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COMPARATIVE STUDY ON THE PREVALENCE OF SHOULDER INJURIES IN INDIVIDUALS ENGAGED IN SUPERVISED AND UNSUPERVISED WEIGHT TRAINING

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Abstract

Background:
Nowadays, weight training is a very popular trend in the fitness industry. Therefore, a lot of youngsters are attracted to weight training. Besides the number of advantages, there are some drawbacks as well. The shoulder joint is one of the most common sites of injury. It may be due to poor handling, knowledge, overload, or overuse. Although people consult with professional trainers to attain their goals. However, injuries appear under supervision as well.

Methodology:
A cross-sectional survey was conducted in multiple gymnasiums in Karachi, Pakistan. The study was done from June 2025 to Dec 2025 among the Individuals who are doing weightlifting and resistance training. The sample size of 77 was taken through a Convenience sampling technique. Data was collected through a self-administered questionnaire. The analysis of data was done through SPSS version 23.0.

Result:
The total sampling size is 77, which includes 38 non-supervised and 39 supervised weight trainers. The injury rate found in a study is nearly similar between both groups, i.e., 11 non-supervised weight trainers and 13 supervised weight trainers experienced shoulder injury. Although the contributing factors were found in different ratios among both groups.

Conclusion:
It can be concluded that the injury rate seems nearly similar whether the training is under the supervision of a professional trainer. Additionally, weight training is

one activity that leads the trainees toward shoulder injury if they are exposed to any factor discussed earlier.

INTRODUCTION

The shoulder is the most complex and movable joint. The chances of shoulder injuries are more common than other joints. Shoulder injuries are common because the shoulder is very mobile but relatively unstable. The incidence of shoulder pain was around 4 to 26 percent in the general population. When checking the annual report of shoulder pain from 1000 patients, 41 to 48 patients face the complication of shoulder pain. As time passes, weight training as a fitness trend is increasing day by day, especially among young adults. Besides research, the most common injuries of the shoulder joints involve acromioclavicular impingement, clavicle fracture, humerus, and dislocation of the glenohumoral joint. Fractures of the clavicle and acromioclavicular joint injuries are most common in adolescents. According to the number of shoulder and upper arm injuries during extreme conditioning programs is way more than the injuries of any other part or in any other training program. In support of this, another study by Schron et al. states that the shoulder joint is one of the most common sites for injury in triathletes. The intense training and intense stress that athletes significantly and could result in shoulder injuries. The risk of injury is higher when the arm achieves abduction and external rotation.

When the exercises are performed under a supervised trainer, coach, physical therapist, or instructor, it reduces the level of injuries, provides proper exercise technique, is time-saving, and increases consistency of exercise level. When performing the exercises on one's own, in one's own way, it creates many complications, like improper techniques causing harm to the body, excessive loads, inadequate warmup techniques, and time-consuming. High-intensity exercises are likely to cause fatigue, reducing practitioners' abilities and concentration, and increasing the risk of injury**.** The reason for these injuries is likely to have a similar factor, which we can well explain by overtraining, poor techniques, or training loads higher than the possibilities for an athlete. Moreover, upper extremity routines often emphasize large muscles that produce obvious gains in strength and hypertrophy, subsequently neglecting the smaller muscles responsible for stabilization. This combination of repetitive loading, unfavorable positioning, and biased exercise selection creates joint and muscle imbalances, thus may place participants at-risk for injur Most of the youngsters in our society are engaged in strength training, so injuries are expected, which may be due to incorrect posture or angle. Professional trainers provide training recommendations based on the client's body and needs. Furthermore, also emphasize that one is likely to become injured without proper knowledge of how to do a workout. However, the presence of a personal trainer may reduce the risk of injury.

Exercising with dumbbells puts the muscles under stress. Interestingly, machines are assumed to be safer than free weights. Still, the feel of protection with machines can cause a higher proportion of overexertion kind of injuries. Start with supervised training to learn the technique, transition to unsupervised training, and periodic check-ins for form and program updates. This study is to find a correlation between injury rates among individuals who do weight training with and without the supervision of a health professional. Moreover, youngsters do not have adequate knowledge regarding the significance of professional trainers and supervised training, and they get injured. The study also focused on declining injury rates. Thus, improving the health and quality of life through the execution of this study.

METHODOLOGY

A cross-sectional survey was conducted in multiple gymnasiums in Karachi, Pakistan. The study was done from June 2025 to Dec 2025 among the Individuals who are doing weightlifting and resistance training. The sample size of 77 was taken through a Convenience sampling technique. The inclusion criteria was: The age limit is 18 to more than 40 years of an individual, Those who

are doing exercise for up to three months, and Those individuals who are willing to participate while Exclusion criteria was: Individuals with some systemic diseases (diabetes, hyperuricemia, hypertension) or heart diseases are survivors of any of these diseases, Those who have transplantation, Those who had shoulder joint surgery. Those who have started training recently and those with musculoskeletal disorders (Kyphosis, Scoliosis, and Cervical Lordosis). Data was collected through a self-administered questionnaire. The analysis of data was done through SPSS version 23.0.

