

Frequency of Lower Extremity Injuries in Soccer Players

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ABSTRACT

Background: Soccer is considered to be the world's most popular sport, associated with high injury incidence compared with many other sports.

Objective: To evaluate the prevalence of common sport injuries in soccer players.

Methods: A cross sectional study was conducted on soccer players in 4-months of duration from July to Oct-2017. The convenient random sample was recruited at Punjab University, Lahore after permission to perform the study has been granted by the university authorities. Male soccer players, aged 20-30 years who were playing soccer minimum from the last 12 months were included in the study. All the sports other than soccer were excluded. The total sample of the study was 54. Sample size was calculated by using 90% confidence level and 7% margin of error. A self-structured questionnaire consisting of 16 items was used. Questions were developed after literature review and pilot survey involving peer review by 3 experts. Descriptive analysis of the data was done by using Statistical Package for Social Sciences (SPSS-17).

Results: The total sample of the study was 52. The study sample of this study reported highest prevalence rate of knee and hamstring injuries 41(78.8%) among soccer players whereas it was least for the groin injuries. Re injuries among soccer players were also common and it was reported maximum that is three times for ankle 18 (34.6%) followed by two times for knee 17(32.7%) and one time for hamstring 20(38.5%) and groin 17(32.7%).

Conclusion: The study found highest prevalence rate of knee and hamstring injuries whereas chances of groin injuries are least among soccer players.

Introduction

Soccer is considered to be the world's most popular sport, associated with high injury incidence compared with many other sports.¹ Two teams take part in this game with each having 11 players.¹ Duration of game is two 45 minute halves, with a 15-minute rest between halves.¹ Only goal keeper can touch ball. Soccer is an intermittent sport involves walking, jogging, sprinting and running.¹

In US the rapidly progressing sports is Soccer. It is considered the worldwide sport for young generation

participation.² The reason is because of its low-cost, and way of exercise.² It can be a source of developing good habits that contribute in physical fitness and also promotes development of coordination.² In professional soccer players about 28% injuries cause them to miss a game. Many injuries occur because of direct contact of players, ball or play grounds.

According to different researches soccer players have (75%) are sprain, strain and contusion injuries³, lower extremity injuries⁴ while knee and ankle are most

susceptible joints being injured.⁵ One study reported the classes of ankle injuries that over 65% being minor, 24% moderate, and 11% serious.³ According to another study⁶, a total of 286, 62.7% of the players were injured.⁶ Most of the injuries were acute (68.5%).⁶ He observed that most of the injuries were of extremities (82.9%).⁶ Knee injuries had the greatest consequences. Muscles and tendons were mostly injured in lower limbs (32.9%).⁶ There were 81% of all injuries localized to the lower extremity especially the ankle and foot.⁷ Traumatic injuries are mostly contact injuries.

Soccer is sporting activity with relative high injury incidence compared with other sports.⁸ Acute soccer injuries are concentrated in lower Extremities and can be due to unintentional heading, chronic sub dural hematoma due to soccer ball striking.⁹ Heading the occurrence of mild injury, concussion and cognitive impairments may occur in soccer players.¹⁰ Before 1980, use of leather balls which could result in significant impact forces.¹¹ Now advancement in technology have led to lighter balls which have less impact.¹² Most researchers reported that occurrence of injury does not depends on playing position.¹³

Mostly injuries occur in training.¹⁴ Hawkins and Fuller¹⁵ reported that defenders had more risk of injury than other players.¹⁵ They noticed that in second half number of injuries were significantly greater than first half.¹⁶ Most common knee injury is ACL injury.¹⁷ These injuries often result in effusion of joint, movement alteration, weakness of muscle, less participation among young athletes.¹⁷ Another common injury found in the young sporting population is meniscal injuries.¹⁸ ACL injuries often occur with meniscal tear.¹⁸ Normally a groin strain injury occurs with muscle overstretch.¹⁹ This is commonly called the strain.¹⁹ Among soccer players groin pain is common because of kicking causing recurrent stress to abdominal muscles, adductor muscles and groin flexor.¹⁹ Other source of groin pain can be stress fracture of femoral neck or pubic ramus, Avulsion fracture, Inguinal hernias and Acetabular labral tear.¹⁹ According to one of the study, recurrence rate of hamstring was 8.3%.¹⁹ Ankle sprain is ligament and soft tissue damage and is the most common site of injury among players.¹⁹ The categories of sprained ankles, according to extent and severity of damage are first degree sprained ankle is

mild to moderate pain, little damage to ligament.¹⁹ Second degree sprained ankle includes pain and swelling which hinder walking, more damage to ligament.¹⁹ Third degree sprain ankle includes swelling and dislocation of joint, complete rupture of ligament.¹⁹

Common symptoms of sports injuries are pain in movements, decrease mobility, back pain, leg/hip/thigh /knee/ankle pain, decrease in range of motion, reduce functional activity.³ Severity of injuries depend on degree of contact.³ The risk of injury is depends on factors such as injury incidence rate, condition of playing ground, nature of action, location of pitch, period of play.⁷ Schmidt-olsens, studies on soccer injuries of youth.⁷ He noticed that during soccer tournament all injuries were evaluated, 5.2% of players were injured.⁷ On the other hand, he also noticed that injuries of youth were mostly of non-severe character.⁷ Goga IE et al conducted a retrospective study on severe soccer injuries in 2003.²⁰ He concluded that players of South Africa sustain very serious injuries.²⁰ Papakosta et al (2008) in a chart review of 8 years' duration of the players of soccer with maxillofacial injuries.²¹ He took all male injured soccer players.²¹ He concluded that 89.8% suffered maxillofacial fracture and with soft tissue injury were 10.2%.²¹ Olsen L et al in 2004 addressed injuries prevention planning in soccer players.²² He concluded that, policy and research practice recommendation are used for synthesis.²²

Invariably all the researches mentioned above mentioned the significance of soccer injuries among players. Current study will address the prevalence of recurrent injuries among Soccer players. Results of this study can add up to this body of knowledge.

