

Effectiveness of the MELT Foam Roller Technique in Alleviating Mechanical Neck Pain among IT Professionals: A Pilot Study

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Abstract: *There is a high prevalence of mechanical neck pain in people working on computers in the IT sectors for more than 5 hours. The MELT Method is a gentle assisted - treatment technique that enhances mobility, stability, and performance and is clinically proven to reduce persistent pain. The objective of this study was to check the effectiveness of the MELT Foam Roller on Mechanical Neck Pain among IT workers working on the computers for at least 5 hours. It was a pilot study where the patients were treated with 4 methods of the MELT protocol using the MELT foam roller for 4 weeks. Visual Analogue Scale and Neck Disability Index were used as outcome measures. The MELT Method combines self - myofascial release, breathwork and meditation using what's called a "4R protocol", that were used to treat the mechanical neck pain in the patients. The four Rs stand for Reconnect, Rebalance, Rehydrate and Release. 12 patients were included. Statistical analysis showed p value < 0.001 when the values were obtained post treatment at the end of 4 weeks in the group. The MELT Method is effective in pain relief and reducing functional disability in computer workers after 4 weeks.*

Keywords: Mechanical neck pain, MELT Method, MELT Foam Roller

1. Introduction

Neck pain is becoming increasingly common throughout the world. It has a considerable impact on individuals and their families, communities, health - care systems, and businesses. There is substantial heterogeneity between neck pain epidemiological studies, which makes it difficult to compare or pool data from different studies. The estimated 1 year incidence of neck pain from available studies ranges between 10.4% and 21.3% [1]

Neck pain is one of the most common musculoskeletal disorders in the general population. Point prevalence ranges from 6% to 22% and up to 38% of the elderly population, while lifetime prevalence ranges from 14.2% to 71% [2]. The International Association for the Study of Pain defines neck pain as: "Pain perceived as arising from anywhere within the region bounded superiorly by superior nuchal line, inferior by an unoriginally transverse line through the tip of first thoracic spinous process, and laterally by sagittal plane tangential to the lateral border of neck" [3].

The prevalence among males is 4.6% (95% confidence interval [CI], 3.4 - 6.1) and females is 6.7% (95% CI, 4.9 - 9.1).3 Prevalence is also greater in higher - income countries, compared to low and middle - income countries (0.4% - 86.8% [mean 26.3%] vs 0.8% - 80.0% [mean 17.5%] [4]

Mechanical neck pain is a generalized neck and or shoulder pain with mechanical characteristics, including symptoms provoked by maintained neck postures, neck movement or by palpation of the cervical muscles [5].

The source of symptoms in mechanical neck pain is not completely understood, but has been purported to be related to various anatomical structures, particularly zygoapophyseal or pain in the anatomical region of neck which has no underlying pathological cause. [6].

A frequently seen cause of the neck pain is awkward occupational postures, anxiety, stress, heavy lifting, and physically demanding work [7].

The MELT Method is a gentle assisted - treatment technique that enhances mobility, stability, and performance and is clinically proven to reduce persistent pain while easing the mind and restoring overall well being. This full - body method of self - care can be customized to your particular needs - from improving performance and decreasing the risk of repetitive stress injuries to eliminating chronic pain, regardless of what's causing the pain in the first place. [8]

According to some studies the prevalence of neck pain in office workers is immediate, last month, last six months, last year, and lifetime prevalence of NP were 38.1%, 39.7%, 41.1%, 45.8% and, 62.1%, respectively. [9]

2. Need of Study

There is a high prevalence of neck pain in people working on computers in the offices for more than 5 hours

It has been noticed that prolonged use of computers during daily work activities is often cited as a cause of neck pain.

Prolonged use of computer with forward neck bent is the important reason that leads to neck pain. [10]

Extended periods of sitting in a certain position with no breaks to stretch the neck muscles is yet another cause that leads to neck pain.

The advantage of the melt method is that it is useful in treating chronic pain.

There is no study done on melt method for chronic neck pain so, there is a need to do a study.

3. Review of Literature

1) The MELT team and researchers at the New Jersey Institute of Technology (NJIT) conducted a study that looked at the effect of MELT on people with chronic low back pain, both right away and after four weeks of MELT.

The research study was conducted in partnership with NJIT and was led by a biomedical engineering grad student, Faria Sanjana, who was advised by Tom Findley, Ph. D. (founder of the Fascia Research Society) and Hans Chaudhry, Ph. D.

The study was presented at the 2015 Fascia Research Congress in Washington, DC. The Fascia Research Congress is the premier conference for cutting - edge research into all aspects of fascial science, with top - notch scientists, researchers, and practitioners in attendance from all over the world.

The study was called "Effect of the MELT Method on the Thoracolumbar Connective Tissue." It involved 44 men and women aged 25 - 65 with non - specific, chronic low back pain. They were split equally into two groups with 22 subjects each, one for the MELT treatment group and another to act as the control group.

