RESEARCH PAPER

A Study of Comparative Effectiveness of Active Release Technique and Myofascial Release Technique on Pain and Disability in Drivers with Chronic Neck Pain

Miss. Vaishnavi Rajkumar Kshirsagar[1], Dr. Namrata Mahesh Bavalekar[2*], Dr. Umiya Pathan[3], Dr. Rama Ramdurgkar[4]

[1]B.P.Th Student, D. Y. Patil College of Physiotherapy, D. Y. Patil Education Society (Deemed to be University), Kolhapur, India

Email: vaishukshirsagar0305@gmail.com

[2*]Assistant Professor, Department of Musculoskeletal Science Physiotherapy, D. Y. Patil College of Physiotherapy, D. Y. Patil Education Society (Deemed to be University), Kolhapur - 416006, Maharashtra, India

Email: drnamratamane@gmail.com

[3]Professor, Department of Musculoskeletal Science Physiotherapy, D. Y. Patil College of Physiotherapy, D. Y. Patil Education Society (Deemed to be University), Kolhapur - 416006, Maharashtra, India

Email: drumiyapathan@gmail.com

[4]Assistant Professor, Department of Orthopaedic Manual Therapy, D. Y. Patil College of Physiotherapy, D. Y. Patil Education Society (Deemed to be University), Kolhapur - 416006, Maharashtra, India

Email: rkarrama@gmail.com

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ABSTRACT

Background - chronic neck pain is a common musculoskeletal disorder that significantly affect the quality of life and work performance of individual whose occupation required prolonged sitting and sustained posture. And those involved in long duration driving, are highly susceptible to developing chronic neck pain.

Aim – The study aimed to compare the effect of active release technique and myofascial release technique to reduce pain and disability and improve range of motion and thereby determining the most effective technique for reducing pain and improve quality of life.

Procedure – A randomized clinical trial was conducted with 116 drivers aged 20-50 years. the participants were randomly assigned to two Groups. Group A: Myofascial release technique and Group B: Active release technique. The intervention lasted for 4 weeks, with 4 session per week. Neck pain was assessed using NPRS, NDI Scale and pain pressure threshold device for evaluating pre and post intervention values, statistical analysis (paired and unpaired t- test) was performed to evaluate changes in within and between groups.

Outcome measures – Numerical pain rating scale, Neck disability index, Pain pressure threshold device.

Result - Effect of GROUP A was assessed by NPRS, NDI, Pain Pressure Threshold Device. Effect of GROUP B was assessed by using NPRS, NDI, Pain pressure threshold device. The GROUP A is MFR and GROUP B is ART technique. The findings suggest that both ART and MFR are effective manual therapy interventions for managing chronic neck pain in drivers. The results of the study showed that both groups demonstrated significant improvement in pain reduction and functional ability after the treatment period. however, the group treated with ART (GROUP B) showed comparatively greater improvement in reducing pain and disability scores compared to the group treated with MFR.

Conclusion – The study highlights the importance of manual therapy techniques in the treatment of occupational neck pain and suggests that active release technique may be a more effective approach for addressing soft tissue restrictions associated with chronic neck pain in drivers.

Keywords – NPRS, ART, MFR, NDI, Pain Pressure Threshold Device.

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INTRODUCTION

Neck pain is defined as discomfort and pain in the cervical region between the head and thorax, and nearly two-thirds of the general population may experience neck pain (NP) at some point in their lives. Chronic NP is considered a multifactorial condition, although little is known about the interaction of its various contributing factors. Due to the physical demands of their occupation, drivers are highly susceptible to musculoskeletal disorders and severe neck pain, making it one of the most prevalent occupational health problems (1). In a 3-year follow-up study conducted on 537 male professional drivers, the cumulative occurrence of neck pain was reported as 31.9% and shoulder pain as 21.4% (2). Chronic pain is commonly defined as intermittent or continuous discomfort lasting for more than three months, and it is recognized as one of the major causes of disability and global socioeconomic burden (3).

Although pain and disability are closely related, their relationship is complex. Disability refers to any limitation or inability to perform activities considered normal for human beings due to impairment (4). Chronic neck pain is a common cause of disability among working-age individuals (5,6). The severity of pain is often associated with disability and reduced quality of life, while physical, psychological, and social factors also contribute to both pain and disability (7,8).

