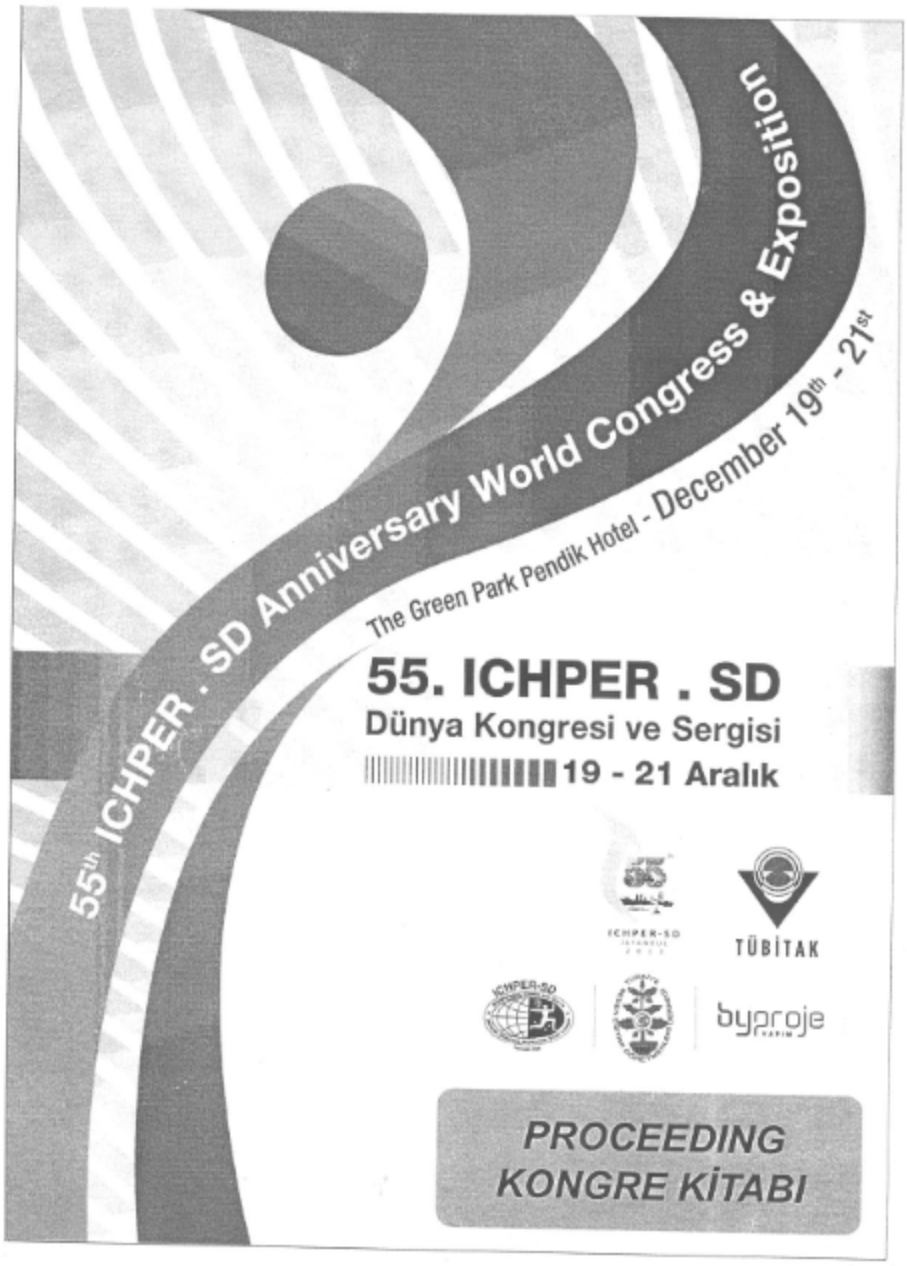
55th ICHPER . SD Anniversary World Congress & Exposition
The Green Park Pendik Hotel - December 19th - 21st
55. ICHPER . SD
Dünya Kongresi ve Sergisi
19 - 21 Aralık
TÜBİTAK
byproje
PROCEEDING
KONGRE KİTABI

A PROSPECTIVE STUDY OF SPORTS INJURY AMONG STUDENTS OF FOOTBALL ACADEMIES IN NIGERIA

TONY DANSU, RAFIU O. OKUNEYE

ABSTRACT
Injury is an unwanted phenomenon, and its occurrence lowers efficiency in sports. It is inevitable in sports, therefore adequate knowledge of pathokinesiology of structures involved and the causes are needed. This study investigated sports injury among students of football academies in Nigeria. Participants were 109 male and female students purposively sampled from 3 football academies in Nigeria. A self-developed sports injury data form was validated for the purpose of data collection. Data on injuries commonly sustained, body parts affected, events during which injuries occurred and the severity of injuries sustained were collected on the participants for the period of 16 weeks. Data collected were analyzed and presented using frequency counts, percentage and bar chart. Findings showed that sprain, strain, dislocations and muscle cramp are the types of sports injury mostly sustained, while body parts affected mostly were knees and ankles. Most of the injuries sustained were during training session and their severities were minor, mild and moderate.
Keywords: Sports Injury, Football Academy, Severity.