The MELT group then had a 30 - minute MELT self - treatment session while watching a MELT video, and 5 minutes resting prior to retest. Meanwhile, the control group was asked to read and relax during the same period.

After the period was up, the subjects were immediately tested again using the same battery of tests to check for any immediate improvements brought about by doing MELT.

The MELT group then followed a 4 - week MELT self - treatment protocol. The control group had no changes to their routine.

Significant decrease in pain

- 43% immediate, - 31% long term

Significant increase in flexibility

+9% immediate, +24% long term

Significant decrease in the thickness of the fascial layers and combined thickness of the subcutaneous and fascial layers

- 26% immediate, - 34% long term

Significant increase in stress relaxation time in the lower area (below the 12th rib) on the left side of the muscle tissues of the spine

+8% immediate, +7% long term

Decreasing trend in stiffness of muscle tissue of the spine

Meanwhile, the control group showed no significant changes in pain, flexibility, thickness of the fascial layers, stress relaxation time, or stiffness. [11]

2) Stress is an epidemic that remains hard to understand and even harder to manage. Today stress affects adolescents more than adults, yet the impact of stress on their physical and mental health is not well - understood. A growing body of research points to mindfulness - based interventions and social - emotional learning as efficacious approaches to mitigating the harmful effects of stress and promoting well - being in youth. This study sought to investigate the MELT Method®, a simple self - care technique, using evidence - based research to determine MELT's efficacy in stress - reduction and promoting social - emotional learning objectives. Nineteen female adolescents from a residential treatment center participated in an eight - week, 16 session MELT intervention. This quantitative pilot study utilized a quasi - experimental pretest - posttest treatment and control group design to assess the effectiveness of the MELT program. It was hypothesized that the practice of MELT would reduce perceived stress, somatic symptoms, and behavioral disruptions while increase coping, resilience, and mood for at - risk, suggesting improvement in the SEL domains of self - awareness and self - management. Youth completed surveys measuring their perceived stress, resilience, coping skills, and somatic symptoms before and after the MELT intervention. Physiological measures (blood pressure; heart rate variability) and mood were recorded before and after each MELT session. Data showed within - group improvements in perceived stress, somatic symptoms, and blood pressure. Trends towards 2 improved mood and behavior were reported. Resilience increased in both groups while coping remained unchanged.

3) The purpose of this study was to examine the psychometric properties of the neck disability index (NDI) and numeric pain rating scale (NPRS) in patients with neck pain (NP) without concomitant upper extremity (UE) symptoms. **Design:** A secondary psychometric analysis of 107 patients with NP without UE symptoms. Test - retest reliability, construct validity, area under the curve (AUC), minimum detectable change (MDC), and minimum clinically important difference (MCID) were calculated. **Results:** The NDI exhibited excellent reliability (ICC = 0.88; [0.63 to 0.95]), while the NPRS exhibited moderate reliability (ICC = 0.67; [0.27 to 0.84]). The AUC for both the NDI (0.86; [0.79 to 0.93]) and NPRS (0.81 [0.73 to 0.90]) was acceptable. The MDC for the NDI was 6.9, and the MCID for the NDI was 5.5 (Sn = 0.83; Sp = 0.79). For the NPRS, the MDC was 2.6, and the MCID was 1.5 (Sn = 0.93; Sp = 0.64). **Conclusion:** The threshold for MCID for the NDI and NPRS in patients without UE symptoms is lower (NDI = 5.5; NPRS = 1.5) than that of patients with UE/radicular symptoms (NDI = 8.5 points; NPRS = 2.2). Knowledge of these cut - scores in each presentation of NP is needed for successful research and clinical treatment. Additional outcomes may be warranted for patients with UE symptoms [12]

Aim

To find the effectiveness of melt method on mechanical neck pain and neck disability among IT workers at the end of 4 weeks.

Objective

- To study the effectiveness of melt method on pain among IT workers having neck pain by using the Visual Analogue Scale.
- To study the effectiveness of melt method on neck disability among IT workers having neck pain by using Neck Disability Index

4. Methodology

Sample size - 12

Sampling - Convenient

Study design - A Pilot Study

Study population - IT Workers

Study setting - In and around the city

Study duration - 6 months

Protocol duration - 4 weeks for 3 days a week

Criteria**Inclusion**

Mechanical neck pain

Pain persisting for at least 4 - 12 weeks

Individuals working on computers for at least 5 hours [13]

VAS - 4 - 8

Score 1 and 2 on Neck Task Force Classification

Female and Male participants

Age: 18 - 45 Years

Exclusion:

Recent cervical spine fracture

Tumour around the neck region

Neurological conditions (Paralysis, Paresis, etc)

History of cervical spine injury in previous 12 months

5. Material

Visual Analogue Scale

Neck Disability Index

Melt Soft Foam Roller

Pen

Paper

Outcome Measures

1) Visual Analogue Scale [15]

2) Neck Disability Index [16]

3) Neck Pain Task Force Classification [17]: -

Level 1: There are no evident physical examination findings that suggest any structural pathology and minimal or no involvement of activities of daily living. Neck pain is present.