RESULT

A total of 77 research participants were selected for the study. The age range between 18 and more than 40 years of the participants, and both male and female participants were selected for the study. We asked the participants whether they performed the exercises undersupervision of a trainer or not, and whether they had a previous shoulder injury in the last 1 year, and the data is shown in Table no.1:

Table No.1: Demographical representation

S.No.	Variables	Frequency (%)
1.	**Age** 18-28 29-39 >40	 28 (36.36%) 33 (42.85%) 16 (20.77%)
2.	**Gender** Male Female	 46 (59.74%) 31 (40.25%)
3.	**Performing Exercises** With Supervised Trainer Without a supervised trainer	 39 (50.64%) 38 (49.35%)
4.	**Shoulder injury in the past 1 year** With Supervised Trainer Without a supervised trainer	 31 (40.25%) 46 (59.74%)

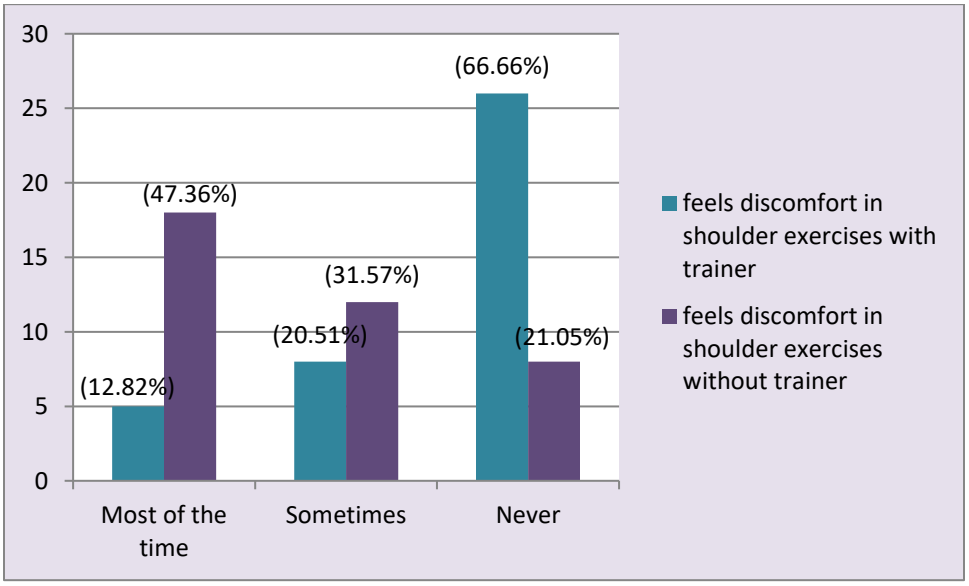

Figure No.1: Level of Discomfort

When we asked a question about how they feel discomfort while performing shoulder exercises, they replied that about 66.66% never feel discomfort while doing shoulder exercises with a supervised trainer, as shown in Figure no.1:

Table no.2: People's opinion regarding posture

Training type			Frequency	Percent
with trainer	Valid	yes	33	84.6
		no	3	7.7
		maybe	3	7.7
		Total	39	100.0
without trainer	Valid	yes	25	65.8
		no	3	7.9
		maybe	10	26.3
		Total	38	100.0

When we asked about people's opinions on maintaining good posture and injuries related to poor posture related injuries. With trainers, 84% say maintaining a good posture reduces injury risk, 8% say no, and 8% say maybe. While individuals without trainers, 66% say maintaining good posture reduces the risk of injury, 8% say no, and 26% say maybe, as shown in Table no.2.

Table no.3: People follow preventive guidelines and exercise instructions

Training type			Frequency	Percent
with trainer	Valid	yes	29	74.4
		no	7	17.9
		sometimes	3	7.7
		Total	39	100.0
without trainer	Valid	yes	22	57.9
		no	10	26.3
		sometimes	6	15.8
		Total	38	100.0

When we asked people follow preventive guidelines and exercise instructions. With a trainer, 74% say yes, 18% say no, 8% say sometimes, whereas, without trainers, 58% say yes, 26% say no, and 16% say sometimes, as shown in Table no.3:

Table no.4: Professional guidance for a workout

Training type			Frequency	Percent
with trainer	Valid	yes	29	74.4
		no	7	17.9
		never thought about it	3	7.7
		Total	39	100.0
without trainer	Valid	yes	26	68.4
		no	6	15.8
		never thought about it	6	15.8
		Total	38	100.0

When asked about people's opinions on seeking professional guidance for a workout. With a trainer, 74% say yes, 18% say no, and 8% say never thought of it. While without trainers, 68% say yes, 16% say no, and 16% say they never thought about it, as shown in Table no.4.

