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To compare the effect of my ofacial release technique and passive stretching exercises on mechanical neck pain in computer operators

Payal Malpani[1], Harsh Thakre[2]
[1-2] Post, Associate professor, Department of physiotherapy, Present University, MPMSU (working in Rajeev Gandhi College), Madhya Pradesh, India

Abstract
The purpose of the study was to compare the effect of of "Myofacial release technique and Passive stretching exercises on mechanical neck pain in computer operators." To facilitate the study, 30 computer operators of age group 20-30 years having mechanical neck pain. They were divided into two groups namely, Group A and Group B on random basis. Each group consists of 15 subjects. The pre and post test scores were analysed by using t test statistical technique and concluded that Group A using Myofacial release technique having better improvement in pain and range of motion than group B using Passive stretching.

Keywords: neck pain, stretching, MFR, computer operators

Introduction
Neck pain is a major problem in the society, with an increasing sedentary population especially with reliance on computer technology in the workplace. Mechanical neck pain may be defined as pain secondary to overuse of a normal anatomic structure or pain secondary to injury or deformity of an anatomic structure [1]. Neck pain is considered to be chronic if it last for more than 3 months of duration pain that continues after the stimulus is removed and after the tissue damage heals. Chronic neck pain is becoming increasingly prevalent in society. Estimations indicated that 67% of individuals will suffer neck pain at some stage throughout life. The current research incidence of chronic neck pain in Bangalore has been estimated as 35% and the median age as 27 years and it ranges between 18 to 52 years [2]. Epidemiological surveys show that 45 – 71% of people recall an episode of neck pain that affected their activities of daily living. At any given time 9% of men 12% of women have neck complaints. In some industries neck complaints are even more frequent than back problems. There is a strong evidence for the efficacy of exercise based intervention in reducing pain and improving function among chronic neck pain patients [3]. According to the International Association for the study of pain defines neck pain as;" pain perceived as arising from anywhere within region of bonded superiorly by superior nuchal line, inferior by an unoriginally transverse line through the tip first thoracic spinous process, and laterally by sagittal plane tangential to lateral body of neck [4]. Most subject who present with neck pain have nonspecific (simple) neck pain. Where symptoms have mechanical or posture basis [5].
Limited range of motion and a subjective feeling of stiffness may accompany neck pain, which is often precipitated or aggravated by neck movement or sustained neck postures [6]. The outcome of neck pain depends on the underlying causes, but acute neck pain usually resolves within days or weeks, although it can recur or become chronic (more than three months duration). Outcomes is unpredictable once pain becomes chronic,and prognosis and the factors that influence it vary greatly [6].
Work factors like static posture, repetitive movement of neck, exertion of force by hands and arms, too highly placed keyboard limited rest break opportunity and tension or stress are the major contributing factors in tension neck syndrome in computer operators [7]. In the current study, mechanical neck pain was defined as pain in the area between the neck and shoulder regions, where the neck movement or palpation of the cervical region could provoke symptoms [8]. According to zinda [9]. upper crossed syndrome as facilitation of the upper Trapezius Levator scapulae, Sternocleidomastoid and Pectoralis muscle, as well as inhibition of the deep cervical flexors, Lower Trapezius,and Serratus Anterior. These muscle imbalance and movement dysfunction may have a direct effect on joint surfaces, thus potentially leading to joint degeneration may be a direct source of pain, but the actual cause of pain has been often secondary to muscle imbalance [9].
Computer professionals who work on the computer for long hours continuously, they may notice increasing aches and pains in some part of the body, usually musculoskeletal in nature and pain in the neck has become one of the leading problems nowadays [10]. The exact phrase "myofascial release" was coined in the 1960s by Robert Ward MFR may be used to decrease pain, stretch tight muscles and fascia, reduce muscle tonus, improve local circulation, strengthen weak musculature and mobilize joint restrictions [11]. For the present study, the myofascial release procedure was used to pain and lengthen potentially shortened cervical muscles and fascia to normalize the cervical range of motion.

