International Journal of Academic Scientific Research
ISSN: 2272-6446 Volume 5, Issue 4 (November - December2017), PP 30- 40
www.ijasrjournal.org

Common injuries among athletes and non-athletes football players in Kuwait

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Abstract ***:Introduction:*** *Football is the most common sport played not only in Kuwait but also worldwide. This sport is not limited to athletes only; many of non-athletes practice it regularly on a daily basis. Football injuries are very common, caused by different factors that can be eradicated by preventive measures .**Aim:** This study is conducted to find out the prevalence of most common football injuries among athletes and non-athletes in Kuwait, in order to prevent these injuries. **Method:** This study was held in several Kuwait clubs and 2 malls in Kuwait to include athletes and non-athletes players. Our study tool is a questionnaire distributed from June 2013 to September 2013. It is a cross sectional study with a sample size of 400 Kuwaitis including 200 athletes and 200 non-athletes. All samples were chosen randomly to capture the inclusion criteria. **Result:** From our results, we established that the most common injury among athletes is the ankle in both age groups (above 18 and under 18 years old) On the other hand, the most common injury in non-athletes differs in both age groups making the knee the most injured site in above 18 years old and the hand in under 18 years old. Also we found that,lack of warm up is the most common cause of these injuries in both, athletes and non-athletes.**Conclusion and Recommendation:** We have seen that the prevalence of football injuries in Kuwait this year is 79%.We recommend the Authority of Youth and Sports to educate the players about protective methods to prevent injuries.*

Keywords: *Football, athletes, injury*

Introduction

Football is the world's most popular sport played among various age groups. According to (Federation International de Football Association), FIFA, there are 265 million male and female players all over the world.[1]Ranging from local youth players up to professional players, injuries are common. There is no exact definition for football injury but according to F-MARC definition it is, any physical complaint caused by football.[2]When reviewing the published literature on football injuries, the overall incidence of injury in football is between 9 and 35 injuries per 1000 hours of football in adults, and between 0.5 and 13 injuries per 1000 hours of football in adolescents.[3] Approximately one quarter to one third of all football injuries are due to overuse and develop over a period of time.[3]

We conducted this research in order to estimate the prevalence of football injuries in Kuwait, to have more knowledge about the risk factors associated with them and to know the most common injuries among football players. Moreover, we want to find out the relationship between using preventive measures (e.g. warming-up) before and after playing and prevention of injuries. At the end of this research, we will be able to show the importance of using the preventive measures before and after playing to lower the risk of getting injured, so efforts can be made to overcome this problem by different ways.

Literature review

Football is a sport with high injury prevalence. A research conducted in Monaco have shown that the prevalence of injuries has been increasing since 1997 and continued the upward trend since 2003.[4] Another research that was done in Kuwait in 2011 showed that the prevalence of football injury is 69%. Sports injuries are highly prevalent among professional athletes in Kuwait and further studies are required to offer strategies for interventions that may reduce such injuries.[5]

These injuries vary widely according to the place that injured, so it can be in upper or lower limbs, head, face, and neck, as well as the pelvis.[6] Head injuries are not that common.[7][8] However, as the football players use their heads sometimes to shoot the ball, they may lead to brain injuries such as, concussion.[9] According to many studies, neck injuries may occur[10] but it is also uncommon.[8] In case of neck injuries, it may affect the cervical vertebra.[11] Another position of injury is the shoulder. According to the study done in elite collegiate for football players, the most common shoulder injuries involvedacromioclavicular separation, rotator cuff injury, clavicle fracture as well as anterior and posterior instability.[12] The injury also may involve hand or wrist including fractures, sprains and tendonitis.[13] However, a research done in Spain showed that 89% of football injuries affect the lower limbs, and that the thigh was the most commonly injured region.[14] In Madrid, a study was conducted and refilled that 50% of all injuries observed were ligament sprains and muscle strains.[15] The number of strains wasn't equal between the four major groups from the lower limb as hamstring strains were more frequent than adductors, quadriceps and calf muscles strains.[14] Furthermore, one of the most common musculoskeletal injuries in football is knee injury,[16] especially anterior cruciate ligament (ACL) injury.[17] However, anterior cruciate ligament injuries are more common during the match than during training.[18] Moreover, ankle sprain is considered to be one of the most common football injuries particularly lateral ankle sprain.[19]

