

# INCIDENCE OF KNEE LIGAMENT INJURIES IN FOOTBALL PLAYERS.

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## Abstract

Background:Football is most popular sport in the world. However football is one of the sport that have a risk of ACL, PCL, MCL, & LCL injury. These knee injuries can adversely affect a player's long-term in the sport.

Aim &Objective:To find out Incidence of knee ligament injuries and factors associated with it in football players.

Methodology:100football players between the age 18-35years were selected.Subjects were asked to fill up Questionnaire, and special tests for ligament injuries were done.

Results:Almost 34%players showed +veLachman test indicating ACL injury, 8%showed +ve Reverse lach-

man test indicating PCL injury,9% showed +ve Abduction test indicating MCL injury & 8%showed +ve adduction test indicating LCL injury.

Almost 44% players mentioned of injuries occurred during training while 49% mention to be injured during competition.Majority of players had 55% to miss their practice or competition because of knee injury. Almost 72% players though symptomatic ignored their pain & continued their play without medical consultation.

Conclusion:There is high incidence of Knee ligament injuries in football players with of ACL being the most commonly injured.

Keywords:ACL injury, pain, Football players.

## Introduction

Football is amongst popular sport in the world. As football as played today by high school, college, and professional teams grew out of football which in a largely kicking game known as association football. It is a sport played between two teams of eleven to eighteen players with circular ball. The game is played on rectangular field with goal at each end. The object of the game is to score by getting the ball into the opposing goal. The goalkeepers are the only players allowed to touch the ball with their hands or arms while it is in play and only in their penalty area. Outfield players mostly use their feet to strike or pass the ball. Body tackling is major skill and game typically involve short passage of play of 5-90 seconds. It is played for 90 min. the game is divided into two quarter. After 45 minute there is 10-15 minutes of gap given for the rest. The team that scores the most goals by the end of the match wins. After the end of the game if the score is same then the 30 minute extra is given for the game, But if the score is same then the penalty shoot is given for the both team for 5 times. Both male and female can play this game[1]. Playing football can improve musculoskeletal, metabolic and cardiovascular function. Football is the sport that involve to various degree, kicking a ball with the foot to score a goal. Most football injuries affect the lower extremities which are defined as groin

and pelvic, hip and thigh, knee, calf, foot and ankle[2].Football is the one of the high impact sport that has high risk of lower limb joint and ligament injuries.

The knee joint is designed for mobility and stability; it functionally lengthness and shortness the lower extremity to raise and lower the body or to move foot in space. Along with the hip and ankle, it supports the body when standing, and it is primary functional unit in walking, climbing, and sitting activities[3]. The knee complex is one of the most often injured joint in the human body. The myriad of ligamentous attachments, along with numerous muscles crossing the joint, provide insight into the joint's complexity[6].ACL injury may occur in isolation or in combination with associated injuries, particularly meniscal and articular cartilage injuries or injury to MCL.Common mechanism of ACL injury is a cutting maneuver and one leg landing.Cutting or sidestep maneuvers are associated with dramatic increase in the varus-valgus and internal rotation movement[5].MCL provide medial stability to the knee joint. It is divided into a superficial portion and a deep portion that are separated by a bursa. The deep portion of MCL is continuous with the joint capsule, originates from the inferior aspect of medial femoral condyle, and inserts on the proximal aspect of the medial tibialplateau[5]. PCL play a significant role in knee joint stability and might be the most

important ligament of the knee joint. It provide varus and external rotatory stability to the knee respectively[5]. Mechanism of PCL injury is usually a direct blow to the anterior tibia with the knee flexed position. This can be from contact with an opponent, equipment or falling onto the hyperflexed-knee[6]. LCL injury is usually due to a sever high-energy, direct varus stress on the knee and are graded in a similar fashion to MCL sprain. Complete tear of LCL are usually associated with other instabilities, such as PCL rupture, and may result in posterolateral rotatory instability of the knee. The LCL is narrow strong cord with no attachment to lateral meniscus. It serves to prevent lateral opening of the tibia on the femur during varusstress[5].

Most of the times it is found that players ignore their knee pain and injuries and continue their sports without consulting any medical personnel.

#### **Materials and methodology**

"Study design : Survey

"Sample size : 100 Football players

"Study setup : Sport institute across the Pune City, India

"Study duration: 4 months.

