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An Analysis of Common Sports Injuries in Upper and Lower Extremities among Athletes

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Abstract: Injuries are part and parcel of any sport and many a time, injuries have detrimental effect of the performance and the career of a sportsperson. The injuries can be of many types ranging from mild to severe. Thus injury can have an inhibiting effect or even prohibit a sportsperson from completely abandoning the sport. Injury can occur in many places in our body. The extremities invariably suffer the most injuries as they have maximum mobility. Injuries also occur during season when the sportspersons are putting in their maximum effort to enhance performance. Hence, this investigation was instituted to identify the common sports injuries post season in upper and lower extremities among athletes of six-week certificate course in sports coaching. The athletes who took part in various competitions at the national and state level participated. They belonged to different parts of India and their age range was 22 to 30 years. The result of the study, indicated that more injuries were found in lower extremities (70.88%). The study also identified knee injury as the most common injury. 50% of athletes showed knee pain. The cause identified for of this was hard surface, improper equipment, lack of strength, lack of technology use and improper diet. The data were collected through questionnaire and interview to the athletes. The study concluded that lower extremity injuries are more common in the selected athletes.

Keywords: Knee Pain, Sports Injuries, Sportspersons

INTRODUCTION

Sports injuries are common among persons engaged in sports activities or competition or practice session. Injuries can happen any time while involving in sports activities. It also damages the tissues, ligaments, cartilage, bones and internal body parts. Some of the injuries are caused by the nature of game itself, some other injuries could be caused due to impact of external implements. Most other injuries happen due to improper training, equipment problems, poor conditioning or no warm up and so on. While performing sports activities that involves muscular and skeleton system, any part of the body can get injured. Injuries are basically classified into two type's chronic and acute injuries. Chronic injuries are ones that occur over longer periods of time due to exposure to prolonged stress such as overuse injuries and acute injures are injuries that occur suddenly during a performance such as a hamstring pull.

The treatment of any sports injury depends upon its type. The immediate care of common sports injuries such as strain, sprain, contusion etc., consists of five step protocol called PRICE. The term PRICE is an acronym for protection, rest, ice, compression, and elevation (Tripp, 2014).

Injuries are common in sports and it is the extremities that are more often at risk while performing or during a career of a sportsperson. Such injuries can have a profound effect on the mental and physical side of the sportsperson (Jaiswal, 2007). Hence, this study was initiated to find out the most common post seasonal sports injuries among athletes who participated in the six-week certificate course in sports coaching.

METHODOLOGY

Thirty athletes who participated in the Netaji Subash National Institute of Sports, six week certificate course organized by SRM Institute of Science and Technology, Chennai, India were selected. The age of the participants ranged from 22 to 30 years. The various injuries of our body such as the ankle, knee, shoulder, hip, elbow, wrist, back, finger, muscle tissue and neck were taken into account. Information pertinent to management of the injuries like the causes and treatment were sought and recorded.

This survey type research elicited responses from the participants through a standardized questionnaire developed by the University of Delaware and reviewed by experts. The title of the questionnaire is 'Exit Evaluation questionnaire'. The questionnaire for the study consisted of nine questions and a 3 point/5 point rating scale. ((Jaiswal *et.al*, 2011; Jaiswal, 2012; Sandeep, 2019).

The data were collected from the participants through the questionnaire and personal interviews with the participants. The gathered information was recorded in detail based on the objectives of the study. In order to get the required co-operation, the investigator explained the purpose of the study, and procedure to be followed to all the participants. The participants were free to withdraw from the study at any point of time without giving any reason for it. However, no such withdrawal occurred. The questionnaire were given to the participants at their time of convenience. The interview was also conducted during such time to elicit the required information. Since, all the participants were present in one campus all were approached at respective time slots given by them,

The gathered data were classified statistically into to frequencies and descriptive measures. To explain the relative incidence of injuries, their causes, treatment and other relevant information percentage method was applied.

