

Impact of Positional Release Therapy Combined With Conventional Physiotherapy on Pain and Functional Disability in Upper Trapezius Myofascial Pain Syndrome: A Randomized Controlled Trial

Sanjana Aggarwal¹, Reena Arora², Lalit Arora³, Shiny George Gill⁴,
Harjeet Kaur⁵

¹MPT Student, University College of Physiotherapy, Baba Farid University of Health Sciences

²Associate Professor, University College of Physiotherapy, Baba Farid University of Health Sciences

³Head Of Department, University College of Physiotherapy, Baba Farid University of Health Sciences

⁴Assistant Professor, University College of Physiotherapy, Baba Farid University of Health Sciences

⁵Junior Physiotherapist, University College of Physiotherapy, Baba Farid University of Health Sciences

Abstract

Background: Myofascial pain syndrome (MPS) is a clinical disorder characterized by combination of sensory, motor and autonomic manifestations resulting from myofascial trigger points (MTrPs). MTrP is considered as hyperirritable spot with a palpable nodule inside a taut band of skeletal muscle fascia. Trigger points are excessive sensitive regions in the fascia that results in referred pain. It can cause neck pain, stiffness, functional limitations

Purpose: To evaluate the impact of Positional Release Therapy combined with conventional physiotherapy on pain and functional disability in upper trapezius myofascial pain syndrome.

Methods: Thirty participants diagnosed with upper trapezius myofascial pain syndrome were randomly assigned into two groups: Group A received positional release therapy along with conventional physiotherapy and Group B received conventional physiotherapy alone. Treatment was administered for three times four weeks. Outcome measures included Numeric Pain Rating Scale and Neck Disability Scale used to assess pain and functional disability.

Results: Both groups showed statistically significant improvements. however, Group A demonstrated significantly greater reductions in pain and improved functional disability compared to Group B ($p < 0.0001$).

Conclusion: The addition of PRT to conventional physiotherapy is more effective in reducing pain, decreasing tenderness and improving functional disability in patients with upper trapezius MPS.

Keywords: Myofascial Pain Syndrome, Positional Release Therapy, Trigger Points, Neck Disability

Introduction

Background:

Myofascial Pain Syndrome (MPS) is a regional pain condition that can occur across all age groups and is defined by the presence of myofascial trigger points (TrPs) within muscle or fascial structures.⁽¹⁾ They can be categorized as either latent and active and are described as hyperirritable muscular nodules found inside taut bands of skeletal muscle.⁽²⁾ A tender point in skeletal muscle may be MTrP if it is located in the endplate zone and exhibits all of the traits of an MTrP, including taut band, referred pain and local twitch response.⁽²⁾ Myofascial pain syndrome (MPS) may present as either acute or chronic. In musculoskeletal research, pain duration is a key diagnostic variable. Symptoms lasting less than three months are generally classified as acute, whereas those persisting beyond three months are considered chronic.⁽³⁾ Activity, tension, anxiety, cold and bad posture frequently exacerbate MPS symptoms.⁽⁴⁾

The prevalence of neck pain is higher in high-income countries and in urban populations. Moreover, with the widespread adoption of computers and smartphones, the incidence of neck has continued to increase.⁽⁵⁾ 79% of the population between the age 18-44 years have their smartphones with them almost all the time, with only two hours of their waking day spent without their smartphone in hand.⁽⁵⁾ Beyond its impact on individual well-being, myofascial pain syndrome (MPS) places a significant burden on healthcare systems and contributes to work disability and early retirement.⁽⁶⁾ The highest prevalence of trigger points (TrPs) was observed in the trapezius muscle.⁽⁷⁾

Conventional management of myofascial pain syndrome includes pharmacological and non-pharmacological approaches. Medications such as analgesics and non-steroidal anti-inflammatory drugs (NSAIDs) provide limited symptomatic relief, while interventions like trigger point injections using local anesthetics or corticosteroids are also commonly employed.⁽⁸⁾ In addition, manual therapy techniques—including massage, stretching, and other physical modalities—have shown beneficial effects. However, despite the wide range of available treatments, no single approach has demonstrated consistent long-term effectiveness, highlighting the need for alternative or adjunctive therapeutic strategies.⁽⁹⁾

In recent years, Positional Release Therapy (PRT), a manual technique that places the affected muscle in a position of comfort to reduce neuromuscular tension, has gained attention as a potential adjunct intervention. It is proposed to alleviate trigger point sensitivity by improving local circulation and reducing abnormal muscle spindle activity.