Among drivers, the neck, shoulder, and lower back are the most frequently affected musculoskeletal regions. Driving posture is often characterized by non-neutral spinal alignment, reduced lumbar lordosis, and altered neck flexion. The neck and shoulder region is heavily used during driving, and overuse combined with poor muscular support can result in musculoskeletal dysfunction. The trapezius muscle, one of the largest and most stressed muscles in this region, is particularly affected (9). Prolonged sitting, repetitive movements, jerks, and exposure to whole-body vibrations are key aggravating factors. Additional contributors include traffic congestion, poor road conditions, long working hours, and occupational stress. Occupational driving, including truck, taxi, and bus driving, is therefore considered a major risk factor for musculoskeletal disorders, with truck drivers showing greater risks of illness and injury compared to other drivers (10).

Physical therapy is considered an effective approach for managing neck-related musculoskeletal problems (11). Trapezius pain, often associated with stress and poor posture, is one of the most common musculoskeletal disorders causing chronic pain and disability (12). Conservative management of nonspecific neck pain (NSNP) includes pharmacological interventions such as analgesics and muscle relaxants, along with physiotherapy techniques (13).

The present study evaluates the effectiveness of two manual therapy techniques: Active Release Technique (ART) and Myofascial Release (MFR). ART, developed by Dr. P. Michael Leahy, is used to treat dysfunctions involving muscles, tendons, ligaments, fascia, and nerves. In this technique, deep digital pressure is applied over tender points while the patient actively lengthens the affected muscle, helping to break adhesions and restore normal tissue mobility (12). Myofascial Release (MFR) is another soft tissue mobilization technique that applies low-load, sustained stretching to the myofascial complex to restore optimal length, reduce pain, and improve function (14,15). ART is also reported to reduce adhesions, relieve pain, improve flexibility, and restore soft tissue function through targeted manual manipulation (16).

Scapular position plays a vital role in maintaining muscle balance and shoulder function. Poor posture, particularly prolonged shoulder protraction and thoracic kyphosis during driving, alters scapular mechanics and contributes to neck and shoulder pain. Hunched sitting postures increase stress on neck muscles because the head is no longer maintained in an upright position, leading to muscle fatigue, irritation, and inflammation. The trapezius muscle, divided into upper, middle, and lower fibers, supports both the neck and shoulder and is particularly vulnerable to postural stress. Long driving hours, especially beyond eight hours per day, promote altered scapular posture and musculoskeletal dysfunction (17).

Occupational health concerns among drivers have increased worldwide due to changing work environments and growing transportation demands. In India, road transport accounts for nearly 80% of passenger movement, making professional drivers a significant workforce. However, prolonged sitting, static posture, and exposure to vehicle vibrations place substantial strain on the musculoskeletal system. Drivers are frequently exposed to acceleration, deceleration, side-to-side motion, and vertical vibrations, all of which may contribute to musculoskeletal discomfort, stress, and reduced work efficiency. The rapid expansion of the transportation sector is expected to worsen occupational health conditions among drivers in the coming years (22).

Three-wheel vehicle drivers and other professional drivers are also exposed to considerable occupational health risks. Musculoskeletal disorders (MSDs) are a leading cause of disability and absenteeism among these workers and commonly involve pain or discomfort in the neck, shoulders, back, knees, and lower limbs. Factors contributing to MSDs include prolonged sitting, whole-body vibration, long driving durations, poor road conditions, improper seating design, excessive workload, and uncomfortable driving postures. Ergonomic mismatches and stressful working environments further increase the likelihood of developing MSDs, particularly low back pain and neck pain among professional drivers (22).

MATERIALS AND METHODOLOGY

Materials Pain pressure threshold device, Numerical pain rating scale questionnaire (NPRS), Neck disability index scale, Data collection sheet, Consent Form

METHODOLOGY

An Interventional, Prospective, Comparative Study conducted at D.Y Patil Hospital Kadamwadi

on Drivers, Participants fulfilling inclusion criteria and exclusion criteria were selected for study

Sampling method**:** Simple Random Sampling (Computer Generated). Sample size**:** 58

The study started after getting ethical approval from the Institutional Ethics Committee.