Table 1: Percentage Indications of Injuries to Different Part of Skull

Different part in skull	*Injuries*	
	Frequency	*Percentage*
Head	4	13.33
Right eye	0	0
Left eye	0	0
Nose	1	3.33
Jaw	2	6.66

Figure 1: Percentage Indications of Injuries to Different Part of Skull

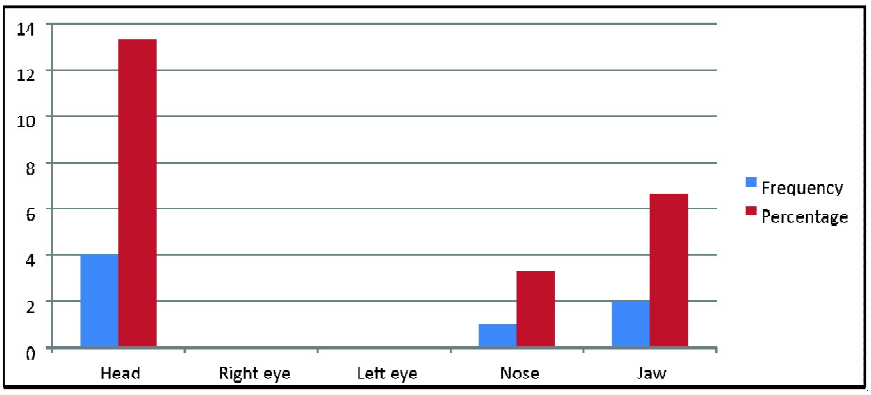


Table.1 indicates the percentage of injuries in different parts of skull. Head injury percentage of 13.33% was more than other parts. Jaw injury also seemed common in athletes at 6.66%. 3.33% constituted nose injuries. No other injuries seemed to affect the athletes.

Table 2: Percentage Indications of the Injuries to Different Part of Upper Extremity

Different part in upper extremity	*Injuries*	
	Frequency	*Percentage*
Right shoulder	8	26.66
Left shoulder	4	13.33
Right upper arm	2	6.66
Left upper arm	1	3.33
Right elbow	3	10
Left elbow	1	3.33
Right forearm	0	0
Left forearm	0	0
Right wrist	1	3.33
Left wrist	3	10
Right hand fingers	2	6.66
left hand fingers	1	3.33

Figure 2: Percentage Indications of Injuries to Different Parts of Upper Extremity

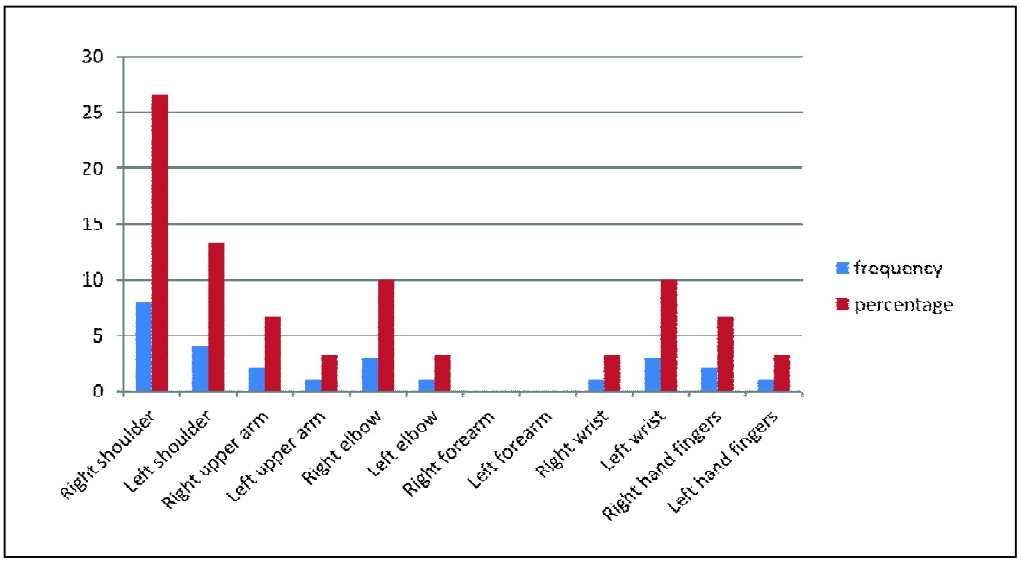


Table 2 indicates the injury percentage to the different parts of the upper extremity. Greater percentage of injuries occurred to right shoulder (26.66%) and left shoulder (32.9%). 10% of players had injuries to their left wrist and right elbow. 6.66% of players had occurrence to right hand finger injuries and right upper arm. 3.33% of players had right wrist injuries, left finger, left elbow and left upper arm injuries. Right forearm and left forearm did not have any injuries.

