International Journal of Multidisciplinary Research and Growth Evaluation.

Prevalence of scapular dyskinesia among truck drivers: An observational study

Aadil Husen [1*], Dr. Anurag Mehta [2], Dr. Jaywant Nagulakr [3]
[1] Dr. Ulhas Patil College of Physiotherapy, Jalgaon Nashik, Maharashtra, India
[2] Assistant Professor, Dr. Ulhas Patil College of Physiotherapy, Jalgaon Nashik, Maharashtra, India
[3] Principal, Dr. Ulhas Patil College of Physiotherapy, Jalgaon, Maharashtra, India

* Corresponding Author: **Aadil Husen**

Article Info

ISSN (online): 2582-7138
Volume: 06
Issue: 02
March-April 2025
Received: 09-02-2025
Accepted: 10-03-2025
Page No: 115-122

Abstract
Introduction: The scapula's stability is dependent on the surrounding musculature, with several muscles that attach directly to the scapula. It has various bony structures. The scapula is the large triangular-shaped bone behind the thoracal region and an important link between the trunk and the shoulder complex with a key role for the upper limb kinematic chain. Scapular control is essential for effective shoulder movement, particularly during arm elevation. The scapula upwardly rotates, posteriorly tilts, and externally rotates, while the clavicle elevates, retracts, and posteriorly rolls. This coordinated movement involves the acromioclavicular and scapulothoracic joints and contributes to the scapulohumeral rhythm.
Method: Institutional ethical clearance was taken, 53 injury-free, male Truck drivers were recruited for this study. And a written consent form was taken from all the subjects. Lateral scapular slide test was done. The data was recorded and analysed after the study.
Results: Among total participants, Below age 30 are 24.53% and age 31 to 40 are 32.08% and age 41 to 50 age are 26.42% and above age 50 age are 16.98%. Mean age value is 38.62 and SD value is 9.01 in this project.
Conclusion: The study concludes that the Prevalence of Scapular Dyskinesis was found positive 77.36% and negative 22.64% of total participants. This study also concludes that Scapular Dyskinesis Type I was the most common type of Scapular Dyskinesis in Truck Drivers.

Keywords: Scapula dyskinesia, Truck drivers, Scapula, dyskinesia

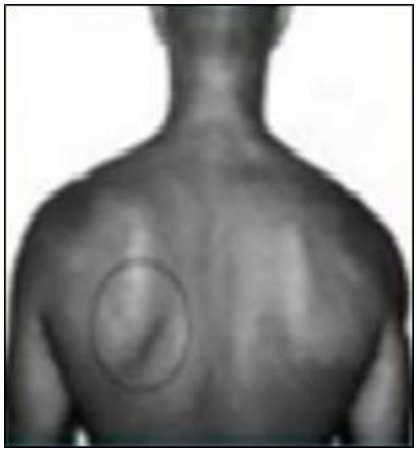
1. Introduction

The scapula's stability is dependent on the surrounding musculature, with several muscles that attach directly to the scapula. It has various bony structures. [1] The scapula is the large triangular-shaped bone behind the thoracal region and an important link between the trunk and the shoulder complex with a key role for the upper limb kinematic chain. [2] Scapular control is essential for effective shoulder movement, particularly during arm elevation. The scapula upwardly rotates, posteriorly tilts, and externally rotates, while the clavicle elevates, retracts, and posteriorly rolls. This coordinated movement involves the acromioclavicular and scapulothoracic joints and contributes to the scapulohumeral rhythm, which has a 2:1 ratio of humeral to scapular movement. For 180 degrees of arm elevation, 120 degrees come from the glenohumeral joint and 60 degrees from scapular upward rotation. Key muscles for upward rotation include the upper and lower trapezius and the serratus anterior, while the thoracic spine extends to support the movement. [3] When scapular motion becomes altered, the appropriate term to use would be scapular dyskinesis. "Dys" (alteration of) "kinesis" (motion) is a general term that reflects loss of control of normal scapular physiology, mechanics, and motion. Scapular "winging" has been used as a term synonymous with dyskinesis; however, "winging" is best reserved for altered scapular motion driven by neurological compromise Scapular dyskinesis is defined as alterations in the normal position of the scapula and the patterns of scapular motion during scapulohumeral movements. [4] Shoulder dysfunction (SD) is