Some injuries are confined to a specific period of time and that the risk of injury increases with time in each half of matches. A study that was done in Linköping University has shown that injury incidence was higher during matches than in training. The incidence of match injuries showed increasing injury results over time in both the first and second halves. Traumatic injuries and hamstring strains were more frequent during the competitive season, while overuse injuries were common during the pre-season.[20]

There are several risk factors that cause football injuries such as inadequate warm-up, gender, aging, previous injury, muscle weakness and the type of grass. Males and females have different susceptibility to injuries. Males have shown higher injury incidence than females. A study was done in America to compare the incidence of injuries sustained on grass and new artificial grass by male and female footballers. It showed that in both grass and artificial grass, males were more likely to get injured in the lower limb. The most commonly injured locations in males were the ankle and thigh. On the other hand the most commonly injured structures among female players were knee and knee and ankle.[21]An additional study was done to determine the effect of playing surface on the rate of injuries among American football players. It confirmed that the rate of ACL injury on artificial surfaces is 1.39 times higher than the injury rate on natural grass surfaces.[22]

Regarding previous injuries, there is a research that showed previous hip or groin injury during junior football years will lead to a new hip or groin injury during elite level and they will miss the game. [23] Another study was conducted to illustrate how strongly could the previous injury influence a subsequent injury. It showed that among 469 subsequent injuries 15.6% were coded to be influenced by previous injuries. [24]

A research confirmed that general injuries affect older players more specifically than other players. Concerning the hamstring injuries, the risk factors involve previous hamstring injury and age. [25] Another research was done to identify risk factors corresponding for hamstring injury at the community level of Australian football and it illustrated that increasing age and decreased quadriceps flexibility were identified as significant independent predictors of the time to sustaining a hamstring injury.[26]A study was made to identify the relation between obesity and incidence of injuries among football players showed that elevated body mass (body weight > 90 kg) was associated with a 2.5 times higher relative risk of injury.[27]

In order to prevent such injuries, there are several preventive strategies to be done. To return to play, an injured player's symptoms must be completely gone.[28] A study was done to evaluate the effects of a prevention program on the incidence of soccer injuries in male youth amateur and concluded that the injuries are 21% fewer in the intervention group.[29] Players should maintain fitness and warm-up. They should stretch before playing to prevent injuries.[28]Researches have shown that cold muscles are more susceptible to injury. This can be done in warming up with jumping jacks, stationary cycling or running or walking for 3 to 5 minutes. Then slowly and gently stretch, holding each stretch for 30 seconds.[28] Cooling down is important as it helps in reducing muscle soreness and keep it long and flexible.[28] Moreover, plyometric and agility exercises are important to reduce the chance to get injured.[30] Additionally, hydration is important for the players as it helps in cooling the body through sweating and evaporation of the sweat.[28] Also,wearing shin guards helps in protecting the lower limbs.[28] Shoes with screw-in cleats are associated with a higher risk of injury but they should be worn when more traction is needed, such as on a wet field with high grass.[28] Furthermore, wearing properly fitted protective equipment, such as thigh pads, can help in preventing thigh hematomas.[31]

Study Aim

- To find out the prevalence of most common football injuries among athletes and non-athletes in Kuwait in order to prevent these injuries

Objectives

- To find out the most common football injuries among athletes and non-athletes
- To study the risk factors that lead to these injuries

Methodology

A sample of 400 was taken, 200 from each group (athletes and non-athletes). The athletes were selected randomly from famous clubs in Kuwait and two age groups were taken, >18 years old and <18 years old. The non-athletes were selected randomly from big malls in Kuwait with the same age groups.