Table 3: Percentage Indications of Injuries to Different Parts of Chest

Different part in chest	*Injuries*	
	Frequency	*Percentage*
Right clavicle	1	3.33
Left clavicle	1	3.33
Sternum	0	0
Right ribs	0	0
Left ribs	1	3.33

Table 3 indicates injuries to different parts of the chest. 3.33% of players had injuries to their right clavicle, left clavicle and left rib. None of the participants reported injuries to the sternum and right ribs.

Figure 3: Percentage Indications of Injuries to Different Parts of Chest

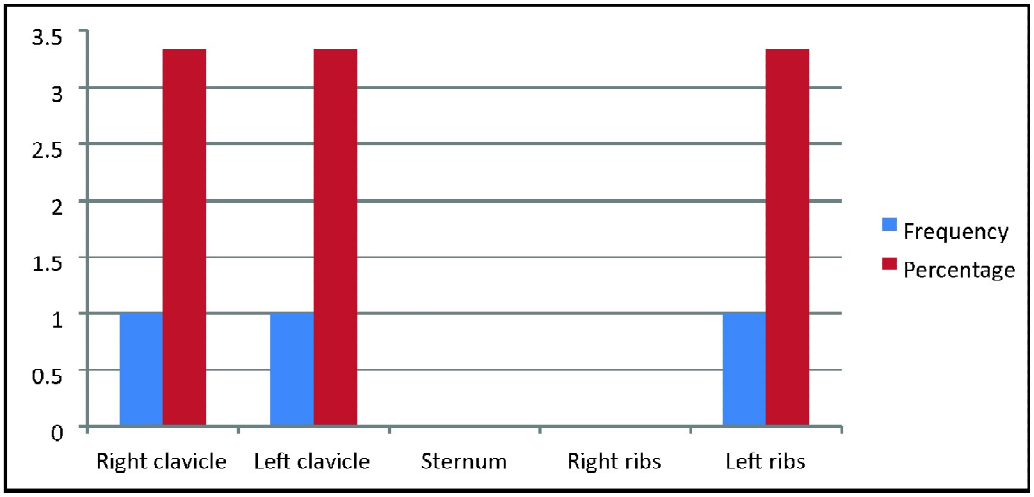


Table 4: Percentage Indications of Injuries to Different Part of Spine

Different part in spine	*Injuries*	
	Frequency	*Percentage*
Neck	1	3.33
Mid back	1	3.33
Low back	8	26.66