Inclusion Criteria

Age: 20-50years, Gender: Male Professional Drivers, 1 Year of driving experience, Neck pain for more than 3 months

Exclusion Criteria

Age: 20-50years, Gender: Male Professional Drivers, 1 Year of driving experience, Neck pain more than 3 months, History of cervical trauma like neck fracture, whiplash disorder, and dislocation, Recent previous surgery of neck, History congenital neck deformity like torticollis, cyst and bony abnormalities, Specific causes of neck pain (conditions with neurological involvement such as myelopathy with weakness, numbness and sensory loss, cervical disc prolapse, spinal stenosis.

PROCEDURE

Ethical clearance will be obtained from the institution's ethical committee. And protocol committee of D.Y. Patil University, Kolhapur. According to inclusive and exclusive criteria participants will be screened. The procedure will be explained to the subjects. Prior written consent form from the participants will be obtained. Patients will be assessed using numerical pain rating scale, pain pressure threshold, and neck disability index. The participants included will be randomly divided in to two groups using simple random method. There will be 2 Groups Group A and Group B each Group consisting of 58 participants Group A will be Active release technique and B will be myofascial release technique. Pre-assessment value will be recorded before study is started. After 4 weeks of post assessment value will be recorded. Protocol Statistical analysis will be recorded and result will be obtained. The current study was design to determine the therapeutic effectiveness of myofascial release and active release technique to improve range of motion and reduced pain intensity in drivers with chronic neck pain. The subjects were divided into 2 groups. Group (A) (Active release technique) and Group (B) (Myofascial release technique) and 58 subjects in each group (Age group between20 to 50).

Group A will be treated by Active release technique for 10 repetitions for 1 set every day for 4 weeks. Active release technique (ART) were performed mainly on upper trapezius, levator scapulae. Single releasing performed for 10 sec. followed by relaxations total 4 session performed in one week. Follow up taken after 3 weeks to check progressions.

Group B will be treated by mayofacial release technique for 10 repetitions for 1 set every day for 4 weeks. Mayofacial release technique (MFR) were performed mainly on upper trapezius, levator scapulae. Single releasing performed for 10 sec. followed by relaxations total 4 sessions performed in one week. Follow up taken after 3 weeks to check progressions.

GROUP A

Active release technique (20)

Upper trapezius muscle

Using the active release technique,

The patient position- setting on a stool and rested their hands on their thighs. With both hips being higher than the knee and feet become forwarded than the knee and also well touched to the ground

Therapist position- Therapist stand behind the patient and stabilizing the patient's shoulder with one hand,

Line of movement-

A deep tension stretch was performed after the neck was extended and the thumb made contact with the trapezius muscle over the sore spot. Next, the patient was instructed to turn and bend their neck.

Repetitions- ART on upper trapezius was repeated 3 to 5 times.

Levator scapulae muscle

Using the active release technique,

The patient position- setting on a stool and rested their hand on their thighs. With hip being higher than the knee and feet become forwarded than the knee and also well touched to the ground.

Therapist position- therapist stand behind the patient and stabilizing the patient shoulder with one hand.

Line of movement-

A deep tension stretch was performed after the neck was extended and the thumb made contact with the trapezius muscle over the sore spot. Next, the patient was instructed to turn and bend their neck. repetitions- ART on levator scapulae was repeated 3 to 5 times.

GROUP B

Myofascial release technique (21)

Upper Trapezius

Using the Myofascial Release Technique,

Patient position- the patient setting on a stool with their arm resting on their thighs. With hip being higher than the knee and feet become forwarded than the knee and also well touched to the ground

Therapist position- The therapist stand behind the patient. And stabilizing the patient's shoulder with one hand, Line of movement- mayofascial release of the upper trapezius was performed unilaterally Applying pressure and gliding medially towards the base of the neck and/or the upper scapular region is done with a soft fist, the forearm and/or ulnar border of the palm, shinking and taking up a line of tension from the center of the belly of the trapezius, During the glide, the patient was instructed to sit upright, bend to the side, and tilt their head in the other direction then therapist provided resistance for 10 sec. to the contralateral side of rotation

Repetitions- MFR is repeated 10 times on upper trapezius.

