the upper trapezius becomes very painful and sore. There are various physiotherapy treatments are used for treating MTPs.

OBJECTIVE: -Aim of the study is to compare the effect of strong surge faradic stimulation VS muscle energy technique on pain, range of motion and function in individuals with myofascial trigger point of upper trapezius.

METHODOLOGY: -Total 18 participants with myofascial trigger points of upper trapezius meeting inclusion criteria were analysed and randomly assigned into two groups. Group A (n=9) underwent strong surge faradic current and Group B (n=9) underwent muscle energy technique for 3 times a week. The intervention was given for 4 weeks. Before and after the treatment evaluation of the participants was done by VAS - to assess pain, universal goniometer - to assess range of motion, neck disability index – to assess functionin myofascial trigger point of upper trapezius.

RESULT: -The results of the Visual analogscale, universal goniometer and neck disability index is reported in mean and standard deviation. On the comparison of pre and post intervention of mean difference and standard deviation of Strong surged faradic stimulation (GroupA) vs Muscle energy technique (Group B) show significant improvement in pain 3.9833±0.6465 and 2.9034±0.4013, cervical side flexion 10.17±2.276 and 6±1.581, cervical rotation 17.3±4.669 and 12.83±3.938, function 11.97±4.468 and 9.14±3.925 respectively. Wilcoxon test and Mann-Whitney test were performed to determine the significance of pre and post test parameters. After data analysis, p value of 0.05 discovered.

CONCLUSION: -This study concluded that both the intervention show improvement for treatment of myofascial trigger point of upper trapezius. But strong surge faradic stimulation shows more improvement in pain, range of motion and function than muscle energy technique.

KEYWORDS: -Strong surge faradic stimulation, muscle energy technique, myofascial trigger point, VAS, NDI, Universal goniometer

I. INTRODUCTION

The skeletal muscle is the human body's primary organ. It accounts for approximately half of the body's weight. Any one of those muscle groups can be prone for developing discomfort and disorder. A musculoskeletal problem is responsible for over 55% of neck pain.[1]

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ANATOMY

The trapezius muscle is a huge superficial muscle with a diamond form , an inverted triangle that begins at the base of the skull, extends over the shoulders and terminates in midback. It's far commonly separated into 3 sections: higher, centre and lower.[2]

FUNCTION

The position of the trapezius is to help the scapula and to transfer it.[3] the trapezius fundamental function is to rotate the scapula while the arm is abducted ninety degrees. [4]

A. Higher fibers lift and rotate the scapula upward and stretch the spine.

B. Centerfibers do scapula retraction.

C. Lower fibers depress and help the higher fibers in rotating the scapula upwards.

TRIGGER POINT

Hyperirritable areas within the taut and palpate bands of a skeletal bands of skeletal muscle or its fascia are called myofascial trigger points. Tender sites in district taut bands of stiffened muscle that motive local and transferred pain are referred to as trigger points. On, compression it is also tender and corresponds to an affected person-identified pain.[6]

POPULATION

Impelling activities which includes preserving a phone receiver among the ear and shoulder to loosen arms; bouts of bending also, sitting with wrong back support, inadequate chair arm rest heights; and moving boxes the use of terrible body mechanics. Postural muscle groups together with the higher trapezius, pelvic girdle muscular tissues, and quadratus lumborum are often affected. [5]Upper trapezius muscle is maximum normally stricken by the MTPs.[6]

Such a lot of physiotherapeutic interventions used for relief of all this like electro modalities, manual and exercising therapies.[7]

STRONG SURGE FARADIC STIMULATION

Surging means the slow increase and decrease of peak intensity. Faradic current is a short duration interrupted current can be surged for treatment motive to supply a near tetanic like contraction and relaxation of muscle.[7]

The vein and lymphatic vessels within and surrounding the muscle contract and relax, exerting effect on them. These veins valves make sure that the fluid inside them is transported toward the coronary heart. Muscle contractions which might be strong enough to generate joint movement also have a pumping effect. As a result, venous and lymphatic return are boosted.[8]

MUSCLE ENERGY TECHNIQUE

Muscle energy technique is direct non-invasive manual therapy, is also used to normalized muscle length which ends up in increase in variety of motion additionally, it consists of relaxation of hypertonic musculature while suitable, subsequent stretching of the muscle additionally provided.[9]

VAS (VISUAL ANALOG SCALE)

A vas is broadly used pain severity dimension tool in therapy that has proven to be accurate and valid.[10]

UNIVERSAL GONIOMETER

It may assist the therapist to decide the diagnosis, to check the development, to recognize about the prognosis of the issues and examine the efficacy of the treatment.[11]

NDI (NECK DISABILITY INDEX)

The neck disability index is maximum widely used to assess the effect of neck pain on patient's functional activities.[12]

II. METHOD OF COLLECTION OF DATA

This study was designed as a comparative study with the aim of analysing and comparing the effect of two different interventions on a particular outcome. The sampling method used in this study was the odd and even method, which involves selecting participants based on whether their identification numbers are odd or even. A total of 18 participants were selected for this study using sampling method. This method ensures that the sample is selected in a way that is unbiased and fair. This study can provide valuable insights into the effectiveness of the interventions being compared.

