

Sports-Related Injuries in Arab Countries: A Review of Literature

Fatimah Alhussain¹, Khulud Alhussain², Dr. Majidah Alhussain³, Dr. Maznah Alhesain⁴, Ketbah Alonaze⁵

¹Infection Control Coordinator, Badaya General Hospital

²RN, MMS, Head Of Education And Training Department in Maternity and Children's Hospital in Buraydah

³Dentist in Regional Dental Center In Gassim

⁴MSC Clinical Anatomy Lecturer in Alqassim University. RN, MMS Quality Mangment of Nursing in King Fahad Specialist Hospital

Abstract: *A wide variety of sports are gaining a rapid popularity in the Arab world. Such activities may increase athlete's risk in acquiring sport-related injuries. These conditions are well described in literatures; however, little is known about the epidemiological descriptions of such events in the Arab world. The purpose of this review was to describe the epidemiology of sports-related injuries in Arab countries with emphasis on the demographic profiles of athletes, type of sport, type of injury, its etiology, incidence and prevalence. A computer-based electronic search PubMed database was carried out to identify articles published in English between 1985 and 2015. Search terms specific to sport, sports, sports-related, sports injuries, epidemiology, prevalence, incidence, risk, impact, burden, prognosis and Arab countries were used. Alternative search was performed manually by reviewing reference list of the retrieved articles. The searched yielded 315 articles. Of these, only 10 described sport-related injuries in the Arab world. These articles include 3 prospective cohort studies, 5 prospective follow-up studies, and 2 cross-sectional studies. The incidence and prevalence of sports-related injuries vary among athletes. Muscle strains in lower back, hip, groins, and lower limb including thighs or hamstrings were the most common types of sport-related injuries. Common causes include team ranking position and number of games or field exposures. There is a need for more knowledge about the epidemiology of sports-related injuries in Arab countries so that preventive measures and appropriate solutions can be defined.*

Keywords: Arab countries, sports, epidemiology

1. Introduction

Sports and other related activities have been recognized with positive effect on human health. However, sports-related injuries can be potentially harmful to all athletes. *Sports injury* is defined as any injury occurring during a field exposure, scheduled match or training session causing the player to seek medical attention or miss part of the next games, match or training session [1]. Many studies have been conducted on the epidemiology of sports-related injuries. In USA, there are 3.7 million annual estimates of people that present to emergency departments with an injury related to sport and exercise [2]. A prospective study conducted in Denmark has reported a higher incidence of sports-related injuries associated with playing football (soccer), handball, and basketball [3]. In Germany, majority of sports injuries resulted in the increasing sick leave among athletes [4]. The incidence of sports-related injuries was higher in the all contact sports in comparison with non-contact sports [5].

A wide variety of contact sports, such as football (soccer) are gaining a rapid popularity in the Arab world. Such activities may increase athlete's risk in acquiring sport-related injuries. The risk of developing such condition is increased in athletic population, particularly in elite athletes. This mechanism is poorly understood in Arab world. Recently to the author's knowledge, no review articles have described the epidemiology of sport-related injuries in Arab countries. The purpose of this review was to describe the epidemiology of sports-related injuries in Arab countries with emphasis on the demographic profiles of athletes, type

of sport, type of injury, its etiology, incidence, prevalence, and degree of seriousness.

2. Methods

This review conducted an electronic research to identify published articles indexed in PubMed database. To retrieve articles, this review used search terms specific to sport, sports, sports-related, sports injuries, epidemiology, prevalence, incidence, risk, impact, burden, prognosis, and Arab countries. Inclusion criteria include: (a) articles published in English; (b) reported epidemiology sport-related injuries; and (c) Researches done in Arab countries. Titles and abstract matching search terms and inclusion criteria were retrieved and copied for evaluation. In this review, there are 316 published full-text articles that matched study search terms. All these articles were evaluated individually. 287 were excluded not related to our research objectives. Articles that do not match our inclusion criteria were excluded total of 29 remain for further evaluation. Two were excluded not relevant from its title. 27 article left, 17 were excluded from the abstract. Following thorough evaluation, this study included 10 articles for review. Detailed description of search strategy is illustrated in Fig. 1.

