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Immediate effect of myofascial release vs passive stretching on pain in females with unilateral trapezitis

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Abstract
The purpose of this study was to compare the effectiveness of myofascial release and passive stretching on pain in patients with unilateral trapezitis. 50 subjects, including only females aged 40 to 60 years. Assigned randomly into 2 treatment groups, Group A received Myofascial Release and Group B received Passive Stretching. Pain intensity was measured using VAS Numeric Pain Distress Scale pre and post intervention. There was significant improvement in both Myofascial Release and Passive Stretching. Statistical comparison of result showed that group A had greater improvement in pain as compared to group B. Myofascial Release appeared to be more effective than passive stretching to reduce pain in patients with unilateral trapezitis.

Keywords: myofascial release (MFR), passive stretching, unilateral Trapezitis, VAS numeric pain distress scale

1. Introduction
Trapezius is a muscle that originates occipital bone, the ligamentum nuchae, and the spinous processes of T01–T12. The trapezius inserts on the lateral third of the clavicle, as well as the acromion and scapular spine of the scapula. Trapezitis is an inflammatory pain arising from the trapezius muscle causing a severe neck spasm. Spasm is a brief, automatic jerking movement. Trigger point is a sensitive area in the muscle or connective tissue (fascia) that becomes painful when compressed. Trapezius muscle lies at the back of the neck and helps in shrugging movement of the shoulder along with upward movement of the head. Trapezitis is a classic stress pain of the trapezius muscle 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. Bad posture is frequently incriminated as the cause of trapezitis. Watching television or working on a computer with an awkward posture or even use of a thick pillow can cause neck spasm [1].

Myofascial Release technique is used treating patients with trigger points on trapezius. It acts by relaxing contracted muscles, increasing circulation and lymphatic drainage, and stimulating the stretch reflex of muscles and overlying fascia. By MFR there is a change in the viscosity of the ground substance to a more fluid state which eliminates the fascia's excessive pressure on the pain sensitive structure and restores proper alignment. This technique acts as a catalyst in the reduction of trapezius spasm [2].

The reduction in the pain following static stretching could be due to the inhibitory effects of golgi tendon organs, which reduces the motor neuronal discharges, thereby causing relaxation of the musculotendinous unit by resetting its resting length and pacinian corpuscle modification. These reflexes will allow relaxation in Musculotendinous unit tension and decreased pain perception [4].

Passive stretch reduces muscle tissue stiffness, most likely by signaling connective tissue remodeling via fibroblasts. Significant decrease in pain perception was observed after passive stretching [3].

2. Methodology
2.1 Purpose
The intention of the study was to compare the effectiveness of Myofascial Release and Passive Stretching on pain in unilateral trapezitis.

2.2 Selection of subjects
To achieve this purpose of the study 50 patients with unilateral trapezitis including female patients between 40 to 60 years of age were selected.

2.3 Procedure
Subjects were randomly divided into 2 groups; Group A had received Myofascial Release and Group B had received Passive Stretching.

Group A received Myofascial release. Patient Position: 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 to120 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. The therapy was given for 5 minutes.

Group B will be receiving Passive stretching. Patient position: Sitting comfortably in supported chair. Arm rested by the arm rest. Stretching is given for the upper trapezius. Passive stretching was applied for three 45 second application with 30 seconds rest interval [3].

2.4 Findings
Pre and post analysis were done within group using paired t test which showed significant result.

Table 1: Effectiveness of myofascial release (GROUP A) on VAS Numeric Pain Distress Scale. It shows the result:

	Mean±SD	t Value	p Value	Significance
VAS Pre	7.680.988	30.619	<0.0001	Extremely significant
VAS Post	2.68±0.945			

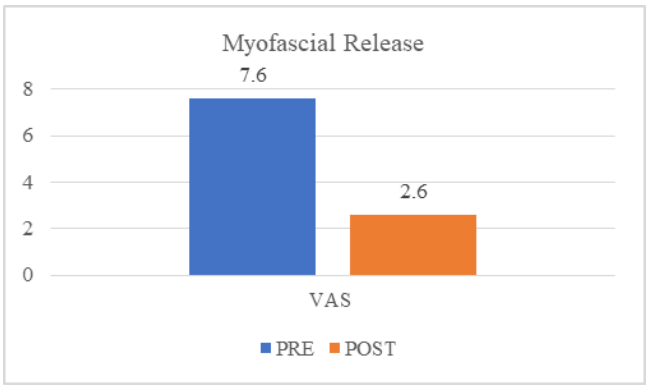

Fig 1

Table 1 and Fig 1 represents effect of Myofascial release on pain. Pre-treatment and post treatment data analyzed by paired t-test and shows extremely significant results with p-value <0.0001.

Table 2: Effectiveness of Passive Stretching (GROUP B) on VAS Numeric Pain Distress Scale.

	Mean±SD	t Value	p Value	Significance
VAS Pre	7.52±0.871	21.213	<0.0001	Extremely significant
VAS Post	4.52±1.085			

Table 2 and Fig 2 represent effect of Passive Stretching on pain. Pre-treatment and Post-treatment data analyzed by paired t-test and shows extremely significant results with p-value<0.0001.

