

OROFACIAL SPORTS - RELATED INJURIES IN A SPORTS FESTIVAL IN NIGERIA

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ABSTRACT:

Objectives: To determine the aetiology, prevalence and types of orofacial injuries in a sports festival in Nigeria.

Materials and Methods: A data form was designed to collect among others, information on age, gender, state of origin, sporting event and types of injury. All consecutive patients who sustained orofacial sports-related injuries that reported at the medical centres at the stadium were studied.

Results: There were 319 sports-related injuries. Of these, 14.1% were orofacial injuries. More injuries (80%) were sustained as a result of body contact. Karate was responsible for the highest number of orofacial injuries 60%, with 40% and 20% of the injuries in males and females respectively. Athletes in the age range of 21-30 years sustained more orofacial injuries than any other age group. Laceration (91.5%) was the commonest injury sustained. Athletes of Edo state origin sustained more injuries than athletes from other states, but athletes from Yobe state sustained more injuries per participant per state. There was no fracture of the facial skeleton recorded and injuries to teeth (6.7%) were low.

Conclusion: The number of orofacial injuries was low compared to the number of participants at the Sports Festival.

KEY WORDS: *Orofacial, sports-related, injuries, sports festival.*

INTRODUCTION

The Empire day celebration, where selected athletic events were competed for at various levels in primary and secondary schools, predated the first sports festival in Nigeria held in 1973. One of the objectives of the sports festival is the promotion of mass participation in amateur sports from grass root level with a view to discovering hidden talents. The regular staging of these festivals therefore, has encouraged participation with improved performance in various events and the development of sports in Nigeria.

While the popularity of sports in Nigeria is rapidly increasing, the number of participants would be expected to increase. Injuries associated with sporting activities have been previously reported¹⁻⁵. These studies are largely retrospective and have documented and emphasized hard tissue injury only. Similar studies have included sports as one of the aetiological factors in maxillofacial fractures^{6,7}. Comparative analysis of these studies is hampered by various selection criteria used and the employment of retrospective and non-consecutive data⁸.

It appears that orofacial injuries associated with sports festival in Nigeria have not been previously documented. The objectives of this study were to determine the aetiology,

prevalence and types of orofacial injuries associated with various sporting activities in a Nigerian sports festival.

MATERIALS AND METHODS

One of the authors (MAS) served in the medical team of the "Edo 2002" Sports festival held in Benin City, Edo State, Nigeria from 6th - 14th April 2002. A questionnaire was designed to collect information relating to age, gender, state of origin, sporting event, types of injury, parts of the body injured and treatment if any. MAS collected the data of all consecutive patients who participated in the sports festival on a daily basis using the questionnaire. These were subsequently analysed prospectively.

RESULTS

Altogether, there were 8,397 participants at the sports festival. These were drawn from 36 states in Nigeria and the Federal Capital Territory (FCT). However, one State (Abia) left for home early in the competition. There were 319 sports-related injuries recorded at the Medical Centres. Athletes from 19 states and FCT sustained orofacial injuries. This represents 54.1% of all the states, including FCT that participated in the sports festival. Of these, 45 were orofacial injuries, which represented 14.1% of the total injuries recorded. The age range of the patients was from 15-40 years with one patient above 40 years. There were 31 males (68.9%) and 14 females (31.1%) in a ratio of 2.2:1 (Figure 1).

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Table 1 shows the gender and various sports where injuries were sustained.