Levator scapulae muscle

Using the myofascial release technique,

Patient position- the patient in sitting position, hip and knee right angle to each other both feet together rest on floor.

Therapist position- stand behind the patient.

Line of movement- therapist make soft fist with knuckles applied tension in line towards the inferior border of scapula slightly lateral. While patient head in forward direction it provide some amount of stretch to levator scapulae.

Repetitions- MFR is repeated 10 times on levator scapulae.

RESULT

The comparative study of active release technique and myofascial release technique revealed that reducing pain and improving functional ability in drivers. The ART significantly more improves than the MFR technique. However, both techniques are equally enhanced the reducing pain, improving the range of motion and, functional ability. Active release technique demonstrated comparatively greater effectiveness in

reducing pain intensity and disability levels. These findings suggests that while ART may be a more effective manual therapy technique for addressing soft tissue restrictions and adhesions associated with chronic neck pain.

DISTRIBUTION OF SITE OF PAIN

SITE OF PAIN	Frequency	Percentage
B/L PAIN	58	50.00%
LEFT	25	21.60%
RIGHT	33	28.40%
Total	**116**	**100.00%**

Table no. 1

Table 1 presents the distribution of site of pain of the total participants. Among the 116 Participants, 58 were B/L Pain 25 were left and 33 rights.

Graph 1 illustrates the percentage distribution, showing that B/L pain are 50 %, left 21.60%, right 28.40% of the total.

Graph no.1

AGE WISE DISTRIBUTION

	Mean	Std. Deviation
AGE	40.53	4.26

Table No.2

Table 2 presents the age wise distribution of group A and group B the total participants are 116. The mean age of participants is 40.53 and standard deviation is 4.26.

DISTRIBUTION OF DAILY HOURS OF WORK

	Mean	Std. Deviation
DAILY HOURS OF WORK	6.56	0.82

Table No. 3

Table 3 presents the distribution of daily hours of work in drivers. The mean of total working hours of drivers is 6.56 and standard deviation is 0.82.

PRE AND POST NPRS (ON MOVEMENT, ON REST), PPT DEVICE, AND NDI IN GROUP A

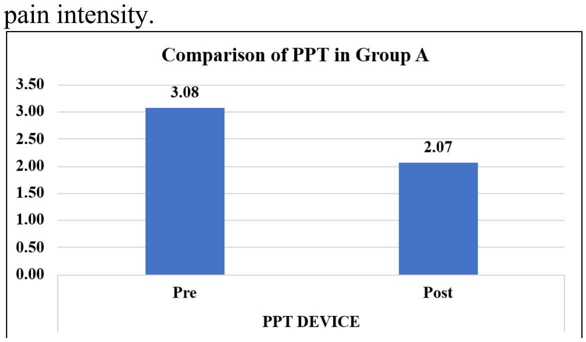
Parameter	Assessment Period	Mean	Std. Deviation	p-value
NPRS ON REST	Pre	3.29	0.90	<0.001*
	Post	1.76	0.54	
NPRS ON MOVEMENT	Pre	5.29	1.01	<0.001*
	Post	2.98	0.58	
PPT DEVICE	Pre	3.08	0.65	<0.001*
	Post	2.07	0.56	
NDI	Pre	25.66	5.52	<0.001*
	Post	16.95	3.53	

Table No.5

Graph No. 2

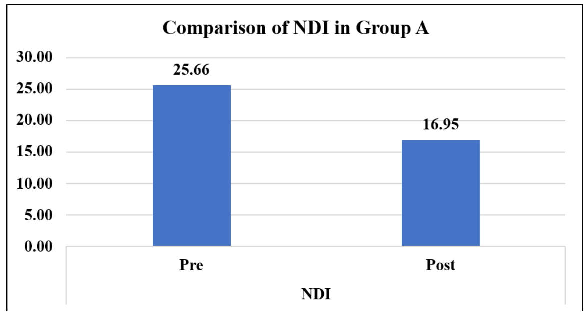
The graph illustrates the comparison of **Numerical**