Introduction

All over the world, injury via accident represents one of the leading causes of death and substantial source of disability. Although most of the deaths are linked with traffic accidents [Gieck, 2004], sports represent an important source of relatively less serious injury that often lead to impairment in physical and social activities [Michard, Renaud & Narring, 2001]. According to Pray and Pray [2004], sports account for up to seven million injuries among Americans; with the highest incidence of such injury in children who are within the age-range of 5 and 15 years, having 59.3 injuries per 1,000; compared to 25.9 injuries per 1,000 in the general population. Also adolescents and young adults within the age range of 15 to 24 years recorded 56.4 per 1,000 incidences of injury.

Football [soccer], among all sports has been reported to have recorded the highest percentage of sports injury at any point in time [FIFA Medical Assessment and Research Centre FMARC, 2006; Medical News Today, 2005; Egwu, Uche-Nwachi and Adeniran, 1994; Onifade, Agbojinmi and Ososanya, 1991]. According to Medical News Today [2005], football players are far more likely to have injury than other sportsmen. A study on injury among people with long term sports involvement reveals that significantly more football players (6.3%) sustained injury during active sports than others. Egwu, Uche-Nwachi and Adeniran [1994] reported the occurrence of injury in football as being responsible for 50% to 60% of all sports injury; and 3.9% to 10% of all injury treated in hospitals.

In the game of football, most injury occur through contact with another player; some are caused by contact with the ball or ground, and the others result from excessive pressure being placed upon a body part, e.g. when straining a muscle or twisting a joint beyond its normalrange of movement [Gall, Carling & Reilly, 2008; Krivickas, & Feinberg, 1996]. Children can suffer from all types of sports injury that are seen in adults. They can also suffer from a number of additional

injuries related to their stage of development. This means that some injuries are only seen in children and the relative frequency of many other injuries differ between children and adults [Ivarsson, 2008; Hagglund, Walden, Bahr & Ekstrand, 2005; Nclatchie, 2004; Bird, Black & Newton, 1997].

According to Bird, Black and Newton [1997], many children participate in serious competitive sports from a very young age and in order to achieve success at a young age, they are given very strenuous and demanding training schedules that are more suitable to adults. Indeed, many authorities would emphasize that children are not miniature adults since their growing bodies are unable to take the physical stresses that an adult body can endure [Ivarsson, 2008; Bird, Black & Newton, 1997].

The risk of injury in football is very high, and may even be higher in children and adolescents. A study [Hagglund, Walden, Bahr & Ekstrand, 2005] evaluated the injury pattern and its risk in football; it was found out that the overall risk was higher for players than for high risk industrial occupation. According to Jacobson [2006], injury in football, in general, are all types of physical damage to the body occurring in relation to football. However, risks may vary with position played or intensity and nature of activity during training or competition. This study specifically appraised sports injury among students of football academies in Nigeria. It focused on the following variables:

i. types of sports injury commonly sustained
ii. body parts commonly affected
iii. events during which injury occurred; and
iv. severity of sports injury.

Methods and Procedure

Participants

Participants were purposively selected from three football academies at two different locations in Nigeria. The academies were selected using students' population, availability of personnel facilities and programmes/curricula as criteria. The academies are:

I. Pepsi Football Academy, Agege Lagos
II. FAKREM Football Academy, Surulere, Lagos; and
III. Kwara Football Academy, Ilorin.

The table below shows the pattern of sample selection from the academies

Table 1: Frequency and percentage distributions of the sample size

Academy	Initial Sample	Mortality	Completion Sample
Pepsi [Male]	44 [34.4%]	8 [6.3%]	36 [28.1%]
Pepsi [Female]	11 [8.6%]	3 [2.3%]	8 [6.3%]
KFA	46 [35.9%]	3 [2.3%]	43 [33.6%]
FAKREM	27 [21.1%]	5 [3.9%]	22 [17.2%]
Total	128 [100.00%]	19 [14.8%]	109 [85.2%]

Table 1 shows that the initial research sample was 128 with mortality of 19 [14.8%] while the sample that completed the study was 109 [85.2%]. Of this sample size, 44 [34.4%] were male students from Pepsi with mortality rate of 8 [6.3%], while only 11 [8.6%] were female students from Pepsi Academy with mortality rate of 3 [2.3%]. From Kwara Football Academy (KFA), there were 46 [35.9%] students with 3 [2.3%] mortality rate, and 27 [21.1%] from FAKREM Football academy, having a mortality rate of 5 [3.9%].

The selection of participants was achieved through documentary analysis of the records of the academies, using regular attendance as the basis for sampling, in order to reduce mortality rate. In the case of Pepsi and FAKREM Academies, all the students who were regular at training and were free from injury at the time of study served as sample of the study. But for Kwara Football Academy [KFA], only the junior and intermediate categories that were free from injury were involved in the study, excluding the senior category due to tight schedule of its programme.