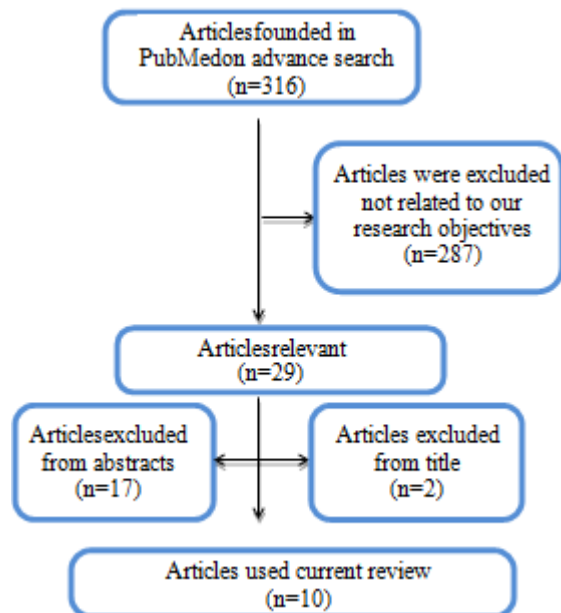


Figure 1: Results of search strategy

3. Results

A total of 10 articles that matched study inclusion criteria were included in this review [6-15]. Included articles were presented alphabetically. Data about the first author, year of publication, country, aims, design and methods, sample, results and study limitation were included (Table 1). Included articles in this review are 3 prospective cohort studies, 5 prospective follow-up studies, and 2 cross-sectional studies. In comparison between Asian Cup and Gulf Cup, there were 82 injuries and 72 injuries recorded, respectively. Playing on grass had a higher incidence rate of injuries compared to 3rd generation (3G) artificial turf. On both surfaces, sustained lower limb injuries were the body part involved in injury location [6]. Goalkeepers had significantly fewer non-contact ($p=0.002$) and traumatic ($p<0.001$) injuries. No significant difference was found between contact and overuse injury incidence. The majority of goalkeepers' injuries were to the lower body ($n=48$, 71.6%). However, in terms of severity, lower body and upper body have no difference. Additionally, regardless of the fact that the incidence of strain in goalkeepers was lower ($p<0.001$) than in field players, strain was claimed as the most common injury type (26.9%), followed by sprain (22.4%) and other injuries (11.9% [7]. Qatar study documented injury rate during matches was 14.5/1000 h compared with 4.4/1000 h during training session. However, there was no difference in injury severity when comparing match and training injuries. The most frequent injury type was muscle strain accounting for 36.4% of the total number of injuries. The severity of muscle strains was predominantly moderate (58.2%) or severe (26.6%) [8]. Injury incidence during matches was significantly higher than training incidence during both Ramadan and non-Ramadan periods ($P<0.001$) [9]. There was a significant difference in injury incidence between matches and training sessions ($P<0.001$) but no difference between regular training and training camps has been recorded ($P=0.581$). The most frequent injuries were muscle strains, accounting for 34% of the total number of injuries. The thigh was the most common location of injury (33.3%