Pain Rating Scale (NPRS) scores in Group A before and after the intervention, measured both **at rest** and **during movement**. Before the treatment, the mean NPRS score **at rest** was **3.29**, indicating a moderate level of pain experienced by the participants. After the intervention, the score reduced to **1.76**, demonstrating a considerable decrease in pain intensity while resting. This reduction suggests that the intervention was effective in relieving baseline pain in the participants.
Similarly, the NPRS score **during movement** showed a notable change. The pre-treatment value was **5.29**, reflecting a higher pain intensity when performing neck movements. Following the intervention, the mean score decreased to **2.98**, indicating a significant improvement in pain during activity. Since movement-related pain is often more disabling than resting pain, this reduction suggests that the treatment helped improve functional comfort and tolerance to movement.
Overall, the graph indicates a **clear reduction in pain levels both at rest and during movement after the intervention**, suggesting that the therapeutic approach applied in Group A had a positive effect in decreasing pain intensity.



Graph No. 3

The second graph represents the comparison of Pressure Pain Threshold (PPT) values in Group A before and after the intervention using a PPT device. The mean PPT value before the treatment was 3.08, indicating the level of pressure at which participants began to feel pain over the affected area. After the intervention, the PPT value decreased to 2.07. Changes in PPT values reflect alterations in tissue sensitivity and pain perception.
The variation observed in the PPT measurements indicates that the intervention influenced the participants' response to mechanical pressure stimuli. These findings suggest that the treatment may have contributed to modifying the pain sensitivity of the involved tissues.
Overall, the PPT comparison demonstrates that the intervention had a measurable impact on pressure pain perception, reflecting changes in local tissue sensitivity in Group A participants.



Graph No. 4

The third graph shows the comparison of Neck Disability Index (NDI) scores in Group A before and after the intervention. Prior to the intervention, the mean NDI score was 25.66, indicating a moderate level of disability related to neck pain that affected daily activities such as reading, working, and performing routine tasks. After the treatment period, the mean score reduced to 16.95, demonstrating a noticeable improvement in functional ability and reduction in disability. The decline in NDI score suggests that the intervention helped participants perform daily activities with less discomfort and limitation. Reduced disability scores reflect improvements not only in pain but also in overall neck function and quality of life.
In summary, the graph shows that participants in Group A experienced a significant reduction in neck-related disability following the intervention, indicating the effectiveness of the treatment in improving functional outcomes.

PRE AND POST NPRS (ON MOVEMENT, ON REST), PPT DEVICE, AND NDI IN GROUP B

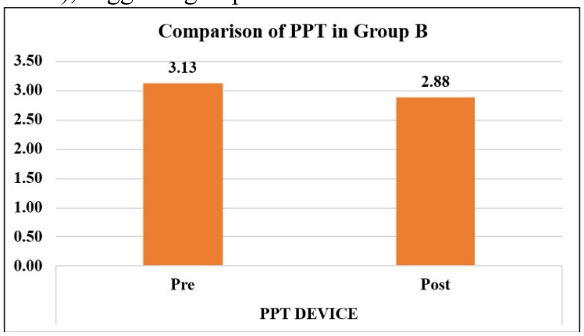
Parameter	Assessment Period	Mean	Std. Deviation	p-value
NPRS ON REST	Pre	2.78	0.56	<0.001*
	Post	1.88	0.60	
NPRS ON MOVEMENT	Pre	4.53	0.63	<0.001*
	Post	3.47	0.66	
PPT DEVICE	Pre	3.13	0.63	<0.001*
	Post	2.88	0.69	
NDI	Pre	24.53	4.85	<0.001*
	Post	21.02	5.48	

Table No. 6
Graph no.5

Table 6 represents the present study evaluated the effect of intervention on pain intensity, pressure pain threshold, and functional disability by comparing pre- and post-treatment values.
There was a **statistically significant reduction in pain at rest**, with mean NPRS scores decreasing from **2.78 ± 0.56 (pre)** to **1.88 ± 0.60 (post)** ($p < 0.001$). Similarly, **pain during movement** showed a significant decline from **4.53 ± 0.63** to **3.47 ± 0.66** ($p < 0.001$), indicating improvement in activity-related pain.
The **pressure pain threshold (PPT)** demonstrated a statistically significant change, with mean values reducing from **3.13 ± 0.63** to **2.88 ± 0.69** ($p < 0.001$).

