

## Efficacy of Positional Release Therapy for the Treatment of Upper Trapezius Trigger Points

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### Abstract

**Objective:** The projected study meant to investigate the effect of Positional Release Therapy (PRT) as a treatment option for upper trapezius trigger points.

**Methods:** All 20 subjects were given positional release technique. The subject was in supine with therapist sitting on the affected side, trigger points were located along the upper fibers of the trapezius. The subject's head was laterally flexed toward the side of trigger point, then therapist grasps the subject's forearm and abducts shoulder to approximately 90° and adds slight flexion or extension to fine-tune. The ideal position of comfort achieved was 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. Treatment duration: 3 sessions per week for 4 weeks.

**Results:** Statistical analysis divulges that positional release therapy have significantly improves cervical ranges along with reduction in pain. Results also revealed that participants receiving PRT reported reduction in the pain symptoms with the mean of 4.05 to 2.25 on the numeric pain rating scale. The mean of cervical movement among PRT treated patients at pre and post levels, results showed that pre right rotation was 66.15 which was improved by 75.75, pre left rotation was 67.3 which was improved by 71.4, pre right lateral flexion was 39.65 which was improved by 42.3 and pre left lateral flexion was 39.25 which was improved by 42.1

**Conclusion:** It has been concluded from the study that PRT was found to be effective in the treatment of upper Trapezius Trigger points as it significantly increases cervical range of motion and reduction pain.

**Keywords:** Trapezius muscle; Trigger points; Position release technique; Cervical

## Introduction

There are three portions of trapezius: Upper, Middle and Lower trapezius muscle. Each portion have two trigger points along with one unusual due to autonomic phenomena. Upper trapezius trigger points are most frequently identified trigger points in body. Upper trapezius TrPs referred ache in post lateral part of the neck, ear, and temple. Sudden trauma falls from height, poor posture, ergonomically misfit furniture, muscular abuse/overuse and prolong immobility are contributing factors; due to which trigger points are formed in trapezius muscle [1].

There are mainly two trigger points in upper trapezius named TrP1 and TrP2. TrP1 is located at very top of the trapezius referring pain to unilateral aspect of neck, mastoid process, alongside of head to the temple. TrP1 is associated with tension headache [2]. Trigger points can be activated due to numerous factors which include prolonged muscle excess, by the initiation of further TrPs like (primary/secondary), infection, emotional issues like (stress/anxiety), trauma, homeostatic imbalance, infections, and smoking. Trigger points are formed in the muscle fibers or large muscle bundle like local contraction. These local contractions pull the associated structures of muscle like ligaments and fascia then produce deep pain within the joints where no muscles are present. Hypothesis state that reason of trigger point formation is excessive form of acetylcholine which causes the sustained depolarization of muscles. Abnormal biochemical composition increases the concentration level of acetylcholine, noradrenaline, serotonin and a lower [3].

Crisis of energy within local area produce alerting constituents that interrelate with nociceptive nerves which is present in local area in result pain produce within muscle fibers. Trigger points within muscle produce weakness and pain. Pain pattern within muscles follow the specific pathway and provide a road map for identification of causes of pain [4].

Patient who suffer from trigger point frequently make a complaint of local persistent ache that commonly effect diminution range of motion. Recurrently the muscle use to retain body posture is exaggerated commonly the muscle in neck shoulder and pubic band comprising of the Upper Trapezius, Scalene Sternocleidomastoid, Levator Scapulae and Quadratus Lumborum [5].

Aching is classically correlated to muscle movement it can be determined. This one can be reproduced will not follow dermatomes or nerve root circulation. Patient compliant inadequate systemic sign as well as interrelated signs like joint inflammation and neurological complication usually inattentive on bodily checkup [6].

Diagnosis of trigger points depends on examiner's accuracy, experience, teaching and palpation abilities. There is no consent among clinicians concerning physical outcomes. Clinicians accept stiff, intense swelling identified as an active Myofascial trigger point. There is low sensitivity or specificity of digital examination which consider as Gold Standard [7].

Myofascial pain syndrome is incredibly usual with the local population. Chances of acquiring said ailment can be reaching up to 54% in the female locality and 45% in the male locality; even though the commonness of patients with TrPs in the masticatory muscles does not go over 25%. The most common age for myofascial pain syndrome to occur is 27.5 and 50 years, with predilection in inactive individuals [8].