"Sample population: All regular and com

#### **Inclusion criteria**

1. Male and female
2. Willingness of patient
3. Age 18-35yr.

#### **Exclusion criteria**

1. Cardiovascular pathologies such as

symptomatic cardiovascular disease or uncontrolled hypertension.

2. Previous surgery of lower limb.

3. Any musculoskeletal disease referred to the lower limbs such as low back pain, serious arthritis.

4. Any recent injury to knee and ligament.

#### **Procedure**

Total 100 football players aged 18-35years were evaluated for knee pain if any; amongst 34 players mentioned of positive symptoms and were recruited for the study. All players were explained about purpose of study & informed consent was taken. Subjects were asked to fill up Questionnaire, and special tests for ligament injuries were done with standardise procedure.

Anterior Cruciate Ligament assisted with using Lachman test, Posterior Cruciate Ligament assisted with using Reverse lachman test, Medial Collateral Ligament assisted with using Abduction(valgus stress) test, Lateral collateral ligament assisted with using Adduction (varus stress) test. (Reference by Mageepg No. 817, 820, 811, 813)

#### **Results**

This study included 100 football players where 78% of male & 22% of female football players were present. Among 100, male football players 33% players were between 18-25 years of age, 9% were 26-30 years of age & 7% were 31-35 years of age. Table 1 shows the players profile where almost 19% players mentioned

practicing training session 2hrs/day for 3hrs a week since 4-5 years. Almost all players mentioned to be performing warm up & cool down during majority of training session. Table 2 shows Majority of players mentioned they wear protective gear frequently but not routine. Almost

8% of football players showed PCL injury, where 11% football players showed MCL injury & 9% football players showed LCL injury out of 100 football players.

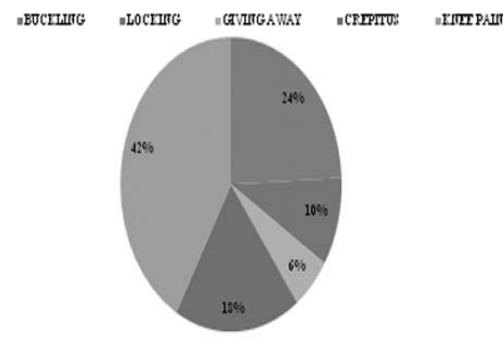
**Table 1: Players Profile**

<b>Practice times Aweek</b>	2times (19%)	3times (21%)	4 times (23%)	5-6 times (12%)	7times (25%)
<b>Practice hours</b>	1hr (31%)	2hrs (27%)	3 hrs (16%)	4 hrs (0%)	5+ hrs (0%)
<b>Year Since practicing</b>	1 yr (3%)	2-3yrs (32%)	4-5 yrs (30%)	6-7yrs (8%)	8+yrs (23%)
<b>Warm up before training</b>	Always (52%)	Sometimes (36%)	Never (12%)		
<b>Cool down after training</b>	Always (52%)	Sometimes (36%)	Never (12%)		

Discussion

55% players mentioned of injuries occurred during training while 49% mention to be injured during competition. Majority of players had 49% to miss their practice or competition because of knee injury. Almost 72% players though symptomatic ignored their pain & continued their play without medical consultation. Graph 1 shows symptoms of players while training and competition 25% of football players shows buckling of knee, 10% shows locking of knee, 6% shows giving away, 19% shows symptoms like crepitus while 43% players shows knee pain. Graph 2 shows ACL injury is common in 34% of football players out of 100 players,

Graph 1 : Symptoms of Players



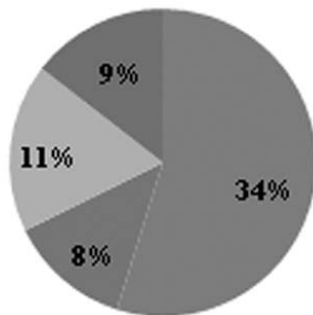
This study done on football players. 100 football players were participated. Questionnaire & the special test were used to rule out injury. Assessment were done on professional football players. This study showed ACL injury is very much common

Table 2 :Players detail

<b>Protective gear</b>	Always(39%)	Sometimes(42%)	Never(19%)	
<b>Which gear</b>	Knee pad(28%)	Shin pad(35%)	Centreguard(21%)	None(14%)
<b>When did injury occur</b>	Training (44%)	Competition(49%)		
<b>Practice miss due to injury</b>	2(55%)	4(18%)	6(14%)	8+(7%)
<b>Rx advice taken &amp; completed</b>	Yes (28%)	No (72%)		
<b>Consultation</b>	Acupuncture (2%)	Physiotherapy (11%)	Medical doctor (20%)	None (68%)

