



## Incidence of Shoulder Injuries in Individuals Following Unsupervised Fitness Regimes.

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### ABSTRACT

Nowadays due to sedentary occupation and lifestyle, people are more inclined towards healthy way of living and for that they used various kinds of equipments without much skills and knowledge of the same posing danger of the injuries. In our study we are trying to understand the injuries that may take place while performing workout. Our prime focus is shoulder joint because of its high mobility which is a pre-requisite to perform fitness exercise. The aim of this study is to find out incidence of shoulder injuries in individuals following unsupervised fitness regimes

From the data analyzed it was concluded that there is high incidence of shoulder injuries in individuals performing unsupervised fitness regimes.

**Keywords** - unsupervised, fitness, shoulder, regimes, exercise.

### INTRODUCTION

Fitness is a condition of being healthy and strong, it is the ability to perform physical work. For doing physical work needs cardio respiratory functioning, endurance, muscular strength, musculoskeletal flexibility, While describing fitness optimum body composition also included.<sup>1</sup>

Any bodily movement produced by skeletal muscles that result in energy expenditure is the definition of physical activity. The energy expenditure measured in kilocalories. Physical activity in daily life can be categorized into occupational, sports, conditioning, household, or other activities. Exercise is planned, structured, and repetitive subset of physical activity and has as a final or an intermediate objective the improvement or maintenance of physical fitness. Physical fitness is a set of attributes that are either skill or health-related. The degree to which people have these attributes can be measured with specific tests. These definitions are offered as an interpretational framework for comparing studies that relate physical activity, exercise, and physical fitness to health.<sup>2, 3</sup>

Nowadays peoples are conscious about their physical health and they want to improve their fitness. To become physically fit individuals performing various types of exercises such as workout, yoga , aerobic exercises ,strength training exercises, flexibility exercises, zumba and other dance forms etc. regular exercise promotes strong muscles and bones. Due to the pandemic gym and fitness centers had to close down, so many people started doing online fitness regimes without supervision. When people do heavy workouts without any guidance of professional trainers or due to lack of knowledge injuries may take place. As shoulders are most common injured joint in the body and it has high mobility than any other joint it is more susceptible for injuries.<sup>4</sup>

Clavicle, scapula and humerus forms shoulder complex , these are osseous segment of the shoulder complex joined by three interdependent linkages : the sternoclavicular joint , acromioclavicular (AC) joint and glenohumeral joint an additional functional joint considered part of the shoulder complex are scapulothoracic (ST) joint and subacromial or suprahumeral joint.<sup>1</sup>Half of the mass of entire upper limb constitute by the component of shoulder complex.<sup>4</sup>Glenohumeral joint has

several associated ligaments and capsule and bursae. It is a ball and socket synovial joint.<sup>4</sup> Glenohumeral joint has three rotary and three translatory degree of freedom.<sup>4</sup>

Muscles of shoulder joint are four rotator cuff muscles –Supraspinatus, Infraspinatus, teres minor, subscapularis. rotator cuff are the primary muscle group that support shoulder joint. other muscles are deltoid ,teres major, upper and lower trapezius, pectoralis minor, lattissimusdorsi, serratus anterior, long head of bicep brachi, rhomboid;key depressor of the shoulder complex is sternal portion of the pectoralis major.<sup>1</sup>During resisted activities primarily teres major muscle is active<sup>4</sup>

The acute and chronic shoulder injuries commonly happens during weightlifting involves sprain, strain, tendon avulsion, compartment syndrome, rotator cuff tear, biceps tendonitis, subcromial impingement , clavicle fracture, proximal humerus fracture, gleno humeral dislocation also stress injuries.<sup>5,6</sup> Due to muscle hypertrophy, overuse, poor technique can lead to nerve injuries such as suprascapular neuropathy.<sup>5</sup>

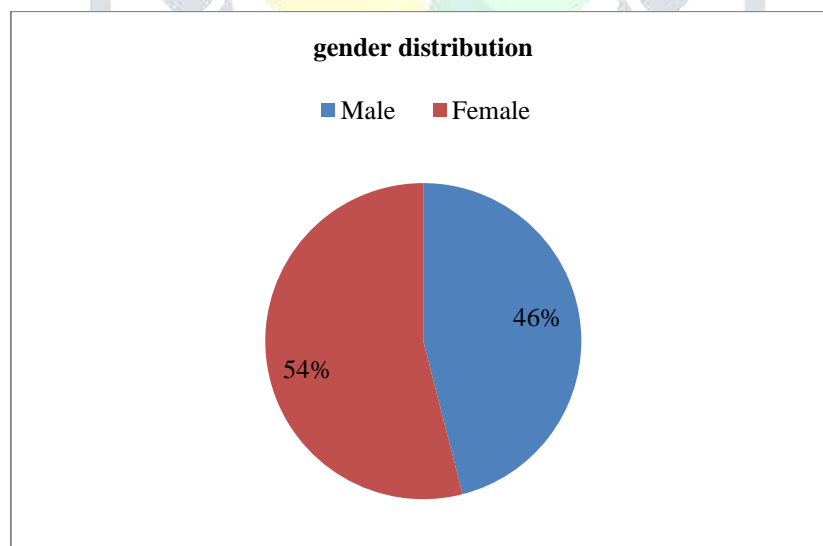
Outcome measures include shoulder pain and disability index (SPADI) and disabilities of arm, shoulder and hand (DASH) scale. Both scales are valid and reliable, used to assess shoulder injuries in individuals following unsupervised fitness regimes. SPADI questionnaire is a self governed questionnaire includes two dimensions, pain and functional activities. DASH questionnaire is a thirty items self reported questionnaire, scale score ranging from 0 (no disability) to 100 (most severe disability).<sup>7,8</sup>