Myofascial trigger points which are notorious trigger points explained as hypersensitive points in the fascia and adjoining skeletal muscle. They remain connected with deep nodules in the stiff bands of muscle fibers [7]. Active and latent are the forms

of trigger point. Latent TrPs focuses the level of initiation is not adequate for them to cause discomfort. In difference an active trigger point in which the stimulation appears of such strength that compulsions attacking the brain the source of discomfort denoted in the locality of the fact or at a site-specific detachment left [9].

Pressure of a TrPs can provoke local painfulness, inflammation, or native spasm response. Local spasm reaction is not similar as a muscle twitch, because muscle spasm states full muscle contracting although the local spasm response similarly rises to the entire muscle but it includes a small tremor, no tightening [10].

Positional Release Therapy (PRT) is a management practice that is achievement acceptance. The determination of this two-portion support is concisely enlightening the concept application of PRT [11]. Positional Release Technique (PRT) is a soft tissue application, acknowledged as Strain Counter Strain (SCS) is a moderate physical management for muscle pain and spasm which include readjusting muscle tone and increasing circulation [12]. This method includes identification of the active Trigger point, observed by the application of pressure till a nociceptive response is formed. The area is then located in such a way as to decrease the tautness in the exaggerated muscle and consequently diminish pain in the Trigger Point. When the locality of easiness discomfort decrease is conquered, the strained tissues are touched to be at their most comfortable and an indigenous decline of tone is produced [13].

Jones suggested that once a muscle is stressed by unpredicted force, its antagonist efforts to improve the joint, resultant in a counter strain of the muscle in a inactive or shortened site. Previously the antagonist is counterstained, gamma neural action is discriminating as a consequence of its reduced position, production of the spindle more sensitive-disseminating progress of restraint, continuous tightening, and trigger Point development. The application of PRT reduces the muscle-spindle mechanism of the counterstained tissue, diminishing aberrant gamma and alpha neuronal action, thereby defiance the constant reduction [11].

The subsequent treatment guidelines should be monitored for PRT; Regard the cause of the body dysfunction:

**(1):** Make sure patient and clinician relax; **(2):** Bend front structures lengthen posterior structures; **(3):** Treat major leading trigger points first, then proximal later on medial; **(4):** Fibrillation on the trigger points is the toughest when in the best possible position of comfort; **(5):** Management should not produce discomfort; **(6):** Afterward 90 sec gradually let go the position of comfort to pass up reengaging the myotatic reflex; **(7):** Pain 70-100% decrease is probable and preferred with the first treatment; **(8):** Relax tissues for 24 hours earlier than resume energetic activity; **(9):** Recognized treatment position as guide feel for the comfort position [14].

Technique for applying PRT is as follows:

**(1):** Palpate connecting contradictory muscles to localize central and other TrPs; **(2):** Palpable TrPs on a consistent measure (enormously sensitive, exact sensitive, temperately sensitive, no painfulness); **(3):** Do not strain to disrupt the Trps with firm pressure-first dent the skin (1 kg of force); **(4):** Practice a single or, two, finger pads to detect fasciculation and TrPs; **(5):** Adjust location with alternation; **(6):** Grasp the position of comfort until fasciculation declines considerably or ends altogether [14].

Normal location grip period is from 90s to 3 minutes. Fleeting episodes of short-lived tingling, impassiveness, and heat variations might arise. Treat dominant trigger point and three to five other trigger point for one session. Relief soft tissue or joint gradually and reevaluate. Endure with two or three managements a week for 6 weeks (on rest times or after physical movement).

If anticipated pain release is not attained, relocate and strain again. It is usual to practice muscle discomfort up to 48 hours afterward treatment as a consequence of fascial relaxing of the tissue and release of inflammatory biochemical mediators [15]. The object of the study is to evaluate the efficacy of positional release therapy versus in the treatment of upper trapezius trigger points.

## Methods

**Study Design:** Experimental study (Pre and Post)

**Rationale:** To best of researcher knowledge this topic not been investigated in Pakistan and folks do not have any awareness that however they forestall formation of trigger points in upper trapezius striated muscle, neck pain and the variation of motions of neck.

