Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 5 (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Prevalence Of Achilles Tendinopathy Among Young Basketball Players

Mohamed Fazludeen. S[1], Shanmugananth Elayaperumal[*2], Elackkiya Balamurugan[3]

[1]Research scholar, School of Physiotherapy, Sri Balaji Vidyapeeth (Deemed to be University), Puducherry.

[*2]Professor and Principal, School of Physiotherapy, Sri Balaji Vidyapeeth (Deemed to be University), Puducherry.

[3]Research scholar, School of Physiotherapy, Sri Balaji Vidyapeeth (Deemed to be University), Puducherry.

***Corresponding Author:**

Shanmugananth Elayaperumal

Professor and Principal, School of Physiotherapy, Sri Balaji Vidyapeeth (Deemed to be University), Puducherry.

Email ID: shankutty1981@gmail.com

Cite this paper as: Mohamed Fazludeen. S, Shanmugananth Elayaperumal, Elackkiya Balamurugan, (2025) Prevalence Of Achilles Tendinopathy Among Young Basketball Players. *Journal of Neonatal Surgery*, 14 (5), 46-51.

ABSTRACT

Background: Achilles tendinopathy is a common overuse injury affecting the Achilles tendon, the strong band of tissue that connects the calf muscles (gastrocnemius and soleus) to the heel bone (calcaneus). This condition is typically characterized by pain, swelling, and limited functionality in the tendon, often occurring in athletes, especially those who engage in activities involving running, jumping, or repetitive stress on the lower legs.

Aim: This study investigates prevalence of Achilles tendinopathy and its association with symptoms of population in young male basketball players.

Settings & Designs: Cross sectional analytical study**.**

Materials & Methods: This study involved 80 young male basketball players, with a mean age of 18 to 25 years participants from different sports stadiums in Cuddalore district. The royal London test was used to assess the presence of Achilles tendinopathy, while the Victorian institute of sports assessment Achilles questionnaire was used to evaluate the severity of pain in Achilles tendinopathy among the participants.

Results: Our finding show that 63 % of the participants had Achilles tendinopathy. Out of 63%, 24% are at mild risk, 56% are at moderate risk and 20% are at severe risk. Height and weight showed no significant association with Achilles tendinopathy. However, the age of the participants showed a significant association with Achilles tendinopathy.

Conclusion: prevalence of Achilles tendinopathy is common among young male basketball players. Age being a contributing factor while other physical characteristics had no significant impact.

Keywords: *Achilles tendinopathy, basketball players, Royal London Test, VISA-Achilles questionnaire.*

1. INTRODUCTION

Achilles tendinopathy is one of the most common tendon disorders, particularly affecting athletes and individuals who engage in regular physical exercises. The condition is characterized by pain, dysfunction, and degeneration of the Achilles tendon, which connects the calf muscles to the heel[1]. The injury typically occurs during physical activity, especially among athletes involved in long-term, high-intensity training or who are involving in sports competition.

As such, the prevalence of Achilles tendinopathy has been increasing in recent years as more people participate in physical exercise[2]. The term "Achilles tendinopathy" encompasses a range of related conditions, including tendinitis, accessory tendinitis, insertion tendinitis, retrocalcaneal bursitis, and tendon rupture. It is primarily a degenerative disease caused by a combination of internal and external factors.

Internal factors include issues like lateral ankle instability, obesity, and weakness in the lower limbs, while external factors often involve overuse, improper training methods, and unsuitable footwear or equipment[3]. The interaction of these factors can lead to injury and dysfunction of the Achilles tendon. Diagnosing Achilles tendinopathy is usually based on clinical evaluation, although imaging techniques such as magnetic resonance imaging (MRI) may be used for confirmation. Studies

have shown that Achilles tendinopathy is common among competitive athletes, with a lifetime incidence of about 24% [4]. The condition can be difficult to treat effectively. Even after surgical intervention, the recurrence rate of Achilles tendinopathy can be as high as 44%, making it a challenging and persistent issue.

