



## IMMEDIATE EFFECT OF FOAM ROLLING ON CHRONIC UNILATERAL TRAPEZITIS AMONG INDIVIDUALS OF AGE GROUP 18-30 YEARS

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**ABSTRACT** **Context:** Chronic unilateral trapezitis is a common musculoskeletal condition characterized by pain and stiffness in the trapezius muscle affecting individuals in the age group of 18-30 years. Foam rolling is a self-myofascial release technique that has gained importance for its potential therapeutic effects in reducing muscle soreness and improving range of motion in various musculoskeletal conditions. This study aimed to investigate the immediate effect of foam rolling on chronic unilateral trapezitis in individuals aged 18-30 years. **Methods and Material:** A total of 44 participants with chronic unilateral trapezitis were recruited and equally (n = 22) assigned into two groups: Group A received foam rolling along with conventional therapy and Group B (control group) received only conventional therapy. Pain intensity and range of motion were assessed before and immediately after each intervention. **Results:** Significant improvements were noted in both the groups in terms of decrease in visual analogue scale (VAS) and increase in Cervical lateral flexion range of motion (ROM). However, participants in the foam rolling group demonstrated a significant reduction in pain intensity (p < 0.05) and also exhibited a significant improvement in range of motion (p < 0.05) immediately after the intervention compared to control group. **Conclusions:** Foam rolling appears to have an immediate positive effect on pain intensity and range of motion in young adults with chronic unilateral trapezitis.

**KEYWORDS :** Foam rolling, Chronic unilateral trapezitis, Pain intensity, Range of Motion

### INTRODUCTION:

Trapezitis is defined as inflammation of trapezius muscle. It is a seditious pain arising from the trapezius muscle causing a severe neck spasm. The trapezius muscle is designated as postural muscle and is largely susceptible to overuse. This muscle lies at the back of the neck and help in movement of the head along with movement of the shoulder<sup>(1)</sup>.

Neck pain is a common issue that many people experience, particularly in the upper trapezius muscle area. Around two-thirds of people will have neck pain at some point in their lives. It is most prevalent in middle age, and women tend to be more affected than men. Studies show that the prevalence of neck pain varies widely, with an average point prevalence of 13%, ranging from 5.9% to 38.7%. The average lifetime prevalence is 50%, ranging from 14.2% to 71.0%.<sup>(1)</sup>

Trapezitis is most common musculoskeletal disorder. It is common in age group of 18-30 years<sup>(3)</sup>. Trapezitis involves myofascial pain syndrome, that can be commonly encountered in clinical practice<sup>(4)</sup>.

Myofascial pain syndrome is characterized by myofascial trigger points (MTrP) which are defined as hyperirritable spots within taut bands of skeletal muscle fibers. The syndrome is associated with tenderness in the muscle, characteristic referred pain, spasm and restriction of motion<sup>(2)</sup>. Simons et al. (1998) and Travel and Simons (1992) Classically defines trigger points as the presence of exquisite tenderness at a nodule in a palpable taut band (of muscle). Clinically trigger points are specific spots within a tight muscle that are tender to the touch and cause pain. These points feel like knots or tight bands in the muscle. They exhibit a local twitch response or jump sign in response to digital pressure<sup>(2)</sup>.

Foam rolling (FR) is a type of self-massage where you use a foam roller to apply pressure to and target specific muscle in the body. Common FR tools include the foam roller and various types of roller massage bars/sticks/ball, which come in several sizes and foam densities. The potential effects of FR have been attributed to following mechanisms: The mechanical effects - such as reduction in tissue adhesion, altered tissue stiffness, and thixotropic responses. The neurological effects - it is theorized the FR may potentiate analgesic effect and muscular recovery by modulating pain modulatory system (e.g. Nociceptor or diffuse noxious inhibitory control). The physiological effects such as increased blood flow and parasympathetic circulation as well as associated trigger point breakdown. The psychophysiological effects such as improved perceptions of well-being and recovery due to increase of plasma endorphins<sup>(4)</sup>.