Thus the design of this current survey used to recognize the difficulties during workout, injury rate and other associated factors.<sup>5</sup>

## METHODOLOGY

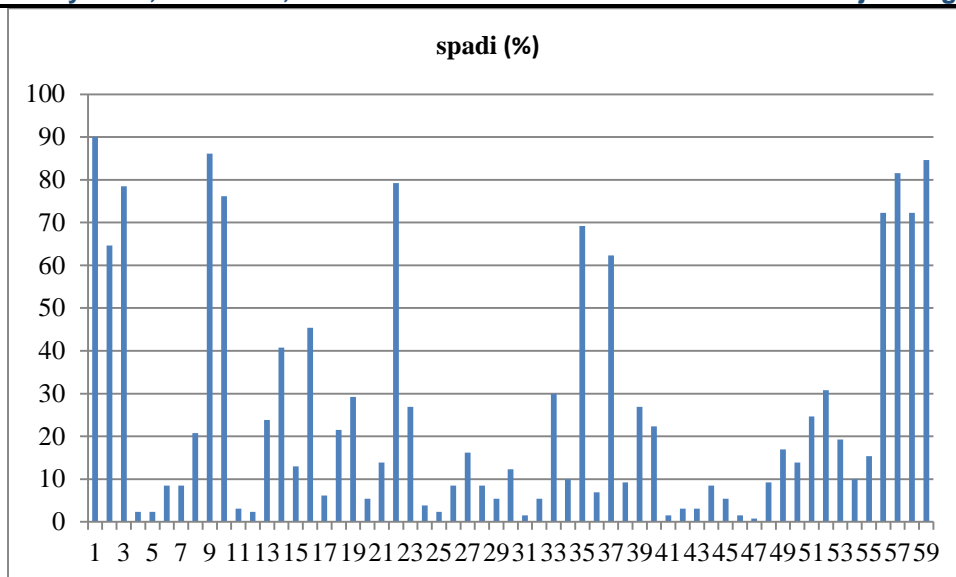
The study type was survey based study. Sample size was 100, convenience sampling methods were used and the study duration was 6 month. Study set-up was in Tilak Maharashtra Vidyapeeth Physiotherapy OPD. Target population were people following unsupervised fitness regimes at their home. Survey was conducted using SPADI and DASH questionnaire. The questionnaire was circulated among individuals following unsupervised fitness regimes. Written consent was taken from the participants. The DASH scale and SPADI was distributed to the participants and thoroughly explained. The response of the participants was obtained and statistically analyzed.

## RESULT AND ANALYSIS



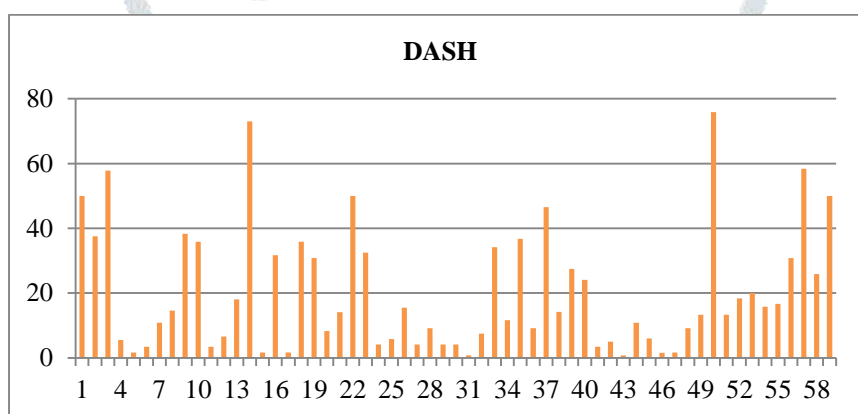
Graph no. 1

**Interpretation:** Out of total 100 peoples 46 were males and 54 were females.



Graph No. 2

**Interpretation:** Graph 2 shows the SPADI score. SPADI questionnaire shows that maximum score is 90% and second maximum score is 86.15%. Pain intensity for 100 individuals were assessed using shoulder pain and disability index (SPADI) which resulted 35% (SPADI score 0.76 % - 19.23%) of individuals were observed to have mild pain, 12% (SPADI score 21% -45.38%) of individuals were observed to have moderate pain, remaining 12 % ( SPADI score 62% -86.15%) of individuals were observed to have severe pain.



