PREVALENCE OF ROTATOR CUFF INJURY IN PROFESSIONAL WEIGHTLIFTERS

Dr. Siddhima Hardikar (PT)[1], Anuja Salunkhe[2]

Associate Professor1, Intern2

Department of Physiotherapy,

Tilak Maharashtra Vidyapeeth, Pune, India

ABSTRACT:

Background: Professional weightlifters are prone to shoulder injuries due to repetitive overhead movements and heavy resistance training. The rotator cuff muscles—supraspinatus, infraspinatus, teres minor, and subscapularis—are particularly vulnerable to strain, tendinopathy, and tears from overuse and improper technique.

Objective: To assess the prevalence of rotator cuff injuries among professional weightlifters using clinical evaluation tools.

Methods: A cross-sectional, survey-based study was conducted on 30 male professional weightlifters aged 19–44 years with 2–5 years of experience. Participants were assessed using the Drop Arm Test and Visual Analogue Scale (VAS) for pain. Data were statistically analyzed using descriptive methods in Microsoft Excel.

Results: Out of 30 participants, 26 (87%) showed a positive Drop Arm Test, indicating a high prevalence of rotator cuff involvement. The mean age was 26.93 years, and mean training experience was 3.46 years. The findings highlight significant shoulder stress, overuse, and muscular imbalance as major contributing factors.

Conclusion: The study revealed a high prevalence (87%) of rotator cuff injuries among professional weightlifters. Repetitive overhead movements, poor technique, and inadequate shoulder stabilization contribute to these injuries. Preventive physiotherapy programs, proper training supervision, and rotator cuff strengthening exercises are recommended to reduce injury risk.

Keywords: Rotator cuff injury, Weightlifters, Drop Arm Test, Shoulder pain, Physiotherapy, Prevalence.

INTRODUCTION:

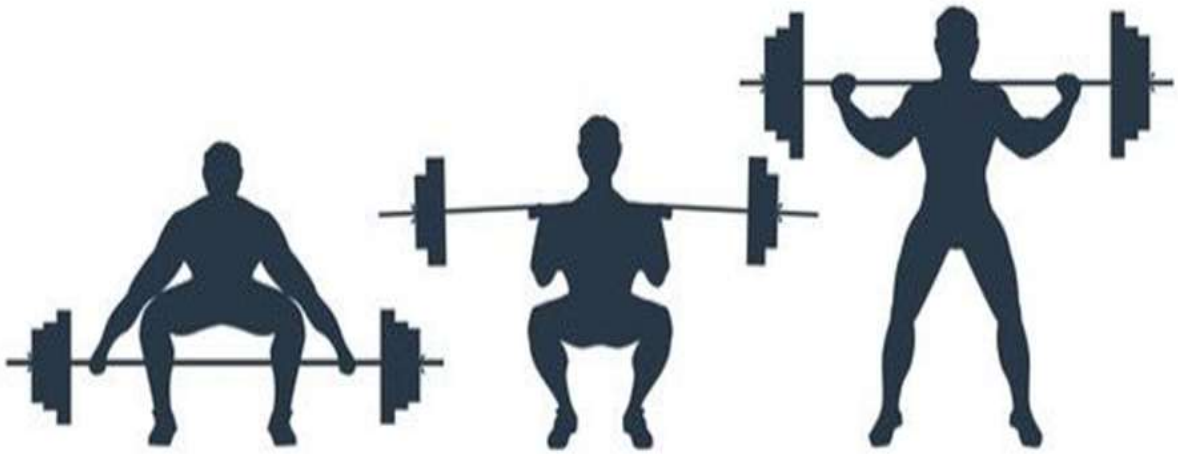
Professional weightlifters frequently perform overhead lifts, explosive movement and heavy resistance training which can place excessive strain on the muscle leading to acute injuries or chronic degenerative changes(1)
When a person lift weight, the shoulder is necessary to move in almost all the exercises of upper limb it consist of push and pull forces. Rotator cuff which consists of the supraspinatus, infraspinatus, teres minor, and subscapularis muscles The prevalence of rotator cuff injuries in professional weightlifter in influenced by several factors, including training load, technique, muscle imbalance, fatigue and pre-existing shoulder conditions(2)
Rotator cuff injuries 30-60% of all shoulder injuries in professional weightlifter. Supraspinatus tendinopathy and impingement syndrome are the most frequent diagnosed conditions(1)

Common types of rotator cuff injuries in weightlifters i.e. rotator cuff tendinopathy, partial thickness and full thickening tears, subacromial impingement syndrome, bursitis, labral tear Sudden heavy lifting or improper technique can cause tear in rotator cuff. Dropping or losing control of the barbell during overhead movements may lead to rotator cuff strain. (3)
To reduce the prevalence of rotator cuff injuries in professional weightlifter a comprehensive approach involve prevention, rehabilitation and training modification is necessary

Weightlifting is a method of strength/resistance training in which a load is pulled or pushed as a form of resistance. The load used are free weights (dumbbells, barbells, kettlebells) weight-selected machines, plate-loaded machines, and cable and pulley machines [4] Weightlifting is used as part of an exercise program or overall program to build muscle strength, muscle endurance and/or muscle hypertrophy for effective injury prevention during other sports and has a very low injury incidence compared to other sports activities [4]

