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Effect of myofascial release versus cryostretch in the management of upper trapezius trigger points – a comparative study

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Abstract

Upper trapezius trigger points are a frequent cause of neck pain, especially in sedentary individuals. This study compared the effects of myofascial release and cryostretching in 30 participants randomly divided into two groups of 15 each. Group A received myofascial release and Group B received cryostretching for two weeks. Pain intensity was assessed using the Visual Analogue Scale and cervical range of motion with a universal goniometer. Both groups showed significant improvement ($p < 0.05$), but Group A demonstrated greater reduction in pain and improved cervical mobility. The findings suggest that myofascial release is more effective than cryostretching in managing upper trapezius trigger points.

Keywords: Myofascial release, cryostretch, upper trapezius trigger points, neck pain, cervical range of motion

Introduction

Neck pain is common in people performing sedentary activities. The involved region is back of the neck and behind the shoulder. Most cases of neck pain are due to taut bands of trapezius muscle located behind the neck region.

Neck pain affects approximately 34% of the global population, with a higher prevalence in high-income countries (43%) compared to low-income countries (23%).

Neck pain can affect people of all ages, but it is most common among adults aged 30-60 years. Females are more likely to experience neck pain than males, with a female-to-male ratio of 1.3:1.

Therapeutic Approaches:

Myofascial Trigger Point Release Therapy

Myofascial release is used for treating trapezius trigger points. It acts by relaxing the contracted muscle and improves the circulation and lymph drainage. It acts by changing the viscoelastic properties of connective tissue. It restores proper muscle alignment.

As the name suggests, this type of mobilization is used to produce change in myofascial, both superficial and deep fascia. Myofascia is continuous throughout the body and is made of collagen fibers. Superficial fascia underlies the skin and deep fascia covers, separates and protects skeletal muscle. The functions of the fascia are to form, support, provide, boundaries guide, mould, compartmentalize and control. Myofascial trigger point release is a soft tissue mobilization technique, "Defined as the facilitation of mechanical neural and psychophysiological adaptive potential as interfaced via myofascial system".

Cryostretching

Cryo-stretch is a treatment method that includes a combination of cryotherapy and stretching which is given for releasing soft tissues.

Gentle stretching can help to restore tensile strength of the healing tissue by inducing more rapid growth of capillary blood vessels and more parallel orientation of muscle fibers.

2.1 Materials Required

- Couch and arm rest chair
- Orthopaedic evaluation chart
- Inch tape

- Assessment chart
- Follow up chart
- Paper
- Writing pad
- Chair
- Pillow
- Goniometry
- Cold gel packs

2.2 Study Setting

Sri Ramakrishna Multispeciality Hospital

2.3 Study Design

Quasi-experimental study

2.4 Sample Size

- Total of 30 subjects selected based on criteria
- Divided into:
 - a) **Group A:** Myofascial release
 - b) **Group B:** Cryostretching

2.5 Sampling METHOD

Convenient sampling

2.6 Study Duration

6 months

2.7 Treatment Duration

- 20-25 minutes per session
- Treated once daily for 2 weeks

2.8 Selection Criteria

Inclusion Criteria

- Neck disability index score 15-24 (moderate disability)
- Desk workers with non specific neck pain
- Age group - 18 to 23 years
- Both males and females
- Bilateral upper trapezius pain
- Chronic pain

Exclusion Criteria

- Recent upper limb fracture
- Tendon injury
- Malignancy
- Cold allergies
- Active inflammation.

2.9 Outcome Measures

Independent Variables:

- Myofascial release
- Cryostretching
- Disability

Dependent Variables

- Pain reduction

- Cervical range of motion
- Disability

2.10 Measurement Tool

- Visual Analog Scale (VAS)
- Universal Goniometer
- Neck disability index

2.11 Procedure

- 30 participants selected and divided into two groups (A and B).
- Pre-treatment assessment of pain and ROM.
- **Group A:** Received Myofascial release (20-25 mins/session, once daily for 2 weeks).
- **Group B:** Received Cryo stretching (20-25mins/session, once daily for 2 weeks).
- Pre- and post-test data were compared.