Figure 4: Percentage Indications of Injuries to Different Part of Spine

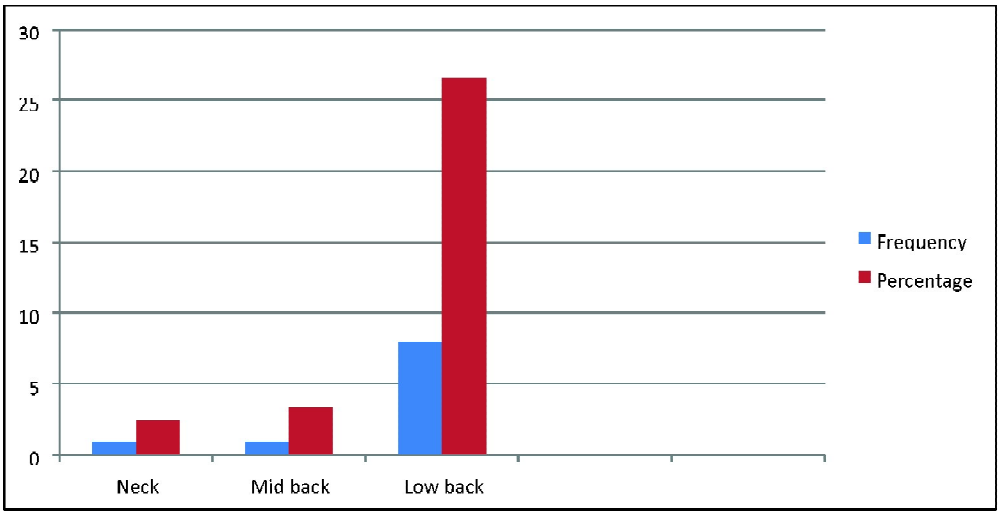


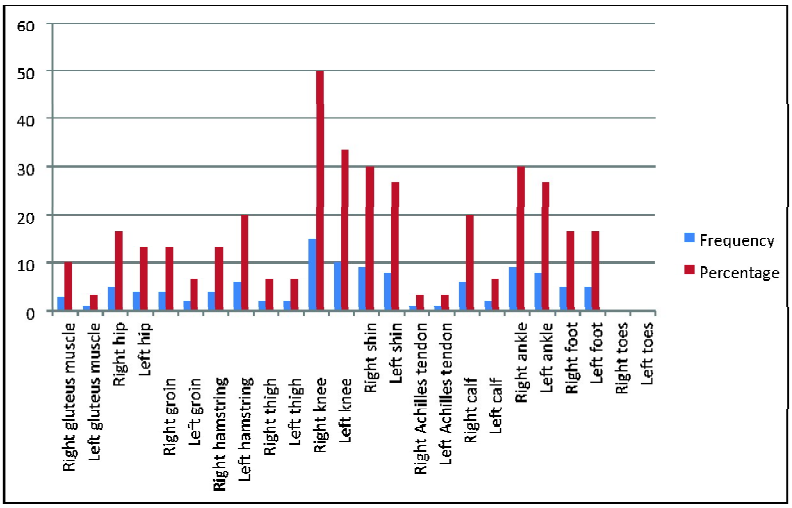
Table 4 indicates injuries to different parts of spine. 26.66% of players had reported lower back injuries. 3.33% players had neck and mid back injuries.

Table 5: Percentage Indications of Injuries to Different Parts of Lower Extrimity

Muscles from different parts of lower extremity	*Injuries*	
	Frequency	*Percentage*
Right gluteus	3	10
Left gluteus	1	3.33
Right hip	5	16.66
Left hip	4	13.33
Right groin	4	13.33
Left groin	2	6.66
Right hamstring	4	13.33
Left hamstring	6	20
Right thigh	2	6.66
Left thigh	2	6.66
Right knee	15	50
Left knee	10	33.33
Right shin	9	30
Left shin	8	26.66
Right Achilles tendon	1	3.33
Left Achilles tendon	1	3.33
Right calf	6	20
Left calf	2	6.66
Right ankle	9	30
Left ankle	8	26.66
Right foot	5	16.66
Left foot	5	16.66
Right toes	0	0
Left toes	0	0

Table 5 indicates percentage of injuries to various parts of the lower extremity. Greater percentage of injuries was reported to the right knee (50.0%). Left knee was injured for 33.33% of the participants followed by right ankle and right shin at 30.0%. Left ankle and left shin injury was reported in 26.66% whereas 20% of the participants reported left hamstring and right calf injuries. 16.66% of participants reported injuries to right hip, right foot and left. 13.33% of participants had occurrence to right hamstring injuries, left groin and left hip injuries. 10% of participants reported left gluteus injuries and 6.66% of

Figure 5: Percentage Indications of Injuries to Different Parts of Lower Extremity



participants had injuries to their left groin, right thigh, left thigh and left calf. 3.33% of participants had left gluteus, Left Achilles tendon and Right Achilles tendon injuries. No players had reported right toes and left toes injuries.

Table 6: Percentage Indications of Persons who Reported other Injuries

Number of persons reported	*Frequency*	*Percentage*
Yes	1	3.33
No	29	96.66

Figure 6: Percentage Indications of Persons who Reported other Injuries

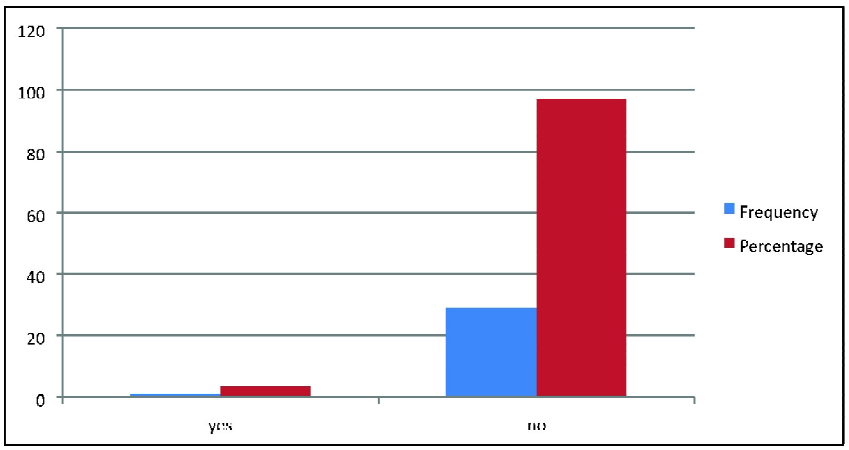


Table 6 shows the percentage of participants who reported other injuries. Only one participant reported other injuries. The rest did not report any.

