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Effectiveness of Myofascial Release Technique Versus Cupping Therapy on Pain and Range of Motion in College Going Students with Trapezitis

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ABSTRACT

Background: Trapezitis is one of the common inflammatory conditions seen among college going students due to prolonged poor posture stressful neck movement. Students with Trapezitis usually complaints of pain and difficulty in activities of daily living. Myofascial release technique can be defined as a soft tissue mobilization technique that reduce trapezius spasm and ultimately pain is reduced. Cupping is ancient medical technique it is general utilise a glass cup to create suction over a painful area.

Need of study: There are few literatures or research work available on this. No comparison is done on above techniques. So, this study was done to compare both the techniques.

Objective: To compare the Myofascial Release Technique and Cupping therapy on pain intensity and neck disability index in Trapezitis among college going students.

Methodology: A total of 50 students with Trapezitis meeting the inclusion and exclusion criteria were allocated into two groups of 25 each. Group A (MFR) and Group B (Cupping) to receive 6 sessions of MFR and cupping therapy Pre and Post intervention scores of Visual analogue Scale (VAS), Cervical ROM (CROM) and Neck disability index (NDI) were measured.

Results: Data was analysed by SPSS21, t-test were applied. Statistically significant improvements were observed in both groups but more pronounced in Group B. VAS ($t = 6.3257$) $P<0.0001$. NDI ($t = 9.0547$) $P<0.0001$

Conclusion: The results suggested that cupping therapy showed better results than myofascial release in relieving Trapezitis in college going students.

Keywords: Trigger Points, Students, Myofascial Release Technique, cupping therapy, Trapezitis.

INTRODUCTION

Trapezius is a large, diamond-shaped muscle that extends from the back of the skull down to the lower part of the spine in the chest and across the width of the shoulders. The trapezius is attached to the top and back of the scapula as well as to the outer part of the clavicle. Its role is to support the neck and spine and assist with arm movement. (1)

Origin: The trapezius arises from the medial third of the superior nuchal line of the occipital bone, the external occipital protuberance, and the posterior border of the ligamentum nuchae; from the spinous processes of C7 – T12 vertebrae. The muscle is divided into three parts: descending (Upper fibers), ascending (Lower fibers) and Middle fibers.[2]

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Insertion: The upper fibers are directed downward and laterally into the lateral 3rd of the clavicle; the middle fibers are directed horizontally into the acromion and the upper border of the spine of the scapula, the lowest fibers are directed upward and laterally and inserted on the medial and the spine of the scapula. [2]

Nerve Supply: Motor functions are supplied by fibers from the spinal part of the accessory nerve, sensory functions are supplied by fibers from the third and fourth cervical nerves. [2]

The term "Trapezitis" refers to inflammation of the trapezius muscle.This muscle assists with motions including shrugging shoulders and neck extensions. [3] pain generally arises due to overuse of the muscle in non-ergonomic posture, repeated motions, sitting for an extended amount of time without back support, high keyboard on desks, prolong neck bending activities like reading,tightness in the pectoralis major and minor muscles. [3]

The frequency is highest in middle age, and women are more affected than males. many studies have shown a wide range in the prevalence of neck discomfort, with mean point prevalence of 13% (range:5.9%–38.7%) and mean lifetime prevalence of 50%(range:14.2%–71.0%) [4] Muscle spasm occurs early after injury. This feels like tightness in the muscles. [5]

Myofascial release is defined as "the facilitation of mechanical, neural and psycho physiological adaptive potential as interfaced via the Myofascial system.Myofascial release that removes the fascia's excessive pressure on the pain-sensitive structure.[6]

Cupping is an ancient healing technique, whether it is performed dry or wet, in dry cupping the cup creates a mild vacuum on the skin to aggravate the subcutaneous tissues without blood being drawn. in wet cupping the cup suctions the lacerated skin to draw blood from the dermal microcirculation. Suction from cupping draws fluid into the treated area. This suction force expands and breaks open tiny blood vessels under skin. [7]

VAS, NDI and CROM are used as the outcome measures. The VAS measures the severity of acute and chronic pain.[8] NDI has been used to assess the neck discomfort. [9] ROM is basic technique used for the examination of movement [10]Upper Trapezius muscle fibers are useful in cervical Extension. 0° to 25° is normal range of cervical extension. [11]

Therefore the present study has been undertaken to compare the myofascial release techniques versus cupping therapy on upper trapezius trigger point in college going students.