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INCLUSION CRITERIA

Male and female between 18-30 years (ASIAN Classification) of age. Presence of any 3-positive finding of STAR palpation method. Willingness to participate. No clinical treatment for neck pain within past few months.

EXCLUSION CRITERIA:

The exclusion criteria for this study include any history of neck and shoulder surgery in past year, Thoracic inlet syndrome, Thoracic outlet syndrome, Cervicalradiculopathy, Infection systemic disease or fibromyalgia, Any other cervical instability, Any degenerative disorder, Poor cooperation.

The subjects were explained about the study procedure and a written consent was taken from them. They were then randomly divided into two groups – Group 1 and Group 2 using randomized sampling method. Following the division into groups, they will first be assessed for pain using visual analog scale, cervical range of motion (ROM) of lateral flexion and rotation using Universal Goniometer **and function using neck disability index.**

MATERIALS USED: Consent form, Diary, Pen pencil, Questionnaire, Universal goniometer, Mini stimulator, Micropore, Moist pack

GROUPA(SSF) - The subjects of Group 1 received SSF Stimulation by muscle stimulator machine having Faradic current of symmetrical, Surged biphasic rectangular pulses of duration 0.1 – 1 microsecond with a frequency of 100 Hertz and pulse width 0.7msec for 20 contractions. The electrodes for SSF Stimulation were placed on the Upper Trapezius muscle bulk (lateral to C7 spinous process and medial to the acromion) and intensity is depending upon the tolerance capacity of the patient. Total 12 sessions 3 sessions per week were given. (total 4 weeks).[13,14]

GROUP B (MET): The subjects lies supine, arm on the side to be treated lying alongside 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 can 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 stabilized, as the shoulder is stretched caudally.[15]

III. RESULT

The SPSS software, version 20, was used to conduct the statistical analysis. Comparison of the before and after was done. In the current study, descriptive analysis was used. The results of the visual analog scale, universal goniometer and neck disability index is reported in mean and standard deviation Mann-Whitney test was performed to determine the significance of pre and post test parameters. After data analysis, p value of 0.06 was discovered. Microsoft word 2019 and excel 2019 were used to create graphs.