Methods

Study design

The study was randomized controlled trial to assess whether the positional release therapy could ameliorate the subjective symptoms in patients with myofascial pain syndrome of upper trapezius. During the study, a total 30 patients with myofascial pain syndrome was successfully recruited. Each patient received a total 3 sessions of positional release therapy along with conventional physiotherapy for 4 weeks.

All patients provided written consent prior to the study, and this study was conducted at Department of Orthopaedics, Guru Gobind Singh Medical College and Hospital, Faridkot, OPD of University College of Physiotherapy, Faridkot. The study was approved by the Institutional research and Ethical Committee of UCOP, Baba Farid University of Health and Sciences, Faridkot

Trial participants

Eligibility criteria were: (1) Patients aged between 18-45 years (2) Both males and females were included (3) Individuals exhibiting a sedentary posture for a minimum of six hours daily. (4) Subjects with at least one active trigger point and taut band in upper trapezius. (5) Subjects with a pain intensity score of ≥ 4 on the Numeric Pain Rating Scale (NPRS). (6) Having myofascial pain syndrome less than 3 months. (7) Patients with a score greater than 9 on the Myofascial Diagnostic Scale were included. (8) Those who were willing to participate in study.

The exclusion criteria included: (1) Individuals who underwent cervical spine and shoulder surgeries. (2) Subjects who were suffering from cervical radiculopathy and myelopathy. (3) Individuals with the fibromyalgia syndrome. (4) Individuals who had sustained a whiplash injury. (5) Subjects suffering with rheumatoid arthritis. (6) Myofascial pain management in the month prior to the study. Anyone who met all the inclusion criteria and had none of exclusion criteria was eligible for the study.

Interventions:

The participants were randomly assigned into the two equal group after initial evaluation. Group A(n=15) received positional release therapy in addition to conventional physiotherapy Group B(n=15) received conventional physiotherapy alone. Duration of treatment was 4 weeks with treatment session for 3 days a week.

Positional therapy technique was applied with patient positioned comfortably in a supine posture. Therapist was standing on the affected side. The therapist applied pressure on the trigger point in the upper trapezius. Lateral flexion of the patient's head towards the side of trigger point, in such way that the pain was reduced by upto 70-80%. The therapist grasped the patient's forearm and abducted the shoulder to approximately 90° adds slight flexion or extension to fine tune. This new comfortable position was held for 90 seconds and then passive return to neutral position.¹¹

Duration: For instance, the total amount of time needed for treatment for patient with myofascial pain syndrome of upper trapezius was 90 seconds for 3 repetitions. 10 seconds relaxation period is given in between every repetition. This therapy was administered three times per week for four weeks.¹²

Patient received conventional physiotherapy program which include hot-pack for 20 minutes, ultrasound therapy for 5 minutes, stretching of upper trapezius and exercise program with repetition of 3 sets of 10 each. Exercises include active range of motion exercises of neck and scapular stabilisation exercises.

Patients in control group received conventional physiotherapy program for 1 hour same as for Group A. Patients were assessed for pain and functional disability. Data was collected at baseline of study (0th day) and at the end of treatment (4th week). For assessment of pain Neck Pain Rating Scale (NPRS) was evaluated and functional disability was assessed with Neck Disability Scale (NDI).

Data analysis

Data was analyzed using SPSS software. Paired and unpaired t tests were used to check the impact of positional release therapy on pain and function disability in patients with myofascial pain in upper trapezius.

