

Incidence and characteristics of injuries during the 2011 West Africa Football Union (WAFU) Nations' Cup

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Abstract

Background: Prospective studies on football injuries and their risk factors in the African setting are sparse. Such studies are needed to understand the peculiarities of injuries and hence proffer appropriate intervention for injury prevention in the region.

Objective: To evaluate the incidence and characteristics of match injuries during the 2011 West Africa Football Union (WAFU) cup.

Methods: Team physiotherapists from the participating teams documented all newly incurred injuries on standardised injury report forms using the Federation of International Football Association's (FIFA) Medical Assessment and Research Centre protocols.

Results: An overall of 89 injuries were sustained during the tournament, resulting in 9.9 injuries per match or 289 injuries per 1000 player hours. Seventeen (19.1%) of these injuries resulted in loss of competition activity (time-loss), equivalent to 1.9 injuries per match or 55.2 injuries per 1000 player hours. Over three quarters (73; 82%) of injuries were incurred through contact with another player. The lower leg accounted for almost a quarter of all injuries (21; 23.6%) while the knee recorded the highest number of time-loss injuries (5; 29.4%). The most frequent types of injury were contusion (61; 68.5%) and strain (13; 14.6%).

Conclusion: The overall incidence of injuries during the WAFU cup was much higher than those of other tournaments ever documented but the characteristics of injuries were similar. In order to fully define the nature of injuries and more reliably identify the risk of injury for the establishment of injury prevention strategies that will be appropriate for this region of the world, it is imperative that further systematic injury recording and analysis in African players are carried out.

Keywords: Injuries, football, soccer, tournament, West Africa

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Résumé

Contexte: Des études prospectives sur les blessures de football et leurs facteurs de risque dans le contexte africain sont rares. De telles études sont nécessaires pour comprendre les particularités des blessures et donc proffer des interventions appropriées pour la prévention des blessures dans la région.

Objectif: Évaluer l'incidence et les caractéristiques des lésions du match lors de la Coupe UFOA 2011.

Méthodes: Une groupe de physiothérapeutes des équipes participantes ont enregistré toutes les blessures récemment subies sur des formulaires de rapport de blessure se servant de l'évaluation médicale de la FIFA et les protocoles des centres de recherche.

Résultats: Un ensemble de 89 blessures ont été retenues pendant le tournoi, résultant à 9,9 blessures par match ou 289 blessures pour 1000 heures de jeu. Dix-sept (19,1%) de ces blessures ont entraîné un arrêt des matchs (perte de temps), ce qui équivaut à 1,9 blessures par match soit 55,2 blessures par 1000 heures de jeu. Plus de trois quarts (73, 82%) des blessures ont été occasionnées par contact avec un autre joueur. Les blessés de la jambe représentaient près d'un quart de toutes les blessures (21; 23,6%) tandis que le genou a enregistré le plus grand nombre de blessures avec perte de temps (5; 29,4%). Les types de blessures les plus fréquents étaient la contusion (61; 68,5%) et l'entorse (13, 14,6%).

Conclusion: L'incidence totale des blessures lors de la coupe UFOA était beaucoup plus élevée que celle des autres tournois jamais documenté, mais les caractéristiques des blessures étaient similaires. Pour bien définir la nature des blessures et identifier de manière plus fiable les risques de blessures pour la mise en place de stratégies de prévention des blessures plus appropriée dans cette région du monde, il est impératif d'enregistrer et d'analyser systématiquement davantage de blessures chez les joueurs africains.

Introduction

The game of football (soccer) is the world most popular sport. According to the Federation Internationale de Football (FIFA) big count 2006 [1] there are 265 million male and female players

worldwide. Of these 265 million, 46 million are from Africa; third largest after Europe and Asia [1].

The West African Football Union (WAFU) cup is an association football competition that is contested by representative teams of the West African Football Union. All the sixteen countries from West Africa are usually eligible to participate in the competition. Its maiden edition was held in Ivory Coast in 1974 but there were no subsequent competitions until 1983 [2]. It was played every two years until 1991 after which it came to a halt again. It was then re-launched in April 2010 by Amos Adamu led board which Nigeria hosted and won by defeating Mali in the final [2]. The WAFU cup was initiated to encourage integration of home-based professional league players into the National teams of member states.