### MATERIALS AND METHODOLOGY:

This is an experimental study conducted in physiotherapy OPD in and around Pune. Ethical clearance was taken from Modern college of physiotherapy, Pune. The sample size was of 44 individuals and were selected through purposive sampling. Based on inclusion and exclusion criteria participants were divided into two groups, Group A receiving foam rolling along with conventional therapy and Group B receiving only conventional therapy. Pain intensity was evaluated using Visual Analogue Scale (VAS) and Cervical Lateral Flexion Range of motion was assessed using universal goniometer.

### Visual Analogue Scale:

The VAS is horizontally positioned with the extremes labeled "least possible pain" and "worst possible pain"<sup>(5)</sup>. Participants were asked to rate pain intensity by placing a mark on 10cm VAS.

### Universal Goniometer:

The cervical lateral flexion was recorded with a universal goniometer. It is cheap to use, a popular instrument. Its validity and reliability are high in clinical settings<sup>(6)</sup>.

### Data Analysis:

Data was analyzed using graph pad and Microsoft Excel. Paired t test was used to compare the difference between pre and post treatment values of VAS and Cervical lateral flexion ROM within the groups. Post treatment comparison between groups A and B was done using Unpaired t test. The p-value was kept as <0.05.

### RESULTS:

**Table 1: Demographic characteristics of the subjects**

PARAMETER	Group A (n=22)	Group B (n=22)
AGE	23.818 ± 2.702	23.636 ± 2.460
GENDER	M= 9 F=13	M=7 F=15

**Table 2: POST VAS Score comparison between GROUPS A and B**

PARAMETER	GROUP A	GROUP B	t VALUE	p VALUE	RESULT
POST VAS	4.241 ± 1.239	5.873 ± 1.537	3.877	0.0004	HIGHLY SIGNIFICANT

The mean value of post treatment VAS in Group A is lesser than Group B indicating more reduction in pain in Group A than Group B.

**Table 3: POST Cervical Lateral Flexion ROM comparison between groups A and B**

PARAMETER	GROUP A	GROUP B	t VALUE	p VALUE	RESULT
CERVICAL LATERAL FLEXION	39.44 ± 7.70	33.45 ± 6.64	2.755	0.0086	Highly Significant

<b>FLEXION ROM</b>	<b>RIG HT</b>	39.94 ± 6.98	35.70 ± 6.65	2.063	0.045	Significant
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The mean value of post treatment cervical lateral flexion ROM in Group A is greater than Group B indicating more improvement in Group A than Group B.

#### DISCUSSION:

This study intended to find the immediate effects of foam rolling on chronic unilateral trapezititis among individuals of age group 18-30 yrs. Chronic trapezititis is characterized by inflammation of the trapezius muscle and causes persistent pain and limited range of motion, impacting an individual's quality of life.

All the 44 subjects included in the study were assessed and given the treatment. The individuals showed significant reduction in pain and improved range of motion immediately after the session.

Wiewelhove et al reported in their study that decrease in pain could be attributed to several factors. Foam rolling helps to reduce muscle tension and improve blood flow to the affected area, leading to pain relief. Additionally, foam rolling helps to break down adhesions in the muscle, which can contribute to pain and restricted movement.

The study's statistical analysis revealed that both the foam rolling and conventional therapy groups showed effectiveness in reducing pain and improving range of motion. However, the foam rolling group demonstrated superior outcomes compared to the conventional therapy group in terms of pain reduction and increased range of motion. This suggests that foam rolling is more effective intervention for individuals with chronic unilateral trapezititis when compared to conventional therapy methods.