associated with various pathologies including acromioclavicular instability, shoulder impingement, rotator cuff injuries, glenoid labrum injuries, and clavicle fractures. Contributing factors include inflexibility of the pectoralis minor and short head of the biceps, as well as stiffness of the posterior glenohumeral capsule. Additionally, neck-related issues such as mechanical neck pain and cervical nerve root syndromes, along with posture related problems like excessive thoracic kyphosis and cervical lordosis, are commonly observed in athletes and can exacerbate SD. [5,6,7,8,9] Kibler has defined three dyskinetic patterns. Type I is the prominence of the inferomedial border of the scapula due to abnormal posterior tilt the scapula; when this type occurs isolatedly, the scapula may be lower than the opposite side. Type II consists in the prominence of its entire medial border of the scapula. These types could be seen with superior labrum injuries (SLAPs). Type III displays upward rotation of the superomedial border of the scapula around of the scapula, this type can be seen when the size of the acromio humeral space decreases or potential rotator cuff injuries occur. Also Type IV is defined as normal scapular position and motion.[7] Mechanical neck, back, and shoulder pain which are common musculoskeletal disorders that affect the patient's quality of life and interacts in socioeconomic problems are defined as pain in the cervical, thoracic, and shoulder regions without any underlying pathology. The muscles, joint structures, ligaments, neural and non-neural structures, and the intervertebral disc can cause mechanical neck, back, and shoulder pain. [10, 11] Scapular dyskinesis in drivers can result from prolonged static posture and repetitive use of the arms, leading to dysfunctional movement patterns of the scapula. This condition may manifest as abnormal scapular movement, including winging, tipping, or uneven elevation, which can cause discomfort and limit shoulder mobility. For drivers, this dyskinesis often arises from poor ergonomics, such as inadequate seat positioning and extended periods of holding the steering wheel. It can lead to shoulder pain, decreased range of motion, and potential discomfort during driving. [12] Occupations such as professional truck driving involve repetitive neck and shoulder movements. The occupational tasks of truck drivers are stressful and have changed little over the decades. It demands significant repetitive actions on the upper quadrant joints such as bending arms to control steering and frequent twisting of neck which can cause musculoskeletal stress to neck and shoulder regions resulting in significant occupational health hazards to the truck drivers. [13]

Table 1:

Type	Description
Type-1 scapular dyskinesis	The dorsal prominence observed over the inferomedial border of the scapula.
Type-2 scapular dyskinesis	The dorsal prominence of the entire medial border.
Type-3 scapular dyskinesis	The elevated superiormedial border of the scapula.
Type-4 scapular dyskinesis	The symmetrical position of the bilateral scapula.



Type 1: Prominence of the inferomedial border of the scapula

Type 2 – Prominence of the entire medial border

Type 3 – Prominence of the superomedial border

Lateral Scapular Slide test, also known as the (LSST), is a clinical assessment used by healthcare professionals, particularly in physical therapy and sports medicine, to evaluate scapular (shoulder blade) mobility and the presence of scapular dyskinesia or abnormal movement patterns. It is often employed in the assessment of individuals with shoulder pain, dysfunction, or suspected scapular related issues. Lateral Scapular Slide test has a moderate to good reliability and validity, Overall ICC (2, 3) ranged from.83 to.96. The coefficients of determination ranged from.38 to.89. The SEM ranged from 3.00 to 8.26 mm. The Lateral Scapular Slide test can be reliable in screening scapular position. [4].

Need for study

- Truck drivers face unique challenges, such as long hours of sitting, poor seat design, and repetitive movements, which can put extra strain on their shoulders.
- Scapular dyskinesis is when the shoulder blade moves abnormally, which can lead to shoulder injuries and affect truck driver's ability to do their job well. This condition might cause pain and make it hard for drivers to work comfortably over time.
- However, there's not much specific research on how common scapular dyskinesis is among truck drivers. By using the lateral scapular slide test, this study will check how widespread this issue is in the trucking industry.
- The findings will help in creating better ergonomic adjustments, and preventive measures, leading to improved health and safety standards for truck drivers.