**Inclusion Criteria:** Both male and female age ranging between 19-25 years, with presence of a taut band in the upper trapezius muscle with an active painful trigger point at its middle, pain is produced upon palpation. Patients with complain of neck pain along with restriction of neck ROM were included in the study.

**Intervention:** Application of PRT-Total 20 subjects were given Positional Release technique (Figure 1). The subject was in supine with therapist sitting on the affected side, trigger points were located along the upper fibers of the trapezius. The subject's head was laterally flexed toward the side of trigger point, then therapist grasps the subject's forearm and abducts shoulder to approximately 90° and adds slight flexion or extension to fine-tune. The ideal position of comfort achieved was 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. Treatment duration: 3 sessions per week for 4 weeks [16].



**Figure 1:** Application of Positional Release Therapy (PRT).

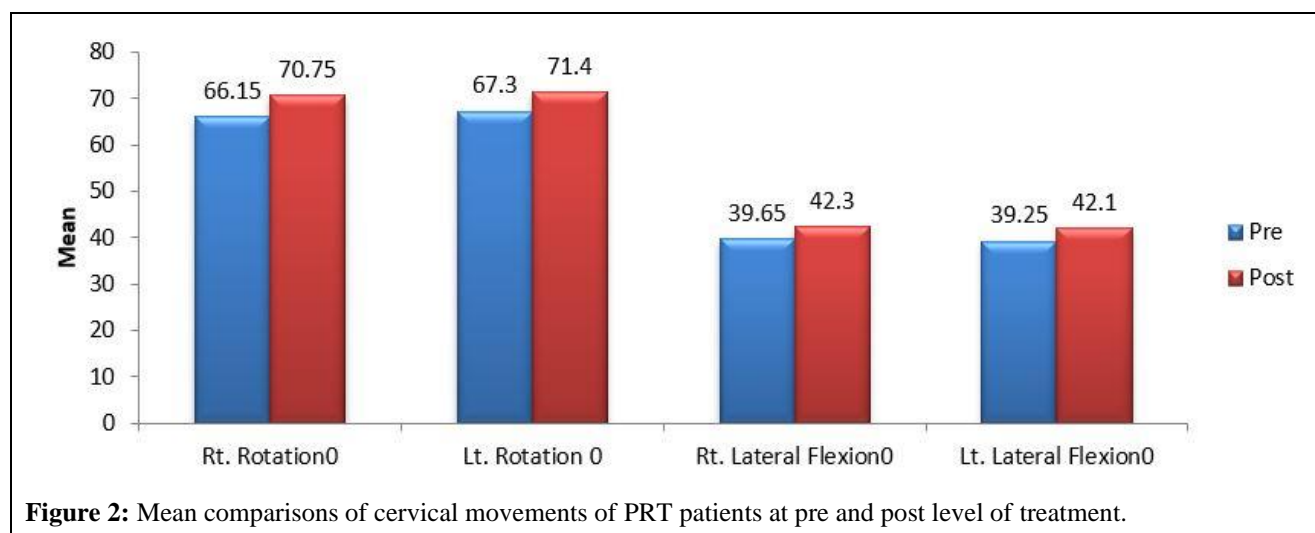
## Results

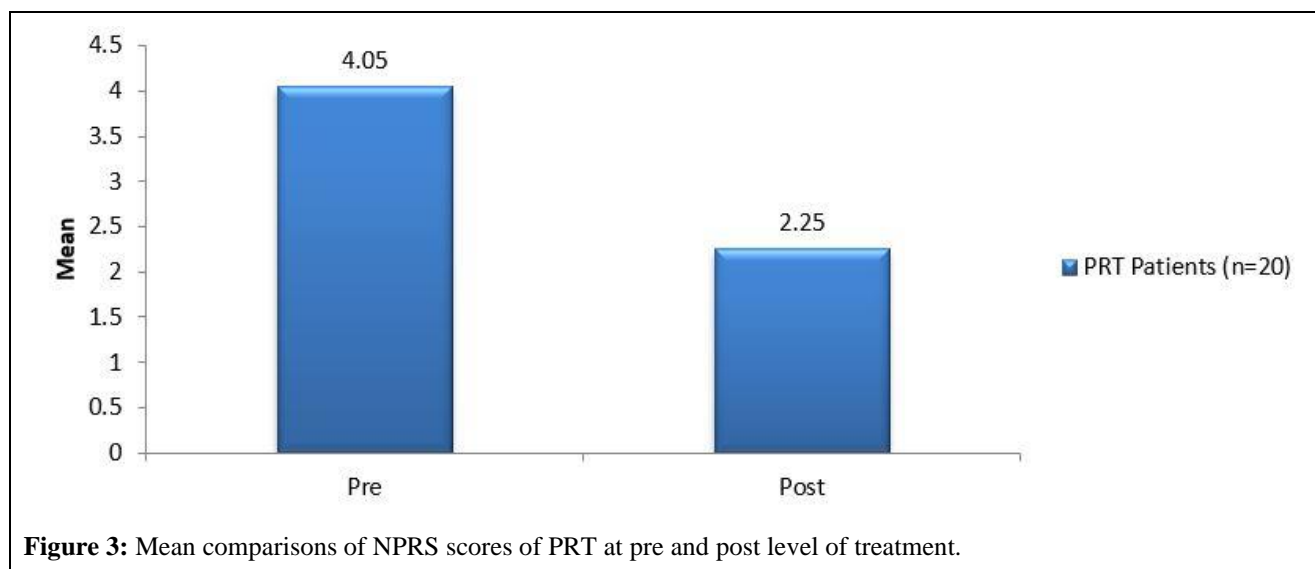
Data were stored and analyzed using SPSS, version 16.0, count and percentages were reported for gender, and number of patients, mean and standard deviation were reported for age, duration of pain, cervical range of motions at pre-post treatment, and NPRS scores, paired sample t-test was used to compare the mean levels of pre and post treatment and independent sample t-test was used to compare the post mean scores of PRT, p-value less than 0.05 was considered as significant. Pie and Bar chart were also used to give the graphical presentation of mean scores.

Table 1 reports the mean and standard deviations of cervical moments among PRT treated patients at pre and post levels, results showed that, right rotation, left rotation, right lateral flexion and left lateral flexion were significantly improved after the treatment with p-values less than 0.01. Table gives the mean comparison of NPRS scores among PRT patients, results showed, among PRT patients NRS before treatment was  $4.05 \pm 0.76$  and after treatment it went down significantly to  $2.25 \pm 0.79$  and differences were statistically significant with p-value less than 0.05 (Figure 2 and 3).