Study design

A cross-sectional study

Study population

- Athletes: football players in certain clubs in Kuwait (al-qadseya, al-arabi, al-yarmouk, al-salmiyah, al-tathamon, al-nasser, al-shabab and al-jahra sport clubs)
- Non-athletes: randomized selection from the general population in the most famous malls in Kuwait (360 mall & the avenue mall)

Sample size

Since we estimate the prevalence we use this equation to calculate the sample size,

$$n= \frac{(Z_{1-a/2})^2 . P (1-P)}{E^2} = 384$$

Considering that:
Confidence interval (CI): 95% so $Z_{1-a/2} = 1.96$
Expected Prevalence = 50%
E = 0.05
So the sample size was 384 but an estimated sample size of 400 was taken, 200 from athletes and 200 from non-athletes

Study instrument

The players answered a written questionnaire. It consists of demographic data (name, age, etc…) history of injuries and other questions related to our study

Sample technique

Convenient sampling for the athletes and non-athletes groups was used as a sample technique in this study

Data Analysis

SPSS was used for entry, review and analysis of the data; quantitative data was analyzed using chi-square test. ??

Inclusion criteria

Athletes who are playing football in famous clubs in Kuwait and non-athletes football players attending shopping malls in Kuwait (from avenue mall and 360 mall), males, age <18 and >18 years old.

Exclusion criteria

Females are not included in the study.

Ethical Consideration

- Taking permission from the subjects to fill in the questionnaire
- Insuring the subjects that the data will be used for medical and statistical purposes only

Results

The demographic data are shown in Table 1 shows the demographic data. The sample size is 400. We had 200 athletes' football players and 200 non-athletes football players. According to age, we had 59 athletes aged less than 18 years while 141 above 18 years. Similarly, we had 52 non-athletes under 18 years and 148 above 18 years.

Figure 1 displays the prevalence of football injuries among athletes and non-athletes football players. The athlete's football injuries prevalence was 79% while that of non-athletes was 68%.

Figure 2 shows the incidence of football injuries last year. The athlete's football injuries incidence was 65.8% whereas the non-athletes incidence was 33.8%.

Figure 3 represents the top 5 football injuries of athlete's football players. In both age groups (less than 18 and above 18) the ankle injury has shown to be the highest. (27.8%) The least injury among the 5 was in the shoulder and hand (10.8%).

Figure 4 illustrates the top 5 football injuries of non-athletes football players. The knee injury (28.7%) has shown to be the highest in both age groups. (less than 18 and above 18) The least injury between the 5 is the thigh injury. (7.4%).

Table 3 illustrates the site on injuries among athletes and non-athletes football players, which are further subdivided into 2 age groups (above and under 18 years).

Regarding the athletes, the highest injury was located in the ankle in both age groups. In the other hand, the highest injury in the non-athletes aged under 18 years was found in the hand (22%) Meanwhile, the highest injury in non-athletes aged above 18years was in the knee. (33.7%).

Table 4 shows several risk factors that may cause football injuries. Risk factors include lack of warm-ups, unflexibilty, age, weight, previous injury and others. The table has been divided into 2 groups: athletes and non-athletes football players along with p-value (chi-square) We did the chi-square to study the association of such risk factors with football injuries. The results have revealed that lack of warm-up prior to playing is significant since the p-value is less than 0.05 (0.011) .

Table 5 shows protective ways in preventing injuries among football players.
The highest method in both athletes and non-athletes football players was warm-up.