of total) with the majority of them being strains (69.9%), of which, 15 out of the 18 were posterior. In addition to, nearly half of posterior thigh strains (7 out of 15) were recurrent lesions and they were the most common type of recurrent injury (37%) [11]. The United Arab Emirates in addition, An estimated annual hospitalization of UAE nationals due to bicycle injuries was 4.7/100,000 in Al-Ain city in contrast with 6.1/100,000 for non-UAE nationals. The most common cause of injury was collision with a moving vehicle (73 patients, 56.2%) followed by falling from a bicycle (46 patients, 35.4%) and other mechanisms (4 patients, 3.1%). Non-UAE nationals had significantly higher collision with a moving vehicle compared with UAE nationals. Falling down from a bicycle has occurred in 65.5% of patients less than 15 years old whilst collision with a moving vehicle has occurred in 59% of patients above that age. Lower limbs were the most frequently involved body part (50.8%), followed by the head (48.5%), upper limbs (41.5%), and face (26.9%) [12]. In 2012, a study conducted in Kuwait showed that 405 (89.8%) athletes had sustained a sports injury during their lifetime, while about three quarters ($n=332$; 73.8%) of them had sustained an injury during the previous 12 months. Volleyball athletes reported the highest percentage of sports injuries both during the previous 12 months and throughout their lifetime whereas football (soccer) athletes reported the lowest prevalence in both categories. In terms of the site of the most recent injury, lower limbs appeared to be the most common site ($n=241$; 73.1%), while the head and neck were the least common ($n=17$; 5.2%). Joint injuries were the most common type ($n=143$; 43.6%) [13]. More recently, in Tunisia in 2015 the prevalence of LBP was significantly higher ($p<0.001$) among females (17.6%) than among males (12.5%). LBP occurred in 17.1% of those classified by BMI as lean, 14.8% of those in the normal range, 14.3% among those who were overweight, and 12.7% of those who were obese. LBP was positively associated with fatigue (caused by the long time spent in training), gymnastics, judo, handball, and volleyball. LBP was significantly higher among males than females in handball ($p<0.05$) and significantly lower in athletics ($p<0.05$) [15].

4. Discussion

This review has limitations. First, only PubMed was used to retrieve available full-text articles that report a variety of sport-related injuries in Arab world. Other search databases, such as SCOPUS, ScienceDirect, Web of Science, Google Scholar and Grey Literatures must be explored. A wider database search is recommended to specifically define a variety of causes, incidence, and prevalence associated with sport-related injuries in Arab world.

Only one study from the ten articles included has a sample size determination.

Given that most of articles included are prospective give our review a strength.

Despite the growing interest of Arab world countries in contact sports such as football, the epidemiology of sport-related injuries associated with variety of contact sports in Arab countries is poorly understood. In this review, it has

attempted to describe the demographic profiles of athletes, type of sport, type of injury, its etiology, incidence, prevalence, and degree of seriousness of sports-related injuries. In our electronic search, this review retrieved 10 articles that described a variety of sport-related injuries in Arab world. These injuries include but not limited to muscle strains in lower back, hip, groins, and lower limb including thighs or hamstrings.

According to Marwan et al. (2011) the prevalence of sports injuries is between 73.8 and 89.8% in Arab world. The prevalence was highest among volleyball athletes (79%) and lowest among football (soccer) athletes (69%) [13]. In contrast, Sadat-Ali et al. (1985) reported that majority of sport-related injuries in Saudi belongs to soccer games [14]. Incidence data for training, game and all football exposure injury rates were higher when playing on grass [6]. The most common site of injuries includes face [12], head [12], lower limbs [6,12,13], thighs [7,8], hamstrings [7,8], knee [14], and lower back [15].

Research evidence shows that the incidence was strongly correlated with team ranking position, more games won, more goals scored, greater goal difference and total points [10]. Therefore, preventive measures or protocols must be developed to halt sport-related injuries from inflicting majority of athletes who are into contact sports.

5. Conclusion

There are several mechanisms by which sports-related injuries may be acquired. The types of sports, types of athletes, causes or exposure to field games, and contact sports may be contributing factors. In addition, prolonged exposures to stressful training can result in increased risk of sports-related injuries. Consequently, the duration and amount of pressure applied to the muscles are essential considerations when athletes perform sport activities. Preventive measures and proper sports education are important measures to prevent sport-related injuries. However, the importance of these preventive measures have not been fully explained and must be extrapolated from all athletes, especially in Arab countries where contact sports are gaining a rapid popularity. Without an established evidence base for sport-related injuries, preventive measures remain poorly defined. More knowledge about sports-related injuries in Arab countries is needed to establish a standardized approach to prevent sports-related injuries among athletes.