Table 1: Gender and various sports where Injuries were sustained

SPORT	MALE		FEMALE	
	n	%	n	%
Badminton	1	(2.2)	-	-
Basketball	-	-	2	(4.4)
Cycling	-	-	1	(2.2)
Dambe	1	(2.2)	-	-
Handball	1	(2.2)	1	(2.2)
Hockey	1	(2.2)	-	-
Karate	18	(40.0)	9	(20.0)
Soccer	2	(4.4)	-	-
Takwando	4	(8.9)	-	-
Tennis	3	(6.7)	-	-
Volleyball	-	-	1	(2.2)
TOTAL	31	(68.9)	14	(31.1)

The total number of orofacial injuries per participant was 0.005(0.5%). Causes of injuries were body contact 36(80%), equipment contact 3(6.7%), assault 2(4.4%) and fall 4(8.9%). The types of injuries were: avulsion of teeth (n = 1), tooth fracture (n = 1), displaced teeth (n=1), Jaw dislocation (n = 1), laceration of lips (n=7), laceration of other parts of the face (n = 8), eye (n=16), nose (n=6), scalp (n = 2), chin (n = 2) and ears (n = 2). One athlete sustained multiple injuries of tooth avulsion, tooth fracture and lip laceration. Athletes from Edo state 8(17.8%), sustained more injuries than any other state followed by Lagos state 7(15.8%). However, when the proportion of injured athletes per state (Table 2) are related to the number of participants, Yobe state had 1.5%, Edo (0.9%), Lagos (1.1%), Rivers and Bayelsa states (0.3%) respectively. There were more injuries recorded for Karate sport 28(59.6%), followed by Takwando 4(8.5%). Table 2 shows the distribution of these injuries according to state. Table 3 shows the distribution and breakdown of injuries according to state and sporting event.

All lacerations were sutured at the Stadium Medical Centre, while all other injuries were referred to the University of Benin Teaching Hospital, Benin City, Nigeria for further management.

Table 2: States (including FCT) and number of injuries sustained

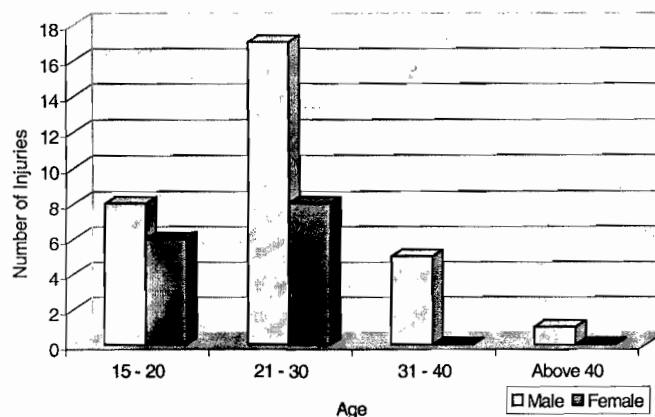
State	Number Injured n	Injured %	Number of Athletes	Injured % Per State
Abia	-	-	-	-
Akwa Ibom	2	(4.4)	217	0.9
Bauchi	3	(6.7)	291	1.0
Bayelsa	1	(2.2)	378	0.3
Benue	2	(4.4)	293	0.7
Delta	3	(6.7)	729	0.4
Edo	8	(17.8)	870	0.9
FCT	3	(6.7)	250	1.2
Imo	2	(4.4)	314	0.6
Kaduna	1	(2.2)	242	0.4
Katsina	1	(2.2)	160	0.6
Lagos	7	(15.6)	600	1.1
Nasarawa	2	(4.4)	171	1.2
Niger	1	(2.2)	193	0.5
Ogun	2	(4.4)	460	0.4
Osun	2	(4.4)	256	0.8
Oyo	1	(2.2)	149	0.7
Rivers	1	(2.2)	382	0.3
Taraba	1	(2.2)	110	0.9
Yobe	2	(4.4)	132	1.5

* Departed the games early.

Table 3: Distribution of Specific types of injuries according to sporting event.