Aims

To determine the prevalence of scapular dyskinesis among truck drivers.

Objectives

- To find out the prevalence of Scapular dyskinesis among truck drivers.
- To observe the pattern of Scapular dyskinesis.
- To find the commonest type of Scapular dyskinesis.

Review Of Literature

1. Anjana Mahale1, Richa Bisen2, Khyati Kalra3: conducted study on "Prevalence of Scapular Dyskinesia in Elite Badminton Players in Pune" A 100, injury-free, male and female elite badminton players (18-29 years old) playing for 5 to 10 years with regular training of 1.5-2 hours per session with a minimum of 4 sessions per week were included in the study. The SD was measured by performing the lateral scapular slide test (LSST). This study indicates that SD is prevalent in elite badminton players on the dominant side with type 1 being the commonest. Players who played between 8 to 10 years reported with an increased prevalence.

2. Wipawee sattasuk, MSc1, patraporn sitilertpisan: conduct study on "A Clinical Evaluation of Scapular Dyskinesis Among Professional Bus Drivers with Unilateral Upper Quadrant Musculoskeletal Pain" In total, 32 bus drivers from a private bus company with unilateral upper quadrant musculoskeletal pain participated in the study. The DSMT was conducted and the SD was captured in the video during shoulder flexion–abduction movements. Two investigators analysed the video recordings and identified the patterns of SD. The intra- and interrater reliability were determined using the percentage of agreement and weighted Kappa coefficients (Kw). Descriptive analysis was used to examine the patterns of SD. This study indicates that DSMT using video analysis showed excellent intra- and interrater reliability to evaluate SD. Occupational health practitioners can consider DSMT using video analysis to identify SD among people with upper quadrant musculoskeletal pain at the workplace.

3. Aaron Sciascia, PhD, ATC, PES, SMTC, FNAP 1 and W. Ben Kibler, MD

Conduct study on "Current Views of Scapular Dyskinesis and its Possible Clinical Relevance" Eighty-three percent of patients with shoulder pain seek treatment due to impaired function in key activities. Dysfunction, resulting from a combination of anatomical, physiological, and mechanical issues, leads to symptoms and injuries. This model helps in structuring the clinical evaluation process. This study highlights that scapular dyskinesis involves multiple factors, best assessed through a comprehensive physical exam. While understanding pathoanatomical causes is important, focusing on scapular contributions and motor control in rehabilitation is crucial. Future research should standardize methods for better comparison and quality.

4. Jae Woo Juong and Young Kyun Kim december (2021):

Conducted a study on "Scapular Dyskinesis in Elite Boxers with Neck Disability and Shoulder Malfunction" they include Seventy-two elite boxers participated in this study. Scapular dyskinesis was evaluated as normal, subtle, and obvious. Neck disability index (NDI), shoulder internal (IR), and 10 external (ER) range of motion (ROM), isometric strength of IR and ER, and pectoralis minor length were measured and compared with the severity of scapular dyskinesis. Results: Thirty-eight boxers showed scapular dyskinesis. NDI score was significantly different. Isometric IR strength was significantly different. The length of the pectoralis minor was significantly different and the dominant and non-dominant arm IR ROM was significantly different. It concluded that the prevalence of scapular dyskinesis is high among elite boxers. Boxers with scapular dyskinesis presented shoulder malfunction as well as neck disability. Further investigation is necessary to examine the relationship between scapular dyskinesis and neck disability in boxer.