AIM & OBJECTIVES

Aim: To compare the effect of myofascial release technique and cupping therapy on upper trapezius trigger point in college going students.

Objectives:

1. To determine the effect of myofascial release technique on pain intensity and neck disability index in upper trapezius trigger point in college going students.
2. To determine the effect of cupping therapy on pain intensity and neck disability index in upper trapezius trigger point in college going students.
3. To compare the Myofascial Release Technique and cupping therapy on pain intensity and neck disability index in upper trapezius trigger point in college going students.

Hypothesis:

Null hypothesis:

There is no significant difference in neck disability and pain in college going student treated with myofascial release technique and cupping therapy.

Alternate hypothesis:

There is significant difference in neck disability and pain in college going student treated with myofascial release technique and cupping therapy.

MATERIALS AND METHODOLOGY

- **Source of Data:**
  College going students (KSPR, KPGU Vadodara)

- **Study population:**
  Students with Upper trapezius trigger point
- **Sample size:**
  The Calculated Sample Size Is 60 (30 In Each Group).
- **Type of sampling:**
- Convenient sampling
- **Study design:**
  Interventional comparative study

Inclusion criteria

- Age group of 18-26 years,
- Male and Female participants
- VAS value between 4 to 7 out of 10
- Unilateral / bilateral trapezius trigger point
- Duration of the pain from 7 days to 1 month
- Participants willing to sign the written informed consent form.

Exclusion criteria

- Recent history of trauma, fracture in cervical spine/surgery, skin disease around area
- anti-inflammatory drugs
- Brachial neuralgia
- Scoliosis, torticollis, Sensory disturbance near treating part and radiculopathy/myopathy.

Procedure

A comparative study was conducted at MatrushriDavalba hospital, Varnama, Vadodara. It was conducted for duration of 6 months. Total of 50 participants had participated in the study according to inclusion and exclusion criteria.

The effectiveness of intervention was assessed before 1st session and then end of 6th sessions by using the outcome measure VAS, CROM and NDI.

Group: A

- Group A received MFR in 6th sessions given in 3 weeks. 2 sessions/week.
- Position of patient's: Sitting on a chair hand supported on table and head resting on head.
- Position of therapist: Behind the patients towards involved side.

Technique: Neck area exposed properly then ultrasonic gel was used for lubrication then

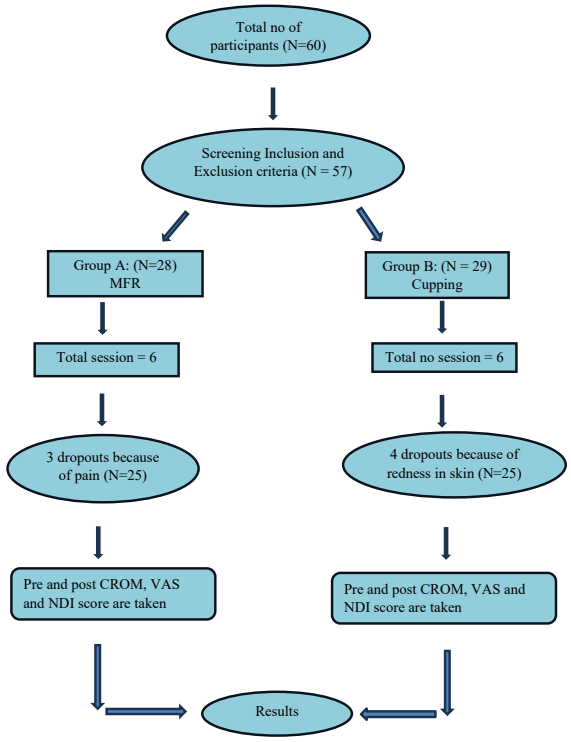


Fig. 1: Flow Chart (representing the procedure of selection of participants)

pressure was applied for 90 seconds followed by 15 sec of rest period. Repeat it for 3 times

Group: B

Group B received cupping therapy in 6 sessions given in 3 weeks. 2 sessions/week.

- Position of patient: Prone lying
- Position of therapist: Behind the patients towards involved side.