Level 2: The patient is not able to do activities of daily living properly and there are no signs and symptoms of any structural involvement.

6. Procedure

- 1) Study began with the presentation of synopsis to an ethical committee in PES MCOP.
- 2) Subjects were selected on the basis of inclusion and exclusion criteria.
- 3) The subjects were explained about the study before starting the procedure. A written consent was taken from the subjects who wished to participate in the study.
- 4) The subjects were assessed with VAS and Neck Disability Index prior to the study.
- 5) At the end of 4 weeks, the subjects were reassessed with Visual Analogue Scale and Neck Disability Index
- 6) Data analysis was done.

The Melt Protocol [18]

The MELT Method combines self - myofascial release, breathwork and meditation using what's called a "4R protocol". The four Rs stand for:

- 1) Reconnect
- 2) Rebalance
- 3) Rehydrate
- 4) Release

1) Reconnect

The position is called "rest assess, " where a person lies on the floor with the arms and legs relaxed and palms facing up with closed eyes and using body sense Reconnect technique means tuning with body and focusing attention to particular areas

2) Rebalance

Rebalance techniques focus on the diaphragm and core reflexes which help to reset your "autopilot"

3) Rehydrate

Rehydrate techniques aim to "revitalize and rehydrate" connective tissue and relieve tension in the body using gentle compression and lengthening techniques.

4) Release

Release techniques focus on easing joint compression and improving range of motion

7. Data Analysis

The study was done in one group of people with mechanical neck pain who were given Melt Technique with the Melt Foam Roller.

Descriptive and inferential statistical analyses were carried out in the present study. Results on continuous measurements were presented on Mean SD and results on categorical measurement were presented in number (%). Level of significance was fixed at $p=0.05$.

05 and any value less than or equal to 0.05 was considered to be statistically significant.

Student t tests (two tailed, paired) was used to find the significance of study parameters on continuous scale within the group at different time interval.

The Statistical software IBM SPSS statistics 20.0 (IBM Corporation, Armonk, NY, USA) was used for the analyses of the data and Microsoft word and Excel were used to generate graphs, tables etc.

Table: Comparison of Visual analog scale scores and NDI scores in terms of {Mean (SD) } at different time intervals using paired t test

Variable	Time interval	N	Mean	Std. Deviation	t value	P value
Visual analog scale	Pre	12	5.92	1.24	14.925	<0.001**
	Post	12	2.50	0.80		
NDI	Pre	12	22.67	1.50	25.080	<0.001**
	Post	12	11.92	1.78		

(p < 0.05 - Significant*, p < 0.001 - Highly significant**)

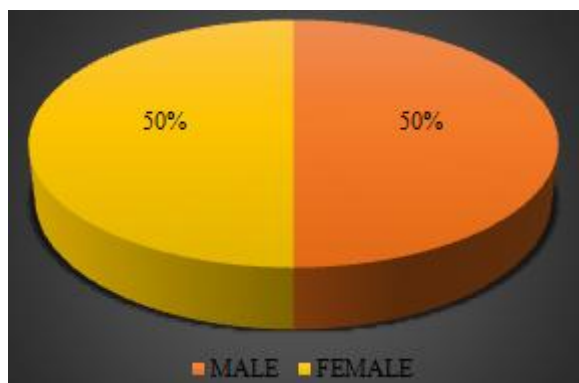
8. Result

The study was conducted in 12 subjects.

Visual Analogue Scale and Neck Disability Index were used as outcome measures.

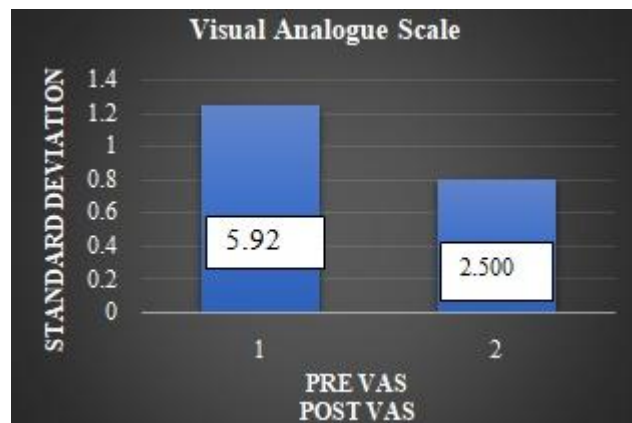
Statistical analysis showed pvalue<0.001 when the values were obtained post treatment at the end of 4 weeks in the group.