Methodology
For the purpose of study 30 subjects of age group 20-30 years

with mechanical neck pain with duration of 4-12 weeks who are computer operators were randomly selected by means of simple random sampling method (Random number method). The subjects were informed about the nature of the study and their consent were also taken before involving them as subjects of the study. The subjects were later randomly assigned to a groups in equal sizes. The subjects were assessed for the pain status by using visual analog scale (VAS) followed by a goniometer examination of cervical active range of motion.

Measurement of pain: (VAS) was described to subjects using 10 mm horizontal line with 0 representing no pain and 10 representing worst pain imaginable. Subject marked a point in the line that matched the current amount of pain he or she perceives. Measurement of active cervical range of motion: universal goniometer was used to measure the cervical range of motion for lateral flexion and rotation.

These parameter were assessed before the start of program i.e. on 0 day and at the end of 6th day. Each session lasted for 10-15 minute and the Subjects received six treatment session of MFR and passive stretching for upper trapezius and levator scapulae muscle.

Results

Tests results demonstrated a statistically significant difference in Group A which shows greater improvement in ROM and VAS than the Group B.

Table 1: Tabular representation of Pre score of VAS of Group A and Group B.

Groups	Mean	Sd	Significance
Group a	6.93	0.79	p value=>0.99 t value=0
Group b	6.93	0.79	

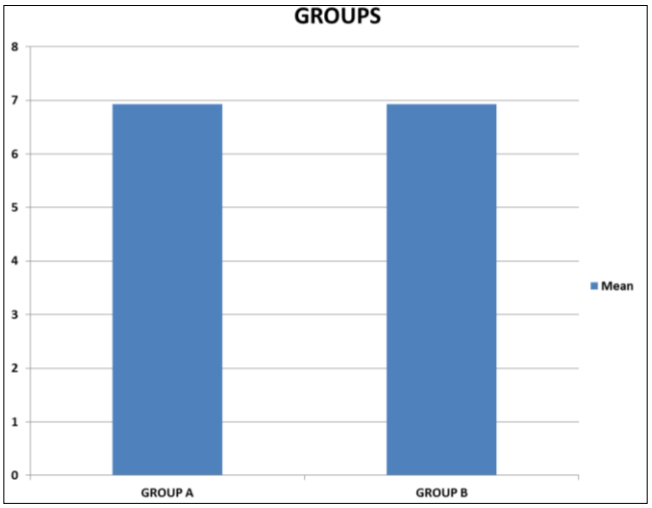

Fig 1: Graphical representation

Table 2: Tabular representation of Analysis of POST score of VAS of Group A and Group B.

Grops	Mean	Sd	Significance
Group A	2.6	1.12	P value=<0.0001 t value=6.50
Group B	4.8	0.67	

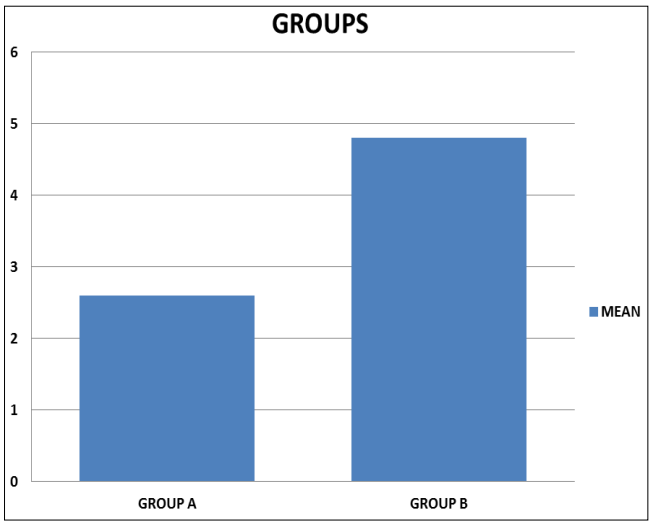

Fig 2: Graphical representation

Table 3: tabular representation of analysis of pre score of cervical lateral flexion in group A and B.