Technique: Neck area should be exposed then applying negative pressure through a suction device and moving the cup with a diameter of 4 cm on the trapezius muscle for 10 minutes. Maintaining negative pressure, the cup was massaged from the occiput to the middle of the thoracic vertebrae along the upper trapezius muscle for 5 minutes using a lubricant gel. The patient was reminded that the massage site would be red and sensitive for several days.

Outcome Variables

Visual analogue scale

It is a measurement instrument that measure the characteristics that is believed to range across a

continuum of values. A straight horizontal line of fixed 10 cm length with the ends defined as the extreme limits of the pain to be measured, oriented from left (no pain) to right (severe). The patient was asked to mark on the line, the point that they feel represents their perception of current pain. Its reproducibility has been recognized in individual subjects (ICC=0.97). [3]

Cervical Range of Motion:

All the motions were assessed by using Universal Goniometer. This test intra and interrater reliability is 0.80 to 0.93. [3]

Neck Disability Index:

Function ability was assessed on the base of neck disability index questionnaire. It is a patient - completed condition specific functional status questionnaire with 10 items. Each question is scored on a 0 to 5 rating scale, in which 0 means 'No pain' and 5 means 'Worst pain'. All the points can be summed to a total score. The test can be interpreted as a raw score of 50. Total score of these questionnaires multiply by 2 then divided by numbers of section (total section is 10) answered multiplied by 10. A score of 22% or more is considered a significant ADLs disability. [3]

Statistical analysis

Descriptive statistical analysis obtained using frequency, percentage, mean, SD. Paired t-test was used for the comparison of Pre and post data within the group. Unpaired t-test was used for the comparison of data between the groups. All the statistical analysis was performed by using IBM SPSS version 29.0.0.

RESULTS

Table 1 depicts the Comparison of mean of VAS score between groups. Mean value of VAS score Group A 3.68 ± 0.80 (p value - <0.0001) and Group B 2.04 ± 1.02 (p value - <0.0001) suggested that Group B is more significant.

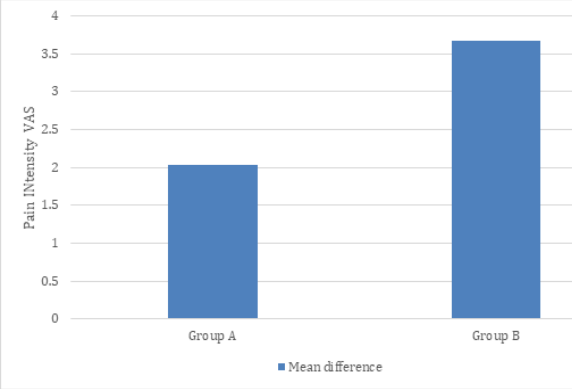
Graph 1 depicts the Comparison of mean in post intervention between the groups.

Table 2 depicts the Comparison of Post treatment mean difference values between groups of CROM were affected in both the groups, there was significant difference in mean values of CROM.

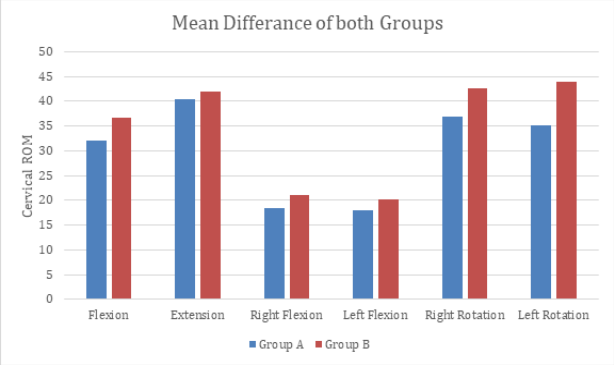
Graph 2 depicts the Comparison of mean CROM between the groups.