2.12 Treatment Techniques

(a) Myofascial Release

1. Palpate the affected area to identify the trigger point.
2. Apply gentle pressure to the trigger point with your fingers.
3. Gradually increase pressure as tolerated by the patient.
4. Maintain pressure for 10-30 seconds or until the tissue releases.
5. Repeat as needed until the trigger point is released.

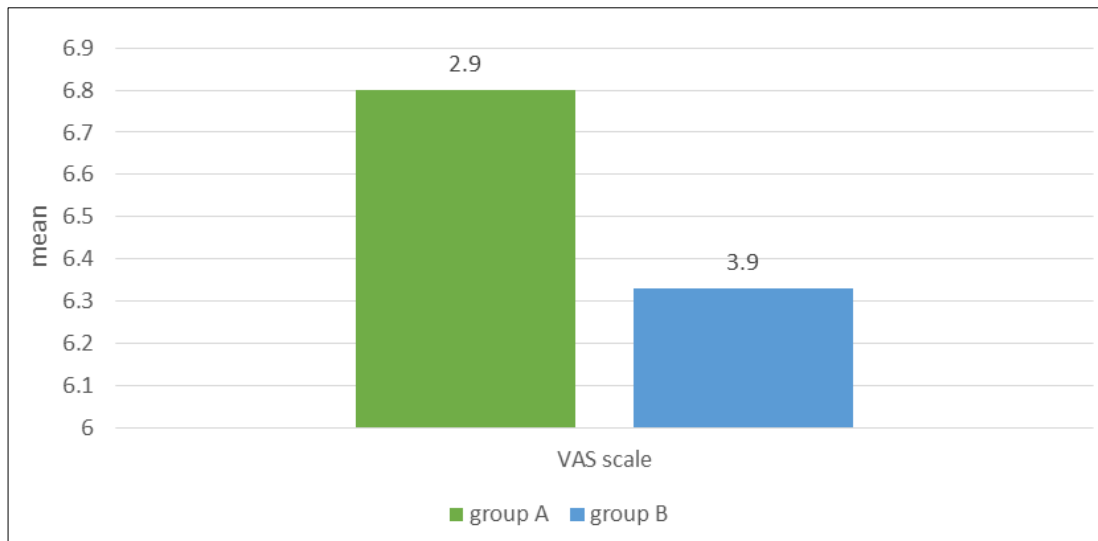
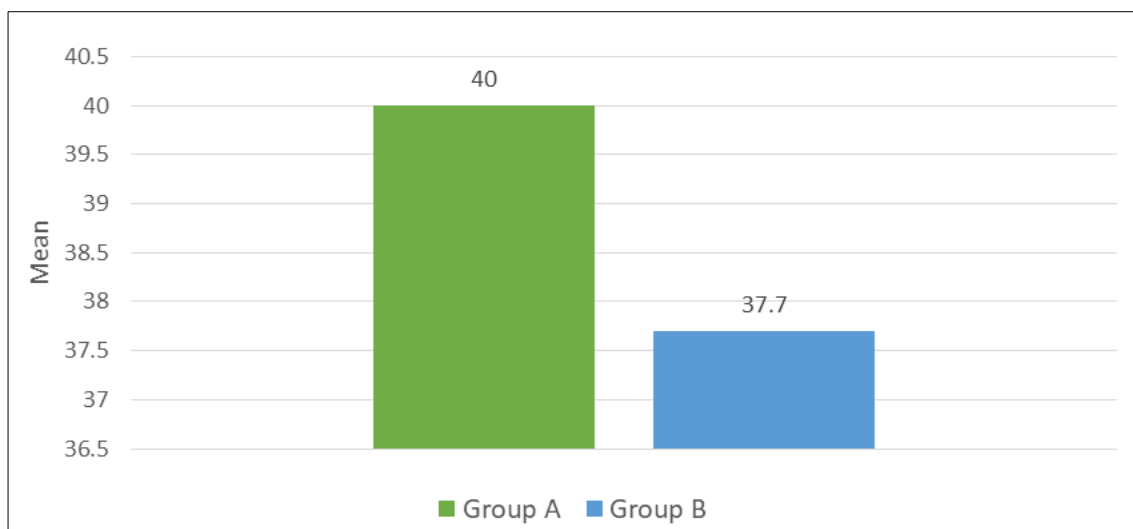
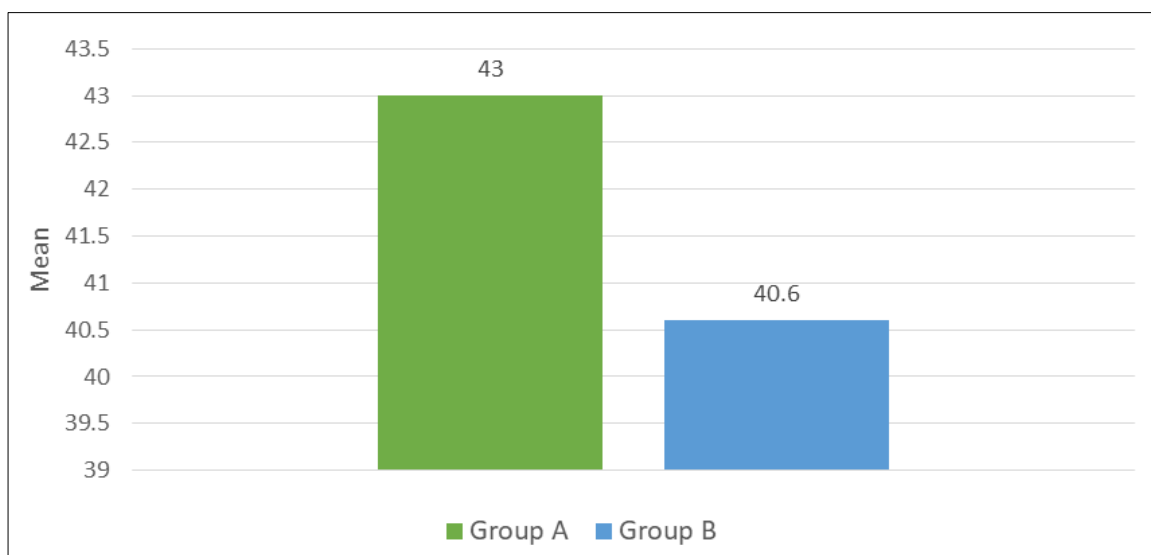
(b) Cryo-stretching