Weightlifters' classification is depending on their body weight as classes: Men 56 kg, 62 kg, 69 kg, 77 kg, 85 kg, 94 kg, 105 kg and >105 kg [1]

According to the incidence of injury related to age in weightlifting, which is reported that children have shown more injury relevant to an accident like dropping weight in their body. In other hand, adults showed increase the number of injuries related to sprain and strain. So, that led us to understand that younger athletes are less exposure to injuries relevant to joints and muscles such as sprain and strain in weightlifting[3]



Shoulder injuries are common in weightlifting, as many movements pose a lot of stress on the shoulder joint, rendering it vulnerable to debilitating injuries and soft tissue damage. These injuries can occur in athletes of different demographic characteristics, have multiple characteristics, and can present with varying severity and symptoms, but mainly revolve around anterior instability and overuse. Risk factors for sustaining a shoulder injury in these sports can be intrinsic and extrinsic, and include age, incorrect implementation of techniques, conducting lifts in a vulnerable upper limb position, and overtraining. Physical trainers and athletes alike should be well acquainted with the epidemiology of shoulder injuries in weightlifting in order to raise awareness and help minimize injury risk and severity. This review highlights the need for more studies on how to reduce this risk of shoulder injuries in weightlifting athletes [7]

The shoulder is the most commonly affected body region, followed by the lumbar spine, knee region, elbow, cervical spine, hand/wrist, sacroiliac joint, hip, thoracic spine, foot, and finally, the ankle joint. Notably, clear gender differences in the distribution of pain locations are evident. The data underscore a disconnect between the often-substantial training volume and the absence of professional guidance, which frequently results in injuries and pain among athletes[2] Addressing the causes of these pain symptoms should be a paramount objective of sports medicine to implement preventive measures against potential injuries. Maria A. Bernstorff, Norman Schumann ET all in (2023). The prevalence of injuries among gym members was 29.2%. They also found that their study shows less injuries comparing to other studies that has previously done, However, mostly male are affected[3] The most common sites of injury were the shoulder, foot, and back. The most common causes of injury were tearing, severe and stress. Furthermore, our study show that these injuries affect the quality of life. Alnasser, Suhad Alyamani, Anas Al Dawod, Ibrahim Almujil, Ahmad in (2022) [5]

Is a partial tear of rotator muscle tendon or muscle itself which causes pain with rest and exacerbate with activity of same muscle and become swelled which constrict the sub acromial space further causes sub acromial impingement syndrome Shoulder pain is most common and can be recurrent or persistent despite medical treatment[1] The pathophysiology is still unknown. moreover, there is little evidence supporting the effectiveness of current treatment protocols. Although myofascial trigger points may be a cause of myofascial pain syndrome. High prevalence of shoulder girdle muscles with myofascial trigger points in patients with shoulder pain.

Neurological causes of shoulder pain: Pain in the shoulder is mostly due to vertebral column, the brachial plexus, or the peripheral nerves of the upper extremity. Among spinal causes herniation of the intervertebral disk between the seventh cervical and first thoracic vertebrae is mostly seen in patient furthermore intraspinal neurofibroma at the level of the third and fourth cervical vertebrae, carcinoma

of the pulmonary apex, in aneurysm of the subclavian artery, and in neurogenic sarcoma involving the radial nerve just above the elbow[2] Exquisite localization and sensitivity characterize small glomangiomas occurring in the subcutaneous tissues and small neurogenic sarcomas on subcutaneous nerves.[9]

Weightlifting is considered as a dynamic strengthen exercise and power sport in which the athletes lift a maximum weight with one repetition. The weightlifting as other sports has common musculoskeletal injuries in different body location corresponding to the sports beneficial[1] However, identifying the injuries incidence and the etiology is a first two-step in the model of the injury prevention in order to introduce preventive measures for sports. Therefore, this literature review is aimed to focus on the incidence and the etiology related to injuries of the weightlifting. However, the incidence injuries studies revealed that the children have more injuries related to accident than the adults. Whereas, the adults have more injuries related to strain and sprain. The most common injured locations are shoulder, lumbar spine, knee, elbow, hand, and wrist in the weightlifters[3] The percentage of the injuries according to location is the shoulder (36%), lumbar spine (24%), elbow (11%), and the knee (9%). In the other hand, the rule and regulation in the weightlifting had been changed since 1972 in which the clean and press lift eliminated from the competition due to the risk of this lift. Finally, weightlifting considered as safe sport if it is compared with other sports [5]