Groups	Mean	Sd	Significance
Group A	27	6.49	p value=<0.67 t value=0.44
Group B	26	6.03	

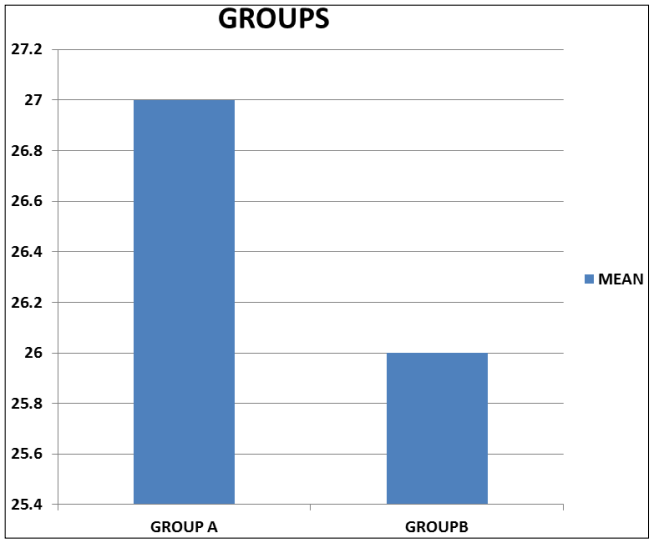

Fig 3: Graphical representation

Table 4: tabular representation of analysis of post score of cervical lateral flexion in group A and B.

Groups	Mean	Sd	Significance
Group A	39	2.80	p value=<0.0001 t value=5.27
Group B	32.66	3.72	

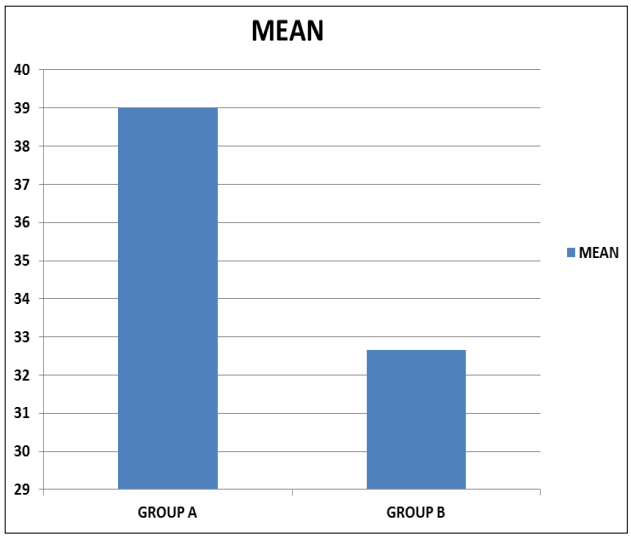

Fig 4: graphical representation of analysis of post score of cervical lateral flexion in group a and b

Table 5: Tabular representation of analysis of pre score of cervical rotation in group A and B.

Groups	Mean	Sd	Significance
Group A	56.33	5.50	p value=0.16 t value=1.43
Group B	59	4.70	