Although statistically significant, the magnitude of change was relatively smaller compared to NPRS scores.

Furthermore, **functional disability**, assessed using the Neck Disability Index (NDI), showed a significant reduction from **24.53 ± 4.85** to **21.02 ± 5.48** ($p < 0.001$), suggesting improvement in functional status.



Graph no.7

The second graph represents the comparison of Pressure Pain Threshold (PPT) values in Group B before and after the intervention using a PPT device. The mean PPT value before the treatment was 3.13, indicating the level of pressure at which participants began to feel pain over the affected area. After the intervention, the PPT value decreased to 2.88. Changes in PPT values reflect alterations in tissue sensitivity and pain perception.

The variation observed in the PPT measurements indicates that the intervention influenced the participants' response to mechanical pressure stimuli. These findings suggest that the treatment may have contributed to modifying the pain sensitivity of the involved tissues.

Overall, the PPT comparison demonstrates that the intervention had a measurable impact on pressure pain perception, reflecting changes in local tissue sensitivity in Group B participants.

Graph no.7

The third graph shows the comparison of Neck Disability Index (NDI) scores in Group B before and after the intervention. Prior to the intervention, the mean NDI score was 24.56, indicating a mild level of disability related to neck pain that affected daily activities such as reading, working, and performing routine tasks. After the treatment period, the mean score reduced to 21.02, demonstrating a noticeable improvement in functional ability and reduction in disability.

The decline in NDI score suggests that the intervention helped participants perform daily activities with less discomfort and limitation. Reduced disability scores reflect improvements not only in pain but also in overall neck function and quality of life.

In summary, the graph shows that participants in Group B experienced a significant reduction in neck-related disability following the intervention, indicating the mild effect in group B of the treatment.

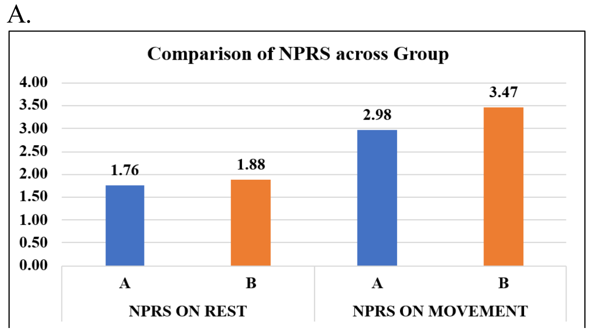
Parameter	Group	Mean	Std. Deviation	p-value
NPRS ON REST	A	1.76	0.54	0.255
	B	1.88	0.60	
NPRS ON MOVEMENT	A	2.98	0.58	<0.001*
	B	3.47	0.66	
PPT DEVICE	A	2.07	0.56	<0.001*
	B	2.88	0.69	
NDI	A	16.95	3.53	<0.001*
	B	21.02	5.48	

Table no.7

The present study compared post-intervention outcomes between Group A and Group B for pain intensity, pressure pain threshold, and functional disability.

For pain at rest (NPRS), the mean value in Group A was 1.76 ± 0.54, while in Group B it was 1.88 ± 0.60. The difference between the groups was not statistically significant ($p = 0.255$), indicating that both groups showed comparable outcomes in reducing resting pain. In contrast, pain during movement (NPRS) demonstrated a statistically significant difference between the groups. Group A showed lower mean scores (2.98 ± 0.58) compared to Group B (3.47 ± 0.66) with a p-value of <0.001, suggesting that Group A was more effective in reducing movement-related pain.

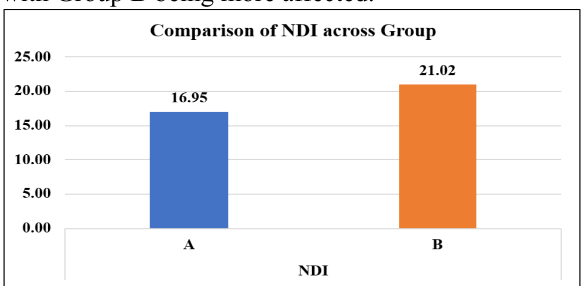
For the pressure pain threshold (PPT), Group A had a mean value of 2.07 ± 0.56, whereas Group B showed 2.88 ± 0.69. This difference was statistically significant ($p < 0.001$), indicating a greater improvement in pain sensitivity in Group A compared to Group B. Similarly, functional disability (NDI) scores were significantly lower in Group A (16.95 ± 3.53) than in Group B (21.02 ± 5.48) with a p-value of <0.001, reflecting better functional outcomes in Group A.