5. Jade Andres, MS, ATC; LTC Paul J. Painter, Gary McIlvain, EdD, ATC, Mark K. Timmons, PhD, ATC (2020): They conduct study on "The Effect of Repeated Shoulder Motion on Scapular Dyskinesis in Army ROTC Cadets" they include About 30 army Reserve Officer Training Corps (ROTC) cadets participated in the research study. The cadet's level of shoulder function was determined using the Quick Disabilities of the Arm Shoulder and Hand and Pennsylvania Shoulder Score shoulder scores. Cadets performed an exercise protocol of 30 repetitions of weighted shoulder motion in the frontal plane. Shoulder and scapular musculature strength measurements were recorded prior to and immediately following the exercise protocol using hand-held dynamometry. The scapular dyskinesis test was performed prior to the exercise protocol and during the last five repetitions of the exercise protocol. They concluded that Repeated shoulder motion increased the frequency of scapular dyskinesis in army ROTC cadets. The cadets that developed scapular dyskinesis also reported greater disability and lower function of the upper extremity. The results provide a link between scapular dyskinesis, upper extremity function, and the strength of the scapular stabilizing muscles. Improving the strength of the scapular stabilizing musculature might reduce the effects of repeated arm motions.

6. Depreli O, Ender Angın*, Yatar I.G., Kirmizigil B: They conducted study on "Scapular Dyskinesis and Work-Related Pain in Office Workers-A Pilot Study" they included 36 office workers were participated to this study. Lateral Scapular Slide Test (LSST) was used to evaluate the scapular dyskinesis. For evaluation activities and functionality of

upper extremity of individuals, the shortened version of the Disabilities of the Arm, Shoulder and Hand questionnaire (Quick DASH) was used. Neck Disability İndex (NDI) was used for functional evaluation of the neck. Visual analogue scale (VAS) was used for assessing the severity of pain. It concluded that percentage of scapular dyskinesis was found high at office worker in this pilot study. Although the number of people affects the reliability of the results, study will be developed by increasing the number of people in the future.

7. Gonca Sağlam 1, Hilal Telli 2:
They conducted study on "The prevalence of scapular dyskinesia in patients with back, neck, and shoulder pain and the effect of this combination on pain and muscle shortness" they included: A total of 121 patients with neck, back, or shoulder pain were included in this prospective cross-sectional study. Demographic and clinical data of the patients were recorded. It was evaluated the intensity of pain with the visual analogue scale (VAS), the presence of muscle shortness with muscle shortness tests, and scapular dyskinesia with the Lateral Scapular Slide Test. This study indicates that evaluation of the presence of scapular dyskinesia in a physical examination in patients with neck, back, and/ or shoulder pain will be a guide for the diagnosis and treatment of pain-related problems.

8. Kawena Dhami1, Dr. Suramya Sharma:
They conducted study on "A Study to Assess Scapular Dyskinesia in Healthy Individuals Aged 25-35 Years. they included 100 healthy individuals between the age of 25 to 35 years. Ethical clearance from the committee of the institution and consent from participants was taken. Participants were screened, after which the lateral scapular slide test. This study indicate that There was prevalence of scapular dyskinesia in healthy individuals between the age of 25-35 years, thus can be used as a baseline strategy for rehabilitation programme**.**

9. Darren Hickey 1, Veronica Solvig 1, Vinicius Cavalheri:
They conducted study on "Scapular dyskinesis increases the risk of future shoulder pain by 43% in asymptomatic athletes: a systematic review and meta analysis. They included Five studies were included with a total of 419 athletes' Prospective studies that assessed athletes for scapular dyskinesis and recorded incidents of shoulder pain were included. Study quality was assessed using the Downs and Black checklist. Meta-analysis was conducted to derive a pooled risk ratio (RR) for the development of shoulder pain in athletes with scapular dyskinesis compared with those without scapular dyskinesis. This study indicates that Athletes with scapular dyskinesis have 43% greater risk of developing shoulder pain than those without scapular dyskinesis.

10. Ertugrul Yuksel 1, Sevgi Sevi Yelapa 2:
They conducted study on "Scapular stabilization exercise training improves treatment effectiveness on shoulder pain, scapular dyskinesis, muscle strength, and function in patients with subacromial pain syndrome: A randomized controlled trial. They included Sixty-four patients with SPS who also exhibit observable scapular dyskinesis defined by the scapular dyskinesis test were recruited and randomized to scapular stabilization exercise training group or to control group. All participants received the same rehabilitation protocol including glenohumeral and scapular mobilization, pendulum exercises, shoulder stretching, range of motion exercises, strengthening, and proprioceptive exercises. This study indicate that Scapular stabilization exercises added to the shoulder mobilization, stretching, and strengthening are effective in improving scapular dyskinesis, reducing pain, increasing muscle strength and shoulder function in patients with SPS accompanied by scapular dyskinesis.

