

Prevalence of Ankle Sprain Among Athletes of Educational Institutes of Faisalabad

TAHREEM ATTA MIR¹, RABIA MAHBOOB SUBHANI², MEHREEN JABBAR³, SAJJID MEHMOOD³, WAQAS LATIF⁴, TALHA LAIQUE⁵

¹Department of Physio-Therapy, Omar Arshad Hospital, Gujrat-Pakistan

²Department of Physio-Therapy, Allied College of Health sciences, Multan-Pakistan

³Department of Physio-Therapy, University of Lahore, Lahore-Pakistan

⁴Department of Biostatistics, University of Health Sciences, Lahore-Pakistan

⁵Department of Pharmacology, Allama Iqbal Medical College, Lahore-Pakistan

Correspondence to: Dr. Talha Laique, Email: talhalaique51@gmail.com, Tel:+92-331-0346682

ABSTRACT

Physical activities keep a man physically and mentally healthy. Most common site of sports injury among athletes is lower extremity. Ankle sprain are common in female players.

Purpose: To determine the prevalence of ankle sprain among athletes and to compare prevalence between male and female athletes.

Study Design: Cross-sectional study.

Methodology: FAOS questionnaire along with consent form was given to all participants for data collection. Duration of study was 3 months (November 2018-January 2019) after approval from ethical research board in the Department of Physio-Therapy at GC-University, Faisalabad-Pakistan. Athletes (n=80) including both genders with different age groups were enrolled in present study. Subjects who had systemic diseases like BP and DM), ankle/foot surgery previously and unwilling to participate were ruled out.

Statistical analysis: Data was analyzed through SPSS v21. Age and gender were presented as frequency and percentages. Chi-square test was applied with p-value <0.05 as significant.

Results: Sport with highest frequency (22) and percentage (27.5) was basketball followed by hockey having frequency of 17 and percentage 21.3%. there is strong relationship between life style modification due to pain/injury

Conclusion: The survey reported that females from different sport formats were more injured than males. Also, that injury of tarsal joint related with compromised activities of daily living and restriction in participation. Injured athletes reported that due to injury, there was an effect on quality of their life and trouble with lack of confidence.

Key words: Contestants, Ankle Joint Sprain and Ligamentous Injury.

INTRODUCTION

Sports injuries are positioned second highest on basis of cause of injury after home and leisure accidents¹. In sport activities ankle joint is second frequent spot of damage². A sizeable peril rate of twisted ankle surrounded by indoor players was acknowledged by Doherty et al, in his meta-analysis study³. Ankle joint is articulation between distal ends of long bones (tibia and fibula) of lower limb and body of talus of foot complex⁴. Ankle and foot are the principal elements providing body posture and stability. Foot customs are in support and in propulsion⁵. Sprain is partial or complete tear of ligaments due to stretching beyond their normal limits. Ligaments are the heavy bands of fibrous connective tissue connecting bones or cartilage together and clench joint in position⁶. Ligaments are alike screws holding door (here door is bone)⁷. Ankle, knee, wrist and thumb are the most often sites of sprains⁸. Ankle sprain is the disruption of one or more ligaments in the tarsus joint, mostly encompassing the lateral compartment of ankle joint. The ankle joint ligaments are responsible for stability by restricting back and forth movement⁹. These are the frequent documented sprains⁶. It can affect anyone at any age¹⁰. General causes may include any rotational force to lower leg or foot, walking on bumpy surface and Fall down while specifically related to athletes are sport type such as collision sports, hitting with other player in field cause your ankle to roll and wearing imp roper shoes^{9,10}.

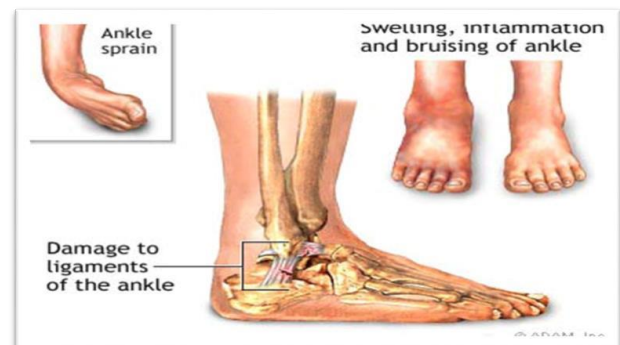


Figure-1: Depiction Of Ankle Sprain Facts

It was suggested by Williams that extrinsic risk factors for ankle injuries include sport types, kit, ankle taping and bracing, game span and coercion of competition, passion, playing ground and playing position. Previous sprain, sex, foot kind (supinated, neutral and pronated) and size, ankle instability, height, weight, generalized joint laxity, lower limb strength, anatomic malalignment, ankle ROM, postural sway, muscle reaction time and limb dominance are ankle injury intrinsic risk factor¹¹.

Inversion sprains results in tear to lateral both ligaments of tarsal joint due to forceful inversion and plantarflexion. Excessive pressure during eversion of foot leads to eversion sprain causing tear of medial collateral

ligament of ankle. Syndesmotoc ligamentous splits are due to sudden or forceful external rotation and dorsi-flexion^{12,13}.

All-around athlete is one who is the contestant of multiple games at higher level. In the beginning, the athletes were players in general but in 19th century the term developed a more precise description that is competitive sports for instance running, walking, jumping and throwing¹⁴. Subtalar joint is the connection of heel and ankle bone. Principal action of joint is inversion and eversion of foot. The distal tibiofibular joint is devised by the contrasting roughened surfaces of lower ends of tibia and fibula¹⁵. Indispensable operation of joint is to magnify stability instead of additional ankle or foot movement¹⁶. Due to increasing burden of ankle sprain injury among athletes, we planned current study to evaluate its prevalence among them.