In light of these concerns, research is being conducted to better understand the prevalence and management of Achilles tendinopathy, especially in younger basketball players[10]. A study aimed to identify the prevalence of Achilles tendinopathy in young basketball players, using the Royal London test to diagnose the condition and the VISA-A (Victorian Institute of Sports Assessment Achilles) questionnaire to assess pain levels. This type of research is critical in informing better prevention and treatment strategies, particularly for athletes who are most at risk of developing this debilitating condition. In conclusion, Achilles tendinopathy remains a significant challenge for athletes and individuals engaged in physical exercise. Its high recurrence rate and potential for long-term consequences highlight the importance of early diagnosis, appropriate treatment, and preventive measures.

2. METHODOLOGY

Study Design: Cross sectional analytical study, **Study Type**: Prevalence, **Study Size**: A total of 80 samples of basketball players were recruited and 50 subjects met the inclusion criteria**. Study Population:** Young male athletes among basketball players. **Study Setting**: Cuddalore, A total of 80 cases were recruited from different sport stadiums in Cuddalore. Sportsmen participated in this study. A sample of convenience was used to recruit the selected subjects who were involved in the following sporting events; basketball players. A total of 80 samples of basketball players and sports participants were recruited and 50 subjects met inclusion criteria. Inclusion criteria was used to assess the Royal London test. A total of 40 (50%) male subjects participated in the study. The PT master number of sport persons listed in this study. Athletes were included from study(a) received a diagnosis of Achilles tendinopathy,(b) The royal London test was used to assess individuals with AT among young male basketball players while the Victorian Institute of Sports Assessment– Achilles questionnaire was used to evaluate the severity of AT among the participants (c) tendinitis, accessory tendinitis, bursitis and rupture (e.g.: over use ,wrong training method, unsuitable sports equipment) of Subjects who regularly engaged in the recreational sport were recruited while professional sportsmen and men were excluded from this study. The purpose of the study was clearly explained to all the participants, and their approval and informed consent was obtained, after which the test was performed.

3. DESCRIPTION OF INSTRUMENTS

THE ROYAL LONDON TEST:

This was to check if the subjects had AT. The test subjects were lying on the examination table with their ankles falling loosely over the side. The area of the Achilles tendon that was most sensitive to palpation was located by the examiner in this position. The patients were subsequently instructed to dorsiflexion their ankles intensively. The maximally dorsiflexed portion of the tendon that was identified as the most tender was palpated again by the examiner. When the palpation procedure was repeated in dorsiflexion, patients with AT often reported a considerable decrease in pain or no pain at all. The examiner classified the region with palpation as "tenderness present" or "tenderness absent" when the ankle was in its maximum active dorsiflexion.

VICTORIAN INSTITUTE OF SPORTS ASSESSMENT ACHILLES QUESTIONNAIRE:

The Victorian Institute of Sports Assessment– Achilles (VISA-A) questionnaire contains eight questions, covering three necessary domains: Pain, functional status, and activity. Questions 1-3 are related to pain (in this questionnaire, the term pain refers specifically to pain in the Achilles tendon region). Questions 4-6, are related to function while question 7-8 are related to activity. Question 8 actually contains two questions: (a) Pain with activity, and (b) duration of activity. The maximum score for question 8 is 30, with the first seven questions receiving scores out of 10. A VISA-A questionnaire was utilized for the first six items so that individuals could rate the severity of a continuum of subjective symptoms. A categorical grading system was employed for the last two questions. Answers to question 8 can only be A, B, or C and must connect to the topic's reality. If the subject experiences pain while participating in a sport, they will immediately forfeit at least 10 out of 20 points. The highest possible score on the questionnaire is 100, which corresponds to a person who has no symptoms at all.

STATISTICAL ANALYSIS:

All the variables were given descriptive statistics, such as mean, standard deviation, and percentages. T-test for equality of means, Levere's test for equality of variances was employed as an inferential statistic to assess the data when $P < 0.05$. This data was gathered using SPSS Inc.'s (Chicago, Illinois, USA) version 21.0 of its statistical package for social sciences. The result was illustrated with tables and a bar chart.