The utility of physical training in promoting health, building up body for competitive sports are well documented. There has been misconception regarding participating in sports that contain resistance exercise could lead to increase a violence in the community, but actually involving in any physical activity lead to enhance the level of health in general and increase the perception and awareness. Furthermore, some countries begin to incorporate of resistance training in their schools among children and adolescent as contemporary education curricula to decrease misconception about this type of sport and increase popularity by enhancing participation[5]. This will provide optimal supervision on athletes by educated coach who is responsible for training part and watching the performance of participants that decrease risk of players' injuries during school time. However, this literature review will expose to weightlifting sport, which is unpopular sport as much as football. Moreover, as any sport, the athletes' injuries are expected through the career in the weightlifting. Moreover, each sport has a particular common injury or an injury which may occur whether during training activity or in a competition field. In fact, injuries in sport at general are inevitable[4] Hence, identify risk factors of weightlifting injuries are very important in order to minimize or prevent injuries. To better understand of the risk factor, we should recognize an intrinsic factor, which is relevant to athlete and extrinsic factor, which is relevant to sport. Hence, It is important to identify a term and skill related to weightlifting and powerlifting, which is used during a training and competition for a comprehension understanding of etiology of injury and risk factor from different aspects such as physiology, psychology, and biomechanics[6]

This type of sports is considered one of resistance training with variables modes, in general, which is containing free weight and tools related a given sport. Weightlifting has two different types of lifting to success in competition. An athlete should perform the snatch and the clean and jerk. Whereas, powerlifting which is a discipline of weightlifting is consist of three types of lifting, which are a squat, deadlift, and a bench press.[6] The aim of an athlete in weightlifting is to complete his attempt to lift with maximum weight as much as he can and successfully

NEED OF THE STUDY

Shoulder injuries are one of the most prevalent and debilitating musculoskeletal injuries in professional weightlifters, primarily due to the excessive load and repetitive overhead movements involved in the sport. Weightlifting places immense stress on the shoulder joint, making it particularly susceptible to overuse injuries, including rotator cuff tendinopathy, tears, and impingement syndromes. Despite the high prevalence of shoulder injuries among weightlifters, there is limited research specifically focusing on the prevalence, contributing factors, and long-term implications of rotator cuff injuries in this population. Professional weightlifters frequently engage in overhead movements such as snatches, jerks, and presses, which require significant shoulder strength and mobility. This repetitive overhead activity can lead to microtrauma of the rotator cuff tendons, resulting in chronic inflammation, tears, and shoulder dysfunction. Identifying the prevalence of rotator cuff injuries in weightlifters is essential to highlight the magnitude of the problem. While general shoulder injuries are commonly reported in weightlifting, the exact prevalence of rotator cuff injuries in professional weightlifters remains unclear. Most available literature combines various shoulder injuries under one category, limiting the understanding of rotator cuff-specific injuries. This study will provide a clear picture of the actual burden of rotator cuff injuries among professional weightlifters.

RESEARCH METHODOLOGY:

- Study Design: Cross sectional observation study
- Study Type: Survey based
- Study Population: Professional Weightlifters
- Sample Size: 30
- Sampling Duration: 1-3 weeks

MATERIALS:

- Therabands
- Shoulder wheel
- Kinesio Taping

OUTCOME MEASURES

SPECIAL TEST FOR ROTATOR CUFF INJURY- Neer's test, Hawkins- kennedy test, drop arm test[1]

PROCEDURE

1.The study may involve survey-based data collection, clinical examination, imaging study to confirm injuries

2.Assessment of shoulder range of motion strength, and pain during specific test drop arm test

3.Identify training centers, gym, and professional organization for participant recruitment

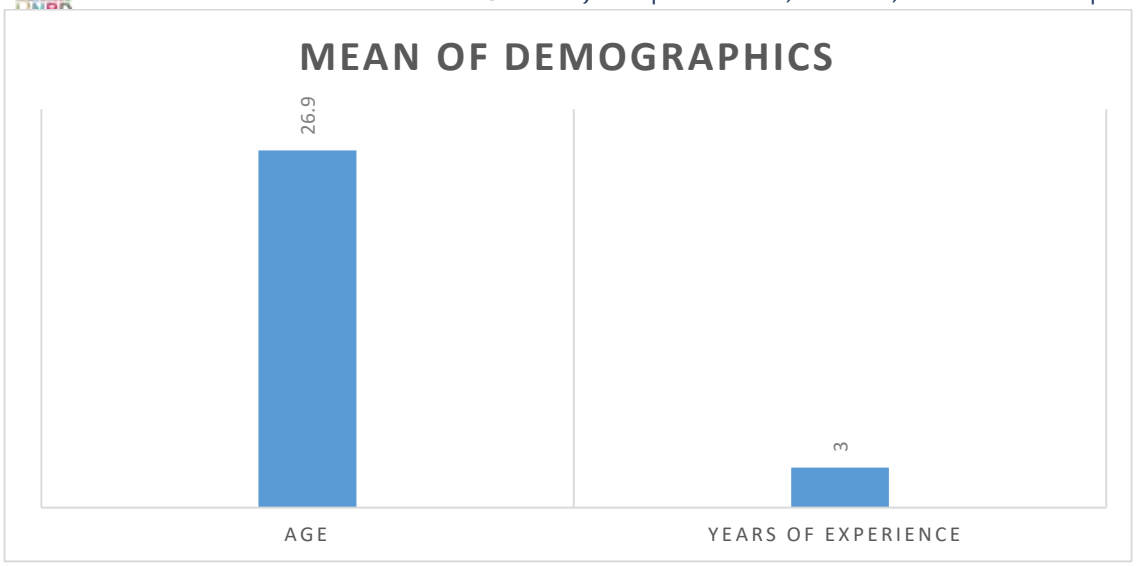
4.Data were recorded in structured data collection sheet, which included drop arm test result, VAS pain scale, clinical observation, shoulder injury history and information regarding rehabilitation followed by the participants