Sport	Tooth Avulsion	Tooth Fracture	Tooth Displaced	Jaw Dislocation	Lacerations
Badminton	-	-	-	-	1
Basketball	-	-	-	-	2
Cycling	1	1	-	-	1
Dambe	-	-	-	-	1
Handball	-	-	-	-	2
Hockey	-	-	-	-	1
Karate	-	-	1	1	25
Soccer	-	-	-	-	2
Takwando	-	-	-	-	4
Tennis	-	-	-	-	3
Volleyball	-	-	-	-	1
TOTAL	1	1	1	-	43

Fig 1: Distribution of injuries according to age range and gender



DISCUSSION

The prevalence of both hard and soft tissue injuries in the orofacial region during the 13th National Sports Festival in Edo State, Nigeria were as described. These injuries represent 14.1% of the total body injuries that were seen at the medical centres at the stadium. Patients with sports-related orofacial injuries may report at different times to the medical centre, or the accident and emergency centre in a designated hospital depending on the severity of the injuries. Some patients regard their injuries, as not serious enough to seek treatment. More importantly, patients may present with minimal signs and symptoms but their conditions may deteriorate rapidly or insidiously if injury is hidden and not evident on clinical examination⁹.

Orofacial injuries in competitive sports have been well documented^{3,4}. While some injuries occur in unavoidable circumstances especially in the heat of competition, some competitors however, deliberately inflict injury on valuable opponents to "take them out" of competition. In this study, body contact was the commonest cause of injury and this is in agreement with several studies^{1,5,10,11}. The commonest injury was laceration and eye injury, which accounted for 35.6% of the total injuries sustained during the competition. A Scandinavian study¹² had documented injuries to the eyes as commonly occurring in soccer but the present study had 4.4% soccer related injuries with only one affecting the eye. The finding that 91.5% of the orofacial injuries involved soft tissues shows that previous workers underestimated the incidence of sports injuries to the head and neck region of the body. Athletes from Edo, Lagos and Osun states sustained more injuries to the eyes than any other part of the orofacial region. Generally, Edo state athletes sustained more injuries than any other state, which may not be unconnected with the largest number of participants from the state. Interestingly therefore, it appears that the injuries sustained tend to parallel the number of medals won as Edo State athletes won more medals than any other state. This observation may have to be investigated in a future study.

More than twice the number of males sustained injuries than females, which was not surprising given the high number of male participants at the sports festival. The ratio of males to females (2.2:1) is reflected in Karate where twice the number of males sustained orofacial injuries than females. However, the age range of both male and female who sustained injuries fell within 21 to 31 years (Figure 1). This agrees with previous reports, which have attributed a high physical activity to this age group^{2,3}. Surprisingly, there were no bone fracture and injuries to the teeth were also low compared to the high number of participants at the sports festival.

A low incidence of orofacial injuries in fit, trained professional athletes has been previously reported^{1,3,14}. However, a German study could not associate physical fitness and sports-specific skills to sports injuries.¹⁵ This study could not link athlete's fitness level and training with the incidence of orofacial injuries in sports as these criteria could not be objectively verified. Nevertheless, soccer is a game where players are trained to play and professionalism exhibited during games, but other workers^{1,16} have reported a high incidence of orofacial injuries in the game. Nowadays, conclusions drawn from outdated data and

retrospective analysis on orofacial injuries are often misleading because rule changes in different sports have made the application of these information to current sports practices irrelevant¹⁷. Furthermore, published reports of orofacial trauma exhibit deficiencies in data gathering, lack of standardization and empirical treatment regimens¹⁸.

The use of protective wears in sports have been shown to be beneficial to the athletes^{19,20} but the greatest obstacle to their use in many games may be due to prejudice against them¹, insufficient knowledge of their availability and lack of concern about preventing injury²¹. In this study, only boxers wore any form of orofacial protection and no injuries were reported in the sport.

In conclusion, the number of orofacial injuries in this study is relatively small compared to the number of participants at the sports festival. Body contact with opponents still carries the highest risk of orofacial injuries in sports. The use of non-consecutive data in establishing the aetiology and prevalence of orofacial injuries do not give a clear picture of service demand to health planners.

