



# PREVALENCE OF POSTERIOR ANKLE IMPINGEMENT SYNDROME IN FAST BOWLER'S

<sup>1</sup>Ms. POOJA SUNIL PATIL, <sup>2</sup>DR. MAHENDRA SHENDE

1. Internee, Tilak Maharashtra Vidyapeeth, Pune 37.
2. Professor(HOD), Tilak Maharashtra Vidyapeeth, Pune 37.

1. Bachelor of Physiotherapy

1. Tilak Maharashtra Vidyapeeth, Pune, Maharashtra.

**Abstract:** posterior ankle impingement syndrome is a common cause of posterior ankle pain that is known to be associated with sports which require the athletes to repetitively plantarflex the ankle such as ballet dancers, fast bowler's, football players, swimmers and cyclist. Pain can limit the athletes' ability to perform at the optimal level. Objective: to find the prevalence of posterior ankle impingement syndrome in fast bowler's. Method: 30 male athletes / bowler's; their age ranging from 18 to 30 years old practicing bowling for at least one year or more than that, diagnosis of pain was made based on history taking and assessment using faam[foot and ankle ability measure] , faam-activities of daily living and faam- sport's subscale. Result: the prevalence of pain in the selected sample was- 1. In faam- 56.433%, 2. Faam adl - 75.667% and faam sport-68.4%. Conclusion: fast bowling must be with precautions to avoid pain injury; routine extensor tendon stretching before practicing and protective ankle dorsiflexion taping are recommended to prevent posterior ankle impingement syndrome.

**Index Terms:** Ankle impingement, FAAM, athlete, injury, fast bowlers.

## Introduction:

Ankle impingement is defined as pain in the ankle due to impingement in one of two areas: anterior [ anterolateral & anteromedial] & posterior [posteromedial]. Location of pain is referenced from the tibiotalar [talocrural] joint. posterior ankle impingement results from compression of structures posterior to the tibiotalar and talocalcaneal articulations during terminal plantar flexion. Pain is caused by mechanical obstruction due to osteophytes and /or entrapment of various soft tissue structures due to inflammation, scarring or hypermobility. The condition is common in athletes, especially soccer players, distance runners, bowlers and ballet dancers. Noted in athletes whose sports necessitated sudden acceleration, jumping, and extremes of dorsiflexion or plantar flexion. Historically, it has been called "athlete's ankle" and "footbowlers ankle".

PI often known as dancers’ heel”, is generally insidious in nature, occurring in athletes who routinely plantarflex, such as ballet dancers, jumping athletes and those who kick. PI is common cause of chronic ankle pain. May be caused by bony or soft tissue impingement, specifically flexor hallucis longus irritation, thickening of the posterior capsule, synovitis inversion trauma/sprain, forced plantarflexion causing anterior sheering of the tibia, hypertrophy of the OS trigonum impacting the posterior tibia. Also known as OS trigonum syndrome and posterior tibiotalar compression syndrome. The OS trigonum is the most common cause of symptomatic posterior ankle impingement. PAIS can be thought of as a group of pathologies that occur due to exposure of the foot to repetitive or forced plantar flexion, and is caused by compression of the structures that lie posterior to the tibiotalar and talar calcaneal articulation.

In posterior ankle impingement, patients experience hindfoot pain when the ankle is forcefully plantarflexed. Trauma or the overuse can be the cause. The trauma mechanism is hyperplantarflexion or a combined inversion plantarflexion injury. injuries typically occur in ballet dancers and downhill runners, who report pain on palpation at the posterolateral aspect of the talus.

**Research and Methodology:**

Permission was taken from institutional ethical committee of Tilak Maharashtra Vidyapeeth, Pune. A visit was arranged to different cricket clubs. Prior to start a study, the purpose and aim of the study was explained clearly to players. All the players were screened for inclusion and exclusion criteria. The method of study was explained to them and their informed consent was taken on the consent form. All the players were asked to fill the faam scale sheet, as it is self-assessment scale later on the obtained data was analyzed in statistical analyzing method.

**Result and Data Analysis:**

A total of 30 fast bowlers [male] from age 18-30 were included the Sample analysed.

The data was processed using statistics for demographic data, Name, Age, Gender, Year of experience, Level of playing according to these percentages were depict.

Tables were made using Microsoft word and Figures were plotted using Microsoft Excel 2007. This study included total 30 participants and a tabular, pie and Bar graphical presentation was done the results are shown in the tables.

Result 1.