Table 7: Percentage Indications of Number of Players Reported the Injuries to Coach

Number of persons reported	*Frequency*	*Percentage*
No	9	30
Yes	21	70

Figure 7: Percentage Indications of Number of Players Reported the Injuries to Coach

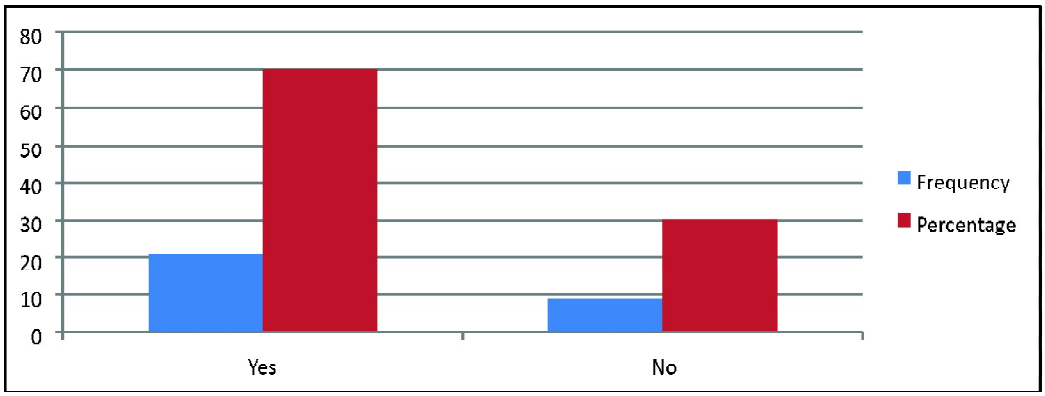


Table 7 shows the number of participants who reported the injuries to their coaches. 70% of participants had reported the injuries while the remaining 30% of participants did not report the injuries to their coach.

Table 8: Percentage Indications of Symptoms among Participants

Symptoms	*Frequency*	*Percentage*
Headache	4	13.33
Local numbness	2	6.66
Joint pain	14	46.66
Blood in urine	0	0

Table 8 provides data on the symptoms experienced by the participants such as headache, local numbness, lingering joint pain and blood in urine after injury. 46.6% of participants felt lingering joint pain. 13.3% percentage of participants reported occurrence of headache and 6.66% percentage reported local numbness.

Figure 8: Percentage of Symptoms among the Participants

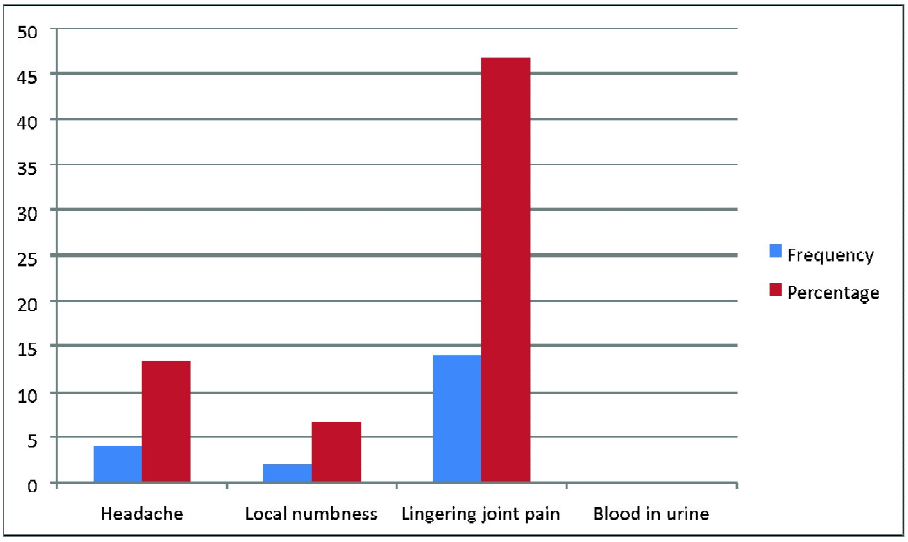


Table 9: Peresentage of Players who Meet with Sports Medicine Physician after the Injury for Rehabilitation

Options	*Frequency*	*Percentage Reported to the Medical Physician*
No	10	33.3
Yes	20	66.6