Table 1: Describing participants

		Athletes	**Non-Athletes**	**Total**
Age	**<18**	59 (29.5%)	52 (26%)	111 (27.75%)
	>18	141 (70.5%)	148 (74%)	289 (72.25%)
BMI	**Under weight**	7 (3,5%)	11 (5,5%)	18 (4.5%)
	Normal	167 (83,5%)	101 (50,5%)	268 (67%)
	Over weight	26 (13%)	88 (44%)	114 (28.5%)

Prevalence

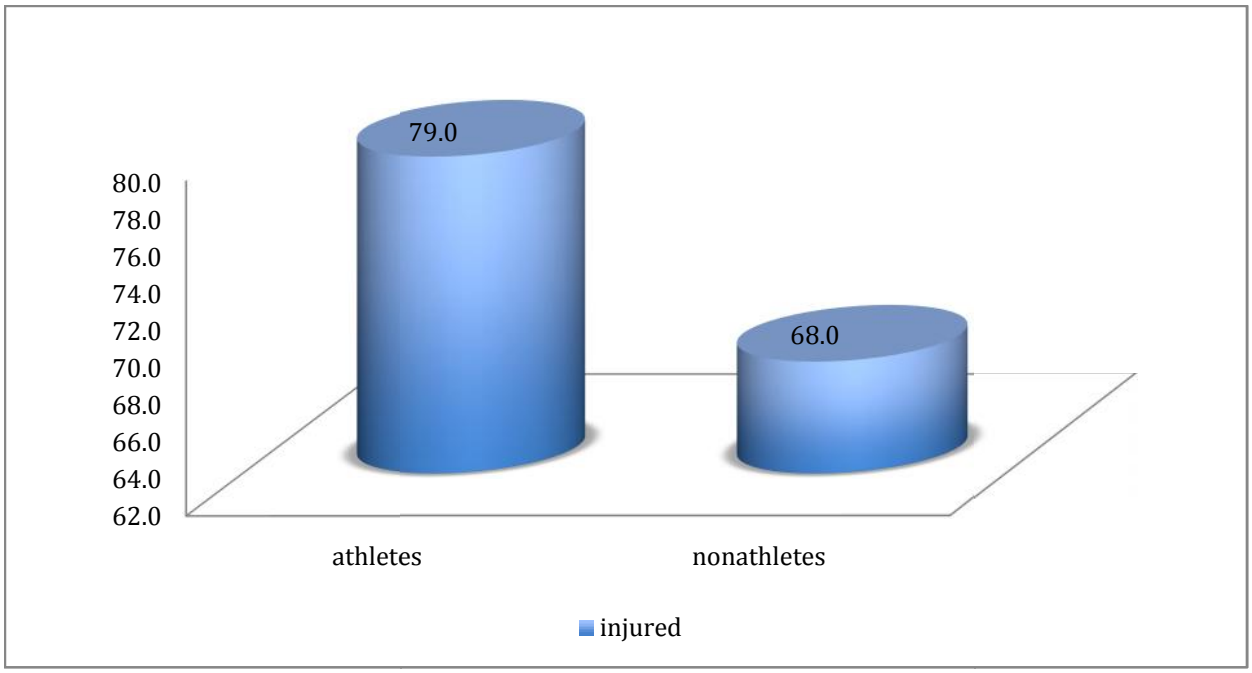

Figure.1:The prevalence of football injuries among athletes and non-athletes football players in Kuwait