Methodology

A cross sectional study was conducted on soccer players in four months of duration from July to October 2017. The convenient random sample was recruited at Punjab University, Lahore after permission to perform the study has been granted by the university authorities. Male soccer players, aged 20-30 years who were playing soccer minimum from the last 12 months were included in the study. All the sports other than soccer were excluded. The total sample of the study was 52. Sample size was calculated by using 90% confidence level and 7% margin of error. An informed consent of

study population was assured. Questionnaires were distributed and explained to the participants for providing purpose of study and to ensure that their participation in the study was not imposed.

A self-structured questionnaire consisting of 16 items was used as data collection instrument. Questions were developed after literature review and pilot survey involving peer review by 3 experts. All questions were assessed for relevance, simplicity, clarity and ambiguity on 4-point Likert scale. Questions with content validity index over 0.75 were retained and asked from the study population.

First part of the questionnaire was of demographic data. Second part of the questionnaire has total of 15 questions. All of the questions been close ended. 1st 2nd 3rd questions were about warm up, cool down and stretching routine. 4th-7th questions were about previous history of sports injury, how many times injury occurred (1, 2, 3, >3), time since most recent injury occurred (0-6, 6-12 >12 months) and for how long the player is playing (1-2, 2-3, > 3 years). Questions 8-15 included any previous history of ankle, knee, hamstring and groin injury if yes, then how many times the injury occurred (1, 2, 3, >3).

Qualitative variables were expressed as frequencies and percentages. P-value ≤ 0.05 was taken as significant. Descriptive analysis of the data was done by using Statistical Package for Social Sciences (SPSS-17).

Results

The total sample of the study was 52. The participants with age range of 20-25 years were 18 (34.6%) and 25-30 years were 34(65.3%). Largely, the participants belonged to middle class 37(71.2%). Majority of the players were playing from last 2-3 years 23 (44.2%) followed by >3 years 16(30.8%) and 1-2 years 13(25%). The routine of warm up 43(82.7%), cool down 33(63.5%), stretching before 37 (71.2%) and after 40(76.9%) exercise to prevent the risk of injury was followed by majority of the players.

Previous sport injuries were found in 47(90.4%) of the players, in which 24(46.2%) has experienced an injury in the last 6 months.

The study sample of this study reported highest prevalence rate of knee and hamstring injuries 41(78.8%) among soccer players whereas it was least for the groin injuries. Detail of which is given in (figure 1). Re injuries among soccer players were also common and it was reported maximum that is three times for ankle 18 (34.6%) followed by two times for knee 17(32.7%) and one time for hamstring 20(38.5%) and groin 17(32.7%).

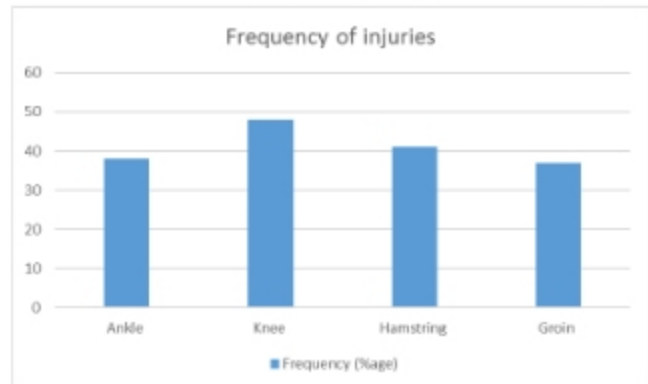


Figure 1. Shows the frequency of injuries of lower extremity among soccer players.

Discussion

According to this study highest percentage (90.4%) of lower extremity injuries found among soccer players. Swiss Organization "youth and sports", conducted a study revealed that soccer had highest incidence of injuries (66%) because of fatigue and imbalance of the muscles and body position.²³ When Schmidt Olsen studied on Soccer injuries, he reported 81% of all injuries localized in lower extremity because of overuse during training.⁷ According to current study 41(78.8%) players had complained of knee injuries. The result of this study was supported by Suzue N et al (2014) that found 40% of knee injuries among soccer players because of foot joint distortions of all degrees, overuse injuries (e.g. tendinitis) and were ruptures of the medial collateral ligament of the knee and one was a talofibular rupture that causes osteochondrosis.²⁴ Current study also reported highest prevalence of Hamstring Injury 41(78.8%) which is in concordance with Angelo Corazza (2013) studied on Soccer Players. It might be attributed to the fact that in professional athletes the higher prevalence of hamstrings and rectus femoris injuries are because it is the most involved compartment of thigh²⁵. Further the result of current study concluded

that 38(73.1%) had complain of ankle injury. This might be due to in soccer players ankle sprain occurs because of poor landing cause chronic ankle instability. It can also be due to repetitive ankle injuries during training and competition.²⁶ In present study soccer athletes had 37(71.2%) groin injuries supported by a study that found that 13% of all soccer injuries are in the region of groin might be due to musculotendinous strain of the adductors.²⁷ The limitations of this study were unavailability of soccer clubs as this game is not common in Pakistan and we were unable to cover some factors such as Assessment of injuries and treatment.

Conclusion

The study found highest prevalence rate of knee and hamstring injuries whereas chances of groin injuries are least among soccer players. Future studies can be conducted on both genders, covering more sports club to get significant results in detail. The mechanism of sport related injuries and the major risk factors, assessment and examining the injury can be the part of further research studies. The Sample size should be increased to generalize results on larger population.

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