The reduction in pain can be attributed to several factors. Foam rolling helps to reduce muscle tension by applying pressure to specific areas of the body. This pressure helps to relax tight muscles, which can alleviate pain. Foam rolling can improve blood flow to the affected area, which can help reduce inflammation and promote healing. Improved blood flow also helps to deliver oxygen and nutrients to the muscles, which can aid in recovery. Adhesions in the muscle can contribute to pain and restricted movement. Foam rolling helps to break down these adhesions, which can lead to pain relief and improved range of motion. Foam rolling helps to release muscle tightness by applying pressure to the muscle and fascia. This pressure helps to lengthen muscle fibers and improve their ability to stretch, which can lead to an increase in range of motion. By improving muscle flexibility, foam rolling allows muscles to move more freely, which can lead to an increase in range of motion. Foam rolling can also affect the fascia, the connective tissue that surrounds muscles. By applying pressure to the fascia, foam rolling can help to improve its flexibility, which can lead to an increase in range of motion.

The study compared the immediate effect of foam rolling with conventional therapy and found that the foam rolling group was more effective in reducing pain and improving range of motion. This suggests that foam rolling may be a more beneficial treatment option for individuals with chronic unilateral trapezititis.

#### CONCLUSION:

In conclusion, the study demonstrates that foam rolling has immediate beneficial effects on chronic unilateral trapezititis among individuals aged 18-30 years. The combination of foam rolling with conventional therapy leads to significant reductions in pain and improvements in range of motion immediately after the session. However, further research is needed to fully understand the mechanisms underlying these effects and to determine the long-term benefits of foam rolling for this condition.

#### REFERENCES:

1. Dr. Divya Khare, Rushali Pathak. Effectiveness of elastic resistance band exercises versus conventional exercises on cases of trapezititis: A comparative study. *Int J Orthop Sci* 2018;4(1):174-178.
2. Simons DG, Travell JG, Simons LS. *Travell and Simons' myofascial pain and dysfunction: the trigger point manual. The upper half of body.* 2 ed. Baltimore, MD: Williams and Wilkins, 1999.
3. Patel JP, Purohit A. Prevalence of scapular dyskinesia in young adults with trapezititis - a cross-sectional study. *Int J Health Sci Res*. 2021; 11(7):63-68.
4. Wiewelhove T, Döweling A, Schneider C, Hottenrott L, Meyer T, Kellmann M, Pfeiffer M and Ferrauti A (2019) A Meta-Analysis of the Effects of Foam Rolling on Performance and Recovery. *Front. Physiol.* 10:376. doi: 10.3389/fphys.2019.00376
5. Bijur PE, Silver W, Gallagher EJ. Reliability of the visual analog scale for measurement of acute pain. *Acad Emerg Med*. 2001 Dec;8(12):1153-7. doi: 10.1111/j.1553-2712.2001.tb01132.x. PMID: 11733293.

6. Farooq MN, Mohseni Bandpei MA, Ali M, Khan GA. Reliability of the universal goniometer for assessing active cervical range of motion in asymptomatic healthy persons. *Pak J Med Sci*. 2016 Mar-Apr;32(2):457-61. doi: 10.12669/pjms.322.8747. PMID: 27182261; PMCID: PMC4859044.
7. Cynthia C. Norkin, D. Joyce White. *Measurement of Joint Motion A Guide to Goniometry.* 5th ed. United States of America: F. A. Davis Company; 2016. 434-435.
8. Rolf-Detlef Treede, Winfried Rief, Antonia Barke et al. Chronic pain as a symptom or a disease: the IASP Classification of Chronic Pain for the International Classification of Diseases (ICD-11). *PAIN*. January 2019; 160(1): 19-27
9. Pepper TM, Brismée JM, Sizer PS Jr, Kapila J, Seeber GH, Huggins CA, Hooper TL. The Immediate Effects of Foam Rolling and Stretching on Iliotibial Band Stiffness: A Randomized Controlled Trial. *Int J Sports Phys Ther*. 2021 Jun 1;16(3):651-661. doi: 10.26603/001c.23606. PMID: 34123517; PMCID: PMC8169023.
10. Ranbhor AR, Prabhakar AJ, Eapen C. Immediate effect of foam roller on pain and ankle range of motion in patients with plantar fasciitis: A randomized controlled trial. *Hong Kong Physiother J*. 2021 Jun;41(1):25-33. doi: 10.1142/S1013702521500025. Epub 2020 Oct 8. PMID: 34054254; PMCID: PMC8158403.