5.Analysis the collected data statistically to determine the prevalence and severity of rotator cuff among professional weightlifters

Figure: Application of drop arm test

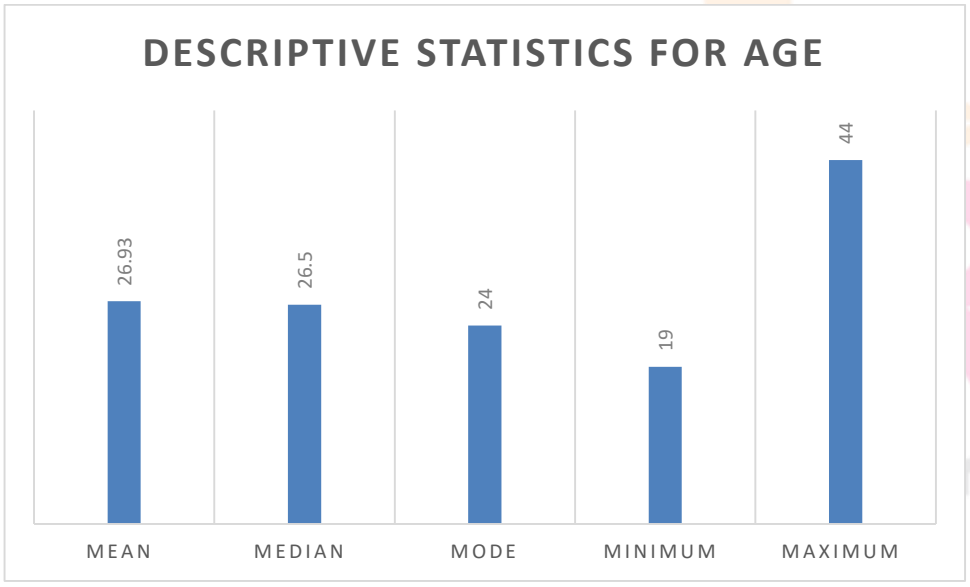
- **STATISTICAL ANALYSISI AND INTERPRETATION:**

Age		*Years of Experience*	
Mean	26.93333	Mean	3.466667
Standard Error	0.795004	Standard Error	0.207521
Median	26.5	Median	3.5
Mode	24	Mode	4
Standard Deviation	4.354414	Standard Deviation	1.136642
Sample Variance	18.96092	Sample Variance	1.291954
Kurtosis	7.48096	Kurtosis	-0.16842
Skewness	1.994869	Skewness	0.012524
Range	25	Range	5
Minimum	19	Minimum	1
Maximum	44	Maximum	6
Sum	808	Sum	104
Count	30	Count	30



- **Descriptive Statistics of Age**

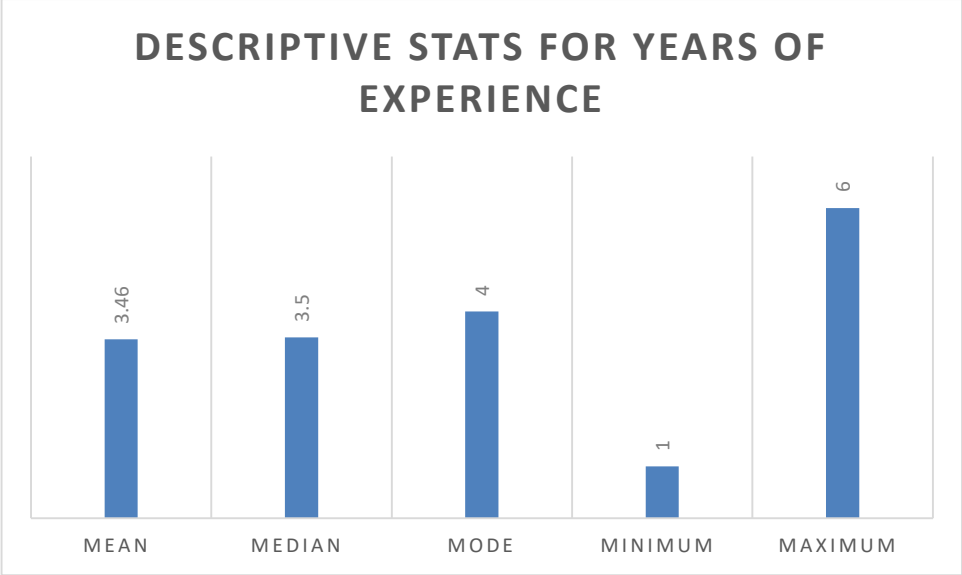
	Age (in years)
Mean	26.93
Median	26.5
Mode	24
SD	4.35
Minimum	19
Maximum	44



Interpretation: The mean age of the participants was 26.93 years, with a median of 26.5 years and a mode of 24 years, indicating that most participants were in their mid-twenties. The standard deviation of 4.35 suggests a moderate variability in age, with the youngest participant being 19 years and the oldest 44 years.

