

# PREVALENCE OF ILIOTIBIAL BAND FRICTION SYNDROME IN BASKETBALL PLAYERS.

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**Abstract:**

Background: Iliotibial band friction syndrome is seen in runners, cyclist, basketball and

other sport players. During activities where there is repetitive knee flexion and extension,

iliotibial band repetitively shifts forward and backward over the lateral femoral condyle

which causes friction and inflammation of the Iliotibial band. Basketball players perform

activities like running and jumping.

The knee joint is most commonly

affected by overload

syndromes which is seen in adolescents as knee is engaged in almost all sports activities.

**Aim & Objectives:** The prevalence of iliotibial band friction syndrome in basketball players. To

study the percentage and risk factors of iliotibial band friction syndrome in basketball

Players. **Methodology:** 60 Basketball players were randomly selected with age group of 12 to

23 years including both males and females who practised at least 30

minutes a day without any recent surgery or fracture of lower limb. The consent form was taken and procedure was explained. Each player was subjected to history of age, gender, BMI, hours and years of practise, training history followed by special test for knee including Varus stress test, obers test, noble compression test and Apleys test. The lower extremity functional scale was filled to assess the level of difficulty in activities due to knee pain. Based on the outcome prevalence was noted. Results: The prevalence of iliotibial band friction syndrome in basketball players was 16.66% with LEFS score of mean 62 indicating mild to moderate disability. Conclusion: There is prevalence of iliotibial band friction syndrome in basketball players.

Keywords: Iliotibial band friction syndrome, basketball players, obers test, noble compression test, lower extremity functional scale.

#### Introduction

Iliotibial band friction syndrome is an overuse injury, commonly seen in runners. Not only it affects the runners, but has also proved that it can lead to reduced performance in

other athletes like cyclist, soccer player;s, field hockey players, basketball players, rower;s, long distance runners, volleyball players, and weight lifters. (1,2,3)

Iliotibial band friction syndrome is commonly accepted as most common running injury of lateral side of knee, with 1.6 to 12% of incidence.<sup>3</sup> As high as 22.2% of incidence of iliotibial band friction syndrome has been documented in lower extremity injuries in runners<sup>4</sup>.

Tenforde found iliotibial band friction syndrome of about (Girls 7%) boys (5%) of prevalence.<sup>5</sup>

Basketball is a game which includes activities like running and jumping and it also includes few special movements related to the way the game is played (e.g., basketball shots)

and combined movements (e.g., dribbling on the run). (6,7) This kind of Overload syndromes are caused by micro trauma at the area due to repetitive activities and knee joint is the joint which is most frequently affected in adolescent;s age group because knee joint is involved in almost all sports activities.<sup>8</sup>

It was said that during movement of knee in which there is repetitive knee flexion (such as running), the iliotibial band repetitively shifts forward and backward on the lateral femoral epicondyle, and this causes

friction at the lateral femoral epicondyle and thus causes the inflammation of the Iliotibial band.<sup>3</sup>

The first complaint in patients with iliotibial band syndrome is diffuse pain which is experienced at the lateral aspect of the knee joint. As the time passes and the activity

increases the initial pain on the lateral side of knee becomes more sharp painful and localized pain and they may experience discomfort over lateral femoral epicondyle. Patient may also experience pain which aggravates or increases while running down hills and as the stride increases in length.<sup>9</sup>

Some causes of iliotibial band friction syndrome can be Pre-existing tightness of iliotibial

band, High mileage weekly, Duration of running on track.<sup>4</sup> Training errors- which may include

a fast change in exercise routine (10,11) . An intervention was done which shows that improving warm up and cool down techniques can be a first step which may therefore reduce the occurrence of running injuries.<sup>12</sup>

Type of running surface like on surfaces with excessive arch increases tension in lateral components in knee and is associated with iliotibial band friction syndrome. Injury is also associated with Excessive training on surfaces

like concrete having poor ability to absorb shock. (11, 13) As compared to unaffected leg, Weak hip abductors strength is found in affected leg in iliotibial band friction syndrome.<sup>14</sup> Warm up and stretching increase the elasticity of muscle their contractions become smoother and therefore prevent muscle injuries. If the warm up and cool down techniques are improper they are also risk factors for lower extremity musculoskeletal overuse injuries in sports. (12, 15)

Methodology:

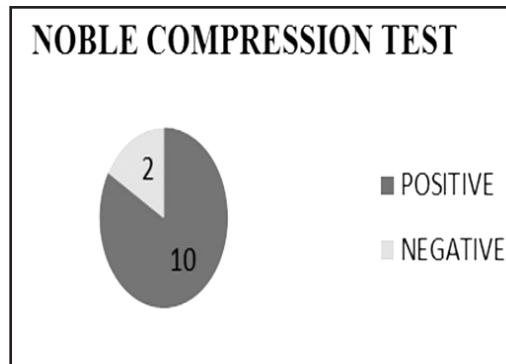
The institutes with basketball players were approached. Ethical Approval from institute was obtained. The consent form were filled by the basketball players, they were informed about the procedure and about the aim and objectives of study. This was a survey based study which included 60 basketball players which were randomly selected with age group of 12-23 years including both males and females basketball players who practised for 30 minutes in a day without any recent surgery or fracture of lower limb. Players were subjected to a thorough history including history of age, gender, BMI, previous injuries, hours and years of practise, training history and then they

were checked with various special test for knee including Varus stress test for assessing lateral collateral ligament injury<sup>16</sup>, obers test for iliotibial band tightness which has good interrater reliability (16,17), noble compression test for iliotibial band friction syndrome which has moderate and acceptable interrater reliability (16,17,18) and Apleys test Accuracy-80.3% for lateral meniscal injury(16,19). They were also asked to fill the lower extremity functional scale to assess the level of difficulty in the activity due to knee pain which has excellent test retest reliability (r=0.94)<sup>20</sup>