Results

Total 30 subjects participated with age 18-45 years in both groups, t test was performed to test significant difference in variables. The $p=0.05$ was considered as level of significance. The mean age of subjects in group A was 30.667 and that of group B was 30.400.

Analysis was done between pre test and post test values within group A and group B to determine the changes within the variables NPRS, NDI for pain and functional disability with $p < 0.05$ the results showed that there were improvement in pain and neck functional disability after intervention in myofascial pain syndrome patients.

Comparison between the NPRS score of both the groups has been done. There was not much difference in NPRS score between pre values of both the groups with mean values of 8.067 and 7.933 but in post values of NPRS, there was a significant difference in the NPRS score between both groups ($p < 0.05$, but in post-test values there was a significant difference in NPRS scoring between both the groups ($P < 0.05$, but in post test values there was a significant difference in between both the groups ($P < 0.05$, but in post-test values there was a significant difference in between both the groups. Group A shows highly significant improvement than Group B in NPRS score with mean value of 2.667 (Group A) and 6.0 (Group B) after 4 weeks of treatment.

NDI score of both the groups was compared. There was no significant difference in Neck disability index between pre values of both the groups with $p > 0.05$, but in post test values there was a significant difference in NDI scoring between both the groups ($P < 0.05$) Group A shows highly significant improvement than Group B in NDI score with mean value of 13.933 (Group A) and 26.133 (Group B) after treatment.

Table1.1: represent comparison between the scores of NPRS in between the groups

Unpaired 't' test	Comparison			
	Neck Pain Rating Scale			
	Pre		Post	
	Group-A	Group-B	Group-A	Group-B
Mean	8.067	7.933	2.667	6.0
S.D.	0.798	0.798	0.899	1.0
N	15	15	15	15
M.D.	0.133		3.333	
Df	28		28	
Unpaired 't' test	0.457		9.597	
Table value at 0.05	2.05		2.05	
P value	0.651		<0.001*	
Result	Non-Significant		Significant	

Figure1.2: represent comparison between the scores of NDI in between the groups

Unpaired 't' test	Comparison			
	Neck Disability Index			
	Pre		Post	
	Group-A	Group-B	Group-A	Group-B
Mean	37.40	37.267	13.933	26.133
S.D.	4.10	4.043	3.514	5.642
N	15	15	15	15
M.D.	0.133		12.20	
Df	28		28	

Unpaired 't' test	0.090	7.108
Table value at 0.05	2.05	2.05
P value	0.929	<0.001*
Result	Non-Significant	Significant

Group A and group B were compared to check changes within groups in Pain and Functional disability with variables Neck Pain Rating Scale and Neck Disability Scale.

Discussion

The findings of this study shows that positional release therapy along with conventional physiotherapy was effective at reducing pain and improving functional disability.

The recent study is supported with study by Asad Ullah et al. (2023) on effects of positional release technique of myofascial trigger points of the upper trapezius in computer users having forward head posture. He concluded that PRT is superior to conventional therapy in decreasing pain intensity and threshold with disability in patients of upper trapezius trigger points.⁽¹²⁾

The recent study is supported with the study Jung ho lee et al. (2012) He did randomised controlled study on effect of stabilization exercises combined with taping therapy on pain and function of patients with myofascial pain syndrome. 32 patients were included into the study, divided into two groups Group A and B. Group A were treated with tapping and Group B were treated with taping along with stabilization exercise and concluded that applying taping before stabilization exercise is more effective at relieving pain and improving ability to perform activities of daily living.⁽¹⁰⁾

The improvements in positional release therapy along with conventional physiotherapy due to the fact that by placing the body in a position of maximal ease, PRT shortens the affected muscle and reduces abnormal spindle firing, thereby decreasing proprioceptive input to the central nervous system. Holding this position allows the neuromuscular system to “reset,” leading to normalization of muscle tone, reduced tenderness, and interruption of the pain–spasm–pain cycle. Additionally, the position of comfort improves local circulation, reduces ischemia, and minimizes nociceptive input, which further contributes to pain relief. Since myofascial pain syndrome is often associated with trauma, postural abnormalities, muscular dysfunction improvement in these factors may have contributed to reduced pain and better functional outcomes, which would explain the significant improvement observed in the present study.⁽¹³⁾