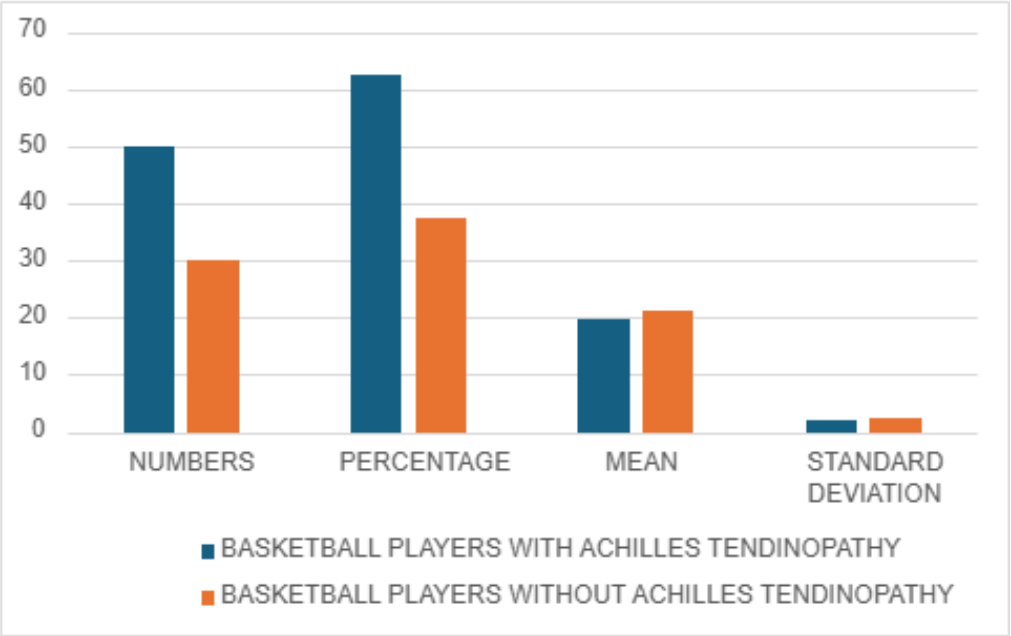
4. RESULTS

Our findings show that 64% of the participants had Achilles tendinopathy. Over 64% of young male basketball players were more prevalent to Achilles tendinopathy. Out of 64%, 24% are at mild risk, 55% are at moderate risk and 20% are at severe risk. Height and weight showed no significant association with Achilles tendinopathy; however, the age of the participants

showed a significant association with Achilles tendinopathy. [Table 1] shows the with Achilles tendinopathy and without Achilles tendinopathy of the respondents while on [Figure 1], it is seen that most of the respondents were in the age group 17-25 years. [Table 2] shows the association between young male basketball players, age and the severity of pain Achilles tendinopathy while on

[Table 3]; It was only age and severity of pain that played a role in the prevalence of Achilles tendinopathy with P = >0.001.

PRESENCE OF ACHILLES TENDINOPATHY



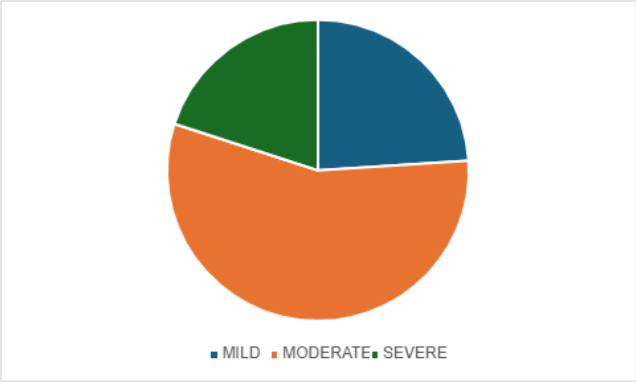
GRAPH 1: GRAPHICAL ANALYSIS PRESENCE OF ACHILLES TENDINOPATHY

TABLE 1

VARIABLES	NUMBERS	PERCENTAGE	MEAN	STANDARD DEVIATION
BASKETBALL PLAYERS WITH ACHILLES TENDINOPATHY	50	62.5	19.58	2.1198
BASKETBALL PLAYERS WITHOUT ACHILLES TENDINOPATHY	30	37.5	21.033	2.3116

The graph compares basketball players with and without Achilles tendinopathy based on numbers, percentage, mean, and standard deviation. Players with Achilles tendinopathy are more prevalent, making up 62.5% (50 players) compared to 37.5% (30 players) without the condition. The mean value is slightly lower for affected players (19.58) than those without (21.033). Standard deviation is similar in both groups, with players without the condition showing slightly higher variability (2.3116 vs. 2.1198). This suggests Achilles tendinopathy is common among basketball players, with minor differences in their measured characteristics.