It was observed that the MELT Technique was effective in the group.



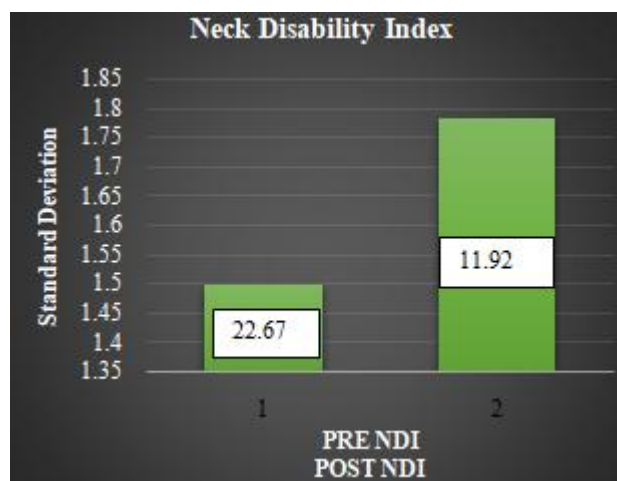
Visual Analogue Scale

PRE and POST treatment VAS was taken in the group. For the pre and post values in the same group paired t test was used.



Neck Disability Index

PRE and POST treatment NDI was taken in both groups. For the pre and the post values in the same group paired t test was used.



9. Discussion

The study was conducted to find the effectiveness of MELT method on mechanical neck pain and neck disability amongst IT workers working on the computer for atleast 5 hours at the end of 4 weeks. A total of 12 participants were included in the study. They underwent an assessment pre treatment and a post treatment. The Visual Analogue Scale and Neck Disability Index were used for the assessment. The subjects were given the MELT protocol with the MELT foam roller 3 days a week for 4 weeks. When the comparison was done within the group, it showed a significant effect, which means that there was reduction in pain and neck disability post treatment because MELT Method helps in reduction of pain by stimulating the connective tissue in the body manipulating pressure points in the fascia to loosen it up, reduce inflammation which in turn reduces aches and pains.

MELT Method - Myofascial Energetic Length Technique is a technique which directly assess stuck stress. It is a hands off treatment which aims to release tension, reduce pain and restore mobility. Specialized soft MELT foam rollers are used which mimic manual therapy to help reduce chronic pain by re - hydrating the connective tissue and re - balancing the regulators of the nervous system. The connective tissue surrounds the entire body including

muscles, bones, nerves and organs which is called as fascia. Connective Tissue plays an important role in keeping the body stable and for proper body alignment. The connective tissue is made up of three quarters of fluid and the rest is made up of repair cells and protein fibers (collagen, elastin and reticular) suspended in the fluid.

The connective tissue only functions properly when it contains adequate amount of body fluid. Dehydration of the connective tissue leads to misalignment, imbalance, chronic pain, discomfort, less supportive, less adaptable and less responsive that causes strain on the muscles and compression of the joints.

The repetitions of daily living are responsible for the dehydration of the connective tissues which is caused due to excessive compression, pull and friction.

The reconnect, rebalance, rehydrate and release techniques help by reconnecting the mind and body by making use of the Body Sense to identify stuck stress which is later helpful to rebalance all the structures.

The compression method helps in hydrating the connective tissue and accelerating the healing process in combination with reconnect and rebalance techniques. It stimulates the receptors within the connective tissue to create hydration. The intention of compression is to push out the fluid content which stimulates the connective tissue cells to take in and produce new fluid. Shearing is a process which stimulates all layers from skin to bone. It encourages the dehydrated tissue to admit fresh fluid allowing proper hydration. This heals the connective tissue's elastic and supportive properties and heals the stiff and inflexible tissues. This also helps to restore the supportive qualities of the connective tissue system and brings stability and balance back to the body.

A study conducted by Faria Sanjana on thoracolumbar region who followed the MELT protocol for 3 times a week for 4 weeks. The study stated that the subjects who underwent the MELT protocol saw a reduction in pain from 4.4 to 2.5, reduced thickness of the connective tissue - 17.64 to inches to - 13.42 inches post treatment.

10. Conclusion

Myofascial Energetic Length Technique is effective in pain relief and reducing functional disability in computer workers after 4 weeks.

11. Limitations

The MELT Foam roller is very costly.

This method has to be done under supervision.

The price is very high so it cannot be purchased in high numbers.

The duration of the treatment per session should be more to get more specific effect.

Body sense is not explained properly.

Mind Body sense/connection needs proper regular practice and time.

12. Future Scope of Study

Study population can be changed.

More outcome measures can be added.

A comparative study can be done to observe the effects of a normal foam roller vs MELT foam roller.

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