Table 1: Comparison of mean of VAS score between the groups

VAS	Mean ±SD	Mean ±SD	't value'	'p value'	Result
	Pre	Post			
Group A	5.44 ± 1.12	3.68 ± 0.80	7.7985	<0.0001	Extremely significant
Group B	5.44 ± 1.12	2.04 ± 1.02	10.7517	<0.0001	Extremely significant
Group A v/s group B	Group A post 3.68 ± 0.80	Group B post 2.04 ± 1.02	6.3257	<0.0001	Extremely significant



Graph 1: Mean difference VAS of both the Groups



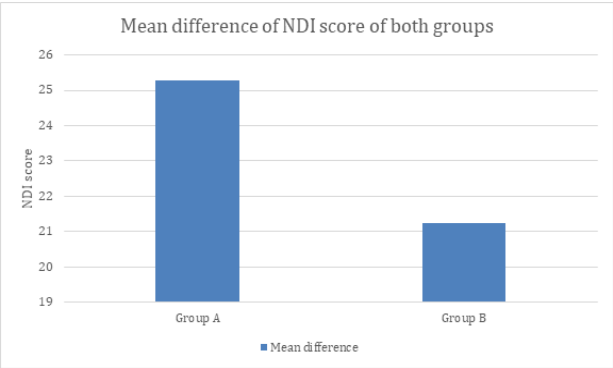
Graph 2: Comparison of mean CROM between the groups

Table 2: Comparison of Post treatment mean difference values of CROM between both the groups are as follow: Flexion: 32.04 ± 5.86 and 36.80 ± 4.70 (p-Value:<0.0027) , Extension: 40.44 ± 5.01 and 41.92 ± 4.32 (p-Value: 0.26) , Left Flexion: 17.96 ± 2.18 and 20.16 ± 1.40 (p – Value: <0.0001) , Right Flexion: 18.36 ± 2.84 and 21.12 ± 1.01 (p-Value: <0.0001) , Left Rotation: 35.12 ± 7.87 and 43.88 ± 3.79 (p -Value: <0.0001) , Right Rotation: 36.84 ± 3.75 and 42.68 ± 3.99 (p -Value : <0.0001)

CROM	Group	Mean (Difference)	SD	SEM	P value	T value	Significant
Flexion	A	32.0400	5.86	1.17	<0.0027	3.1683	Very Significant
	B	36.8000	4.70	0.94			
Extension	A	40.4400	5.01	1.00	0.2689	1.1186	Not Significant
	B	41.9200	4.32	0.86			
Right flexion	A	18.3600	2.84	0.56	<0.0001	4.5783	Extremely Significant
	B	21.1200	1.01	0.20			
Left flexion	A	17.9600	2.18	0.43	<0.0001	4.2457	Significant
	B	20.1600	1.40	0.28			
Right rotation	A	36.8400	3.75	0.75	<0.0001	5.3327	Extremely Significant
	B	42.6800	3.99	0.79			
Left rotation	A	35.1200	7.87	1.57	<0.0001	5.0143	Extremely Significant
	B	43.8800	3.79	0.75			

Table 3: Comparison of mean in post intervention between the groups using NDI where t value - 9.0547 and p value <0.001 which is statistically significant, whereas within the groups it was significant.

NDI	Mean ± SD		T value	P value	Result
	Pre	Post			
Group A	45.32 ± 7.74	25.28 ± 2.05	13.2769	<0.0001	Extremely Significant
Group B	42.32 ± 6.74	21.24 ± 0.88	15.2507	<0.0001	Extremely Significant
Group A v/s Group B	Group A post	Group B post	9.0547	<0.0001	Extremely Significant
	25.28 ± 2.05	21.24 ± 0.88			



Graph 3: Comparison of mean difference between Post NDI values between the groups

Table 3 depicts Comparison of mean in post intervention between groups using NDI. In table group A NDI score is more 22% and Group B NDI score is less than 22% That is the reason group B is more significant in pain relief.

Graph 3 depicts that Comparison of mean difference between Post NDI values between both the groups.

DISCUSSION

The present study aimed at finding out the effects of Myofascial Release Technique and cupping therapy in reducing pain on VAS scale and improving the cervical range of motion and NDI score in students with Trapezitis. The results of the present study showed that myofascial

release technique and cupping therapy both are effective techniques but cupping therapy is more effective for reducing pain, disability, and CROM among college going students with Trapezitis.