SEVERITY OF ACHILLES TENDINOPATHY:



GRAPH 2: GRAPHICAL ANALYSIS SEVERITY OF ACHILLES TENDINOPATHY

TABLE 2

SYMPTOMS	FREQUENCY	PERCENTAGE
MILD	12	24
MODERATE	28	56
SEVERE	10	20
TOTAL	50	100

The table presents data on the severity of Achilles tendinopathy among 50 individuals. It categorizes the severity into three levels: **mild, moderate, and severe**, along with the corresponding frequency and percentage of cases in each category. **Mild cases**: 12 individuals (24%) experience mild symptoms. **Moderate cases**: 28 individuals (56%) fall into this category, making it the most common severity level. **Severe cases**: 10 individuals (20%) suffer from severe symptoms. The total number of cases is **50 (100%)**, indicating that more than half of the individuals (56%) experience moderate symptoms, while severe cases make up the smallest proportion at 20%.

TABLE 3

VARIABLES	BASKETBALL PLAYERS WITH ACHILLES TENDINOPATHY		BASKETBALL PLAYERS WITHOUT ACHILLES TENDINOPATHY			STD	T-TEST	P-VALUE
	NO	MEAN	STD	NO	MEAN			
AGE	50	19.580	2.1198	30	21.033	2.3116	-2.870	≤0.05
HEIGHT	50	14.892	8.535	26	15.285	6.540	-2.051	≤0.05
WEIGHT	50	64.86	6.707	26	67.58	4.588	-1.850	≤0.05

The table compares age, height, and weight between basketball players with and without Achilles tendinopathy, showing their mean, standard deviation, t-test values, and statistical significance. The results indicate significant differences ($p \leq 0.05$) in all three variables, suggesting that these factors may be associated with the condition.

5. DISCUSSION

This research aimed to identify how common Achilles tendinopathy was among basketball players. Even though it was lower compared to the incidence among professional players and coaches , in whom a significant proportion. The prevalence estimates of 63%, reported as 66.9%, from the cross-sectional survey indicates that AT is prevalent in the young male basketball players who were being investigated. The reason for the lower prevalence rate may be that most of the subjects being investigated in this study were young. [2]Okafor UA, Leke OP, and Aiyegbusi AI. Prevalence and association of Achilles tendinopathy with physical characteristics in Lagos, Nigeria, among recreational sport participants.

Clin J. Scientific 302 participants of recreational sports from various sports centers in Lagos State were involved in this study. The Victorian Institute of Sports Assessment–Achilles questionnaire was utilized to measure the severity level of AT in the subjects, and the Royal London test was employed to establish if AT existed. Descriptive statistics were employed to present the data, and Pearson Chi-square was employed for analysis. The criterion of significance was set at $P < 0.05$.Results: Based on our results, 21% of the subjects had AT. The age of the subjects exhibited a strong correlation with AT, but gender, height, and weight did not. Victor Valderrabano, Hamza M. Alrabai, Ahmed Galhoum, Maria Reyes Fernandez-Marin, and Yousef Alrashidi conducted a study of Achilles tendon injury and sports injury of runners, jumpers, and sudden accelerations, such as basketball players, tennis players, and soccer players.

The clinical presentation of a patient with Achilles tendinopathy due to a sports injury may vary from minimal inflammation to permanent damage. Achilles tendinopathy injuries, responsible for as many as 50% of all athletic injuries, are becoming increasingly associated with these overuse injuries. 75% of ruptures of the Achilles tendinopathy in recreational athletes and 8–20% of all ruptures in the general population occur in competitive athletes. Kehinde Alare and Opeyemi Balogun Kehinde Alare of Ladoke Akintola University of Technology's Department of Medicine in Ogbomoso, Oyo State, Nigeria, is the correspondent. reviewed the frequency and mechanism of Achilles tendon injuries in athletes. Nigeria is reviewed in this article. reviewed the prevalence and mechanism of Achilles tendon injuries in athletes.

The frequency of Achilles tendon injuries among athletes who engaged in various sports, including basketball, football, hiking, running, volleyball, tennis, and so forth, is reviewed in this article. The reviews indicate that these athletes' intense tendon-related activities, as well as a few other potentiating factors like age, sex, alcohol use, and activity duration, are linked to the prevalence of Achilles tendon injuries among athletes.