Incidence

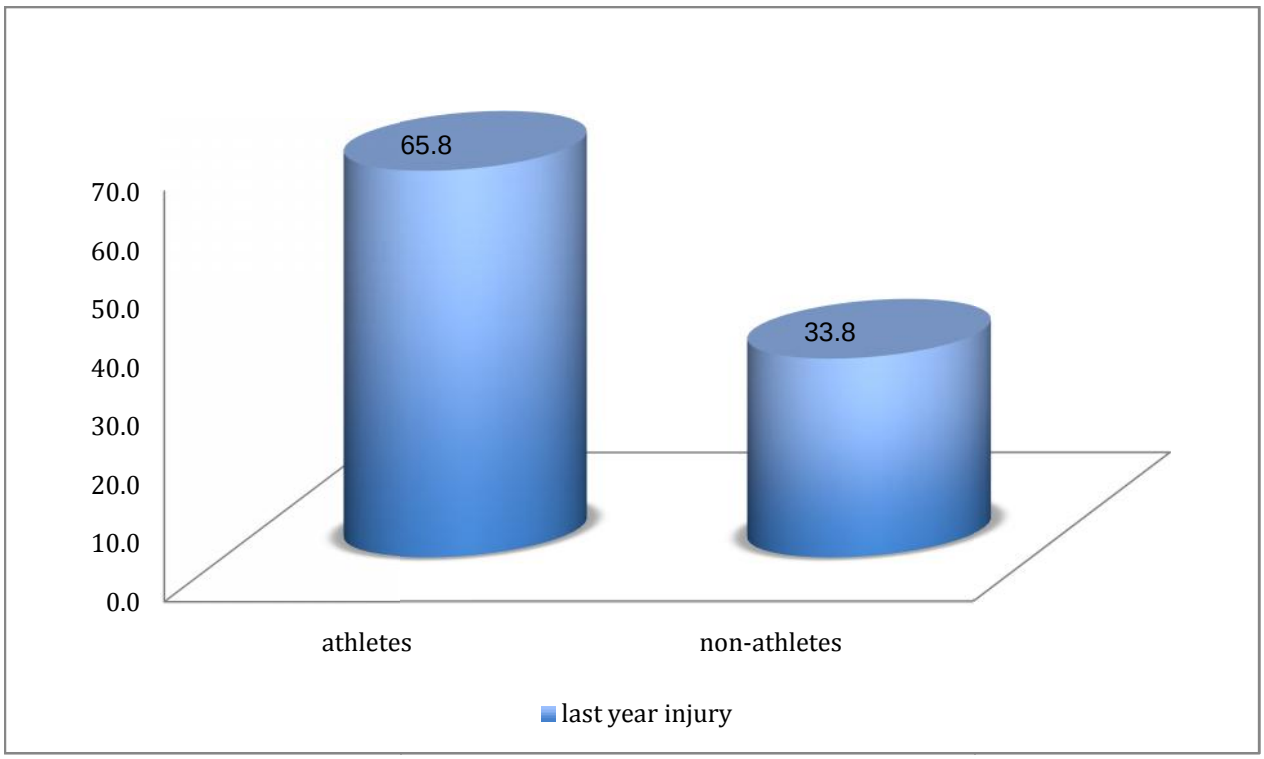

Figure .2: The last year incidence of football injuries among athletes and non-athletes football players in Kuwait