- **Descriptive Statistics of Years of Experience**

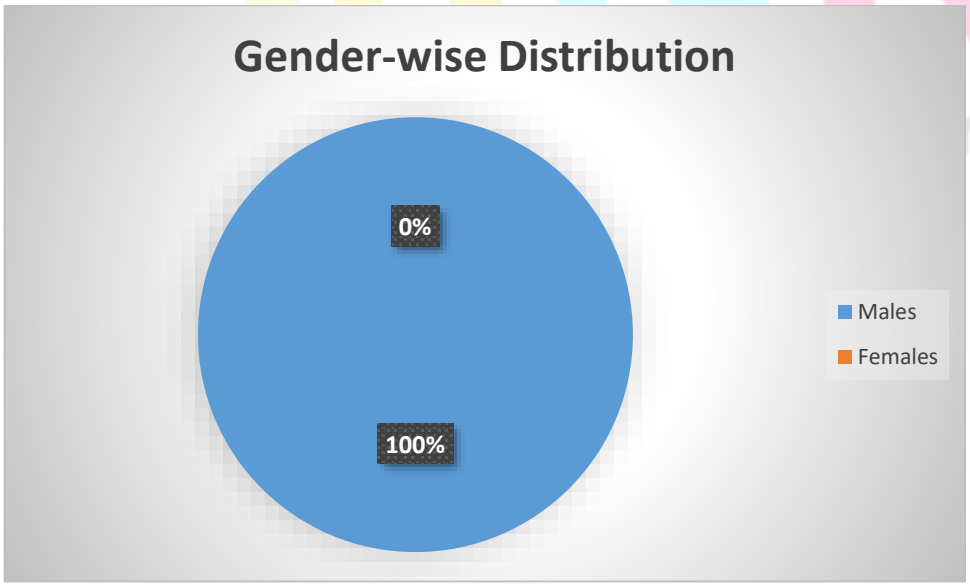
	Years of Experience
Mean	3.46
Median	3.5
Mode	4
SD	1.13
Minimum	1
Maximum	6



Interpretation: The mean years of bodybuilding experience among participants was 3.46 years, with a median of 3.5 years and a mode of 4 years, showing that most participants had around three to four years of experience. The standard deviation was 1.13, reflecting a relatively homogeneous group in terms of experience, with experience ranging from 1 to 6 years.

- **Gender-wise Distribution**

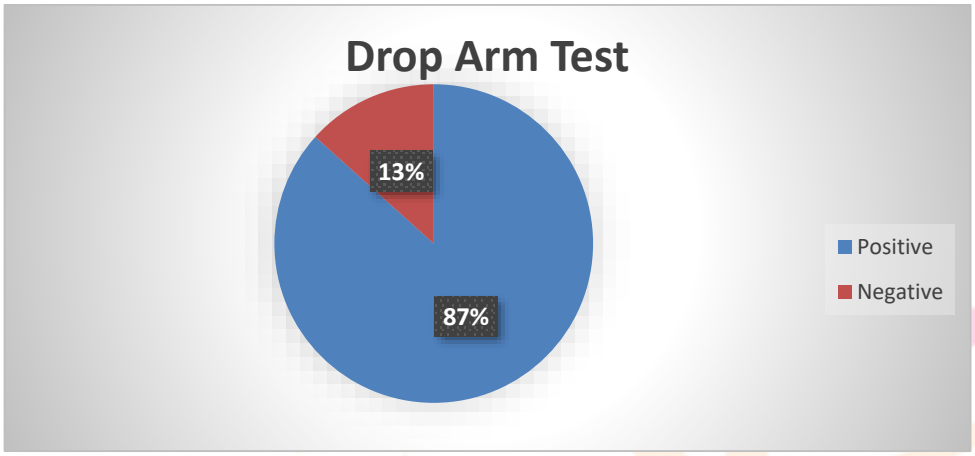
	Number of Participants	Percentage
Males	30	100%
Females	0	0%



Interpretation: All 30 participants in the study were male, representing 100% of the sample. No female bodybuilders were included, indicating that the findings reflect only the male bodybuilding population.

- **Drop Arm Test**

	Number of Participants	Percentage
Positive	26	87%
Negative	4	13%



Interpretation: Out of 30 participants, 26 (87%) showed a positive Drop Arm test, while 4 (13%) tested negative. This suggests a high prevalence of rotator cuff involvement among bodybuilders in the sample.

- **Prevalence of Rotator Cuff Injury**

	Number of Participants	Percentage
Those who reported a positive drop arm test	26	87%

The results indicate that 87% of the participants demonstrated signs suggestive of rotator cuff injury based on the Drop Arm test. This highlights a notably high occurrence of shoulder-related issues among bodybuilders

RESULT

- 30 bodybuilders were included in the study. They were assessed for Drop Arm test to check prevalence of rotator cuff injuries. Descriptive statistics and Frequency distribution was done. Statistical analysis was done using Microsoft Excel.
- In this study, thirty professional male weightlifters aged between 19 and 44 years participated. The mean age of participants was 26.93 years, and the average duration of training experience was 3.46 years, indicating that most were in the early to mid stages of their professional careers. The results of the Drop Arm Test revealed that 26 out of 30 participants (87%) showed a positive response, indicating the presence of rotator cuff pathology, while only 4 participants (13%) tested negative. This high percentage of positive findings demonstrates that rotator cuff involvement is a major concern in this population.
- The statistical analysis further indicated that the group was relatively homogeneous regarding experience, suggesting that even athletes with similar years of practice face significant shoulder stress. The overall prevalence of 87% highlights the repetitive overuse of the shoulder joint, insufficient stabilization, and biomechanical overload as primary causes. It was also observed that improper lifting technique and inadequate shoulder conditioning contribute to microtrauma, which over time develops into chronic injuries. Thus, the findings emphasize the urgent need for injury prevention programs and corrective training interventions among professional lifters.