Age groups	Number of participants
18-21 years	07
22-24 years	14
25-27 years	05
28-30 years	04

Table 1. age: - in the present study distribution of subjects was done as per age between

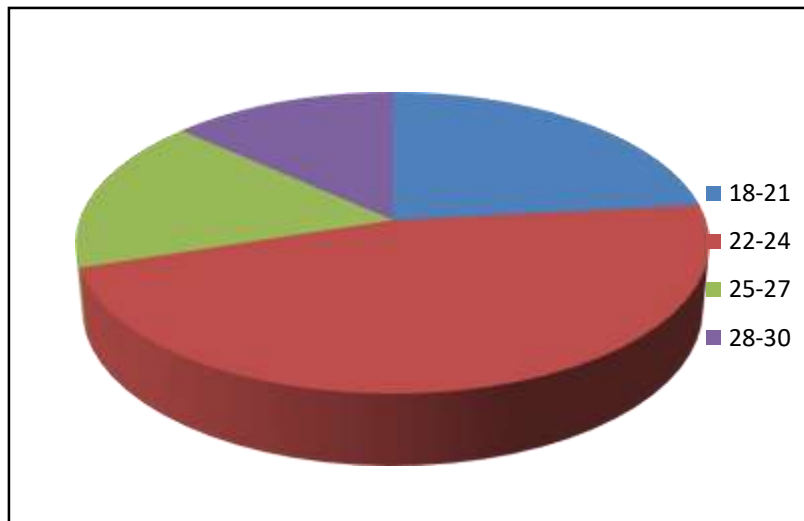


Figure 1. age: - in the present study distribution of subjects was done as per age between

**Interpretation:** - according to chart, there were 07 respondents of age 18-21years, 14 respondents of age between 22-24years, 05 respondents of age between 25-27 years and 04 respondents of age between 28-30 year.

Result 2.

Years of experience	Number of participants
01 to 02	02
03 to 04	19
05 to 06	04

Table 2. experience: - in the present study distribution of subjects was done as per the years of professional experience.

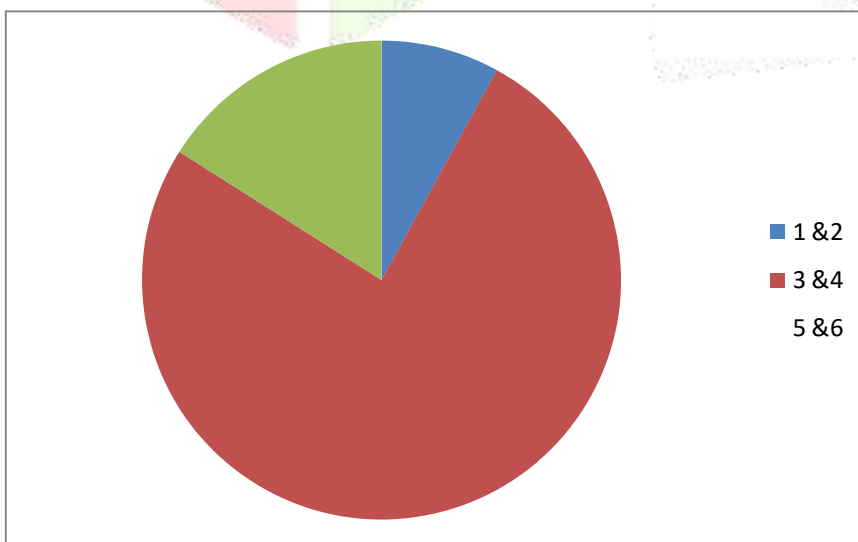


Figure 2. experience: - in the present study distribution of subjects was done as per the years of professional experience.

**Interpretation:** - According to the chart there 02 participants playing since 1-2 years, 19 number of participants playingsince 3-4 years , and 04 number participants playing since 5-6 years.

Result 3.