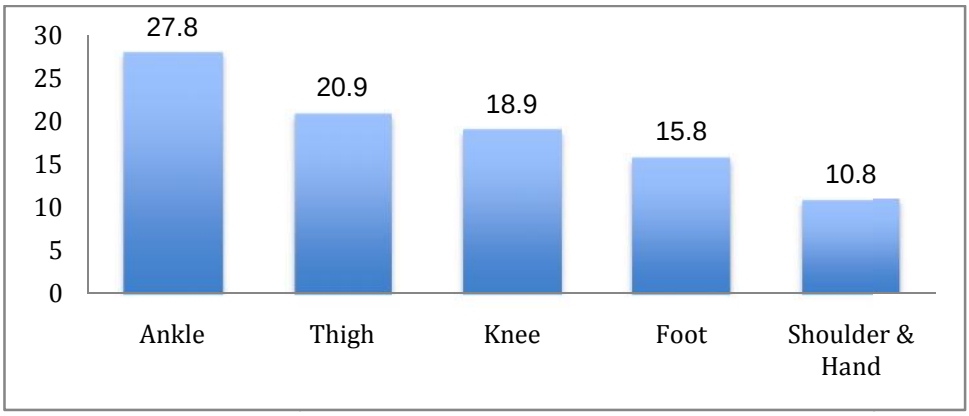

Figure .3:The top 5 football injuries of athletes in Kuwait

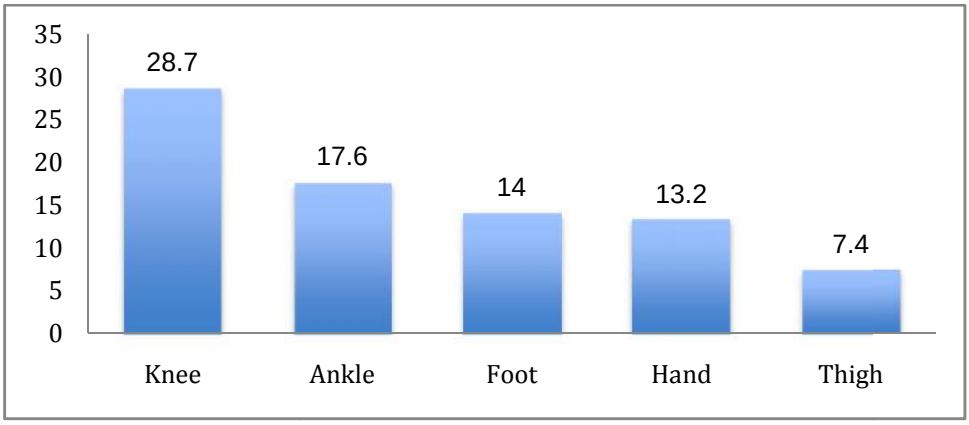

Figure .4:The top 5 football injuries of non-athletes in Kuwait

Table 3:The site of football injuries between athletes and non-athletes (above and under 18 years)

Site of injury	Athletes		Non- Athletes		Total
	<18	>18	<18	>18	
Head	2 (5%)	4 (3.4%)	1 (2.4%)	3 (3.2%)	9
Neck	2 (5%)	3 (2.5%)	0 (0%)	4 (4.2%)	9
Shoulder	6 (15%)	11 (9.3%)	1 (2.4%)	8 (8.9%)	26
Elbow	1 (2.5%)	2 (1.7%)	5 (12.2%)	2 (2.1%)	10
Wrist	0 (0%)	4 (3.4%)	3 (7.3%)	4 (4,2%)	47
Hand	9 (22.5%)	8 (6.8%)	9 (22%)	9 (9.5%)	30
Hip	1 (2.5%)	10 (8.5%)	0 (0%)	2 (2.1%)	13
Thigh	13 (7.5%)	30 (25.4%)	4 (9.8%)	6 (6.3%)	53

Knee	6 (15%)	23 (19.5%)	7 (17.1%)	32 (33.7%)	68
Ankle	10 (25%)	34 (28%)	3 (7.3%)	21 (22.1%)	68
Foot	3 (7.5%)	22 (18.6%)	4 (9.8%)	15 (15.8%)	44

Table 4:Risk factors involved in football injuries

Risk factors	**Athletes & non-athletes**		**Asymp. Sig. (2-sided)**
	Athletes	**Non-athletes**	
Unwarming	75 (47,2%)	44 (32,6%)	,011
Unflexibility	35 (22,0%)	20 (14,8%)	,115
Aging	10 (6,3%)	7 (5,2%)	,698
Overweighed	19 (11,9%)	10 (7,5%)	,200
Previous injury	40 (25,2%)	32 (24,1%)	,829
Muscle weakness/ imbalance	29 (18,2%)	16 (11,9%)	,136
Joint laxity-not being able to control	15 (9,4%)	9 (6,7%)	,398
Ground type	9 (5,7%)	7 (5,2%)	,870
Friction between the players	6 (3,8%)	2 (1,5%)	,233

Table 5: Protective methods preventing injuries

Protection methods	**Athletes**	**Non- Athletes**
Having a pre-season health and wellness evaluation	44 (27,8%)	35 (25,9%)
Performing proper warm up and cool down routines	121 (76,6%)	94 (69,1%)
Consistent incorporating strength training and stretching	107 (67,7%)	77 (56,6%)
Adequate hydrating to maintain health and minimize cramps	44 (27,8%)	35 (25,7%)
Staying active during the summer break to prepare for return to the sport in the fall	37 (23,4%)	29 (21,3%)
Speaking with a sports medicine professional or athletic trainer if you have any concerns about football injuries or football injuries prevention strategies	40 (25,3%)	16 (11,8%)
Others	7 (4,5%)	15 (11,0%)