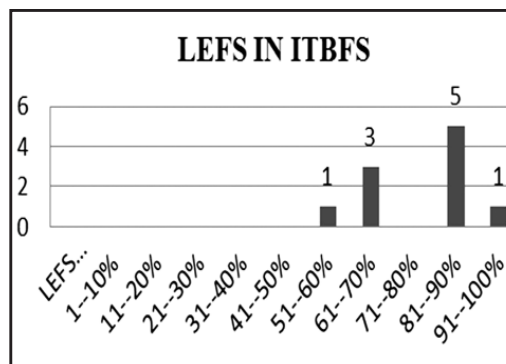
**Results:**

From Graph No. 1, it shows that Among 12 players with lateral knee pain Noble compression test was positive in 10 players which indicates that 10 players were positive for iliotibial band friction syndrome . From Graph No. 2, it shows that the interpretation of the lower extremity functional scale in players positive for iliotibial band friction syndrome was with mean value of score 62 which indicates mild to moderate disability. As the scale interprets higher the score lower the disability.

Graph No. 1: Noble compression test in basketball players.



Graph No. 1: Noble compression test in basketball players.



Mean: score 62

**Discussion**

In this study there were 60 basketball players with 25 males and 35 females. There were about (23)38.33% of players in 12-14 age group, (27)45%players in 15-17 age, (7)11.67% in 18-20 age group, and (3)5% in 21-23 age group. The mean age of basketball players was 15.9667.

After this evaluation results shows that the prevalence of iliotibial band friction syndrome in basketball play-

ers is 16.66%. Among 60 basketball players 12 players reported pain over lateral side of knee. On investigation with thorough history and examination among 12 players, 10 players were positive for noble compression test which indicates iliotibial band friction syndrome. Out of which 8 players were positive for Apleys test which indicates iliotibial band tightness. One player was positive for Varus stress test which indicates lateral collateral ligament injury and one player was positive for Apleys test indicating lateral meniscus injury. Among players positive for iliotibial band friction syndrome the mean of lower extremity functional scale was about 62 which indicates mild to moderate disability. In this study the prevalence of iliotibial band friction syndrome is 16.66% in basketball players with mild to moderate disability according to the results of lower extremity functional scale (LEFS).

We also found that players with iliotibial band friction syndrome had difficulty in squatting, while running on uneven road, climbing stairs up and down and while hopping as such activities cause repetitive knee flexion and extension. Training errors were found like Irregular stretching, warm up and cool down techniques which were practised by these basketball players. Such irregular and improper training contribute to the iliotibial band friction syndrome and other lower extremity injuries. If these

techniques are properly and regularly done it may prove to reduce the risk of injury.<sup>12</sup>

In previous studies it was found that the incidence of iliotibial band friction syndrome in athlete was about in range in 1.6 to 22.2%.<sup>(3, 4)</sup> About 33% patients with ITBFS with Varus knee alignment were found and also that there were more incidence of ITBFS than that of the previous studies it was found that (in 1981 4.3%, in 1991 7.5% and in 2000 8.4%). In this study there were more women than men and he found about (62%/32%) of prevalence of ITBFS more in women and iliotibial band friction syndrome was one of the five most common injuries.<sup>13</sup>

Changes in footwear construction can be said as a cause of ITBFS and they also found that iliotibial band friction syndrome is commonly seen in women than in men. <sup>(13, 21)</sup> Change in intensity of training and running was practised by the basketball players. These players used to run over the basketball court made up of concrete which has poor ability to absorb shock and may contribute to iliotibial band friction syndrome, while in a study they also found that running on surfaces like which are very soft like running on sand is also associated with the cause of iliotibial band friction syndrome. <sup>(11, 13)</sup>

According to a theory proposed they found that excessive inter-

nal rotation of tibia which is caused due to excessive eversion of rare foot plays an important role in development of iliotibial band friction syndrome This causes excessive strain in the iliotibial band as it is attached to the gerdys tubercle(.22,23) Increase in hip adduction due to hip abductors weakness can be a cause for iliotibial band friction syndrome as it causes knee internal rotation and increases strain in the iliotibial band.23 It was also found that in case of 196 running injuries iliotibial band friction syndrome ranked third most common injury of about (12%)(4,24)

It was found that there was no hip abductor muscle weakness in other athletes like track athletes suffering from iliotibial band friction syndrome therefore hip abductor weakness does not appear as a cause of iliotibial band friction syndrome. (22, 25) Training errors is most common cause of overuse running injuries. If the training routine is properly progressed it allows the supporting structures of the pelvis and knee to get adapt to increased stresses over them. If increasing the intensity, duration, and frequency of the training runs inappropriately and too soon incorporating hills on the training routes, may overload the supporting structures of the knee and eventually cause to injury.(26,27,28)

Future scope of study „h Comparative study can be done to find the prevalence of iliotibial band friction

syndrome in females and males. „h Studies can be done to find itbfs in other athletes who play with repetitive knee flexion. „h Further studies can be done to find comparison of itbfs in all athletes which are prone to have itbfs. „h Study can be done with more sample size. „h Further studies can be done to evaluate iliotibial band friction syndrome using radio imagining techniques like MRI and Sonography.

#### Conclusion

There is 16.66 % prevalence of iliotibial band friction syndrome. Mild to moderate disability of lower extremity is seen in basketball players with iliotibial band friction syndrome.

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