GRAPH NO.8

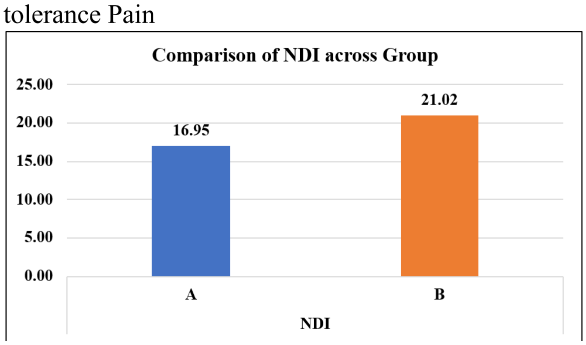
The graph compares mean NPRS (Numeric Pain

Rating Scale) scores between Group A and Group B under two conditions: rest and movement. At rest, both groups reported low pain levels, with Group A (1.76) slightly lower than Group B (1.88), indicating minimal difference. During movement, pain scores increased in both groups, reflecting activity-related discomfort. Group B showed a higher mean score (3.47) compared to Group A (2.98), suggesting greater pain intensity on movement. This indicates that Group A experienced relatively better pain control during activity. Overall, movement significantly increases pain in both groups, with Group B being more affected.



GRAPH NO. 9

The graph compares Pressure Threshold (PPT) values between Group A and Group B. It is evident that Group B has a higher mean PPT value (2.88) compared to Group A (2.07). This indicates that participants in Group B have a greater tolerance to pressure-induced pain. In contrast, the lower PPT value in Group A suggests increased sensitivity to pain. The difference between the two groups highlights a noticeable variation in pain perception. Overall, the graph suggests that the condition or intervention associated with Group B may be more effective in improving pain tolerance Pain



GRAPH NO.10

The bar graph compares the Neck Disability Index (NDI) scores between Group A and Group B. Group A shows a mean NDI score of 16.95, while Group B has a higher score of 21.02. This indicates that participants in Group B experienced greater neck-related disability compared to those in Group A The difference between The two groups suggest a possible variation in severity, treatment effect, or condition status.

DISCUSSION

The presented results compared Group A and Group B across clinical outcome measures including pain intensity at rest (NPRS), pain during movement, pressure pain threshold (PPT), and disability level (NDI). These findings provide insight into the effectiveness of the interventions used in both groups.

For **pain at rest (NPRS on rest)**, Group A showed a mean value of 1.76 (±0.54), while Group B showed a slightly higher mean of 1.88 (±0.60). The p-value of 0.255 indicated that the difference was not statistically significant, suggesting that both interventions were similarly effective in reducing resting pain.

In contrast, **pain during movement (NPRS on movement)** demonstrated a significant difference between the groups. Group A had a mean score of 2.98 (±0.58), whereas Group B had a higher mean of 3.47 (±0.66), with a p-value <0.001. This indicates that Group A achieved greater reduction in movement-related pain, highlighting a clinically important advantage because movement pain is directly associated with functional activities.

The **pressure pain threshold (PPT)** also showed significant differences. Group A had a mean value of 2.07 (±0.56), while Group B demonstrated a higher value of 2.88 (±0.69), with p<0.001. A higher PPT reflects greater tolerance to pressure-induced pain, suggesting that the intervention in Group B was more effective in modifying pain sensitivity at the tissue level.

Regarding **disability (NDI scores)**, Group A showed a mean score of 16.95 (±3.53), while Group B had a higher mean of 21.02 (±5.48), with a statistically significant p-value (<0.001). Since higher NDI scores represent greater disability, Group A demonstrated better functional improvement and reduced disability compared to Group B.