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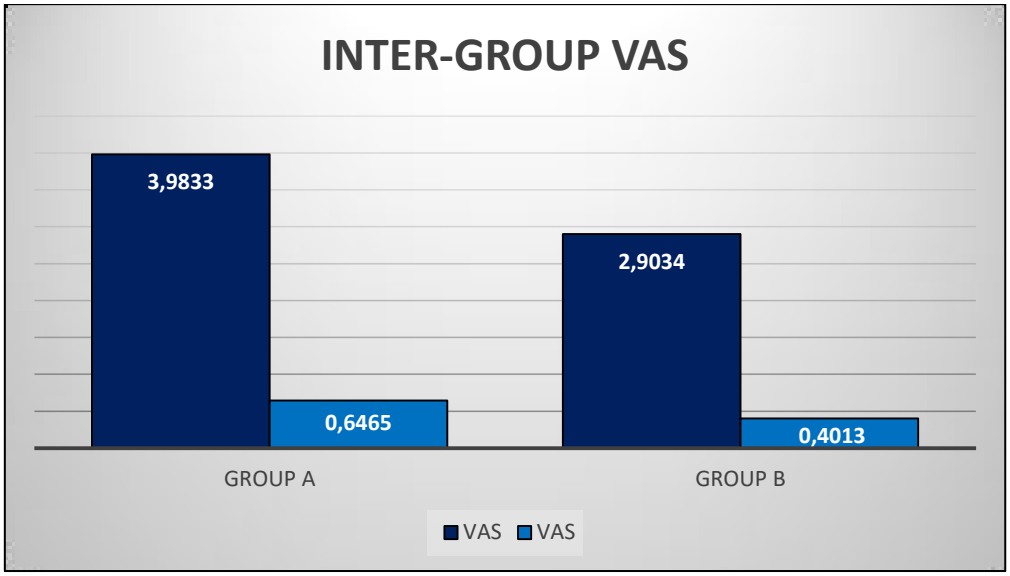
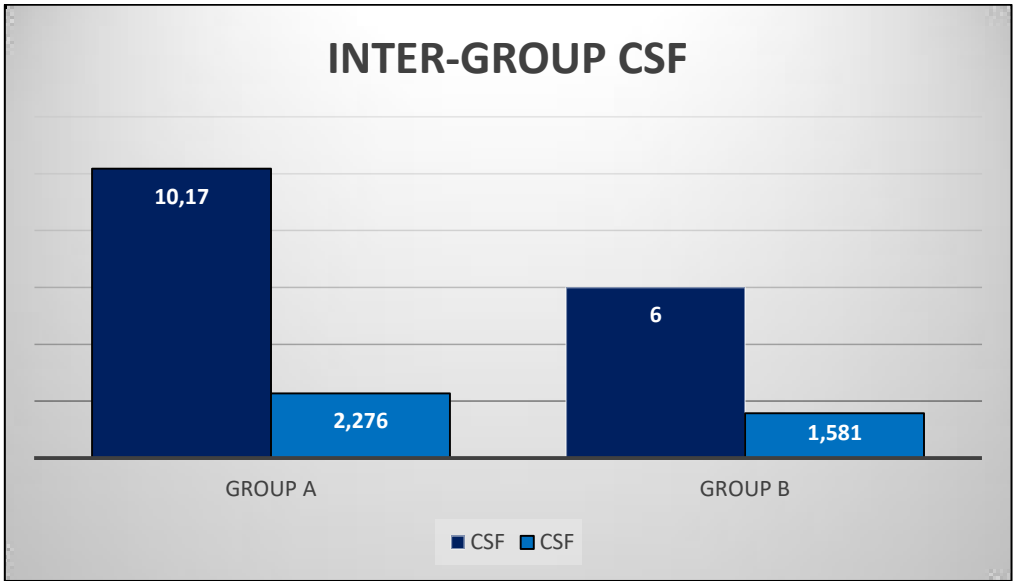


GRAPH 1 shows the pre and post treatment MEAN and SD difference of VAS for GROUPA and GROUP B. The data was analysed by Mann Whitney test, Pre and post-test MEAN±SD value for GROUP A was 3.9833±0.6465 and GROUP B was 2.9034±0.4013; obtained "Z" value was 6.682. This finding showed that there was significant difference in VAS in pre and post-test. ($p<0.01$).



GRAPH 2 shows the pre and post treatment MEAN and SD difference of CSF for GROUPA and GROUP B. The data was analysed by Mann Whitney test, Pre and post-test MEAN±SD value for GROUP A was 10.17±2.276 and GROUP B was 6±1.581; obtained "Z" value was 6.693. This finding showed that there was significant difference in CSF in pre and post-test. ($p<0.01$)