Discussion

The present assessed the prevalence of rotator cuff injuries among bodybuilders using the Drop Arm test as a clinical screening tool. Thirty male bodybuilders participated in the study, with an average age of 26.93 years and an average of 3.46 years of training experience. The findings revealed that 87% of participants tested positive on the Drop Arm test, indicating a high prevalence of rotator cuff pathology in this population. These results suggest that shoulder injuries are a common problem among bodybuilders, mostly because of repetitive, high-load nature of resistance training and inadequate attention to shoulder joint stabilization and flexibility(1)

The age distribution of the participants indicates that most were young adults between 19 and 44 years, with the majority in their mid-twenties. This age group generally represents individuals who are at the peak of physical training and competitive bodybuilding. However, this is also a phase where overuse injuries commonly occur due to repeated mechanical stress on musculoskeletal structures. Younger athletes often give importance to muscle building and improving performance which causes them to overlook joint protection strategies making it easy for their tissues to have micro-trauma and early degeneration of tendons(1)

The mean training experience of 3.46 years suggests that most participants had substantial exposure to training. This level of experience might also be particularly associated with increased risk of shoulder injury. At this stage, bodybuilders typically lift heavier weights to maximize muscle growth, often without proper supervision or they completely focus on form correction. Overloading without progressive adaptation may lead to chronic strain on the rotator cuff muscles, especially the supraspinatus, which is most commonly injured during shoulder abduction and overhead activities(2)

The fact that all participants were male reflects the demographic predominance of men in bodybuilding. However, this also limits the generalizability of the findings, as the prevalence and patterns of shoulder injuries might differ in female bodybuilders due to differences in biomechanics, hormonal influence on connective tissue, and training styles(3)

The most significant finding of this study was that 87% of the bodybuilders showed a positive Drop Arm test, suggesting rotator cuff involvement(1) This high prevalence is consistent with the existing understanding that bodybuilding is associated with repetitive strain injuries, especially in the shoulder joint[3]. The rotator cuff plays a crucial role in stabilizing the glenohumeral joint during lifting, pressing, and pulling movements[4]. Exercises such as bench press, overhead press, and lateral pulldowns put considerable stress on these muscles, particularly when performed with heavy loads or improper technique. Inadequate recovery time and muscle imbalances between agonists and antagonists, such as overdeveloped pectoral muscles relative to weaker external rotators, may further contribute to these injuries[5].

The Drop Arm test is meant to identify tears or weakness of the supraspinatus muscle. 87% of positive tests results indicates widespread shoulder dysfunction.

Previous studies in sports medicine have also reported high rates of shoulder pain and rotator cuff injuries among resistance-trained athletes[6]. Research has shown that shoulder injuries account for nearly one-third of all musculoskeletal complaints among weightlifters. Similar findings have been noted in other strength-based sports, where repetitive overhead movements and high-intensity training increase the likelihood of tendon degeneration[7]. The results of the present study thus align with global observations that the shoulder joint, due to its wide range of motion and complex muscular coordination, is particularly vulnerable in bodybuilding.

The high rate of positive Drop Arm tests indicates that rotator cuff dysfunction is not an isolated problem but a widespread issue among bodybuilders. Hence, rotator cuff injuries are extremely prevalent among bodybuilders, likely due to repetitive overuse, poor technique, and inadequate stabilizing muscle strength.(4)

The shoulder joint, being a highly mobile and complex articulation, is inherently susceptible to overuse and degenerative injuries due to repetitive mechanical loading and multidirectional movement(1) In weightlifters, this vulnerability is further amplified by the nature of the sport, which involves continuous performance of compound lifts such as the snatch, clean and jerk, and bench press—all of which impose repetitive stress on the rotator cuff muscles, particularly the supraspinatus(1) The high prevalence observed in this study supports the findings of previous research indicating that shoulder-related injuries are among the most common musculoskeletal disorder(2)

The demographic distribution of the study participants demonstrated that most athletes were within the age range of 19 to 44 years, with a mean age of approximately 27 years. This age group represents individuals at their peak physical conditioning, where training intensity and frequency are typically maximal(3) However, this is also the stage where the risk of overuse injuries escalates due to repetitive microtrauma, muscle imbalances, and inadequate rest or recovery(5) The mean training experience of 3.46 years further highlights that even relatively early-career athletes are susceptible to rotator cuff injuries, possibly due to insufficient attention to preventive conditioning, improper lifting technique, or limited supervision by qualified trainers(6)

