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A Study on Nature of Sports Injuries among Athletes of Different Age and Gender Groups in Volleyball

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Abstract

Volleyball is the second most popular sport over the world just after the soccer.. It is played by approximately 200 million players worldwide. With more than 200 member countries in the Federation Internationale de Volley-Ball (FIVB) and about 150 million players Volleyball is a winter-season popular game in West Bengal and in Nadia in particular. The district abounds in talented players in this game but they lag behind because of their poor pecuniary condition and mal-nutrition accompanied by injuries. As it is played at a very low cost in a small room or in a small area, it has gained much popularity among the promising players of the West Bengal. The injury was search in the title of "a study on nature of sports injuries among athletes of different age and gender groups in volleyball". For the purpose of the study 210 volleyball players of district to international was considered as the subject of the study. Each subject was provided with a questionnaire in connection with sports injuries nature, history and frequency of injury suffered by the athletes of volleyball from the analysis of the questionnaires.

In the present study it was found that in senior male and female volleyball players knee and ankle ligament(sprain) injury was, male 25.% each and female 18.42% and 28.95%. Shoulder sprain, contusion or bruise and bone fracture or bone crack was 10.00% each, but in female it was 7.89% each.

In under nineteen male and female volleyball players it was found that knee ligament(sprain) injury male 29.27% and female 30.%, ankle ligament(sprain) injury 21.95% and 20.00%, muscle or tendon (strain) 7.32% and 16.67% respectively.

In under seventeen male and female volleyball players it was found that knee and ankle ligament(sprain) injury was male 17.14% and female 18.52%, each. In male, bone fracture or bone crack 14.29% and in female 14.81%, contusion or bruise 5.71% and 11.11% respectively.

In under fourteen male and female reported maximum contusion injury 25% and 26.67%.Male reported 18.75% ankle ligament(sprain), knee ligament(sprain) and contusion or bruise injuries but in female it was 13.33%, 20% and 26.67% respectively. And finally it was concluded that Higher the age groups higher was the frequency and severity of injury.

Key Word:- Sports, Sports injuries, Sports Medicine, volleyball players.

1. INTRODUCTION

There are 8000 games and sports played around the world. Among them some are Physical, and some are Mental games. Among the physical games some are Arial games, some are Aquatic games and some are Terrestrial sometimes Electronic sports. According to number of participant the games and sports may divided into single, double and multiple or team games. Depending on nature of competition the games and sports may divide into, combat sports, body contact and non-contact sports.

Exercising is good, but sometimes it may cause an injury when play sports or exercises. So, we can clearly say that in spite of development of modern equipments, safety devices, improved fitness level and appropriate training, nutrition, number of injuries occurred in various levels of competition and training seasons. Sports are all forms of usually competitive physical activity or organized participation, aim to use, maintain or improve physical ability and skills which providing enjoyment to participants and in some cases enjoyment for spectators.

The history of sports in India was before the Vedic era. There were some well-defined values like mantra in the Atharva-Veda, where it said that "Duty is in my right hand and the fruits of victory in my left"

Today with the other criteria of games and sports, the word "power" has added and it has change into "power games" and "power sports". Games and sports have lost its aesthetic value and became "combat" in nature. Sportsmen only strive for excellence. And with a great development of modern equipments, safety devices, improved fitness level, appropriate training, number of injuries occurred in various level, age and gender groups of competition are not decreasing. If there is any competition and sportsman intense to excel, there always remain possibility of injury. In the preset work the researchers want to highlight the nature of injuries that occurred during sports training and competitions among various groups of volleyball players.

Sports injuries are injuries that cause by participating in a sporting event. In many cases, these types of injuries are due to over use of a part of the body when participating in a certain activity. For example, runner's knee is painful condition generally associated with running, while tennis elbow is a form of repetitive stress injury at the elbow, although it does often occur with tennis players. Others type of injuries can be caused by a hard contact with something. This can often cause a broken bone or torn ligament or tendon.

'Sports Injury' is very large part of the discipline of sports medicine. Sports injuries are typically occur while participating in organized sports, competition, training session, or organized fitness activities. Some sports injuries result from accidents, others are due to poor training practices, improper equipments, lack of conditioning or insufficient warming-up, stretching and proper nutrition.