Objectives: To determine the prevalence of ankle sprain among athletes and to compare prevalence between male and female athletes.

Methodology: FAOS questionnaire along with consent form was given to all participants for data collection. Duration of study was 3 months from November 2018 to January 2019 after approval from ethical research board in the Department of Physio-Therapy at GC-University, Faisalabad-Pakistan. Athletes (n=80) including both genders with different age groups were enrolled in present study. Subjects who had systemic diseases like BP and DM), ankle/foot surgery previously and unwilling to participate were ruled out.

Statistical analysis: Data was analyzed through SPSS v21. Age and gender were presented as frequency and percentages. Chi-square test was applied with p-value <0.05 as significant.

RESULTS

The sample stratified into three classes of age with class interval of 1 and presented as frequency in table-1.

Table-1: Demographic Data Distribution (n=80)

Variables	Frequency	Percentage (%)	
Gender	Males	32	40
	Females	48	60
Age (years)	14-18	20	25.0
	19-23	33	41.3
	24-28	27	33.7

Table-2: Frequency And Percentage Of Sport Type

Sports	Frequency	Percentage (%)
Badminton	12	15.0
Basketball	22	27.5
Football	15	18.8
Cricket	07	8.8
Hockey	17	21.3
Netball	03	3.8
Volleyball	03	3.8
Long RACE	01	1.3

Sport with highest frequency (22) and percentage (27.5) was basketball followed by hockey having frequency of 17 and percentage 21.3% as shown in table-2.

There was a substantially different outcomes between males and females with t-value (-2.10) as shown in table-3.

Table-3: Difficulty In Walking On Flat Surface (n=80)

Gender	Mean	SD	Df	t.value	p.value
Male	0.28	0.68			
			78	-2.10	0.03
Female	0.79	1.25			

There was a substantially different outcomes between genders with p-value (0.04) as shown in table-4.

Table-4: Degree Of Difficulty In Doing Squatting (n=80)

Gender	Mean	SD	Df	t.value	p.value
Male	0.37	0.90			
			78	-2.10	0.04
Female	0.95	1.45			

Table-5 demonstrated that there is strong relationship between life style modification due to pain/injury. The findings narrate that due to injury, athletes modulate their life style particularly, painful activities.

Table-5: Life Style Modifications With Pain/Injury

	Value	Df	Asymptotic significance(2sided)
Pearson chi square	110.701 ^a	16	.000*
Likelihood ratio	103.786	16	.000*
Linear by linear association	65.469	1	.000*

*Statistically significant

DISCUSSION

The study aims to evaluate prevalence of ankle sprain among athletes of educational institutes of Faisalabad and the effect of injury on quality of life. The previous literature about sports injuries strongly supports the statement that lower limb particularly more distal joints i.e. ankle joint and knee joint suffered more severe injuries than upper body.¹⁷ McKay, et al (2001) stated that injury severity substantially linked with section of body region which is injured and received data delineated more complicated misery to lower extremity than upper extremity. In the current study, 22 injuries of ankle joint out of 80 participants were documented.¹⁷ The age of these injured contestants was of certain number of 14-28 years.

The previous literature about injury of ankle sprain reported injury rate less than 1/1000days of exposure to sport. Also narrated that injury risk of female athletes related to sport type and analyzed that female basketball athletes were at higher rate to damage their ankle than their male counterpart basketball athletes. Other study by Hosea et.al, 2000 ended up by the result that female basketball athletes of high school and college level had greater risk of grade-I injury than male athletes of similar game.¹⁸ The current study's findings were un-fluctuating with previous study. Most of these 22 reported injuries were related to female gender which concludes that female athletes were at more chance of damage to their ankle ligaments. But the contemporary study did not take injury grades into consideration.

The former study about athletic injuries documented more of the strain/sprain injuries treated from June 1976 to July 1983. In case of females most common injured area was again knee and ankle. The research recorded 202

ankle sprain/strain injuries in males from total of 915 males. In case of females, the females with ankle sprain/strain were 62 out of small female total of 198. In case of females, most commonly observed injury was sprain/stain of knee joint followed by ankle joint. The existing study had no conflicting findings. The study like former study concluded that more of the female participants were injured than males.

Meta-analysis findings were also supporting the statement that females were at higher risk of injury than males. Meta-analysis comprised of 116 high quality studies and 65 low quality papers. On defined criteria, only 2 papers secured full marks, 9 studies gained 10/11. The unified figure of incidence of ankle problem in low-ranked studies was 21 times smaller than high-ranked studies. The studies used different descriptions to describe exposure time i.e. some studies used injuries/1000 exposure or injuries per exposure h. The current study also found that ankle sprain was prevalent among athletes. Also, that females are at higher risk to hurt their ankle than their counter partners.

The earlier study described physiological and power dissimilarities in males and females. The study assessed relative risk of tarsal joint injury. The survey analyzed that female players were at higher risk of ankle injuries particularly sprain of grade I. The investigation demonstrated no difference between males and females for grade II and grade III ankle sprains, syndesmotic sprains and fractures. The risk of injury was doubled in athletes of college level. The

contemporary study reported ankle injuries in athletes and out of these reported injuries, most of injured sportspersons were females.

Limitation: Our study had several limitations like financial constraints, time restrictions, small sample number and fewer resources.

CONCLUSION

The survey reported that females from different sport formats were more injured than males. Also, that injury of tarsal joint related with compromised activities of daily living and restriction in participation. Injured athletes reported that due to injury, there was an effect on quality of their life and trouble with lack of confidence. Similarly, ankle sprain was the frequent complain by athletes while performing their professional activities.

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