**Table 1:** Mean comparison of cervical movements and NPRS scores of PRT.

Post Treatment	PRT		INIT		p-value
	Mean	SD	Mean	SD	
<b>Rt. Rotation0</b>	70.75	3.57	73.4	2.77	0.012*
<b>Lt. Rotation 0</b>	71.4	3.55	73.15	2.65	0.08
<b>Rt. Lateral Flexion0</b>	42.3	1.09	43.15	0.94	0.01*
<b>Lt. Lateral Flexion0</b>	42.1	1.12	43.4	1.43	0.003*
<b>NPRS Scores</b>	2.25	0.79	1.4	0.75	0.001*
<b>Note:</b> *p<0.05 considered significant using independent sample t-test.					





## Discussion

The intention of the study was to ascertain the efficacy of Positional Release Therapy (PRT) as a treatment procedure for upper trapezius trigger points. The incidence of trigger points in upper trapezius muscle is one of the typical finding in neck pain individuals. Trigger points are diagnosed through physical examination and wide range of physical therapy treatment protocol are available as treatment option.

Amit v Nagrale et al. (2010) conducted a study on the in patients having Upper Trapezius Trigger but with nonspecific neck torment in order to identify the influence of integrated neuromuscular ischemic technique. Total 60 participants were selected in which thirty subjects were randomly selected. They were given muscle energy technique whereas rest of thirty participant's received integrated neuromuscular ischemic technique. Reduction in the torment level was observed in participants who got integrated neuromuscular ischemic technique by VAS of 1.18 mm as compared to muscle energy technique alone [17].

A study was done in 2014 by Ravish V. N et al. to identify the efficacy of Myofascial release technique with laser device versus positional release technique with laser device on Trapezius, it had been terminated that each the teams has shown vital improvement in reduction of pain, purposeful limitation and improved vary of motion [18].

In the year 2016 a study was done by M. Mohammadi Kojid et al. on the influence of Positional Release Therapy on the myofascial trigger points of the upper trapezius muscle in computer users [19].