The accepted and widely used definition of sports injury is one which was given by Morris (1984)**.** According to him- In most cases, an athletic injury is defined as some physical damage or insult to the body that occurs during athletic practice or competition causing a resultant loss of capacity or impairing performance.

"Sports Medicine" as the use and practice of medicine and science in the field of exercise, sports and health. Accepting this broad definition, we can swiftly accept that the wider aim of sports medicine is concerned with the improvement of health through the medicine of exercise, recreation and sport.' Sports Medicine' may be defined as a science of human body in motion. When in motion, different systems of the body are in states of greater activity than normal. It involves greater turnover of energy.

Sports medicine today is not a specialty but a super specialty combining multi-disciplinary subjects which includes physical education and body fitness involving in the question of promotion of positive health, preventive medication and lastly appropriate medicine and rehabilitation following injuries during games.

Williams and Sperryn (1976) had given a classical concept of sports medicine. They divided the area of sports medicine as:

a) Man as a sportsman b) Sportsman and his environment c) Sportsman as a patient d) Sports as a therapy.

Various authors list several schemes for classification sports injuries. Athletics injuries may be classified by sports or anatomical location. Some physician and athletic trainer's categories athletic injury according to the particular participant group, such as women, youth, children or older athletes. Still another classification scheme uses the terms "acute" and "chronic". Another system to classify athletics injuries is by the type of tissue involved, such as- soft tissue and hard tissue.

Morris (1984), have classified sports injuries as –

i. By sports – Football, Track and Field, Volleyball etc.
ii. By participant group – Women, Men, Youth, Children etc.
iii. By nature of injury – Chronic and acute.
iv. By type of tissue involved – Soft tissue and hard tissue.
v. By anatomical location – Shoulder, Knee, Wrist, Ankle etc.
vi. According to nature of game – Team game, individual game etc.

Sports Injuries may also divided into a] Acute Traumatic Injury and b] Overuse or Chronic Injury

a] Acute Traumatic Injury may also divided into i) Strain ii) Sprain iii) Bruise or contusions iv) Fractures v) Dislocations vi) Laceration vii) Achilles tendon

b] Overuse or Chronic Injury may also divided into i) Shin Splints ii) Tennis Elbow iii) Stress Fracture iv) Tendonitis v) Bursitis

Why the athletes are get injured in professional and amateur sports. Most authors were avoiding this general area of sports injuries. Many injuries in sports can be avoided. By eliminating the contact nature in certain sporting activities, obviously, many of the traumatic injuries would be reduced.

Specific reason for sports injuries and these are –

i. Athletes strive for excellence in sports. ii. Physical contact in sports. iii. Improper equipments and apparatus. iv. Unprepared participants v. Poor coaching vi. Inadequate safety precaution. Vii. Over training. Viii. Poor technique etc.

1.2 PURPOSES OF THE STUDY:-

The purpose of the study was as follows:-

i. To study the common sports injuries among the volleyball players of different age groups.
ii. To look for various types of sports injuries among the volleyball players of different age groups.
iii. To observe gender wise classification of sports injuries among the volleyball players.
iv. To compare nature of injuries that occurs among different age and gender groups among the volleyball players .

2. METHODOLOGY AND MATERIALS

This was a survey type of study in which the investigator was trying to find out the nature of the sports injuries at various age and gender groups of volleyball players with the help of a questionnaire.

2.1 Subjects:-

In case of male volleyball players age between12 to 31 and for female volleyball players age between 12 to 26 and participation level from district to international was considered as subjects.

N=210 (123 Male 87 Female)

From the above 210 subjects, total 262 injuries were found. Those 381 injuries were stated in tables according to age and gender groups. This data was found through a survey type of study in which the researcher was trying to find out the nature of the sports injuries through the valid and reliable questionnaire. The questionnaire was used for collecting data from the volleyball players at various age groups and gender group and the injuries was found as followings:-

a. Senior. (Male and female).{60+38 }[n=50+30]
b. Under Nineteen. (Male And Female).{41+30}[N=30+22]
c. Under seventeen. (Male and female).{35+27}[n=27+20]
d. Under fourteen. (Male and female){ 16+15}[n=16+15]

3. Results

Nature Of Injuries Of Senior Male And Female Volleyball Players

It was found that, in case of senior male volleyball players, ankle ligament (sprain) injury was 25%, knee ligament (sprain) injury was 25%; shoulder sprain, condition or bruise and bone fracture or crack were 10%. Quadriceps injury was 6.67% . Other injury were less than 3.33%.