DISCUSSION

Weight Training is one of the physical activities that has increased significantly, and so has the concern about exercise-related injuries. Therefore, this study rules out the injury rate among the weight trainees, specifically at the shoulder joint. The study represents the comparison of shoulder injuries between weight lifters with and without the supervision of professional trainers. Interestingly, the injury rate did not differ significantly between the supervised and non-supervised weight lifters. The small size of the sampling was probably the reason. In a study (Sprey et al., 2016) compared related injuries between sedentary lifestyle participants and physically active ones and also found similar results. In addition, (Kanas et al., 2021) regarding the correlation between previously sedentary lifestyles and Cross-Fit also had identical outcomes.

As Hamza et al. (2021) discuss in their study, young bodybuilders or weight trainers are more likely to have shoulder injuries. Similarly, in this study, it is observed that young participants covered the more ratio of injury as compared to older age groups.

According to Aune and Powers (2017), the joint is more susceptible to injury than any other area of the body during exercise. In this study, also clear that the shoulder joint is one of the most notable anatomical locations of injuries during weight training, whether training is under the supervision of a professional trainer or in the absence of a professional trainer. However, the injury ratio slightly varies between the supervised and non-supervised participants (11 out of 38 from the non-supervised group and 13 out of 39 from the supervised group experienced shoulder injuries). Moreover, Asa et al. (2017) also stated that the shoulder joint is at high risk of injury when the arm achieves abduction and external rotation. (Barranco-Ruiz et al., 2020) suggested some of the reasons that may contribute to shoulder injuries, like overtraining, poor techniques, or training loads higher than the capabilities of an athlete.

Similarly, in this study, it is also noticed that not only the weight trainers who had a history of injury are at high risk of re-injury at the shoulder, but also the weight lifters without any history may be at risk of having injury in the future yet due to the presence of contributing factors like overexertion, poor techniques, overtraining, or muscle fatigue. However, the risk of injury may vary among supervised and non-supervised weight lifters. Each contributing factor mentioned above was found in different values among supervised and non-supervised participants of both groups. Therefore, for the analysis of the injury rate among both groups, we have to analyze all the factors step-wise to not only understand how they may cause re-injury among the affected weight trainees, but also how they may cause injury in unaffected members.

Firstly, the duration of the workout is one of the essential factors that may influence the chance of injury, and 49% of the trainer group spend more than an hour on weight lifting. Similarly, on the other hand, 40% of those without a trainer group also spend more than an hour on weight training.

Secondly, the intensity of training is also one of the factors that may lead to injury. 14 participants with a trainer (36%) and 16 participants without a trainer (42%) prefer to do heavy weight training most of the time.

In the light of (Faigenbaum, A.D. and Myer, G.D., 2010), without proper guidelines and preventive measures before and during exercise may lead to injuries. As reported by the results of this study, 22 out of 38 individuals without a trainer and 29 out of 39 individuals with a trainer follow proper guidelines to prevent injuries. Therefore, in this study, it has also been clear that injury prevention guidelines may reduce the risk factors of injury.

According to previous studies, over-training is also a leading factor in causing weight training injuries. According to the current research, it is noticed that under the supervision of a trainer, 54% of participants train their bodies even when they feel

fatigued or exhausted. Comparatively, 37% of the clients without the supervision of a trainer follow the same regimen.

Interestingly, weight lifters with previous injuries continue their training sessions even when they feel discomfort and pain. According to the result, 36% of participants from the category with a trainer group and 42% without the trainer group ignore the pain or discomfort when they feel physically exhausted.

Though the difference between the injury rate among supervised and non-supervised weight lifters, proper techniques, and professional guidance is essential, this has already been discussed in earlier studies. In accordance, the current study represents similar outcomes.

From the group trainer, 74% of participants feel that professional guidance is mandatory. Likely, from the group without a trainer, 68% of participants think professional guidance is essential for their training.

All of the factors mentioned above may result in a shoulder injury. The clients who had an injury earlier are at a higher risk of re-injury. Similarly, clients who do not have a history are also at risk.

CONCLUSION

In Conclusion, this study shows that weight training is one of the activities that leads the trainees towards shoulder injury if they do not take care of safety measures or are exposed to any factor that has been discussed earlier. However, the injury rate seems to be nearly similar whether the training is under the supervision of a professional trainer or not. Indeed, the factors may be different according to the type of training. Therefore, to attain the desired goals and to reduce the chances of shoulder injuries, weight lifters should consider all the risk factors like overweight lifting, overuse, poor handling, muscle fatigue, and pain ignorance.

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