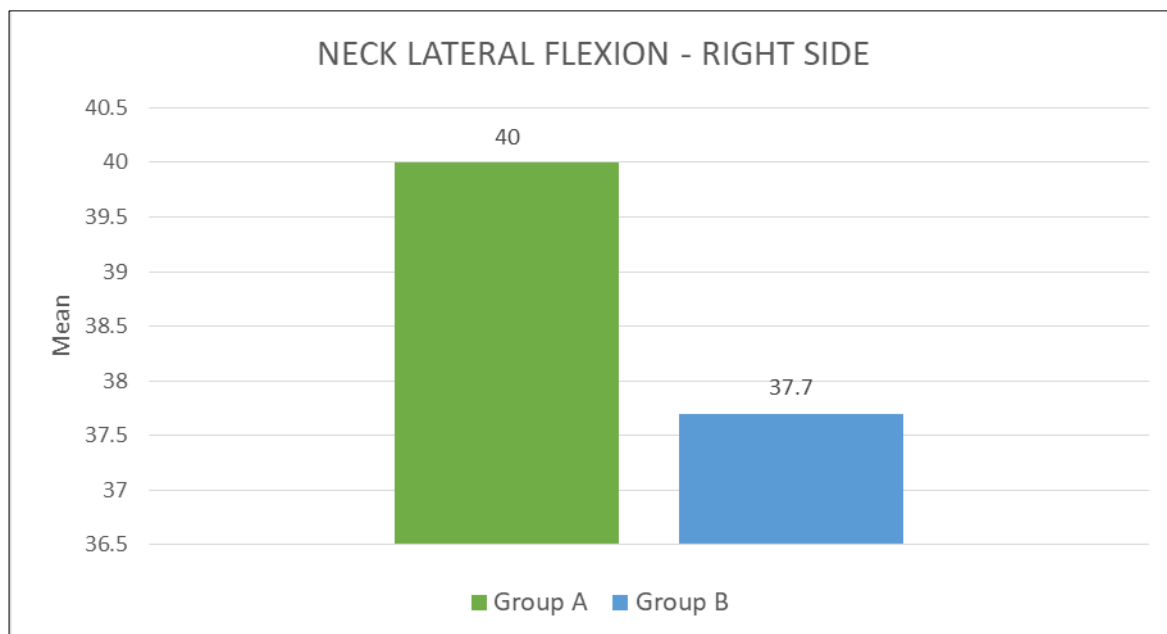
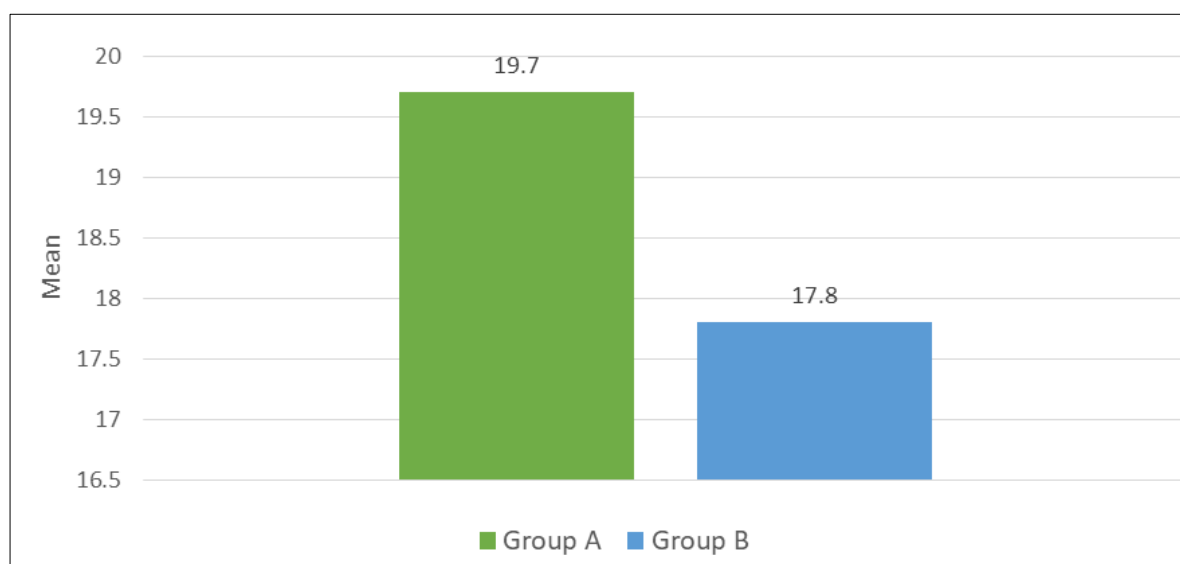
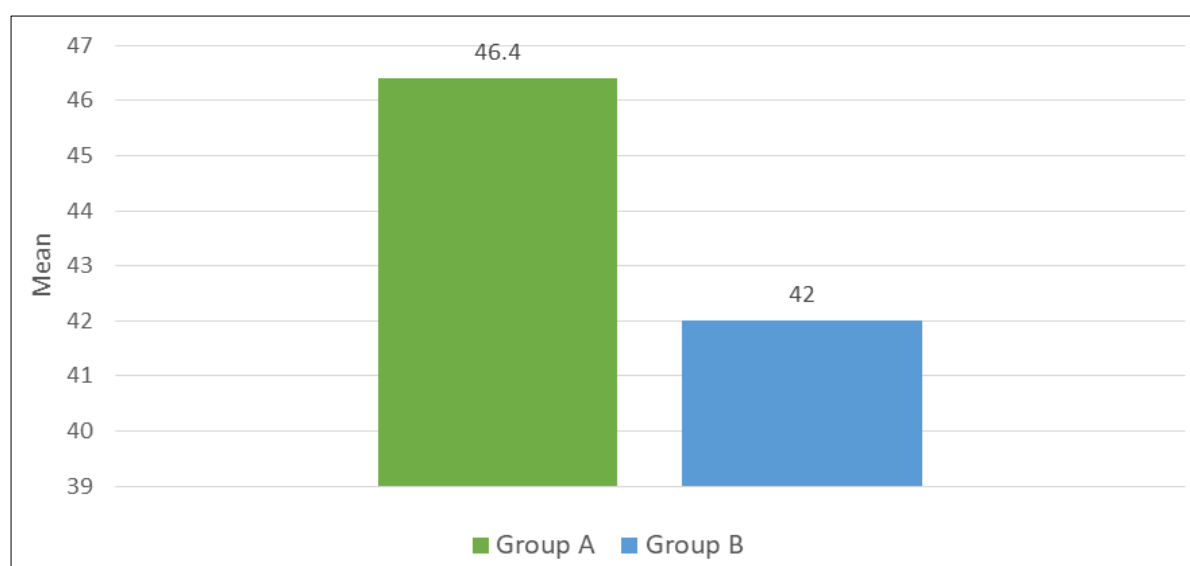
- Cryo-stretching consisted of the application of ice for 10 minutes till the part of trigger point was numbed.
- Later a 65 seconds passive static stretch was given over the upper trapezius with side flexion to the opposite side and within the stretch, 3 sets of 5secs isometric contractions were done for upper trapezius.
- For the stretch participant was made to sit erect and the therapist applied a stretch for upper trapezius using both hands.
- One hand was at the lateral forehead while the other hand was at the later border of upper trapezius with the palm facing downwards.
- Within the stretch, the participant was made to contract isometrically on the therapist's upper hand for 5 secs three times