In case of senior female volleyball players, ankle ligament (sprain) 28.95%; knee ligament (sprain) 18.42%; muscle or tendon 10.53%; shoulder sprain, contusion or bruise back muscle, laceration and bone fracture or crack 7.89%. Other injuries were less than 2.63%.

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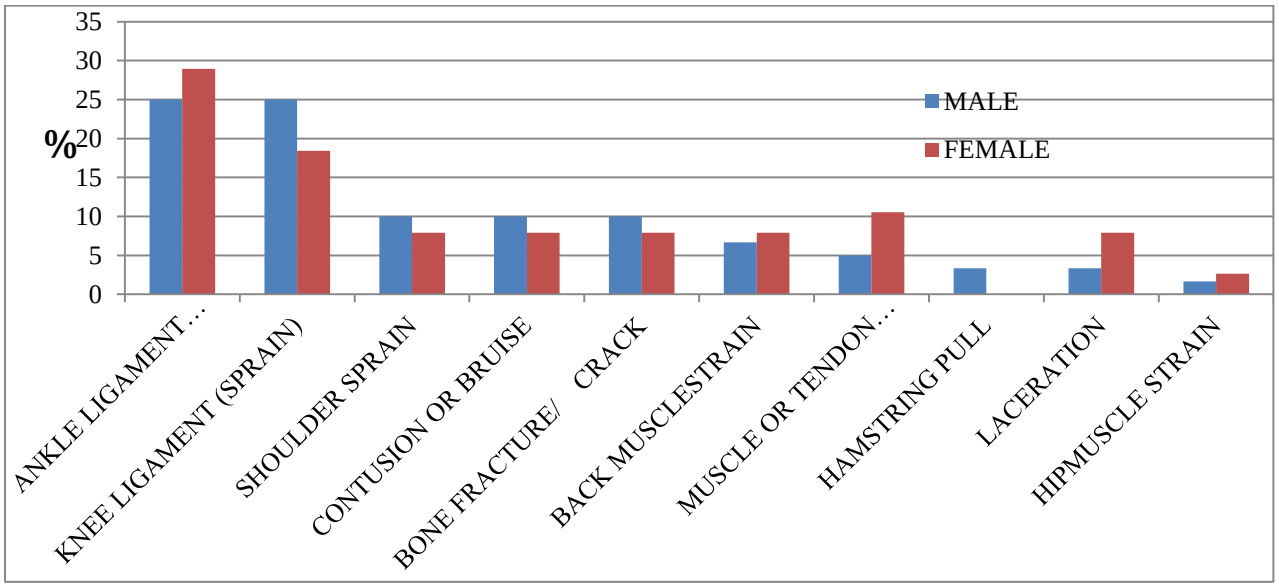
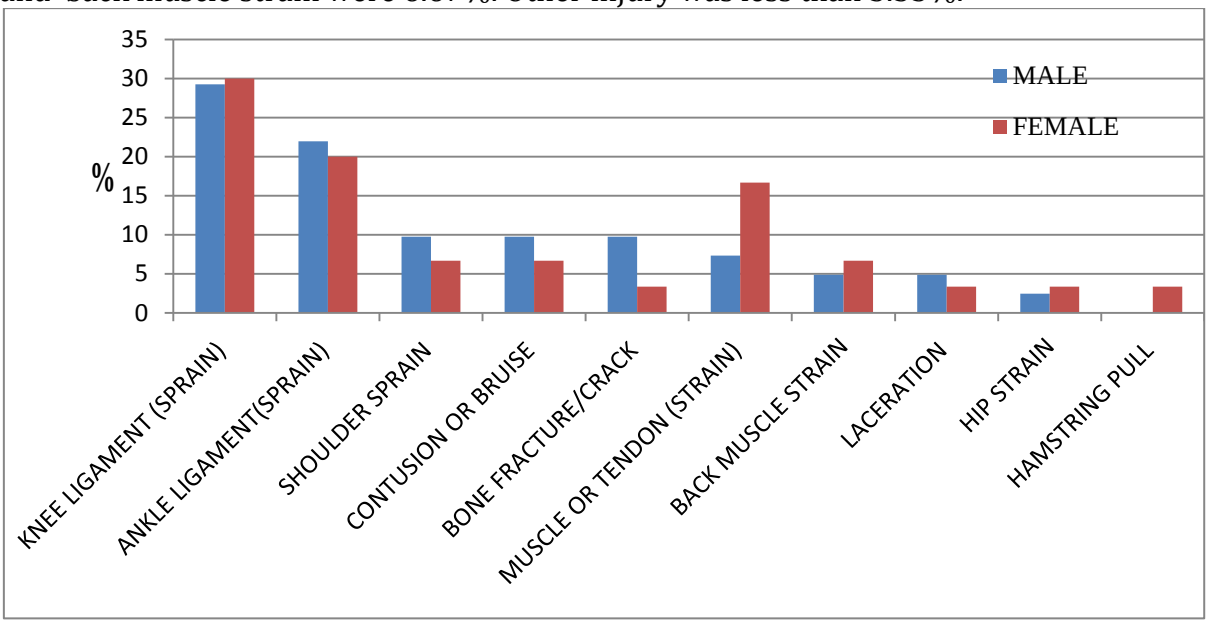