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REFERENCES

1. **Sane J, Yli Paavalniemi P.** Maxillofacial and dental soccer injuries in Finland. *Br. J Oral Maxillofac Surg* 1987; 25: 383–390.
2. **Tanaka N, Hayashi S, Amagasa T, Kohama G-I.** Maxillofacial fractures sustained during sports. *J Oral Maxillofac Surg* 1996; 54: 719–720.
3. **Emshoff R, Schoning H, Rother G, Waldhart F.** Trends in the incidence and causes of sports-related mandibular fractures: A retrospective analysis. *J Oral Maxillofac Surg* 1997; 55: 565–592.
4. **Donly KT.** Management of Sports-related crown fractures. *Dent Clin North Am* 2000; 44: 85–94.
5. **Fasola AO, Obiechina AE, Arotiba JT.** Sports-related Maxillofacial fractures in 77 Nigerian patients. *Afr J Med med Sci* 2000; 29: 215–217.
6. **Adekeye EO.** The pattern of fractures of the facial skeleton in Kaduna, Nigeria: A survey of 1447 cases. *Oral Surg* 1980; 49: 491–495.
7. **Etetafia MO.** A study on Oral and Maxillofacial trauma in University of Benin Teaching Hospital, Benin City, Nigeria. A Dissertation submitted to the Faculty of Dental Surgery, West African College of Surgeons as part of requirements for the award of fellow of the West African College of Surgeons. October 2000.
8. **Walter SD, Sutton JR, McIntosh JM, Conelly C.** The aetiology of sports injuries: a review of methodologies. *Sports Med* 1985; 2: 47–58.

9. **Vattakuzhiyl GJ, Konstantinidis I.** An unusual case of surgical emphysema in the neck following sports injury. *J Laryngol otology* 2002; 116: 73–74.
10. **Hill CM, Burford K, Martin A, Thomas DW.** A one – year review of Maxillofacial sports injuries treated at an accident and emergency department. *Br J Oral Maxillofac Surg* 1998; 36: 44–47.
11. **Asembo JM, Wekesa M.** Injury pattern during team handball competition in East Africa. *East Afr Med J* 1998; 75: 113–116.
12. **Drolsum L.** Eye injuries in sports. *Scand J Med Sci Sports*. 1999; 9: 53–56.
13. **Hannay DR, English BK, Usherwood TP, Platts M.** The provision and use of Medical services during the 1991 World Students Games in Sheffield. *J Public Health Med* 1993; 15: 229–234.
14. **Baxter-Jones A, Maffuli N, Helms P.** Low injury rates in elite athletes. *Arch Dis Child* 1993; 68: 130–132.
15. **Verstappen FT, Twellaar M, Hartgens F, Van Mechelen W.** Physical fitness and sports skills in relation to sports injuries. A four-year prospective investigation of sports injuries among physical education students. *Int J Sports Med* 1998; 19: 586–591.
16. **Kvittem – B, Hardie NA, Roettger M, Conry. J** Incidence of orofacial injuries in high school sports. *J Public Health Dent* 1998; 58 288-293.
17. **Tesini DA, Soporowski NJ.** Epidemiology of orofacial sports-related injuries. *Dent Clin North Am* 2000; 44: 1-18.
18. **Koln DW.** Discussion: Maxillofacial fractures sustained during sports. *J Oral Maxillofac Surg* 1996; 54: 720-721. .
19. **Dennis CA, Parker DAS.** Mouthguards in Australian Sports. *Aust Dent J.* 1976; 17: 228-233.
20. **Mischkowski RA, Siessegger M, Zoller JE.** Mouthguard protection for prevention of athletic injuries to Teeth, Mouth and Jaw. *Sportverletz-Sportschaden* 1999; 13: 65-67.
21. **Yamada T, Sawaki Y, Tomida S, Tohnai I, Ueda M.** Oral injury and mouthguard usage by athletes in Japan. *Endod Dent Traumatol* 1998; 14:84-87.