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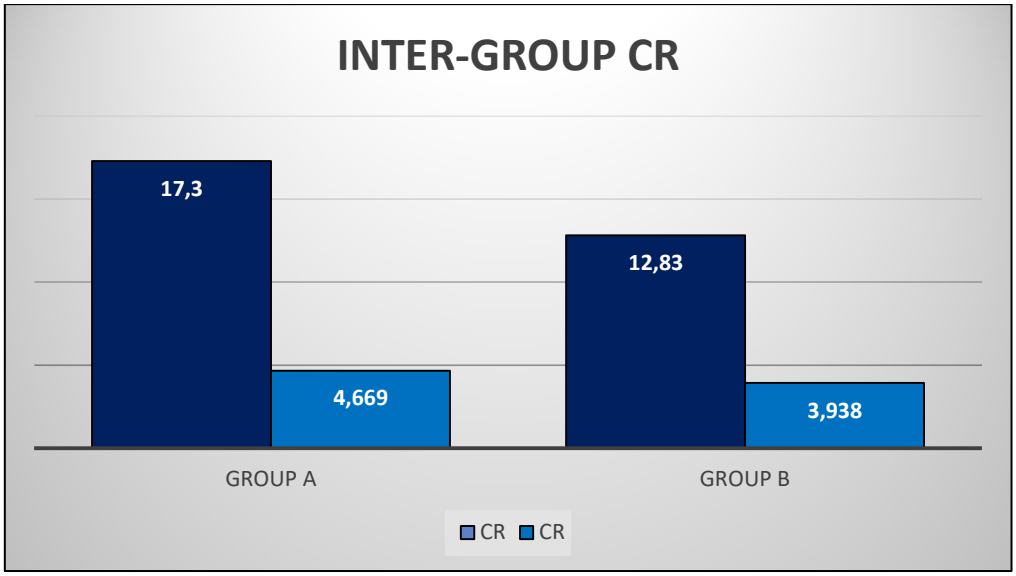
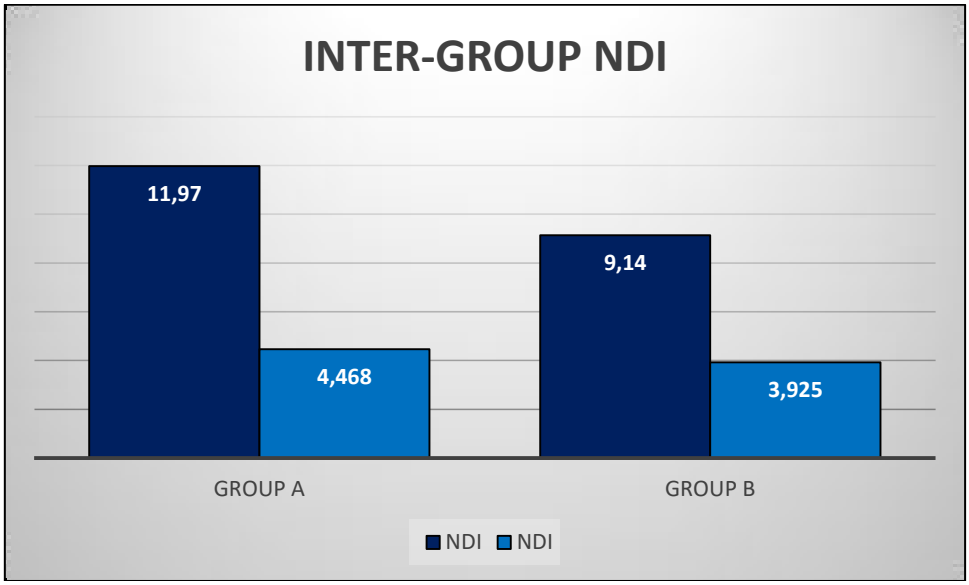


GRAPH 3 shows the pre and post treatment MEAN and SD difference of CR for GROUPA and GROUP B. The data was analysed by Mann Whitney test, Pre and post-test MEAN±SD value for GROUP A was 17.3±4.669 and GROUP B was 12.83±3.938; obtained "Z" value was 6.687. This finding showed that there was significant difference in CR in pre and post-test. ($p<0.01$)



GRAPH 4 shows the pre and post treatment MEAN and SD difference of NDI for GROUPA and GROUP B. The data was analysed by Mann Whitney test, Pre and post-test MEAN±SD value for GROUP A was 11.97±4.468 and GROUP B was 9.14±3.925; obtained "Z" value was 6.685. This finding showed that there was significant difference in NDI in pre and post-test. ($p<0.01$) .

IV. DISCUSSION

This study was carried out on subjects having myofascial trigger factor of upper trapezius.The upper trapezius muscle tissues are designed as postural muscle and it is fairly to overuse. present study confirmed that strong surge faradic stimulation and muscle energy technique each powerful on myofascial trigger point of higher trapezius. whilst, strong surge faradic stimulation is extra considerable to decrease pain and enhance movement and function of the neck.

where group A received strong surge faradic stimulation and group B received muscle energy technique. though, in both groups, group A and group B there has been statically significant enhancement founded in post intervention.

when a muscle contracts because of electric stimulation, there is increased metabolism alongside an increased call for oxygen and foodstuffs additionally with a upward push within the output manufacturing of metabolites. The

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metabolites lead to capillary and arteriolar dilatation inflicting a big expanded blood flow to the muscle. This results in removal of chemical substances (metabolites) assisting in lowering the level of nociceptive stimulation.[8]
The possible mechanism for the reduction in pain inside the MET organization can be attributed to the hypo analgesic consequences which may be defined by means of the inhibitory Golgi tendon reflex, activated at some stage in the isometric contraction that leads to reflex relaxation of the muscle. Activation of muscle and joint mechano receptors leads to sympatho excitation evoked with the aid of somatic efferent and localized activation of the periaqueductal grey count that performs a position in descending modulation of pain. The consequences of MET for growth in range of motion may be defined on the basis of physiological mechanisms behind the modifications in muscle extensibility – reflex relaxation, viscoelastic change and adjustments to stretch modifications."[16]

V. CONCLUSION

This study concluded that strong surge faradic stimulation and muscle energy technique both the intervention are effective in alleviation of myofascial trigger point on upper trapezius. But Strong surge faradic stimulation is more effective for treatment of myofascial trigger point of upper trapezius than muscle energy technique in reducing pain and improving range of motion and function.