Football is a vigorous, high intensity contact sport. The characteristics of football, along with the required functional activities, obviously place great demands on technical and physical skills of players; predisposing them to injuries. Football players are known to suffer relatively high rates of injury compared with participants in other sports and occupations [3]. It is therefore important for managers and medical personnel of football clubs and national teams to reduce this level of risk and, where possible, to ensure the health and safety of players. Unfortunately, the information presently available in the literature is grossly inadequate to achieve this in Africa.

Some injury surveillance studies exist on football players in Africa [4-10] however, they are majorly retrospective studies. Several prospective studies have been conducted to describe the incidence and pattern of football injuries in male professional players; mostly conducted in Europe [3, 11-24]. To the best of our knowledge, only one published prospective study [6] presently exist on injuries in African male football players. Zerguini *et al* [6] in their study on the national football league players of the Republic of Congo during the 2006–2007 championship in Kinshasa reported an incidence of 6 injuries per game or 182 injuries per 1000 hours of competition. The ankle joint was recorded as the most frequently injured body part and contusion was reported as the most frequent type of injury.

Furthermore, the incidence and characteristics of football injuries during matches in top-level international tournaments such as the Olympic Games, European and Asian Championships and World Cups have been extensively documented [11-16] The incidence of injury in men's international football tournaments ranges from 51 to 144 injuries per 1000 match hours, equivalent to approximately

2 to 3 injuries per match [3, 11]. Prospective studies on injuries and their risk factors in the African setting are sparse. This study therefore evaluated the incidence and characteristics of match injuries during the 2011 WAFU cup.

Methods

Study population and setting

Eight national teams from the West African sub-region were scheduled to participate in the competition but only 5 registered. These 5 teams were Togo, Liberia, Niger, Nigeria and Ghana. Three teams, Gambia, Senegal and Mali withdrew from the competition. The 2011 WAFU Cup held at the M.K.O Abiola Stadium in Abeokuta city and Gateway Stadium in Ijebu-Ode town, Ogun State from May 5 – May 13, 2011. A total of 9 matches were played. Togo emerged as champions after defeating Nigeria in the final and Liberia coming third after defeating Ghana in the third place match.

A total of the 82 professional football players with an age range of 20.77 ± 1.63 years, 5.39 ± 1.74 years of experience and a BMI of 23.59 ± 1.39 from the aforementioned 5 West African countries registered for the 2012 WAFU Cup participated in the study. The five teams were divided into two groups with group A comprising Nigeria, Niger and Liberia and group B comprising Ghana and Togo.

Data collection procedures and definition of injury

Injuries were assessed and documented by the physiotherapists of the participating teams. The team physiotherapists, players and managers were approached in their various hotels and were informed about the study protocols before the commencement of the competition. Consent and cooperation of all players and team physiotherapists respectively were also sought and gotten before the commencement of the competition. The team physiotherapists were further instructed on data collection procedures. All injury report forms were submitted to the study supervisor (a member of the research team) at the exit of each team.

In order to standardize the methodology and allow for comparison with other studies, the consensus on definitions and data collection procedures in studies of football injuries outlined by FIFA's Medical Assessment and Research Centre (F-MARC) was adopted for this study [25]. The data forms used have been previously used in several international competitions [11-16]. The physiotherapist for each team documented injuries during each match played on standardized injury report forms. In some cases, the documentations were followed up by the team

physiotherapists after matches for completion of forms. The following information were registered: number of injured players during the match, type of injury, circumstances of occurrence (with contact, contact, foul play), consequences (decision of the referee, treatment) and whether the injury led to time loss or not.

of injuries per match and number of injuries per 1000 match hours. Thus, the total amount of hours of play for each team was calculated as follows: 11 players × 1.5 hours × number of returned report forms from all the teams (same as number of matches played by each team). Furthermore, an addition of 11 × 0.5 hours was calculated for 2 teams that had an extension into extra-time in one of the final round matches.