Biomechanically, the rotator cuff serves as a dynamic stabilizer of the glenohumeral joint during both concentric and eccentric phases of lifting movements. Excessive load, particularly during eccentric lowering phases, can lead to microtears in the supraspinatus tendon, eventually resulting in chronic tendinopathy or partial-thickness tears. The Drop Arm Test, used in this study, specifically assesses the integrity of the supraspinatus, which is frequently affected in athletes who perform repetitive shoulder abduction and flexion. The

observed 87% positivity rate indicates widespread shoulder dysfunction, likely reflecting a combination of overuse, mechanical impingement, and muscular imbalance between internal and external rotators[3]

These results align with the study by Janez Konjar and Živa Arko (2023), which reported that although Olympic weightlifting is relatively safe compared to contact sports, improper execution and excessive load can lead to significant shoulder injuries[1]
Similarly, Mofeed et al. (2021) found that athletes engaged in resistance training demonstrated limited awareness regarding injury prevention techniques, further contributing to the high prevalence of shoulder pathologies. In the present study, the high frequency of positive Drop Arm Tests may thus also reflect inadequate emphasis on prehabilitation strategies such as rotator cuff strengthening, flexibility training, and correction of biomechanical faults.[2]

Furthermore, the overdevelopment of larger agonist muscle groups such as the pectoralis major and latissimus dorsi, combined with relative weakness of smaller stabilizers like the rotator cuff and scapular retractors, can create significant muscular imbalance. This imbalance leads to altered glenohumeral kinematics, predisposing athletes to impingement syndromes and rotator cuff tears[1]
As noted in Soheir et al. (2022), restoration of normal strength ratios between abductors/adductors and internal/external rotators is essential for injury prevention in recreational and competitive weightlifters[4]
The lack of such conditioning may explain the high rate of positive findings in this cohort.

In addition to muscular imbalance, inadequate recovery and overtraining are crucial contributing factors. Many weightlifters train intensively without sufficient rest periods, resulting in cumulative tendon fatigue and reduced collagen integrity. The supraspinatus tendon, due to its poor vascularization, is particularly prone to degenerative changes when subjected to repetitive microtrauma.
Therefore, the findings of this study emphasize the importance of implementing structured training programs that incorporate adequate rest, progressive overload principles[2]

From a preventive standpoint, early identification of rotator cuff dysfunction through clinical screening, as done in this study, can play a vital role in minimizing chronic shoulder injuries. Incorporation of specific rotator cuff strengthening exercises, scapular stabilization drills, and flexibility programs for the posterior capsule and pectoral muscles.

Although the present study contributes valuable insights into the prevalence of rotator cuff injuries in professional weightlifters, certain limitations must be acknowledged. The relatively small sample size (n = 30) may limit the generalizability of the findings to the broader weightlifting population. Additionally, the use of only one clinical test (Drop Arm Test) restricts the assessment to supraspinatus involvement and does not encompass the entire rotator cuff complex. Imaging modalities such as MRI or ultrasonography could provide more definitive diagnostic accuracy in future studies[4]
Moreover, factors such as training frequency, load intensity, technique proficiency, and use of preventive measures were not quantitatively assessed, which could have provided a more comprehensive understanding of the underlying causes of injury[6]
Despite these limitations, the findings of this study hold significant implications for physiotherapy practice and sports rehabilitation. Physiotherapists play a pivotal role not only in the management of rotator cuff injuries but also in their prevention. Routine screening for shoulder dysfunction in athletes, combined with evidence-based rehabilitation protocols focusing on strength balance, proprioceptive control, and flexibility, can substantially reduce the risk of recurrence and enhance athletic performance[2]
Furthermore, integrating educational interventions for athletes and trainers can foster awareness about the biomechanical demands of weightlifting and promote safer training habits[2]
In conclusion, this study revealed a notably high prevalence (87%) of rotator cuff injuries among professional weightlifters, emphasizing the shoulder's susceptibility to overuse and mechanical stress in resistance-based sports. The findings reinforce the necessity for preventive strategies focusing on balanced muscle strengthening, proper technique, adequate rest, and ongoing physiotherapeutic supervision. Future research involving larger and more diverse populations, combined with advanced diagnostic techniques, will further elucidate the multifactorial nature of rotator cuff injuries and guide effective prevention and rehabilitation frameworks in athletic populations[7] Although the Drop Arm test primarily identifies supraspinatus involvement, its high positivity rate in this study reflects the widespread nature of shoulder dysfunction in this athletic population. The test outcomes suggest that muscle weakness, pain, or tendon degeneration are common among professional weightlifters. The lack of imaging confirmation is a limitation, but the consistency of clinical findings with global literature supports the validity of the observed prevalence[1]
The findings of this research confirm that rotator cuff injuries are highly prevalent among professional weightlifters, with 87% of participants testing positive on the Drop Arm Test. This result aligns with earlier studies reporting high incidences of shoulder pain and dysfunction in athletes involved in strength and resistance training[1] The repetitive, high-load nature of weightlifting places continuous strain on the shoulder complex, particularly on the supraspinatus muscle, which is most susceptible to injury during lifting and overhead movements[5] Overdeveloped anterior muscles such as the pectoralis major and deltoid, when not balanced with posterior stabilizers, further increase the risk of impingement and rotator cuff degeneration. Younger athletes, often motivated by performance gains, tend to neglect joint mobility and rotator cuff strengthening, resulting in early onset of shoulder pathology. The results also show that even athletes with moderate training experience (2–5 years) can develop significant shoulder dysfunctions if proper technique and load progression are not maintained[4] Poor postural habits, limited scapular control, and inadequate recovery periods are additional contributing factors.[3]