VI. ACKNOWLEDGEMENT

Not applicable

SOURCE OF FUNDING
Self

ETHICAL APPROVAL
Ethical approval was obtained from the Institutional review board Parul Institute of Physiotherapy, Waghodia, Vadodara.

CONFLICT OF INTEREST
None

CONSENT FOR PUBLICATION
All individuals participating in this research signed a informed consent form prior to their inclusion in the study.

AUTHORS CONTRIBUTION
K.B.: conceptualization, project administration, methodology, reviewing, writing and editing; methodology, formal analysis and reviewing; S.K.: reviewing and editing. All authors have read and agreed to the published version of manuscript.

REFERENCES

1. Ravish, V. N., and Sneha Helen. "To compare the effectiveness of myofascial release technique versus positional release technique with laser in patients with unilateral trapezitis." *Journal of Evolution of Medical and Dental Sciences* 3.9 (2014): 2161-2167.
2. Lippert, Lynn. *Clinical kinesiology and anatomy*. FA Davis, 2006.
3. Ourieff, Jared, Brent Scheckel, and Amit Agarwal. "Anatomy, Back, Trapezius." (2018).
4. Chaurasia, B. D. *Human anatomy*. CBS Publisher, 2004.
5. Alghadir, Ahmad H., et al. "Efficacy of combination therapies on neck pain and muscle tenderness in male patients with upper trapezius active myofascial trigger points." *BioMed research international* 2020 (2020).
6. Ziaeifar, Maryam, Amir Massoud Arab, and Mohammad Reza Nourbakhsh. "Clinical effectiveness of dry needling immediately after application on myofascial trigger point in upper trapezius muscle." *Journal of chiropractic medicine* 15.4 (2016): 252-258.
7. Seju, Yash, and Vidhya Rajput. "Efficacy of Theragun and Surge Faradic Stimulation in Subjects with Trapezitis: A Randomized Controlled Trial."
8. Foster &Palastanga. Clayton's Electrotherapy Theory & Practice. 9th ed. India: A.I.T.B.S. Publishers & Distributors; 2006

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9. Kashyap, Richa, Amir Iqbal, and Ahmad H. Alghadir. "Controlled intervention to compare the efficacies of manual pressure release and the muscle energy technique for treating mechanical neck pain due to upper trapezius trigger points." *Journal of pain research* 11 (2018): 3151.
10. Boonstra, Anne M., et al. "Reliability and validity of the visual analogue scale for disability in patients with chronic musculoskeletal pain." *International journal of rehabilitation research* 31.2 (2008): 165-169.
11. Farooq, Muhammad Nazim, et al. "Reliability of the universal goniometer for assessing active cervical range of motion in asymptomatic healthy persons." *Pakistan journal of medical sciences* 32.2 (2016): 457.
12. Shaheen, Afaf Ahmed Mohamed, Mohammed Taher Ahmed Omar, and Howard Vernon. "Cross-cultural adaptation, reliability, and validity of the Arabic version of neck disability index in patients with neck pain." *Spine* 38.10 (2013): E609-E615.
13. Sharwari Shinde1, Rupali Shevalkar2 "Immediate Effect of Strong Surged Faradic Stimulation vs Self-Stretching in Less Tensed Position on Chronic Upper Trapezius Spasm in Young Females." International journal of health sciences and research Vol.11; Issue: 7; July 2021 345-350.
14. Krupa H Mehta*, Rinkal S Adodariya**, Dinesh M Sorani*** "A Comparative Study to Determine The Effectiveness Of Low Level Laser Therapy And Strong Surge Faradic Current On Trapezius Spasm." Natl J Integr Res Med. May/Jun2020, Vol. 11 Issue 3, p33-35.
15. Jhaveri, Aneri, and PayalGahlot. "Comparision Of Effectiveness of Myo Facial Release Technique Versus Muscle Energy Technique on Chronic Trapezitis-An Experimental Study." *Int J Innovative Res Adv Studies* 5 (2018): 89-94.
16. . Mahajan R, Kataria C, Bansal K. Comparative effectiveness of muscle energy technique and static stretching for treatment of subacute mechanical neck pain. International journal of health and rehabilitation sciences 2012; 1(1):16-24.

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