Graph no 3

**Interpretation:** Graph 3 shows the DASH score. Maximum DASH score is 75.86% and second maximum score is 73%. According to DASH questionnaire 52% participants having mild (0.83% -28%) to moderate (31% -47%) shoulder disability while remaining 7% participants having moderate to severe (DASH score 50% -76%) shoulder disability.

**DICSCUSSION**

Fitness is a condition of being healthy and strong, it is the ability to perform physical work. For doing physical work needs cardio respiratory functioning, endurance, muscular strength, musculoskeletal flexibility, While describing fitness optimum body composition also included.<sup>1</sup>

Nowadays peoples are conscious about their physical health and they want to improve their fitness. To become physically fit individuals performing various types of exercises such as workout, yoga , aerobic exercises ,strength training exercises, flexibility exercises, zumba and other dance forms etc. regular exercise promotes strong muscles and bones When people do heavy workouts without any guidance of professional trainers Or due to lack of knowledge injuries may take place. As shoulders are most common injured joint in the body and it has high mobility than any other joint it is more susceptible for injuries.<sup>4</sup>

Strength training in now an essential part of the training program for competitive contestant. With the general population's interest in health and fitness and the growing number of personal trainers, though, strength training is becoming a part of the general fitness programs for all age groups of both sexes. As a result, strength training injuries are likely to become more frequent. Understanding the injury patterns related with strength training will benefit team physicians and those caring for competitive athletes, and help general practitioners and sports medicine specialists caring for the general population.<sup>9</sup>

Strength training can place significant stress across the shoulder. Basically, strength training causes the shoulder to become a weight bearing joint overuse complaints are frequent and include strains of all the major muscle groups about the shoulder, as well as the deltoid and rotator cuff.<sup>9</sup>

The acute and chronic shoulder injuries commonly happens during weightlifting involves sprain, strain, tendon avulsion, compartment syndrome, rotator cuff tear, biceps tendonitis, subacromial impingement, clavicle fracture, proximal humerus fracture, gleno-humeral dislocation also stress injuries.<sup>5,6</sup> Due to muscle hypertrophy, overuse, poor technique can lead to nerve injuries such as suprascapular neuropathy.<sup>5</sup> Thus the design of this current survey used to recognize the difficulties during workout, injury rate and other associated factors.<sup>5</sup>

The aim of this study is to find out incidence of shoulder injuries in individuals following unsupervised fitness regimes

The aim and objectives of the study was explained to all the participants, individuals willing to participate in the study were included according to the inclusion and exclusion criteria.

Based on the inclusion and exclusion criteria 100 samples of age ranging between 18-50 years were collected among which 54 were females and 46 were males. Participants were provided with consent forms, in this study we collected demographic data along with SPADI and DASH questionnaire from 100 participants who do unsupervised fitness regimes and analyzed site of pain and injuries. In our study we found that out of 100, participants, 73 were having injuries in shoulder, elbow, lumbar and knee regions. And 60 were having injuries in shoulder joint.

The rate of injures in current investigation is higher. Result of this study show that most commonly injured joint was shoulder joint which is also similar to the result of the research study done by Hamza Shahzad etal. On the unsupervised and supervised weightlifters in 2021.

SPADI questionnaire shows that maximum score is 90% and second maximum score is 86.15%. Pain intensity for 100 individuals were assessed using shoulder pain and disability index (SPADI) which resulted 35% (SPADI score 0.76% - 19.23%) of individuals were observed to have mild pain, 12% (SPADI score 21% -45.38%) of individuals were observed to have moderate pain, remaining 12% (SPADI score 62% -86.15%) of individuals were observed to have severe pain.

Maximum DASH score is 75.86% and second maximum score is 73%. According to DASH questionnaire 52% participants having mild (0.83% -28%) to moderate (31% -47%) shoulder disability while remaining 7% participants having moderate to severe (DASH score 50% -76%) shoulder disability.

8 (8%) subjects suffered from lumbar region injuries while 9 (9%) subjects were suffered from knee region injuries, 4 (4%), 1(1%), 6(6%) of subjects suffered chest, hip, and elbow/arm region injuries respectively.

The current result shows that the lumbar spine, upper extremity including shoulder and elbow and the knee are most frequently affected by unsupervised fitness regimes. In the previous study of recreational bodybuilders complaints of injury were centered on the shoulder, upper extremities and spine.<sup>5</sup>

Prevention planning must be carrying out to reduce the rate of weightlifting-associated shoulder injuries. by using proper exercise form, in most cases injuries can be largely prevented. Employing safe practices when using heavy weights, and training a variety of muscle groups to maintain overall soft tissue balance. When injury does occur, a multitude of treatment options can be considered based on the severity of the soft tissue or bone damage. with conservative treatment mild injuries are often managed, such as allowing time for rest and recovery, using anti-inflammatory medications, and modifying workouts to reduce further injury; if conservative treatment show unproductive, surgical options including arthroscopy can reduce pain and greatly restore function to the shoulder.<sup>10</sup>

In our study we found out that most of individuals experienced pain due to unsupervised fitness regimes. The result of this study showed higher incidence of shoulder injuries.

## **CONCLUSION**

The study concluded that there is high incidence of shoulder injuries in individuals performing unsupervised fitness regimes.

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