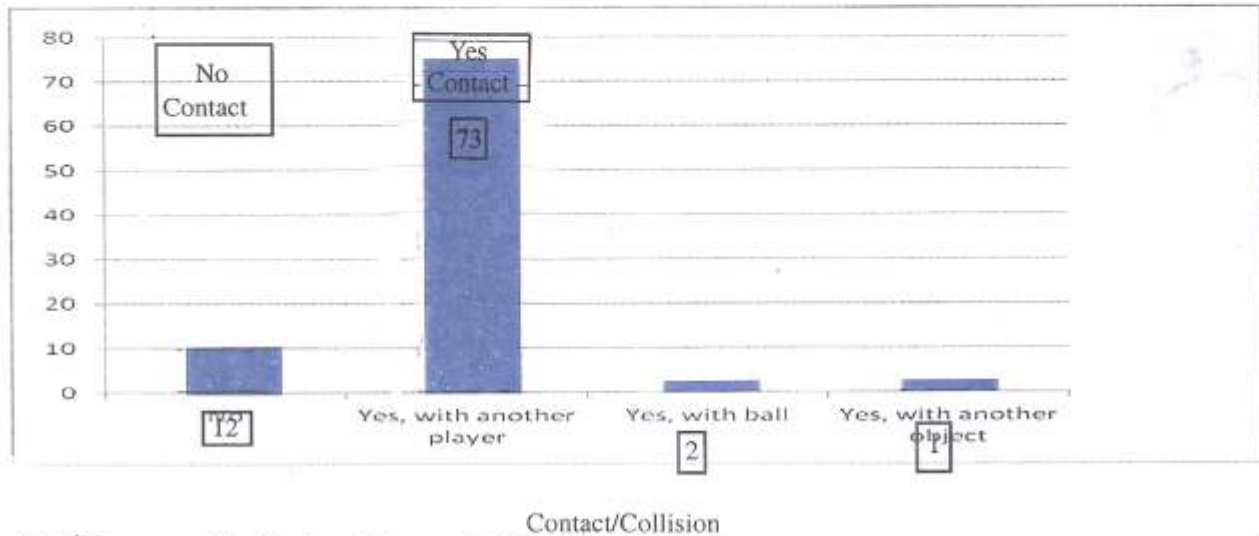
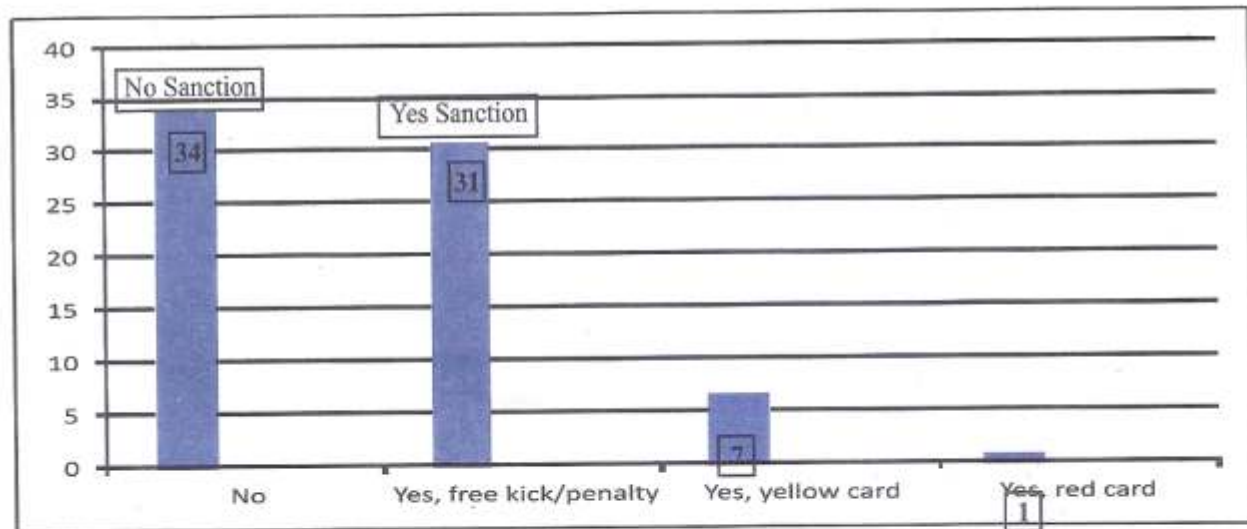


Fig.1: Frequency Distribution of Contact/Collision Injuries



Referee's decision over whether action leading to contact injury was a violation of law

Fig. 2: Frequency Distribution of Referee's Decision on Contact Injuries

Injuries were defined as any musculoskeletal complaint or concussion newly incurred during matches at the 2011 WAFU Cup, regardless of the consequences for participation or not in subsequent matches.