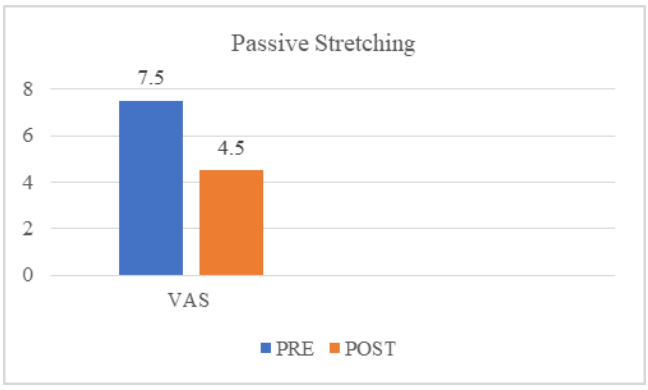

Fig 2

Table 3: It shows comparison of mean difference between myofascial release and passive stretching on pain.

	Mean±SD	t Value	p Value	Significance
Vas A	5±0.816	10.002	<0.0001	Extremely significant
Vas B	2.96±0.611			

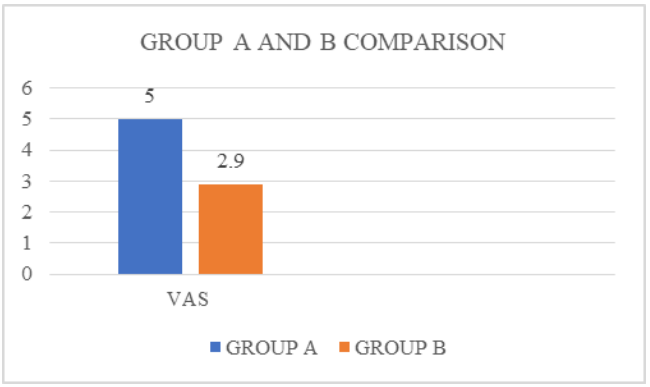

Fig 3

Table 3 and Fig 3 show, Comparison of Myofascial release and Passive Stretching difference of post-treatment data analyzed by unpaired t-test. It shows extremely significant results on VAS Numeric pain distress scale. Myofascial release is proved more than Passive Stretching.

3. Results

Post data analysis shows that Group A (Myofascial Release) has shown significant improvement in reducing pain in unilateral trapezitis patients on VAS Numeric Pain Rating Scale as compared to Group B(Passive Stretching).

4. Discussion

In this study we compared the effectiveness of Myofascial release and Passive Stretching on unilateral trapezitis in females between the age groups 40 and 60.

Neck pain is very common in the region of the upper trapezius muscle. In middle age prevalence of neck pain is highest and women are more affected than men.

After analysis of data, before and after outcome measure was taken and we can see that subjects receiving Myofascial release and Passive stretching showed significant improvement on VAS Numeric Pain Distress Scale (Table 1,2). Table 1 and Fig 1 represents, Myofascial release pre-treatment and post treatment data analyzed by paired t-test and shows extremely significant results with p-value <0.0001. Table 2 and Fig 2 represents, Passive Stretching pre-treatment and post-treatment data analyzed by paired t-test and shows extremely significant results with p-value<0.0001. Table 3 and Fig 3 show comparison of Myofascial release and Passive Stretching post-treatment data analyzed by unpaired t-test. It shows considerably significant results on VAS Numeric pain distress scale. In that subjects receiving Myofascial Release, it showed significant improvement than subjects receiving Passive Stretching.(Table 3)

Ekta S. Chaudhary conducted the study Comparative Study of Myofascial Release and Cold Pack in Upper Trapezius Spasm (2013) [2].

By MFR there is a change in the viscosity of the ground substance to a more fluid state which eliminates the fascia's excessive pressure on the pain sensitive structure and restores proper alignment. This technique acts as a catalyst in the

reduction of trapezius spasm [2]. This study concluded MFR showed greater significant improvement on VAS, PPT and ROM. In this study MFR reduces pain on outcome measure: VAS Numeric Pain Distress Scale.

Dimitrios Kostopoulos conducted the study Reduction of Spontaneous Electrical Activity and Pain Perception of Trigger Points in the Upper Trapezius Muscle through Trigger Point Compression and Passive Stretching. This study concluded that significant decrease were found in pain perception and SEA for all the study participants. The IC + PS group evidenced greater declines in pain perception and SEA when compared to the IC and PS groups [3].

In this study Passive Stretching also reduces pain on outcome measures: VAS Numeric Pain Distress Scale.

Kostopoulos *et al* found a significant pain reduction in the group treated with passive stretching of upper trapezius, which is in accordance with this study. The reduction in the pain following static stretching could be due to the inhibitory effects of golgi tendon organs, which reduces the motor neuronal discharges, thereby causing relaxation of the musculotendinous unit by resetting its resting length and pacinian corpuscle modification. These reflexes will allow relaxation in musculotendinous unit tension and decreased pain perception [3].

Myofascial release acts directly on fascia whereas stretching affects the muscles so after comparing both the interventions the study concluded that Myofascial Release is more effective than Passive Stretching.

5. Conclusion

Myofascial release appeared to be more effective than passive stretching for pain release in patients in unilateral trapezitis.

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