The high prevalence rate underscores the necessity for integrating physiotherapy-guided preventive programs within training schedules. Emphasis should be placed on prehabilitation exercises, scapular stabilization, flexibility drills, and regular screening for early detection of rotator cuff weakness.[2] While the Drop Arm Test served as a useful screening tool in this study, future research using imaging techniques such as ultrasound or MRI could provide more precise diagnostic insights. Expanding the study sample to include female athletes and assessing training load parameters would also strengthen the evidence base[4]

In summary, this study establishes that rotator cuff injuries are highly prevalent among professional weightlifters, likely due to repetitive overuse, inadequate technique, and muscular imbalances. These findings emphasize the necessity for preventive and rehabilitative strategies focusing on the shoulder's dynamic stabilizers, particularly the rotator cuff and scapular muscles. Educating athletes about proper lifting techniques, incorporating prehabilitation exercises, and ensuring adequate recovery periods can substantially reduce injury risk. Furthermore, the inclusion of physiotherapy-led screening and intervention programs in training environments may enhance early detection and management of shoulder injuries. Future studies with larger, gender-diverse samples and imaging-based assessments are recommended to further elucidate the patterns and severity of rotator cuff injuries in this population. [2] Incorporating longitudinal data could also help establish a causal relationship between specific training variables and the development of rotator cuff pathology.

CONCLUSION:

The prevalence of rotator cuff injuries is 87% among male body builders.

LIMITATIONS

1.The sample size was relatively small limiting the generalizability of the findings.

2.Drop Arm test is usually used to assess supraspinatus tears and not the rotator cuff in particular.

3.No imaging techniques were used. Confounding factors like training patterns were not considered

FUTURE SCOPE

1. A larger sample size with inclusion of both males and females is recommended.
2. More objective outcome measures focusing on the entire rotator cuff can be used.
3. Training duration, years of experience, and level of game can be considered.

REFERENCE

1)Sengupta S. Analyzing the Impact of Climate Change on Coastal Biodiversity Zeno do; 2025 [cited 2025 Mar 10]

2) The article "Physical therapy of rotator cuff injuries of Olympic weightlifters: A systematic literature review" by Janez Konjar and Živa Arko spans pages 57 to78 in the 2023 volume 14, issue 1 of Annales Kinesiology.

3) Asfour S, Sraj S, Mushtaq F, Ben Nakhi H, Abdelrahman D, Abu Jawdeh M, et al. Isokinetic assessment of shoulder joint strength ratios in male recreational weightlifters: a cross-sectional study. J Funct Morphol Kinesiol. 2022.

4) Al Qahtani AM, Al Dajani SM, Al Adhyani AN, Abuabat A, Alhashim MH. Knowledge and awareness of shoulder injuries associated with resistance training among athletes in Riyadh, Saudi Arabia 2021.

5) Daher M, Jabre S, Casey JC, Fares MY, Boufadel P, Lopez R, et al. Shouldering the load: A scoping review of incidence, types, and risk factors of shoulder injuries in weight-lifting athletes. Shoulder Elbow. 2024

6) Bukhary HA, Basha NA, Dobel AA, Alsufyani RM, Alotaibi RA, Almadani SH. Prevalence and Pattern of Injuries Across the Weight-Training Sports. Cureus. 2023 Nov

7)Jorgensen K, Sjogaard G. Shoulder joint load and muscular activity during lifting. Scand J Work Environ Health

8) Prevalence of upper extremity musculoskeletal disorders among trained and untrained weightlifters of Gujranwala. [Journal Name]. Year Volume (Issue) 2022

9) ang JI, Jeong DK, Kim DY. The effects of strength exercise and walking on lumbar function, pain level, and body composition in chronic back pain patients. J Phys Ther Sci. 2023

10) Feuillet M, Chappell A, Egloff M, Hofer P, Faundez A, Genevay S. Low Back Pain Among Weightlifting Adolescents and Young Adults. PM R. 2020

11) Brzęk A, Strauss M, Sanchis-Gomar F, Sabbah I, Dworak T, Leischik R, et al. The weight of pupils' schoolbags in early school age and its influence on body posture. J Clin Med. 2019

12) Rajabi R, Doherty P, Goodarzi M, Hemaya talab R. Comparison of thoracic kyphosis in two groups of elite Greco-Roman and freestyle wrestlers and a non-wrestling group. Biol Sport. 2016

13) Brzęk A, Strauss M, Sanchis-Gomar F, Dworak T, Leischik R. The weight of pupils' schoolbags in early school age and its influence on body posture. J Clin Med. 2018

14) physical therapy of rotator cuff injuries of Olympic weightlifters: a systematic literature review. Rajabi R 2016