The incidence of injury was calculated in accordance with the consensus statement for studies on football injuries [25]. It was expressed as number

Prior to the commencement of the study, ethical approval was sought for and obtained from the health research and ethics committee of the Lagos University teaching Hospital, Idi-araba, Lagos.

Results

Eighteen injury report forms from a total of 9 matches during the 2011 WAFU Cup were completed and

returned by the team physiotherapists to the study supervisor. An overall of 89 injuries were sustained in 9 matches resulting in 9.9 injuries per match or 289 injuries per 1000 player hours. Seventeen (19.1%) of these injuries resulted in loss of competition activity (time-loss) equivalent to 1.9 injuries per match or 55.2 injuries per 1000 player hours.

Table 1: Location and Diagnosis of Injuries

Location and diagnosis	All n (%)	Time-loss n (%)
<i>Head/neck</i>	13 (14.6)	4 (23.5)
Contusion	9	1
Laceration	1	0
Dislocation	1	1
Dental injury	1	1
Concussion	1	1
<i>Upper Extremity</i>	8 (9.0)	3 (17.7)
Contusion	4	0
Dislocation	2	1
Sprain	1	1
Fracture	1	1
<i>Trunk</i>	9 (10.1)	0 (0.0)
Contusion	8	0
Other	1	0
<i>Hip/Groin</i>	5 (5.6)	0 (0.0)
Contusion	5	0
<i>Thigh</i>	9 (10.1)	1 (5.9)
Strain	6	1
Contusion	3	0
<i>Knee</i>	10 (11.2)	5 (29.4)
Contusion	6	2
Sprain	2	2
Laceration	1	0
Dislocation	1	1
<i>Lower leg</i>	21 (23.6)	2 (11.8)
Contusion	15	2
Strain	5	0
Abrasion	1	0
<i>Ankle</i>	13 (14.6)	2 (11.8)
Contusion	10	1
Strain	2	1
Ligament sprain	1	0
<i>Foot</i>	1 (1.1)	0 (0.0)
Contusion	1	0
Total	89	17

Over three quarters (73; 82%) of injuries were incurred through contact with another player (Figure 1). Only about a half of these injuries were sanctioned by the referee (39; 53.4%) (Figure 2). Very few players (6; 6.8%) had recurrent injuries. A high proportion of injuries were as a result of acute trauma (78; 87.6%) while 11 (12.4%) cases were caused by overuse. Most of the injuries sustained (72; 80.9%)

did not prevent the players from continuing play or from participating in subsequent matches.

The lower extremity was predominantly the most frequently injured body location, in which the lower leg accounted for almost a quarter of all injuries (21; 23.6%) while the knee recorded the highest number of time-loss injuries (5; 29.4%) (Table 1). The most frequent diagnoses were contusion of lower leg, ankle and strains of the thigh and lower leg (Table 1).

Discussion

In order to fully identify the risk factors for injuries in elite football at the highest level of competition - the World Cup, the world governing body for football, FIFA has since 1998 been conducting surveillance studies on all injuries sustained during the World Cup competitions [11, 14-16]. Similar studies have also been conducted in some continents of the world, for instance the European Cup and Asian Cup [12, 13] to identify local peculiarities of risk factors in elite footballers in these regions. No such studies exist in Africa yet.

The present study assessed the incidence and characteristics of injuries in professional West African football players during the 2011 WAFU Cup held in Ogun State, Nigeria and compared the results with that reported for previous international men's football tournaments. The WAFU cup is mainly targeted at home-based professional league players in West African countries of Africa in order to gradually expose them to international competitions. It also gives them the privilege of an invitation to the national teams of their countries. However, a few of the foreign-based players are usually invited to compliment the home-based players.