FAAM	Score
FAAM	56.43
FAAM ADL	75.66
FAAM SPORT	68.4%

Table 3. foot and ankle ability measure [FAAM]

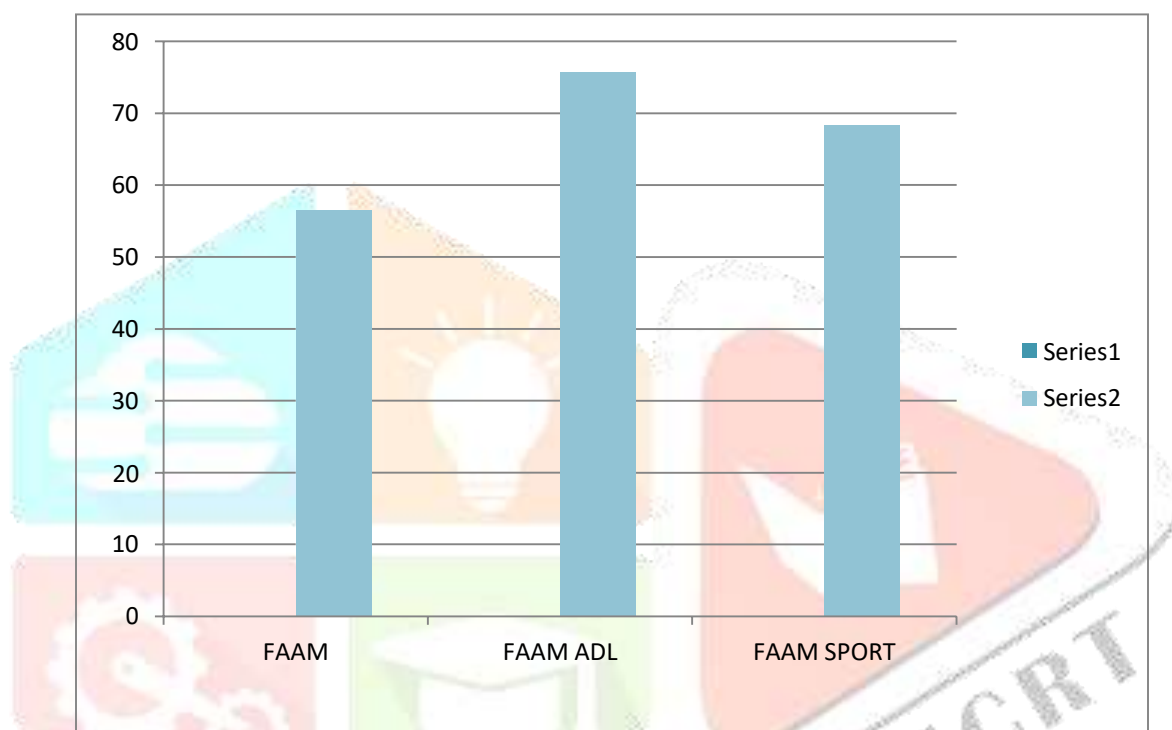


Figure 3. foot and ankle ability measure [FAAM]

**Interpretation:** - from the above statistical analysis, it clearly shows there is prevalence of posterior ankle impingement or posterior ankle pain in the fast bowler's.

**Discussion:**

The study started with searching for topics on popular data bases. Such as Pubmed, Google scholar, Research gate, etc. These databases are widely used by researchers and Healthcare professionals. At that time , I came across the concept of posterior ankle impingement syndrome in fast bowlers. It intrigued me to find more articles on this topic.

After searching through topics it was found that PAIS [Posterior Ankle Impingement Syndrome] this is more common in Athletes.

Ankle Impingement is defined as pain in the ankle due to impingement in one of the two areas:- Anterior ( Anterolateral and Anteromedial) and posterior ( posteromedial). Location of pain is referred from the tibiotalar [talocrual] joint.

The condition is common in athletes, especially Soccer players, distance runners, ballet dancers & fast bowlers.

So, according to the topic, posterior impingement (PI) often known as ‘Dancer heel’ is generally insidious in nature occurring in athletes who consistently Plantarflex such as ballet dancers, jumping athletes and fast bowlers and those who kick [footballers].posterior ankle impingement is a common cause of chronic ankle pain.

After studying through many articles, I came across FAAM Scale [ foot and ankle ability measure]; the scale was developed as a region specific instrument to comprehensively assess physical performance among individuals with a range of leg , foot ,and ankle musculoskeletal disorders.

The FAAM ability measure is a 29 item Questionnaire divided into 2 subscales: The foot and ankle ability measure, 21- item activities of daily living subscale and the foot & ankle ability measure, 8- item sports subscale.

The FAAM is a subject completed scale that consists of an ‘Activities of daily living’ subscale [ 21 scored items ] and the sports subscale [7 scored items] in which the response options are presented as a 5 point likert scales [ range 4-0]. Scores for each subscale range from [0%] least function to [100%] most function.