Methodology
Materials:
1. Informed Consent
2. Patient Evaluation sheet
3. Marker
4. Measuring Tape

Study Design: Observational study

Study Population: Truck driver

Sample size calculation: [n = Z12pq / d2]
n = Minimum sample size = 53
Z = Z value associated with confidence = 1.96
p = guess of population p = 0.73
q = 1- p = 0.27
d = Absolute precision = 0.12
1-a = 0.95

Sample size: 53

Method of Sampling: Convenient sampling Technique

Study duration: 6 months

Study Setting: Arco transport Jalgaon Place of study: Private institutions offering health care professional graduate level courses in Jalgaon City.

Selection Criteria
Inclusion Criteria:
- Currently employed as a truck driver.
- Male individual between 25–55-year-old.
- Drivers who are driving in the last 5 year or more.

Exclusion Criteria:
History of severe shoulder or scapular injuries.
- neurological diseases affecting upper extremity (brachial plexus injury. wrist drops).
- Musculoskeletal injury or diseases upper extremity (recurrent shoulder dislocation. frozen shoulder. Fracture upper limb).
- Unwilling to provide informed consent.

Outcome Measure
Lateral Scapular Slide Test (LSST): The test is done in 3 positions. With the arm abducted to 0°, 45° and 90°degrees in the coronal plane. [13] Position 1 involves placement of the shoulder in glenohumeral joint in neutral, with the arms relaxed at the side. [14] Position 2 the humerus is placed in medial rotation and 45°degrees abduction, by positioning the patient's hands around the waist. [14] Position 3 the humerus is placed in maximal medial rotation and 90°degrees abduction. Measurements of scapular position are taken bilaterally from the inferior angle of the scapula to the spinous process of the thoracic vertebra in the same

horizontal plane (the reference vertebra) in all 3 test positions. The examiner measures the distance from the base of the spine of the scapula to the spinous process of T2 or T3 [most common], form the inferior angle of the scapula to the spinous process of T7 toT9, or from T2 to the superior angle of the scapula. The patient is then tested holding two or four other positions: 45° abduction [hands-on waist, thumbs posteriorly] 90° abduction with medial rotation 120° abduction and150°abduction. Test is positive when there is a difference of 1.5 cm when measurements are compared bilaterally. LSST has a moderate to good reliability and validity. Overall ICC (2, 3) ranged from.83 to.96. The coefficients of determination ranged from.38 to.89. The SEM ranged from 3.00 to 8.26 mm.

(1) (2) (3)

FIg 2: Lateral Scapular Slide Test Performed in 3 different positions.

(position 1)

(position 2)

(position 3)

Procedure

Institutional ethical clearance was taken, 53 injury-free, male Truck drivers were recruited for this study. and a written consent form was taken from all the subjects. Subjects in the age group 25 to 55 years were included in the study. After that the purpose of the study and the procedure aim & objectives and outcome measure will be explained to willing participants. After that patient was examined with their shirt off with the Lateral scapular slide test as it utilizes the measurement of the amount of lateral scapular slide from a fixed vertebral landmark in 3 positions. Lateral scapular slide test was done. The data was recorded and analysed after the study.

Statistical Analysis

A total 53 participants were a part of this study. The obtained data of outcome measures was noted and entered in MS Excel before it was statistically analysed All the results are shown in tabular as well as graphical format to visualize the statistically difference more clearly.

Result

- Total 53 sample were recorded according to inclusion and exclusion criteria.
- The graph and table show age wise distribution of study subject. Below age 30 are 24.53% and age 31 to 40 are 32.08% and age 41 to 50 age are 26.42% and above age 50 age are 16.98%. Mean age value is 38.62 and SD value is 9.01 in this project.
- The table and graph show experience wise distribution of study subject. Mean Experience value is 7.39 and SD value is 2.28 in this study project
- 41 drivers out of 53 had positive scapular dyskinesia and percentage is 77.36% and 12 drivers had negative dyskinesia and percentage is 22.64%
- The most common type scapular dyskinesia observed was type 1 followed by type 2, type 3, type 4.
- Type 1 is 48.78%. Type 2 is 14.63%. Type 3 is 7.32%.