Nature Of Injuries Of Under Nineteen Male And Female Volleyball Players

For under nineteen male and female volleyball players, it was observed that male ankle ligament(sprain) was 21.95%; knee ligament (sprain) 29.27%; shoulder sprain, contusion or bruise and bone fracture or crack 9.76%. Muscle or tendon injury were 7.32% .Other injury were less than 5%.

In case of under nineteen female injury of volleyball players, ankle ligament (sprain) was 20.00%; knee ligament (sprain) was 30.00%, muscle or tendon strain 16.67%; shoulder sprain, contusion or bruise and back muscle strain were 6.67%. Other injury was less than 3.33%.



NATURE OF INJURIES OF UNDER SEVENTEEN MALE AND FEMALE VOLLEYBALL PLAYERS

That under seventeen male and female injury of volleyball players, it was observed that male volleyball players suffered by muscle or tendon injury 20.00%; ankle and knee ligament (sprain) 17.14%; shoulder sprain 8.57%, and bone fracture or crack were 14.29%. Other injuries were less than 5.71%.

In case of female volleyball players ankle and knee ligament (sprain) and muscle or tendon injury were 18.52 %; bone fracture or crack was 14.81%. Contusion or bruise was11.11% shoulder sprain and back muscle strain were 7.41%. Other injuries was not so significant.