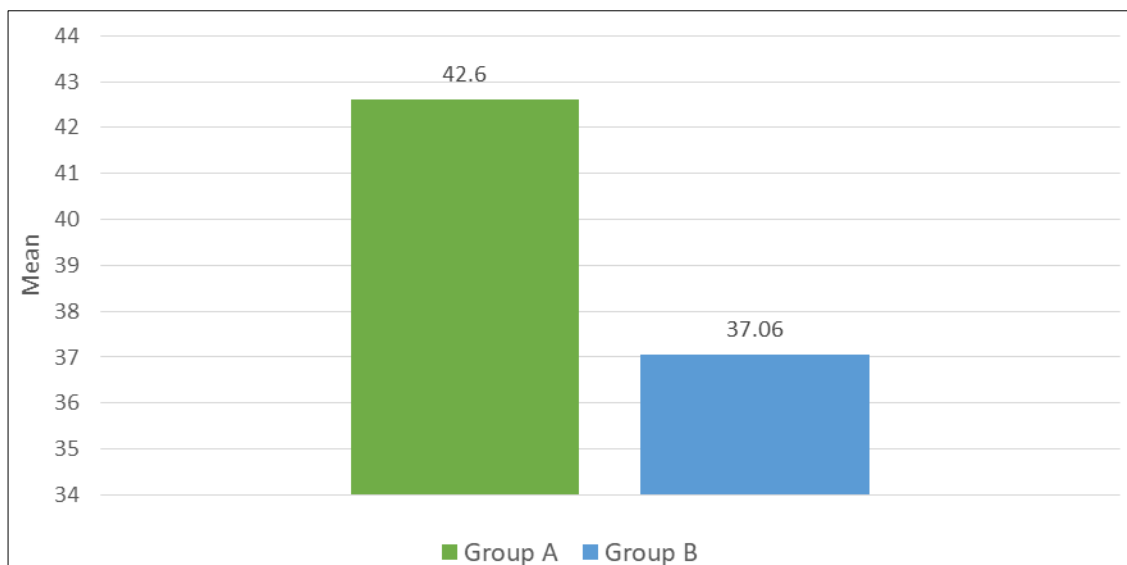
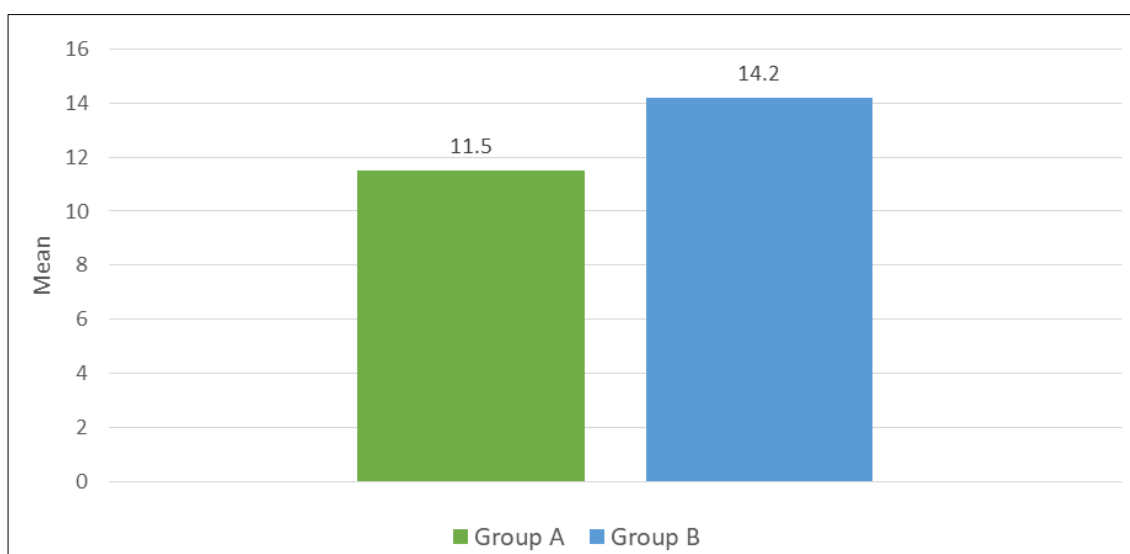
3. Results