Type 4 is 29.27%

Table 2: age wise graph and table

Sr. No.	Variable	Groups	Frequency	Percentage
1	Age (in years)	Below 30	13	24.53%
		31–40	17	32.08%
		41–50	14	26.42%
		Above 50	9	16.98%

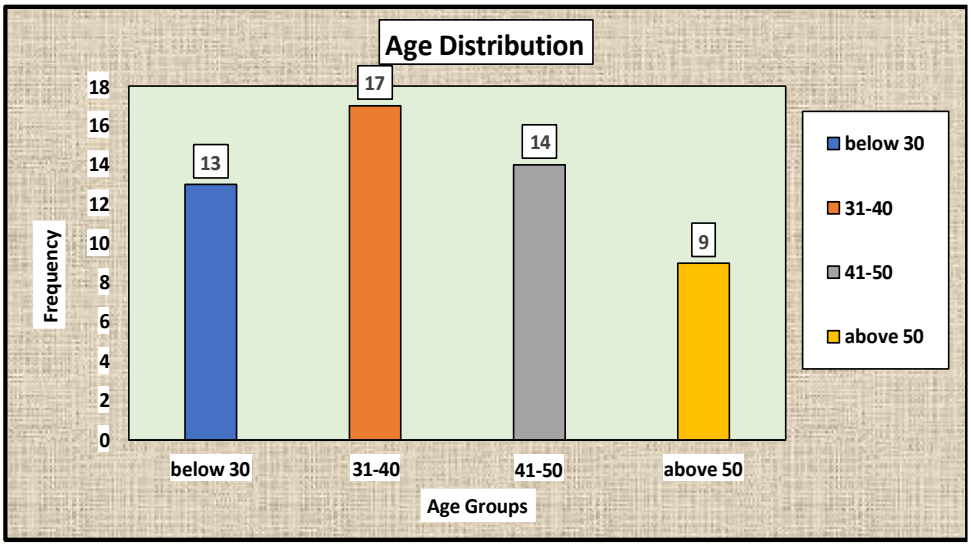


Fig 3

Comments: The graph shows age-wise distribution of study subjects. Below 30 age percentage is 22.03% and 31-40 age is 28.81%. 41-50 age is 23.73% and above 50 age is 15.25%. Mean age value is 38.92 and SD value is 9.01 in this sample.

Table 3: Dyskinesis table and graph

Sr. No.	Variable	Groups	Frequency	Percentage
3	Dyskinesia	Positive	41	77.36%
		Negative	12	22.64%

Table 4: Exoerience wise graph and table

Sr. No.	Variable	Groups	Frequency	Percentage
2	Experience (in years)	up to 5	14	26.42
		6-10	32	60.38
		above 10	7	13.21

Table 5: Experience Statistics

Experience	Mean	SD	Min	Max
	7.39	2.28	5	13

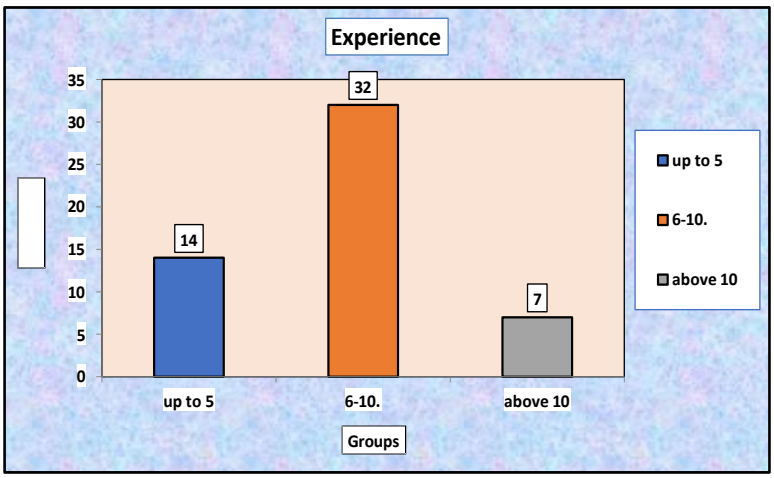


Fig 4

Comment: The experience-wise distribution of study subjects shows a mean experience value of 7.39 years with a standard deviation of 2.28 years in this study project. The majority of subjects (60.38%) have 6-10 years of experience, while 26.42% have up to 5 years, and 13.21% have above 10 years of experience.