Conclusion:

This study concluded that Positional Release Therapy along with Conventional Physiotherapy and Conventional Physiotherapy alone are effective in reducing pain and functional disability. However, statistically it is proved that reduction in pain and improvement in functional disability is more at 4th week in patients who received Positional Release Therapy along with Conventional Physiotherapy as Compared to Conventional Physiotherapy alone with statistical significance of $p < 0.001^*$

Some limitations were identified in the study such as the small sample size for the study challenges the generalizability of the study, follow up assessment was not performed, the study did not investigate the long- term effects, the study was restricted to small geographical area of Faridkot.

Thus future studies need to be done with other outcome measures such as Study can be done on large sample size, long term follow up studies should be done, the potential relationship between myofascial pain syndrome and depression warrants further investigation to better understand their possible association

and clinical implications, the limitations of the study provide scope for further research and opportunities to expand knowledge.

References

1. Urits I, Charipova K, Gress K, Schaaf AL, Gupta S, Kiernan HC, Choi PE, Jung JW, Cornett E, Kaye AD, Viswanath O. Treatment and management of myofascial pain syndrome. *Best Practice & Research Clinical Anaesthesiology*. 2020 Sep 1;34(3):427-48.
2. Kuan TS. Current studies on myofascial pain syndrome. *Current pain and headache reports*. 2009 Oct;13(5):365-9.
3. Stecco A, Gesi M, Stecco C, Stern R. Fascial components of the myofascial pain syndrome. *Current pain and headache reports*. 2013 Aug;17(8):352.
4. Srbely JZ. New trends in the treatment and management of myofascial pain syndrome. *Current Pain and Headache Reports*. 2010 Oct;14(5):346-52.
5. ALsadoon AK. Study the Features and Impact of Myofascial Pain Dysfunction Syndrome on Females.
6. Cao QW, Peng BG, Wang L, Huang YQ, Jia DL, Jiang H, Lv Y, Liu XG, Liu RG, Li Y, Song T. Expert consensus on the diagnosis and treatment of myofascial pain syndrome. *World journal of clinical cases*. 2021 Mar 26;9(9):2077
7. Mustafaoglu R, Yasaci Z, Zirek E, Griffiths MD, Ozdinciler AR. The relationship between smartphone addiction and musculoskeletal pain prevalence among young population: a cross-sectional study. *The Korean journal of pain*. 2021 Jan 1;34(1):72-81.
8. Simons DG, Travell JG, Simons LS. Travell & Simons' myofascial pain and dysfunction: upper half of body. Lippincott williams & wilkins; 1999
9. Bennett R. Myofascial pain syndromes and their evaluation. *Best practice & research Clinical rheumatology*. 2007 Jun 1;21(3):427-45.
10. Lee JH, Yong MS, Kong BJ, Kim JS. The effect of stabilization exercises combined with taping therapy on pain and function of patients with myofascial pain syndrome. *Journal of Physical Therapy Science*. 2012;24(12):1283-7.
11. D'souza CJ, Abhilash PV, Nepal N. The effect of positional release technique on upper trapezius myofascial trigger points: A case series. *International Journal of Physical Education, Sports and Health*. 2020;7(4):275-8.
12. Ullah A, Mehmood Z, Ahmad Z, Kanwal R, Ali M, Kazmi SK, Wahab A, Aftab A. Effects of positional release technique on myofascial trigger points of the upper trapezius in computer users having forward head posture. *The Rehabilitation Journal*. 2023 Sep 30;7(03):24-30.
13. Speicher TE. Clinical guide to positional release therapy. *Human Kinetics*; 2016 Feb 23.