6. Acknowledgment

The authors would like to thank her professor for the wonderful inputs and suggestions.

7. Conflict of interest

None declared.

References

[1] Olsen OE, Myklebust G, Engebretsen L, Holme I,

- Bahr R. Exercises to prevent lower limb injuries in youth sports: cluster randomized controlled trial. *BMJ* 2005;330:449. [PUBMED: 15699058]
- [2] Burt CW, Overpeck MD: Emergency visits for sports-related injuries. *Ann Emerg Med* 2001;37:301–308. [PUBMED: 11223767]
- [3] Yde J, Nielsen AB: Sports injuries in adolescents' ball games: soccer, handball and basketball. *Br J Sports Med* 1990;24:51–54. [PUBMED: 2350669]
- [4] Schneider S, Weidmann C, Seither B: Epidemiology and risk factors of sports injuries – multivariate analyses using German national data. *Int J Sports Med* 2007;28:247–252. [PUBMED: 17024644]
- [5] Stevenson M, Finch C, Hamer P, Elliott B: The Western Australian sports injury study. *Br J Sports Med* 2003;37:380–381. [PMC: 1751370]
- [6] Almutawa M, Scott M, George KP, Drust B. The incidence and nature of injuries sustained on grass and 3rd generation artificial turf: a pilot study in elite Saudi National Team footballers. *Phys Ther Sport* 2014;15(1):47-52. [PUBMED: 23791754]
- [7] Eirale C, Tol JL, Whiteley R, Chalabi H, Hölmich P. Different injury pattern in goalkeepers compared to field players: a three-year epidemiological study of professional football. *J Sci Med Sport* 2014;17(1):34-8. [PUBMED: 23770326]
- [8] Eirale C, Tol JL, Farooq A, Smiley F, Chalabi H. Low injury rate strongly correlates with team success in Qatari professional football. *Br J Sports Med* 2013;47(12):807-8. [PUBMED: 22904292]
- [9] Eirale C, Tol JL, Smiley F, Farooq A, Chalabi H. Does Ramadan affect the risk of injury in professional football? *Clin J Sport Med* 2013;23(4):261-6. [PUBMED: 23528844]
- [10] Eirale C, Farooq A, Smiley FA, Tol JL, Chalabi H. Epidemiology of football injuries in Asia: a prospective study in Qatar. *J Sci Med Sport* 2013;16(2):113-7. [PUBMED: 22858346]
- [11] Eirale C, Hamilton B, Bisciotti G, Grantham J, Chalabi H. Injury epidemiology in a national football team of the Middle East. *Scand J Med Sci Sports* 2012;22(3):323-9. [PUBMED: 20874859]
- [12] Hefny AF, Eid HO, Grivna M, Abu-Zidan FM. Bicycle-related injuries requiring hospitalization in the United Arab Emirates. *Injury* 2012;43(9):1547-50. [PUBMED: 21664613]
- [13] Marwan Y, Behbehani A, Al-Mousawi A, Mulla-Juma'a A, Sadeq H, Shah N. Sports injuries among professional male athletes in Kuwait: prevalence and associated factors. *Med Princ Pract* 2012;21(2):171-7. [PUBMED: 22024622]
- [14] Sadat-Ali M, Sankaran-Kutty M. Sports injuries in Saudi Arabia. *Br J Sports Med* 1985;19(1):28-9. [PUBMED: 3995225]
- [15] Triki M, Koubaa A, Masmoudi L, Fellmann N, Tabka Z. Prevalence and risk factors of low back pain among undergraduate students of a sports and physical education institute in Tunisia. *Libyan J Med* 2015;9(10):26802. [PUBMED: 25758252]