Discussion

In assessing the prevalence of football injuries last year and comparing it to the prevalence of football injuries five years ago in Kuwait we found that the prevalence has been decreasing, however, the result of the research which was conducted in Monaco have shown that the prevalence of football injuries has been increasing since 1997 and continued the upward trend since 2003. [4]

The prevalence of football injuries among athletes in Kuwait was 79% five years ago; on the other hand the prevalence of the non-athletes was 68%. This finding is supported by a previous study conducted on professional athletes in Kuwait in 2011, which showed that the prevalence of football injury is 69% sports injuries are highly prevalent among professional athletes in Kuwait [5].

According to our study, injuries of lower limbs among athletes' football players (83.4%) were more common than injuries of upper limbs. Comparing to a prospective study performed on Spanish sub-elite professional football team, the study showed that the lower limbs (89%) were more susceptible to injuries than the upper limbs [14].

Our study revealed also that the most common site of injury in athletes' football players was the ankle (27.8%) followed by the thigh. A study performed in Spain, which showed that the thigh is the most common region for football injuries was resembled to our result [14].

We also found that the most common site of injury in non-athletes football players was the knee (28.7%) followed by the ankle (17.6%), which was similar to a study,carried out by Bradley J H. N.in 2008 on elite college football players (non-athletes), that found that the knee is the most common region for musculoskeletal injuries. Another research that is matching with our result was a study performed by Kaplan LD, J. P. in 2011 on elite college players (non-athletes),which showed that the ankle is the most common site to be injured.[19]

Based on our study, head and neck injuries were not common. This result was previously noted in a research conducted by Kirkendall DT, J. S. in 2001, who confirmed that head injuries are not that common.[7]. Another research done by Nilsson M, H. M. in 2013 on professional soccer players also confirmed that head and neck injuries are not common.[8]

Another aspect covered within our study was the risk factors associated with football injuries among athletes and non-athletes football players in Kuwait. The ground type which is a risk factor of football injuries among athletes and non-athletes football players was not that significant in our study (p-value: 870), however A study was done to determine the effect of playing surface on the rate of injuries among American football players confirmed that the rate of ACL (anterior cruciate ligament) injury on artificial surfaces is 1.39 times higher than the injury rate on natural grass surfaces. [22]

Despite our study that showed no significance for previous injury in contributing to another new injury among athletes and non-athletes football players (p-value:0.829), there is a research done by B J Gabbe, M. B. In 2009showed that previous hip or groin injury will lead to a new hip or groin injury. [23] Another researchthatwas conducted by Finch CF, Cook J.show that among 469 subsequent injuries 15.6% were coded to be influenced by previous injuries. [24]

Regarding being overweight, which is a risk factor among athletes and non-athletesfootball players, was also not significant (p-value: 0.200). However, A study was made in USA showed that elevated body mass (body weight > 90 kg) was associated with a 2.5 times higher relative risk of injury. [27]

Unwarming-up was highly significant in our results as a risk factor of football injuries and warming-up the highest preventive method in both athletes (76.6%) and non-athletes football players (69.1%). This result is supported by a previously conducted study carried out in American academy of orthopedic surgeons that showed that players should maintain fitness and warm-up to prevent injuries, it showed also that cold muscles are more susceptible to injuries [28].

Conclusion

We established the aim of our study and the results have shown that the athlete's football injuries prevalence was 79% while that of non-athletes was 68%.However; in the last year, the athlete's football injuries incidence was 65.8% whereas the non-athletes incidence was 33.8%. Also, we concluded that in both, athletes and non-athletes, lack of warm up is the risk factor behind these injuries.

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