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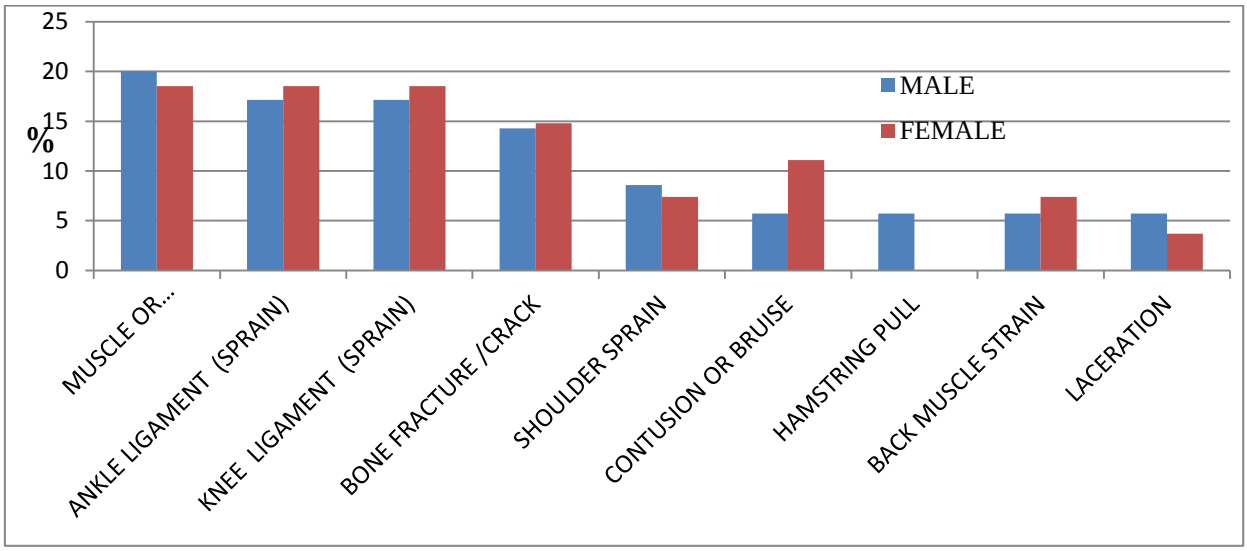
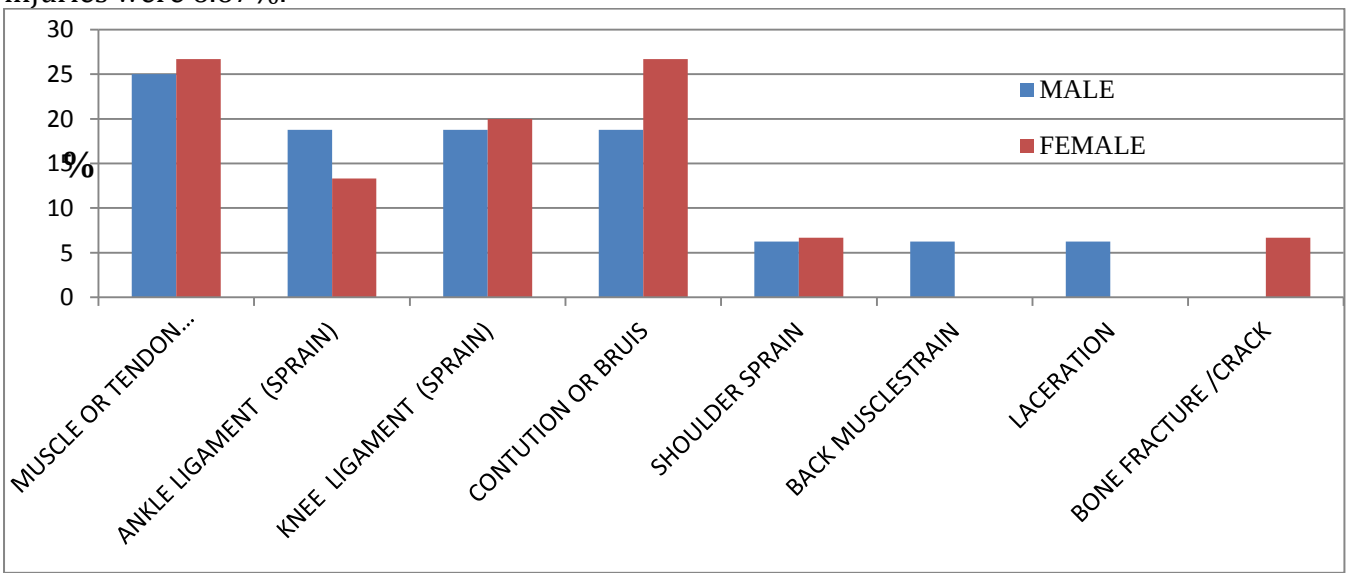


Nature Of Injuries Of Under Fourteen Male And Female Volley Ball Players

It was found for Under fourteen male muscle or tendon (strain) injury was 25.00% ankle ligament (sprain), and Knee ligament (sprain) and contusion or bruise was 18.75% each; shoulder sprain, back muscle strain and laceration injuries were 6.25%

In case of female muscle or tendon (strain) injury and contusion or bruise was 26.67% Knee ligament (sprain) was 20.00% and ankle ligament (sprain) was13.33%; shoulder sprain, and laceration injuries were 6.67%.



4. DISCUSSION

In the present study it was found That:-

Comparing with the senior male and female volleyball players it was observed that female volleyball players reported higher ankle ligament (sprain) injury than male; male 25%, female 28.95%. But male showed higher knee ligament (sprain) injury than female, male25%, female 18.42%.

Comparing with injury of volleyball in the age group of under nineteen male and female it was observed that female and male knee and ankle ligament (sprain) injury were nearly same female 30.00 %, male 29.27% and female 20.00%, male 21.95%, respectively. Shoulder sprain was much frequent to female than male, female16.67% and male 9.76%.

Comparing with under seventeen male and female volleyball players it was observed that there were close difference in every major injuries, in case of male muscle or tendon injury was 20.00%; female 18.52 %;

ankle and knee ligament (sprain) of male was 17.14%, and female 18.52%. Bone fracture or crack was male-14.29%, female-14.81%. Shoulder sprain was male-8.57%, female-7.41%.