Cupping therapy has a short-term effect on increasing local hemodynamic at the upper trapezius. Clinicians can apply cupping therapy for a shorter period and maintain the same results. An increase in blood flow may be able to decrease pain and inflammation, and increase function. [12]

This finding was consistent with previous research done Emily Schultz, ATC; Noelle M. Selkow, who conducted that cupping therapy increases local subcutaneous hemodynamic at 10 minutes. Dry cupping therapy is effective in treating non-specific neck pain and improving activity of daily living andalso beneficial in decreasing pain and inflammation of Trapezitis. [12]

M. Saeidi, H. Yavari, H. R. Fateh they were conducted study that improvement of pain, disability, and fatigue in patients with trapezius pain syndrome, massage cupping should be considered as a feasible, safe, fast, and effective method for patients with trapezius pain syndrome, also, this method could be combined with other rehabilitation programs in the treatment of myofascial pain and muscle strain. [13]

Sai vispute, Niraj kumar conducted study that in which Myofascial release techniques and Positional release techniques both are effective in reducing pain intensity on VAS scale and improving cervical ROM and reducing functional disability on NDI score. [3]

The actors can be associated with the result of study.

Conclusion

In the present study, application of cupping once in 2 days for 3 weeks of trigger points in upper trapezius muscle produced significant increase in flexion, both lateral flexion and rotation of cervical spine also improvement in reducing pain measured by VAS. our study concludes that Cupping therapy is more effective in college going students with Trapezitis. So here our alternate hypothesis is accepted and our null hypothesis is rejected.

Clinically Implication

Cupping therapy is feasible, safe, fast, and effective method for patients with Trapezitis.

Limitation of the study

Small sample size, short period of intervention.

Future scope:

More sample size and long period of intervention and cupping therapy could be compared with other techniques.

Acknowledgement:

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Conflict of interest: None

Source of Funding: None

Ethical Approval:

Approval was taken by Ethical committee.

REFERENCE

1. Standring S, Ellis H, Healy J, Johnson D, Williams A, Collins P, Wigley C. Gray's anatomy: the anatomical basis of clinical practice. American journal of neuroradiology. 2005 Nov;26(10):2703.
2. Lalruatliana M, Dutta A. A Study on Effectiveness of Corrective Exercise Over Conventional Exercises in Individuals Suffering from Trapezitis. Indian Journal of Forensic Medicine & Toxicology. 2021 Jul 1;15(3).
3. Vispute S, Kumar N. A Comparative Study of Immediate Effects of Myofascial Release Technique and Positional Release Technique on Trapezitis among the College Student. Int J Physiother Res. 2022;10(3):4243-9.
4. Choksi K, Chauhan S, Jaria S, Agrawal A. Effect of Deep Transverse Friction Massage and Ischemic Compression in Trapezitis: A Randomized Controlled Trial. Indian Journal of Physiotherapy & Occupational Therapy. 2021 Jan 1;15(1).
5. Chaudhary ES, Shah N, Vyas N, Khuman R, Chavda D, Nambi G. Comparative study of myofascial release and cold pack in upper trapezius spasm. International Journal of Health Sciences & Research. 2013 Dec;3(12):20-7.
6. Sata J. A comparative study between muscle energy technique and myofascial release therapy on myofascial trigger points in upper fibres of trapezius. Indian Journal of Physiotherapy and Occupational Therapy. 2012 Jul 1;6(3):150.
7. Chirali IZ. Traditional Chinese Medicine Cupping Therapy-E-Book. Elsevier Health Sciences; 2014 Jun 27.

8. Bijur PE, Silver W, Gallagher EJ. Reliability of the visual analog scale for measurement of acute pain. Academic emergency medicine. 2001 Dec;8(12):1153-7.
9. Hoving JL, O'Leary EF, Niere KR, Green S, Buchbinder R. Validity of the neck disability index, Northwick Park neck pain questionnaire, and problem elicitation technique for measuring disability associated with whiplash-associated disorders. Pain. 2003 Apr 1;102(3):273-81.
10. Kisner C, Colby LA, Borstad J. Therapeutic exercise: foundations and techniques. Fa Davis; 2017 Oct 18.
11. Hislop HJ, Montgomery JD. Worthingham's Muscle Testing: Techniques of Manual Examination, ; Saunders.
12. Schultz E. Exploring the Hemodynamic Benefits of Cupping Therapy at the Upper Trapezius.
13. Saeidi M, Yavari H, Fateh HR. The Comparative Effects of Cupping Massage and Exercise Training in Patients with Trapezius Myofascial Syndrome on Pain, Disability, and Fatigue. A Randomized Controlled Trial. Muscles, Ligaments & Tendons Journal (MLTJ). 2021 Oct 1;11(4).