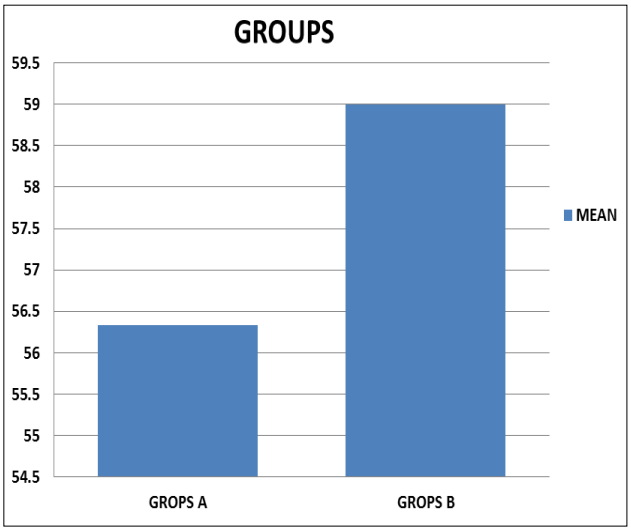

Fig 5: Graphical representation

Table 6: Tabular representation of Analysis of Post Score of Cervical Rotation in group A and B.

Groups	Mean	Sd	Significance
Group a	70.67	5.63	p value=0.01 t value=2.55
Group b	66	4.31	

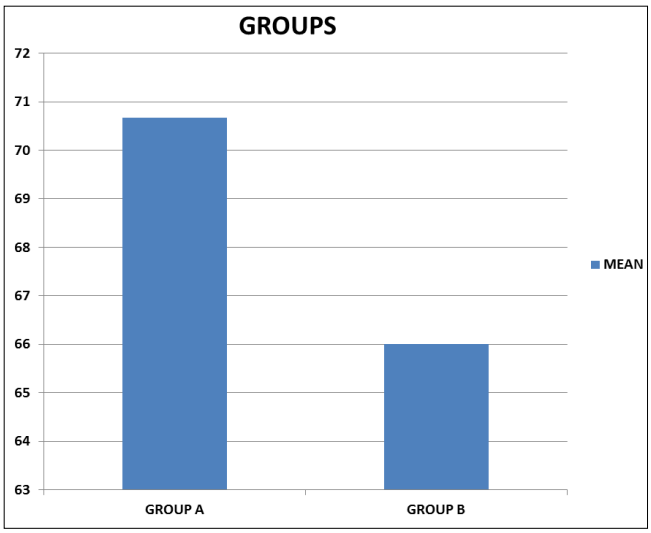

Fig 6: graphical representation of analysis of post score of cervical

Discussion

Computer-related activities can causes neck pain and the neck symptoms have been associated with low or high screen position, shoulder symptoms with high screen position and shoulder elevation in computer mouse users and risk of Neck with poor placement of keyboard [12]. major causes of many these disorders and injuries are technological advances (e.g. faster more powerful computers), increased use in repetitive motion, competitive work environments, inflexible workstation design, and poor education training on proper workstation design.[12] the most common consequence of faulty posture in computer operators is forward head posture.[13] Intensive computer work puts stress and strain on muscles, as well as joints, owing to continuous and repetitive nature of movement resulting in greater loading on supporting structure and may cause sensitization and pain.[13] Forward head posture involves flexion of lower cervical spine combination with extension of upper cervical spine, it is often accompanied by protracted shoulder [13].

Overtime the muscle and other soft tissues tighten up due to the excessive workload required to hold the head position and the anterior neck muscles become weak from being stretched and neural structures are kept in less than optimal position.[14] This chronic overload and tightening of soft tissues may eventually result in decreased blood flow and oxygen to the soft tissues, ultimately causing pain and beside this neck joint may be kept in abnormal position which may eventually causes joint pain and muscle weakness. [14] Due to which one may feel that just holding up the head is difficult, that is the head feels so heavy because of this heavy feeling, the person may maintain a slouched posture, which continues the vicious cycle [14].

The current study was designed to find out the effect of myofasial release technique and Passive stretching on neck pain. It primarily aimed to assess the effect of six days myofasial technique and passive stretching on computer operator subjects who are with mechanical cervical pain and restricted range of motion. Along with this unilateral neck muscle tightness also include in a criteria. Subjects taken between the age group 20-35 years both the males and females. The neck pain on visual analog scale 6-8(moderate) is included and duration of neck pain should 4-12 weeks. The criteria kept that the pain should be localized to cervical region only, no radiation and the restricted range of motion should be unilateral. Based on the inclusive and exclusive criteria the subject were randomly allocated to two groups: Group A received MFR and Group B Passive Stretching.