Pre-test and post-test values of the study were collected and assessed for variations in improvement and their results were analysed using independent t test and parried t test. The statically analysis of the study showed that both groups have significant improvement in pain and cervical range of motion, but Group A (Myofascial Release) demonstrated greater reduction in pain scores and higher gains in mobility compared to Group B (Cryostretch).

Comparison of Results

**Fig 1: VAS Scalr****Fig 2: Neck Flexion- Rom****Fig 3: Neck Extension-Rom**

**Fig 4:** Neck Lateral Flexion- Right Side**Fig 5:** Neck Lateral Flexion- Left Side**Fig 6:** Neck Rotation Right Side

**Fig 7:** Neck Rotation Left Side**Fig 8:** Neck Disability Index

4. Discussion

The study indicated that the myofascial release and cryostretch were effective in reducing the pain intensity (VAS) and improving range of motion. The findings suggest that while both interventions are effective, Myofascial Release is superior to Cryostretch in managing upper trapezius trigger points. Its greater effectiveness may be linked to direct fascial release, improved circulation, and normalization of muscle tone, making it the preferred intervention.

5. Conclusion

On comparing the results of both there is significant difference in Group A and Group B. But the significant is faster in Group B than Group A.

The result suggest that myofascial release is more effective than cryostretching in reducing pain and improving range of motion in patients with upper trapezius trigger points.

Therefore, the null hypothesis was rejected and the alternate hypothesis accepted, confirming that there is a significant difference between the two techniques, with Myofascial release proving more beneficial for individuals with cervical neck pain.

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