Tbale 6: commonest dyskinesis table and graph

Sr. No.	Variable	Groups	Frequency	Percentage
4	Commonest Dyskinesia	Type 1	20	48.78%
		Type 2	6	14.63%
		Type 3	3	7.32%
		Type 4	12	29.27%

Comment: Out of 53 Truck Drivers Participate in This Study. 41 Participate Drivers Had Positive Dyskinesia and their Percentage Is 77.36 12 Participate Drivers Had Negative Dyskinesia and their Percentage Is 22.64

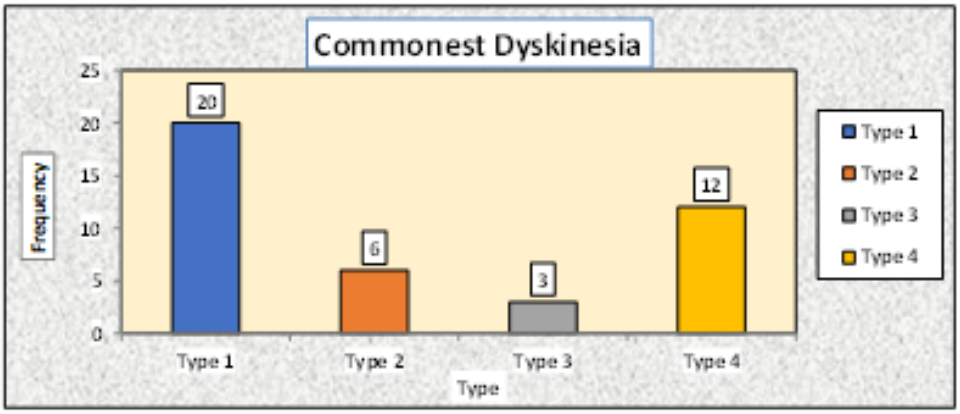


Fig 5

Comment: Out of 53 Truck Drivers participating in this study, Type 1 most common type in truck driver compare to Types 2, 3,