This study demonstrated that there was significant improvement in neck pain and range of motion in the group A as compared with the Group B. When we compare the POST values of VAS in Group A and Group B, the MEAN and SD was 2.6=1.12 and 4.8=0.67 respectively. The Unpaired t test was used and the two tailed p value was <0.0001 considered extremely significant and t value was 6.50. The results come significant in lateral flexion also. When POST values of cervical lateral flexion is compared in Group A and Group B, the MEAN and SD was 39=2.80 and 32.66=3.72 respectively. The unpaired t test was used and the two tailed p value was <0.0001 considered extremely significant and t value was 5.27. Results came same for cervical rotation when compared the POST values of cervical rotation in Group A and Group B, the MEAN and SD was 70=5.63 and 66=4.31 respectively. The paired t test was used and the two tailed p value was 0.01 considered significant and t value was 2.55. Also when we compared the PRE and POST of VAS, Cervical lateral flexion and rotation, the Post values showed improvement in all the parameters.

Although there are numerous studies that have discussed about manual therapy in neck pain, but no studies have utilized deep transverse massage as intervention study in mechanical neck pain in computer operators. This improvement in experimental group possibly may be due to rapid hypoalgesic effect of mobilization – induced analgesia and is generally consistent with the proposed mechanisms of action for the post isometric relaxation and is used to treat somatic dysfunction that result in cervical motion restriction.

Various researchers have found that deep transverse massage were effective in increasing joint ROM however, many of these studies only examined the immediate effect of intervention. The result of the present study support the study conducted by Cesar Fernandez *et al*. who also used MET contraction to produce significant changes in ranges of motion in the cervical spine. However, there were many differences between these two studies. *et al*. demos Rahimi A trated greater increases in each of the sis ranges of motion, even though, a strong trend toward significance was noted in right side bending and only right and left rotation were found to demonstrate statistical significance [15].

According to Mohammadi Kojidi *et al*. [16]. myofascial release technique was demonstrated to be effective in increasing the restricted rang of trunk rotation and ameliorating rotational asymmetry in asymptomatic subjects. The restricted direction in the treatment group demonstrated a significant increase in group trunk rotation as compared to the non-restricted untreated direction, and the bilateral rotation ranges of the control groups demonstrated no significant change in ROM. In addition the range of restriction rotation in the treatment group was returned to relative symmetry with the control-lateral non-restricted side after MFR treatment. These results support the efficacy of MFR in increasing spinal rotation in the thoracic region, supporting the findings of two previous cervical and lumbar MFR studies.

William P *et al* [17], has found that a positive relation between various neck disorders and work related risk factors, such as, static neck and arm posture duration of sitting as well as workplace design. Among other job characteristics, high quantitative job demands, having little influence on ones work situation and limited rest break opportunities have been found as predictors of neck pain. Computer use in sustained non-neural posture, such as neck rotation and shoulder abduction, has been identified as risk factors for neck and shoulder symptoms. Low frequency neck exercise have been found preventive in some studies. The human body is designed to move and health depends on its dynamic activity such as stretching should be incorporated in a work day and performed frequently [17].

The result of this study showed that there the use of deep transverse technique was more superior than passive stretching. MFR were effective in relieving pain and improved the range of motion. From the statistical analysis results obtained, it is obvious that there is a significant differences between pretest and post test values obtained using MFR and subjects in the Passive Stretching group. Hence our alternate hypothesis is there is a significant difference between the effect of myofascial release technique and passive stretching on mechanical neck pain and cervical range of motion in computer operators.

Conclusion

when we compared the result of post treatment of both MFR and Passive stretching groups, the MFR post treatment group i.e. Group A showed more improvement than the passive stretching group B. Thus MFR can be chosen over stretching along with the conventional exercises while treating the patients with mechanical neck pain.

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