Graph 2 : Ligament injury

■ ACL ■ PCL ■ MCL ■ LCL



than MCL, LCL, and PCL in football players. ACL injury is common in 34% of football players out of 100 players, 8% of football players showed PCL injury, where 11% football players showed MCL injury & 9% football players showed LCL injury out of 100 football players. Football is amongst popular sport in

the world. As football as played today by high school, college, and professional teams grew out of football which in a largely kicking game known as association football[1].Playing football can improve musculoskeletal, metabolic and cardiovascular function. Football is the sport that involve to various degree, kicking a ball with the foot to score a goal. Most football injuries affect the lower extremities which are defined as groin and pelvic,hip and thigh, knee,calf,foot and ankle[2]. Football is the one of the high impact sport that has high risk of lower limb joint and ligament injuries[1]. To achieve maximum distance in the football, the player have to balance their component speed, technique & strength. Footballers do sudden landing, kicking or twisting movement which may cause the knee injury.

While competition player fall on each other due to attack on ball can cause the injury of knee[8]. Knee joint is more prone for ligament injury in football play as during kicking knee goes in weight bearing & in slightly flexed position. Forceful kick while training or while competition can injure or rupture the knee ligament[9]. This is the study to evaluate the overall relative risks of ACL, MCL, PCL, LCL tears as a function of sport, gender, and injury-reduction training. In this study, Incidence of knee ligament injury in Football Players was evaluated. The mechanism of injury of ligament injuries are usually very consistent. Total 100 football players aged 18-35 years were evaluated for knee pain if any; amongst 34 players mentioned of positive symptoms and were recruited for the study. All players were explained about purpose of study & informed consent was taken. Subjects were asked to fill up Questionnaire, and special tests for ligament injuries were done. (Reference by Magee)

The study concluded by Krutsch W, Zeman F, Zellner J, Pfeifer C, Nerlich M, Angele P in 2014 cited that introduction of a new professional football league increased the training and playing intensity of players as well as the number of ACL and PCL ruptures. A specific injury prevention concept, particularly for players facing rapidly increasing training and playing intensity, seems to be mandatory[7]. Another study concluded

by Ashkan Kiani, Einar Hellquist, Kerstin Ahlqvist, Rolf Gedeberg, Karl Michaelsson in 2010 concluded that the incidence of knee injuries among young female soccer players can be reduced by implementation of a multifaceted, soccer-specific physical exercise program including education of individual players[8].

The study conducted by Christopher C. Dodson, Eric S. Secrist, Suneel B. Bhat, Daniel P. Woods in 2010-2013 under went to study Anterior Cruciate Ligament Injuries In National Football League Athletes and he concluded that retrospective epidemiological study of ACL tears in NFL players, re-tears and ACL tears contralateral to a previously torn ACL constituted a substantial portion (18.3%) of total ACL injuries. Skilled offensive players and linebackers had the greatest injury risk, and significantly more ACL tears occurred among interior linemen than perimeter linemen[9]. This result showed that the incidence of knee ligament injuries in football players is high with the high incidence of ACL injury. Whether the low incidence of PCL, LCL & MCL injury.

The special tests are important & which is very useful to find out the incidence of knee injuries. Study concluded by M. Walden, I. Atroshi, H. Magnusson, P. Wagner, M. Hagglund in 2012 under went to study Prevention Of Acute Knee Injuries In Adolescent Female Football Players: Cluster Randomised Controlled Trial

and he concluded that study was neuromuscular warm up programme significantly reduced the rate of ACL injury in adolescent female football players. However, the absolute rate difference did not reach statistical significance, possibly owing to the small number of event[10]. The another study concluded that study is the training and match injury incidence were stable over seven seasons. The risk of injury increased with time in each half of matches by M Walden, M Hagglund & J Ekstrand in 2009 under went to study Injury Incidence And Injury Pattern In Professional Football : The UEFA Injury Study[11].

#### Conclusion

There is high incidence of Knee ligament injuries in football players with of ACL being the most commonly injured.

#### Limitation & scope

Future study can be done evaluating effectiveness of necessary preventive measures such as skilled training & rehabilitation on reducing incidence of injuries. Similar study can be done in large sample across different geographical areas.

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