Later, the scale was explained to all the athletes [fast bowlers], the consent was taken and they were asking to fill the questionnaire. Athletes were categorized in different age group: 18-30 years. In that they were divided as 18-21, 22-24, 25-27 and 28-30 years.

After collection of the sample sheets, excel spreadsheet was formed and on the basis graphs were formed.

- Depending, on the criteria of age 3D pie chart was formed
- Depending on the criteria professional experience normal pie chart was formed.
- Depending on the result of the FAAM scale bar diagram was formed.

After considering the mean values of the FAAM ,FAAM ADL AND FAAM SPORT , 3 values were obtained which are

- FAAM -56.43%
- FAAM ADL- 75.66%
- FAAM SPORT- 68.4%

As the result obtained is more than 50% which proves prevalence of posterior ankle impingement syndrome in fast bowlers.

### **Acknowledgement: -**

The success and result of this project required a lot of guidance and I am extremely privileged to have got this all along the completion of my project.

I owe my deepest gratitude to my project guide Dr. MAHENDRA SHENDE (PT), who took keen interest on our project work and guided me along, till the completion by providing all the necessary information throughout numerous consultations. I will forever be grateful for the knowledge and skills I gained working under you. Thank you!

I respect and thank our Principal who gave me the opportunity to do this wonderful project on the topic “PREVALENCE OF POSTERIOR ANKLE IMPINGEMENT SYNDROME IN FAST BOWLER’S”

I am thankful to and fortunate enough to get constant encouragement, support and guidance from all teaching staff at Tilak Maharashtra Vidyapeeth’s College of Physiotherapy, Pune, which helped me in successfully completing my projectwork.

### References:

1. Kudaş S, Dönmez G, Işık Ç, Çelebi M, Çay N, Bozkurt M. Posterior ankle impingement syndrome in football players: Case series of 26 elite athletes. *Acta Orthop Traumatol Turc.* 2016 Dec;50(6):649-654. doi: 10.1016/j.aott.2016.03.008. Epub 2016 Dec 3. PMID: 27919560; PMCID: PMC6197591.
2. Niek van Dijk C. Anterior and posterior ankle impingement. *Foot Ankle Clin.* 2006 Sep;11(3):663-83. doi:10.1016/j.fcl.2006.06.003. PMID: 16971256.
3. Yasui, Y., Hannon, C. P., Hurley, E., & Kennedy, J. G. (2016). Posterior ankle impingement syndrome: A systematic four-stage approach. *World journal of orthopedics*, 7(10), 657–663. <https://doi.org/10.5312/wjo.v7.i10.657>
4. Rogers J, Dijkstra P, Mccourt P, Connell D, Brice P, Ribbans W, Hamilton B. Posterior ankle impingement syndrome: a clinical review with reference to horizontal jump athletes. *Acta Orthop Belg.* 2010 Oct;76(5):572-9. PMID: 21138209.
5. Wiegerinck JI, Vroemen JC, van Dongen TH, Sierevelt IN, Maas M, van Dijk CN. The posterior impingement view: an alternative conventional projection to detect bony posterior ankle impingement. *Arthroscopy.* 2014 Oct;30(10):1311-6. doi: 10.1016/j.arthro.2014.05.006. Epub 2014 Jul 10. PMID: 25023737.
6. Hess GW. Ankle impingement syndromes: a review of etiology and related implications. *Foot Ankle Spec.* 2011 Oct;4(5):290-7. doi: 10.1177/1938640011412944. Epub 2011 Sep 16. PMID: 21926368.
7. Robinson P. Impingement syndromes of the ankle. *Eur Radiol.* 2007 Dec;17(12):3056-65. doi: 10.1007/s00330-007-0675-1. Epub 2007 May 15. PMID: 17503050.
8. Milos RI, Fritz LB, Schueller-Weidekamm C. Impingement-syndrome des oberen Sprunggelenks [Impingement syndrome of the ankle]. *Radiologe.* 2017 Apr;57(4):309-326. German. doi: 10.1007/s00117-017-0228-9. PMID: 28324121.
9. Vaseenon, T., & Amendola, A. (2012). Update on anterior ankle impingement. *Current reviews in musculoskeletal medicine*, 5(2), 145–150. <https://doi.org/10.1007/s12178-012-9117-z>
10. Murawski CD, Kennedy JG. Anteromedial impingement in the ankle joint: outcomes following arthroscopy. *Am J Sports Med.* 2010 Oct;38(10):2017-24. doi: 10.1177/0363546510369335. Epub 2010 May 17. PMID: 20479141.