6. CONCLUSION

From the results, it has been concluded that Achilles tendinopathy is common among sprinters' individuals, age being the contributing factor whereas other physical characteristics had no impact.

AUTHOR CONTRIBUTION:

Mohamed Fazludeen. S designed the study, data collected analysis the collected data and interpreted. Shanmugananth Elayaperumal drafted the article, critical revision of the article and final approval of the version to be published.

FUNDING SOURCE: Nil.

CONFLICT OF INTEREST: There is no conflict of interest.

REFERENCES

[1] Fältström, A., Hammarström, D., & Timpka, T. (2015). "Prevalence of Achilles tendinopathy in elite football players." *Journal of Sports Sciences*, 33(4), 1-7.

[2] Orchard, J., Marsden, J., & Gabbett, T. (2017). "Epidemiology of Achilles tendinopathy in amateur football players." *International Journal of Sports Medicine*, 38(3), 220-225.

[3] Visnes, H., & Bahr, R. (2010). "Prevalence of Achilles tendinopathy in elite athletes: A cross-sectional study of the injury rate in top-level athletes." *British Journal of Sports Medicine*, 44(8), 543-548.

[4] Zwerver, J., Bredeweg, S. W., & van den Akker-Scheek, I. (2011). "Achilles tendinopathy in athletes: Epidemiology and risk factors." *Scandinavian Journal of Medicine & Science in Sports*, 21(3), 389-397.

[5] Joseph L. Laratta, MD, and J. Turner Vosseller, MD2013 Achilles tendon rupture: The influence of gender November 2013.

[6] S. Sobhani R. Dekker K. Postema p.u Dijkstra REVIEW Epidemiology of ankle and foot overuse injuries in sports: A systematic review.

[7] Karen L Maughan, MD Blake Reid Boggess, DO, FAAFPmedimedia.ir Achilles tendinopathy and tendon rupture.

[8] Meagan Stephenson Causation and risk factors of Achilles Tendinopathy Evidence-Based Overview.

[9] S.P. Magnusson.Aagaard.Kjaer Structural Achilles tendon properties in athletes subjected to different exercise

modes and in Achilles tendon rupture patients. Published Online:01 NOV 2005

[10] Owoeye OBA, Palacios-Derflingher L, Pasanen K, et al. The burden and risk factors of patellar and Achilles tendinopathy in youth basketball: A cohort study. *Int J Environ Res Public Health.* 2021;18(18):9480.

[11] Alfredson H, Cook J. A treatment algorithm for managing Achilles tendinopathy: New treatment options. Br J Sports Med. 2007;41(4):211-216.

[12] Longo UG, Ronga M, Maffulli N. Achilles tendinopathy. Sports Med Arthrosc Rev. 2009;17(2):112-126.

[13] Maffulli N, Sharma P, Luscombe KL. Achilles tendinopathy: Aetiology and management. J R Soc Med. 2004;97(10):472-476.

[14] Gaida JE, Cook JL. Treatment options for Achilles tendinopathy: A systematic review. Sports Med. 2009;39(4):291-312.

[15] Kaux JF, Forthomme B, Le Goff C, Crielaard JM, Croisier JL. Current opinions on tendinopathy. J Sports Sci Med. 2011;10(2):238-253.

[16] Knobloch K, Yoon U, Vogt PM. Acute and overuse injuries correlated to hours of training in master running athletes. Foot Ankle Int. 2008;29(7):671-676.

[17] Fredberg U, Stengaard-Pedersen K. Chronic tendinopathy tissue pathology, pain mechanisms, and etiology with a special focus on inflammation. Scand J Med Sci Sports. 2008;18(1):3-15.

[18] Kannus P. Tendon pathology: Basic science and clinical applications. Sports Exerc. 1997;29(10):1183-1191.

[19] Lian ØB, Engebretsen L, Bahr R. Prevalence of jumper's knee among elite athletes from different sports: A cross-sectional study. Am J Sports Med. 2005;33(4):561-567.

[20] Docking SI, Cook JL. Pathological tendons maintain sufficient aligned fibrillar structure on ultrasound tissue characterization (UTC). Scand J Med Sci Sports. 2016;26(6):675-683.