Comparing with the under fourteen male and female volleyball players it was reported that male reported higher shoulder and ankle injuries male 25.00% female 13.13%, and male 18.75% and female13.33% respectively. Wrist injuries were female 20% male 12.50%. Desalegn T.E. , Zenebe D.M. And Wusen E.M (2016) studied on the title of Prevalence of volleyball-related musculoskeletal injuries among university players: A search for Ethiopian public universities. The incidence rate was 3.57 injuries per player. Injuries prevalence was higher among female players 4.35 than male players 2.9. Ankle and finger injuries showed the highest injury prevalence. In the present study 17.22% volleyball players sustained an injury during the season on both competition and match. Of those who sustained injuries, 45.16% were males and 54.84% were females. The occurrence of injuries on players, were 74.19% during match and, 25.81% occurred during team training. In this study Players were injured during blocking and setting activities. The majority of injured players sustained injuries in the lower extremities was 62.9%, and the upper limbs was 37.1%. Majority of injuries were strain followed by ankle, finger and thumb dislocation. Most injuries occurred during the execution of wrong technique followed by steps on other's foot. Deda N., Kalaja A., (2015) worked on epidemiology in knee injuries in volleyball players, and they explained that, This article has the purpose to make a clinical epidemiology of knee injuries in this category of sport. The study has the aim to report the incidence, risk, and severity of knee injuries across genders, level of preparation and type of exposure. They resulted that, significantly higher knee injury rates than boys. The most frequent mechanism of injury was landing from a jump in the attack zone. The study shows that the most commonly involved structure was the medial collateral ligament (reported in 30.1% of knee injuries), followed by the patella/patellar tendon (26.5%), anterior cruciate ligament (24.4%),cooperation among trainers, doctors and athletes. Although volleyball is a sport meniscus (13.0%), lateral collateral ligament (5.0%), and posterior cruciate ligament (2.1%). Girls were significantly more likely to sustain anterior cruciate ligament injuries than boys. D' Souza D. (2015) conducted survey on Track and field athletics injuries--a one-year survey. The training programmes and competitive performances of 147 track and field athletes, from many different clubs within the UK, were analyzed retrospectively in order to study the incidence, severity and types of injuries which they had suffered during the year September 1989-September 1990. 96 (65.3%) were male and 51 (34.7%) were female athletes in track and field, and their ages ranged from 14 to 32 years, and he remarked that, with their levels of competition ranging from 'competitive spectators' to UK internationals. A marked correlation was noted between their age, level of competition, number of supervised training sessions which they attended, and their incidence of injuries. However, certain other factors which were studied, such as their sex, the hours they trend, and the particular event in which they specialized appeared to provide no obvious relationship. Jadav, Deshmukh, Tuppekar, and Sinku 2010 found that nature of injuries were muscle (32.40%), followed by ligament(24.71%), tendon (9.55%),fracture (2.80%) braises (6.17%) and other7.40%).Hung-Yu Huang , Tso-Liang Teng, Cho-Chung Liang (2015) worked on the title of Volleyball Injuries: A Survey of Injuries Among Male Players of the Chinese Taipei National Volleyball Team. And the results revealed that the percentage of incidences of injuries in the second session was greater than that in the first session in terms of affecting training, whereas the percentage of incidences of injuries in the first session was greater than that in the second session in terms of preventing players from playing in competitions. Furthermore, coaches should be aware of the types and location of injuries that players may sustain during various sessions of training, and accordingly advise players on how to prevent injuries before they occur. The analytical results obtained here have potential for guiding the injury-preventive measures in volleyball. Deda N.,. Jadav, Deshmukh, Tuppekar, and Sinku (2010) found that lower limb injuries were predominant . Maximum injured site in volleyball players were found to be the region of ankle (23.03%), knee (21.91%) shoulder (11.79%), back (10.67%), leg (9.55%) groin (6.74%) and finger of hand (6.17%) were commonly injured body sites.

5. Conclusion

a. Higher the age groups higher was the frequency and severity of injury.

b. Most injuries in under nineteen female and male volleyball players were knee ligament (sprain) 30.00% and 29.27%;

c. in case of senior male volleyball players, ankle ligament (sprain) injury was 25%, but in female it was 28.95%;
d. In case of under fourteen female muscle or tendon (strain) and muscle or tendon (strain) injury and contusion or bruise was 26.67%.

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