Figure 9: Perecentage of Players who Meet with Sports Medicine Physician after the Injury for Rehabilitation

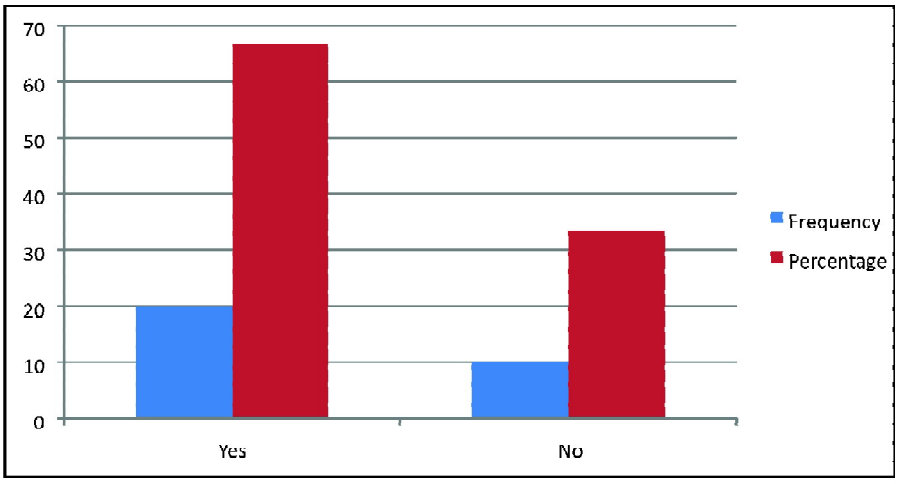


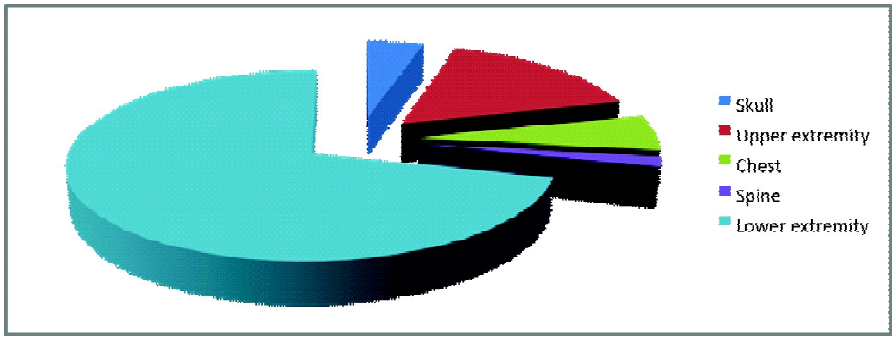
Table 9 shows the percentage of participants who meet with sports medicine physician after the injury for rehabilitation. 66.6% of the participants had meet sports medicine physician while 33.3% did not.

Table 10: Percentage of Injuries to Different Anatomical Regions

Anatomical region	*Percentage of injury*
Skull	4.43%
Upper extremity	16.45%
Chest	1.89%
Spine	6.32%
Lower extremity	70.88%

Table 10 presents the percentage of upper and lower body injuries. Greater percentage of occurrence of injury was reported in lower extremity (70.88% while 16.45% of players had injuries to their upper extremity. 6.32% of players reported spine injuries and 4.43% of players experienced skull injuries. Only 1.89 % of the players had chest injuries.

Figure 10: Percentage Data Showing Injuries in Different Anatomical Parts



DISCUSSION

The result of the study indicated more injuries to the lower extremity (70.88%). The possible cause could be that most of the athletic events involve running, jumping and hopping which involves substantially high forces acting on the lower extremity than upper extremity. In this study it was most detrimental to the participants' career. This issue could be addressed by focusing well during the preparatory phase of training. Use modern equipment to achieve greater fitness level combined with proper diet could help in reduction of injuries.

This study showed that knee injury was most common. 50% of athletes reported knee pain. The cause of such injuries could be the hard training surface, improper equipment

lack of strength training. The analysis proved that there was a significant difference in lower and upper extremity injuries and also significant difference between the injuries in all anatomical regions,

CONCLUSION

It was concluded that lower extremity injuries were more common to athletes. Most common sports injuries in athletes was knee injury. The focus should be to prepare the athlete will during preparatory phase so that the required fitness and strength will carry him through the competition season. No causes should be taken lightly however less the occurrence may be. The athletes could be counselled on appropriate rehabilitation method so that they can recover and continue their career.

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