Overall, the results indicate that although both groups showed similar improvement in resting pain, Group A performed significantly better in reducing pain during movement and disability, whereas Group B showed superior improvement in pressure pain threshold. These findings suggest that the interventions may act through different mechanisms, with one being more beneficial for functional recovery and disability reduction, while the other is more effective in altering pain sensitivity.

Active Release Technique (ART) demonstrated several advantages over Myofascial Release (MFR) in the management of chronic neck pain among drivers.

ART is a movement-based soft tissue technique targeting adhesions in muscles, tendons, ligaments, fascia, and nerves. It combines manual pressure with active patient movement, helping to break fibrotic adhesions and restore tissue mobility. This approach is particularly beneficial for drivers who commonly develop repetitive strain injuries and localized soft tissue restrictions due to prolonged static postures, vibration exposure, and restricted movement during driving.

One major advantage of ART is its ability to provide faster and more targeted outcomes. Unlike MFR, which applies sustained pressure to release generalized fascial restrictions, ART specifically targets the exact site of dysfunction. This improves tissue mobility, circulation, and pain reduction more effectively. In chronic neck pain, where adhesions and microtrauma accumulate over time, ART restores normal tissue glide and reduces mechanical irritation.

ART also has a strong neurophysiological effect because it incorporates active movement, improving neuromuscular re-education and muscle coordination. This is especially important for drivers, as improved muscle control supports better posture and reduces recurrence of symptoms. In contrast, MFR is more passive and may require longer treatment duration to achieve similar functional improvements. ART further demonstrates superior outcomes in reducing disability because it directly improves range of motion and functional performance. Drivers benefit from improved neck mobility, reduced stiffness, and greater tolerance for prolonged driving positions.

Supporting literature also highlights the advantages of ART. George J. Hammer et al. (2019) reported that targeted soft tissue mobilization techniques similar to ART significantly improved pain intensity and cervical range of motion in patients with chronic neck pain. The study emphasized that techniques involving active patient participation produced faster functional recovery compared to passive approaches. Similarly, Ajimsha M. S. (2015) found that MFR effectively reduced pain and improved flexibility through fascial relaxation and improved circulation; however, significant functional improvements required longer treatment duration because MFR acts more gradually on the fascial system.

Comparatively, ART provides quicker and more function-oriented outcomes, particularly important for drivers who require efficient recovery for occupational performance. By reducing scar tissue, restoring tissue glide, and improving neuromuscular coordination, ART enhances posture control and decreases disability. Active patient participation during ART also improves proprioception and motor control, which are essential in preventing recurrence of neck pain associated with prolonged static posture.

However, non-supporting literature suggests that ART may not always be superior to MFR. Ajimsha M. S. (2014) demonstrated that MFR significantly improved pain, cervical range of motion, and disability in individuals with mechanical neck pain. The study emphasized that sustained fascial stretching effectively reduced tissue stiffness and improved circulation. Similarly, Bialosky J. E. et al. (2009) proposed that the benefits of manual therapy techniques such as ART and MFR may largely result from shared neurophysiological mechanisms rather than technique-specific effects. According to this perspective, pain reduction may occur due to central pain modulation, placebo responses, and patient-clinician interaction.

Overall, the literature suggests that both ART and MFR are effective in managing chronic neck pain and disability in drivers, although their mechanisms and outcomes differ. Supporting studies indicate that ART provides faster, more targeted, and function-oriented improvements due to its combination of precise tissue manipulation and active movement. Non-supporting studies indicate that MFR can achieve comparable long-term outcomes through fascial relaxation and neurophysiological effects. Despite these contrasting findings, ART appears to offer greater clinical advantages in reducing movement-related pain, improving functional ability, and enhancing postural control, making it particularly beneficial for drivers with chronic neck pain.

CONCLUSION

In conclusion, both Active Release Technique (ART) and Myofascial Release (MFR) are effective in reducing pain and disability in drivers with chronic neck pain. However, ART demonstrates comparatively greater benefits due to its targeted approach and incorporation of active movement, leading to faster functional improvement. MFR also provides significant relief but may require a longer duration to achieve similar outcomes. Overall, ART can be considered a more efficient intervention for enhancing mobility and reducing disability in this population.

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