In order to allow comparison of our results with other studies, the F-MARC's consensus protocol (which is now the gold standard) for data collection in studies relating to football injury surveillance was used [25].

The overall incidence of injuries recorded for this study during the 2011 WAFU Cup was calculated as 9.9 injuries per match or 289 injuries per 1000 player hours. This is relatively high compared to those reported from similar studies conducted in Europe, Asia and the World Cup [11-16]. The study on Asian tournaments reported an incidence rate of 45.8 injuries per 1000 match hours [13], while results from the F-MARC study series revealed the incidence of injuries as 2.7 per match (81.0 injuries per 1000 match hours) in the 2002 FIFA World Cup [14], 2.3 (68.7 per 1000 match hours) in the 2006 FIFA World Cup [15] and 2.0 (61.1 per 1000 match hours) in the 2010 FIFA World Cup [16].

This high rate of injury occurrence in the present study can be explained, at least in part, by the state of the equipment and football facilities available in the host state, Ogun, Nigeria. Football facilities (including the playing grounds) in developing countries such as Nigeria are not as sophisticated as the ones available in developed countries. Another possible explanation is the possibility of match referees not being firm in officiating. The mode of officiating in football tournaments in Africa is constantly under criticism and African referees are rarely enlisted by FIFA for international tournaments. Anecdotal observations suggest that African referees when compared with their European counterparts are not as stringent in applying the laws of the game on erring players. Such impunity would encourage reckless tackles among players [26]. This perhaps explains the high rate of player-contact injuries (82% of overall injuries) of which about half (53.4%) were sanctioned by the referee (Figure 2 and 3).

Another possible explanation for the high injury rate is the skill and performance levels of the players. The participants in our study were predominantly home-based professional players. Their level of skills definitively cannot be the same as those of participant playing at the World Cup or in Europe. Furthermore, record of successes in international football matches suggests that the level of the skill in African football is lower than those of their European counterparts. Although the influence of the different skill levels on the incidences of injury remains a controversial issue, some researchers reported that lower skill levels were associated with more frequent occurrences of injuries [23].

The result of our study is also comparable with the study done by Zerguini *et al* [6] which appears to be the first published prospective study on football in any African country. The overall incidence of injury was reported as 6 injuries per game or 182 injuries per 1000 hours of competition. The characteristics of injuries reported in this study is similar to ones reported in ours. The injury rate here is also high compared to other studies outside Africa in which rate is usually below 5 injuries per match and less than 150 injuries per 1000 match hours [11-23]. This present study compliments Zerguini *et al*'s study [6] to suggest a peculiarly common trend of a high incidence of non-severe injuries in African football. However, there is a need for more studies in this area to fully understand the pattern of football injuries in Africa; inclusive of amateurs, young male, young female and elite female players.

The vast majority of injuries in this study were from contact with another player. Most of the injuries reported were traumatic in origin with very few recurrent injuries. Although the number of injuries

that would have resulted from a foul play from the total number of contact injuries was not documented in the present study, only about half of such injuries were sanctioned by the referee. It has been documented that most soccer injuries are caused by contact with another player, with 15% to 50% occurring as a result of foul play [23, 27]. Our results are consistent with these findings.

In the present study, most of the injuries affected the lower extremities; mostly the lower leg, ankle and knee joints, which is in concordance with other reports [6, 11-24]. The most common types of injuries were contusions, sprains, and strains; this is also in agreement with previous studies [6, 11-24]. It is important to note that contusion injury accounted for over two-third (69%) of all injuries most of which did not result in time-loss and the knee recorded the highest proportion of time loss injuries followed by the head/neck region. This is in congruence with previous studies on professional male football tournaments.

Conclusion

The overall incidence of injuries during the WAFU cup was much higher than those of other tournaments ever documented but the characteristics of injuries were similar. In order to fully define the nature of injuries and more reliably identify the risk of injury for the establishment of injury prevention strategies that will be appropriate for this region of the world, it is imperative that further systematic injury recording and analysis in African players are carried out.

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