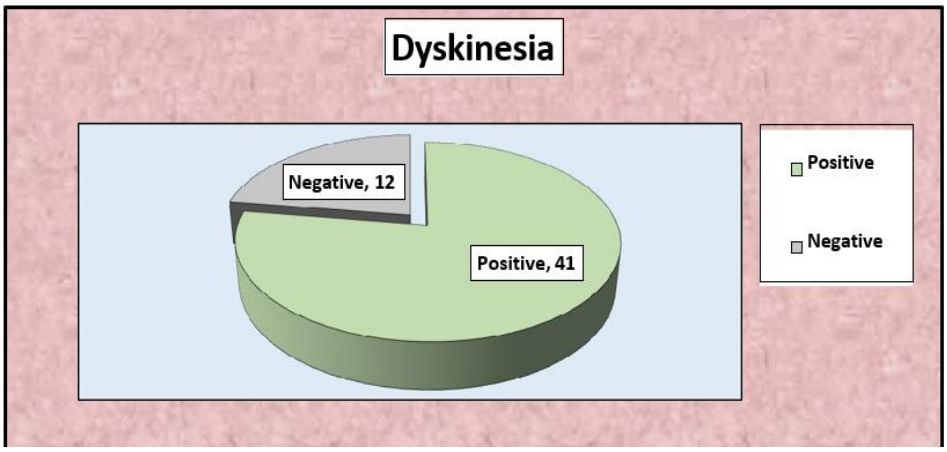


Fig 6

Discussion

- The primary aim of this Observational study was to determine the Prevalence of Scapular Dyskinesis Among Truck driver. The age group of 25-55 both were taken in this study, with those having experience of doing driving more than 5 year and above, with Driver who drives minimum 5 days a week. 53 drivers were recruited for this study.
- The study was carried out at Arco transport in Jalgaon city. The total of 53 participants were examined based on the inclusion criteria. The test was explained to all participants and their consent on the consent form was taken.
- Scapular Dyskinesia was commented upon by performing the LSST bilaterally.
- The Lateral Scapular Slide Test measures the scapular protraction in 3 positions neutral 45° and 90° degree of shoulder joint abduction, by measuring the distance from inferior angle of scapula to the closest spinous process.
- The graph and table 1 show age wise distribution of study subject the results between the age groups of below 30 and 31-40 and 4150 and above 50 were compared, a statistically significant difference was found in the SD. While calculating the results, we observed that out of the 53 drivers, age below 30-year frequency is 13 and percentage is 24.53%. age 31–40-year frequency is 17 and percentage 32.08%. age 41-50-year frequency is 14 and percentage is 26.42%.age above 50-year frequency is 9 and percentage is 16.98%
- As per the results of this study given in Fig 3, we found

the overall prevalence of Scapular Dyskinesis in drivers, out of the 53 samples taken, 41 positive and 12 negative with Scapular Dyskinesis.

- As per the results of this study given in fig and table 2 show experience wise distribution of study subject. up to 5-year experience 14 drivers found and 26.42% and 6-10-year experience 32 drivers found and 60.38% and above 10-year experience 7 drivers found 13.21%
- As per a prior study, Scapular Dyskinesis occurs due to weakness and fatigue of scapular stabilizing muscles, tightness of anterior shoulder, overuse or repetitive motions.
- fig 4 table and graph show commonest dyskinesis, result found 20 drivers had Type 1 Scapular Dyskinesis, 6 drivers had Type 2 Scapular Dyskinesis,3 drivers had Type 3 Scapular Dyskinesis,12 drivers had Type 4 Scapular Dyskinesis This implied that, Type 1 was more common in the truck drivers compared to Type 2, Type 3, Type 4.
- Previous studies have stated that, Type 1 is due to weakness of lower trapezius and serratus anterior. The inferomedial scapular border is prominent. Posterior scapular tipping is responsible for functional narrowing of the subacromial space during a repetitive activity, leading to pain in abduction and external rotation. Type 2 presents with the scapular winging pattern where the entire scapular medial border is prominent due to weakness of trapezius and rhomboids. Superomedial scapular border is prominent in type 3 where excessive and early elevation of the scapula is observed during upper extremity elevation.
- Many papers studied SD, but no research was conducted on the types of SD in Truck drivers. Therefore, this study shows that SD is prevalent in Truck Drivers where Type 1, Type 2, Type 3 and Type 4 were observed amongst which. Type 1 was the commonest Scapular Dyskinesis in truck drivers.

Conclusion

- The study concludes that the Prevalence of Scapular Dyskinesis was found positive 77.36% and negative 22.64% of total participants.
- 41 participants out of 53 had positive scapular dyskinesis and 12 participants had negative on age wise between 25-55 and experience wise between 5- 13.
- This study also concludes that Scapular Dyskinesis Type I was the most common type of Scapular Dyskinesis in Truck Drivers.

Limitations

- The Sample size of the present study was limited.
- Gender distribution is not included.
- Obese drivers.

Future scope of study

- Future research can be done by recording the response in the drivers after the training period by focusing on the strengthening of the scapular muscles that commonly go into weakness due to overuse.
- Additionally, comparative studies of scapular strengthening protocols can be done between types 1 and 2.
- Comparison of Scapular Dyskinesis can be done with different healthcare professionals and industrial worker.
- Explore how age and gender affect the prevalence and severity of scapular dyskinesis in drivers, offering insights for customized intervention approaches.

Clinical Implications

Driving involves repetitive upper limb movements that have not been extensively studied, especially in terms of the affected side and the specific type of scapular dyskinesis (SD). Therefore, it is important to find out the prevalence of scapular dyskinesis among truck drivers.

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