Current study suggested that Positional Release Therapy have positive effect in managing pain related to trigger point in upper trapezius as it releases trigger points.

## Conclusion

It has been concluded from the study that PRT was found to be effective in the treatment of upper Trapezius Trigger points. Significant improvement was seen in the symptoms of patient with the increase in cervical range of motion and reduction in pain. Furthermore, it is recommended to conduct this study with the larger sample size and with increase in the duration of treatment/ intervention for the effective results. The selection of the participants can also be done on the basis of the type of trigger points. In the following study results showed that right side cervical bending was improved by 38.85 to 43.15 and left



side cervical bending was improved by 39.6 to 43.4 and right side cervical rotation by 63.6 to 73.4 and left cervical rotation was improved by 65 to 73.15.

## REFERENCES

1. De Las P, Cesar F, Lars AN, et al. Muscle trigger points in tension type headache: Tension-type and cervicogenic headache, pathophysiology, diagnosis, and management. Jones and Bartlett. 2010; 70-71.
2. Shah PJ, Gilliams AE. Uncovering the biochemical milieu of myofascial trigger points using in vivo microdialysis. *J Body Move Ther.* 2008; 12: 371-384.
3. Tc H, Pt C, Ts K, et al. The immediate effectiveness of electrical nerve stimulation and electrical muscle stimulation on myofascial trigger points. *Am J Phys Med Rehabil.* 1997; 76: 471-476.
4. Dg S, Jg T, Ls S. Travell and simons' myofascial pain and dysfunction: The trigger point manual. Baltimore: Williams and Wilkins. 1999; 2: 11-93.
5. Mb Y. Fibromyalgia syndrome and myofascial syndrome clinical features, laboratorytest, diagnosis and pathophysiologic mechanism. Louis S: Mosby. 1994: 3-29.
6. Delgado VE, Romero CJ, Escoda GC. Myofascial pain syndrome associated with trigger points. *Oral Med Pathol.* 2009; 14: 494-498.
7. Travell J, Simons D, Simons L. Myofascial pain and dysfunction: The trigger point manual. Lippincott Williams and Williams.
8. Pillay GM. The treatment of myofascial pain syndrome using therapeutic ultrasound, on upper trapezius trigger points: A double-blinded placebo controlled study comparing the pulsed and continuous waveforms of ultrasound. 2003.
9. Partland M. Travell trigger points-molecular and osteopathic perspectives. *J Am Osteopath Assoc.* 2004; 104: 244-249.
10. Jones LH. Spontaneous release by positioning. *The DO.* 1964; 1: 109-116.
11. Wong KC. Strain counter strain: Current concepts and clinical evidence. *Manual Ther.* 2012; 17: 2-8.
12. Nagrale VA, Glynn P, Joshi A, et al. The efficacy of an integrated neuromuscular inhibition technique on upper trapezius trigger points in subjects with non-specific neck pain: A randomized controlled trial. *J Man Manipul Ther.* 2010; 18: 37-43.
13. Speicher T, Draper OD. Top 10 positional-release therapy techniques to break the chain of pain. *Physic Ther Human Move Sci.* 2006; 1: 60-62.
14. D'Ambrogio JK, Roth BG. Positional release therapy: Assessment and treatment of musculoskeletal dysfunction. *Dynam Chiropr.* 1997; 15: 259.
15. Rana DP, Brahmhatt B. Effect of muscle energy technique versus positional release technique in computer workers with upper trapezius muscle spasm: A comparative study. *Int J Multidisc Res Develop.* 2017; 4: 29-33.
16. Nagrale VA, Glynn P, Joshi A. The efficacy of an integrated neuromuscular inhibition technique on upper trapezius triggers points in subjects with non-specific neck pain: a randomized controlled trial. *J Manu Mani Ther.* 2010; 18: 37-43.
17. Ravish VN, Shridhar, Helen S. To compare the effectiveness of myofascial release technique versus positional release technique with laser in patients with unilateral trapezititis. *J Evol Med Dent Sci.* 2014; 3: 2161-2166.
18. Kojid MM, Okhovatian F, Rahim A. The influence of positional release therapy on the myofascial trigger points of the upper trapezius muscle in computer users. *J Body Move Ther.* 2016; 20: 767-773.