Data Collection

For the purpose of data collection, height and weight of the participants were measured following standards described by International Society for the Advancement of Kinanthropometry (ISAK, 2001). Their ages were sought from the official records of the academies and were cross-checked via interview. These were. recorded in years to the nearest birthday. A self-developed data recording form titled Sports Injury (SI) Data Form was designed by the researchers. This form is in two parts. Part A records information on physical characteristics and personal data which include age, height, weight, and sex. Part B of the form records data on sports injury, which include date of injury, type of injury, affected part of body and severity of injury.

The process of data collection spanned over the period of sixteen weeks. Physical characteristics and personal data were taken at the initial stage of the study. Duplicate copy of Sports Injury [SI] data form for each participant was kept with a designated officer in each of the academies who was trained to serve as research assistant for recording and keeping records of injury sustained by each participant. The original copies of the data forms were often updated as at when due by the researchers.

Data Analysis

The injuries sustained by the participants of this study were scored based on their severity as defined by Federation Internationale de Football Association [FIFA] Medical Assessment andResearch Centre [F-MARC, 2006], and Union of European Football Association [UEFA] Consensus Discussion [Hagglund, Walden, Bahr, & Ekstrnad, 2005]. The cut-off points for the different categories of injury severity were then allotted points as follows:

- slight [1-3 days] =1 point
- minor [4-7 days] =2 points
- mild [8-15 days] =3 points
- moderate [16-28 days] =4 points; and
- major [above 28 days] =5 points.

Note: Days in the brackets indicate number of days the injured players spent out of active participation.

All data collected were coded and subjected to statistical analysis. Descriptive statistics of frequency counts, percentage, mean, range, standard deviation were carried out, while component bar chart was used to describe the results.

Results

Table 2: Results of mean, standard deviation and range analyses on participants' ages, weight and height

Characteristics	x	sd[±]	R
Age [yrs]	15.62	1.72	12-22
Weight [kg]	61.56	6.74	45.00-79.00
Height [cm]	160.55	7.39	140.20-187.00

Table 2 shows that the mean age of the participants was 15.62 [± 1.72] within the range of 12 and 22 years. The mean weight of the students was 61.56 [+ 6.74] within the range of 45.00 and 79.00 kg, and their mean height was 160.55 [± 7.39] within the range of 140.20 and 187.00 cm.

Table 3: Frequency and percentage distributions on types of injury commonly sustained

Injury Type	Frequency	Percentage
Wound	2	3.0
Fracture	2	3.0
Dislocation	14	20.9
Sprain/Strain	36	53.7
Muscle Cramp	13	19.4
Total	67	100

Result in Table 3 shows that wound and fracture were 2 [3.0%] each. There were 14 [20.9%] dislocations, and 13 [19.4%] muscle cramp. Sprain and strain were 36 [53.7%]. Figure 1 further describes this distribution.Figure 1 describes distribution on types of injury sustained by the participants

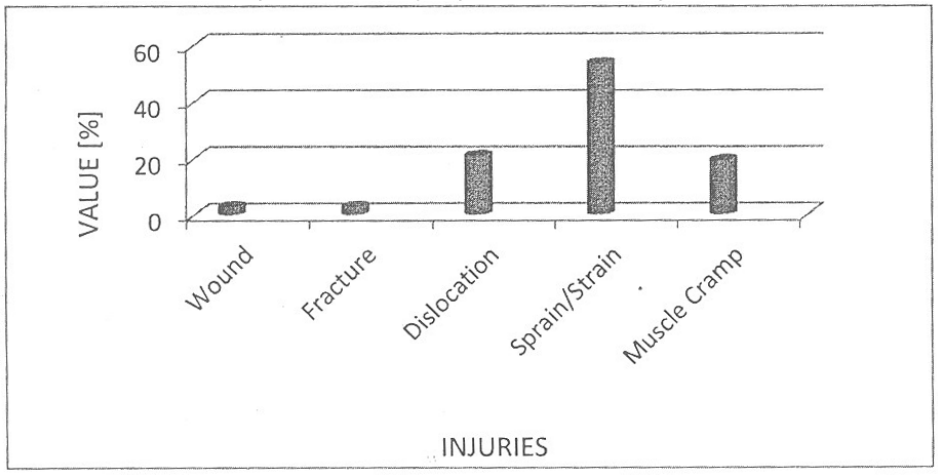

Figure 1: Component bar chart on types of injury sustained by students

Figure 1 shows that Wound and fracture recorded lowest percentage of occurrence, while sprain and strain had the highest percentage value.

Table 4: Frequency and percentage distributions of body parts affected by injury

Body Parts	Frequency	Percentage
Foot	8	11.9
Ankle	25	37.3
Shin	2	3.0
Knee	18	26.9
Thigh	11	16.4
Hand	3	4.5
Total	67	100

Table 4 shows that injuries sustained in the study spreads across some parts of the body. Of these injuries, 8 [11.9%] affected the foot, while 25 [37.3%] affected the ankle. The knee had 18 [26.9%] of the total number of injuries sustained, while 2 [3%] and 11 [16.4%] affected the shin and thigh respectively. Only 3 [4.5%] of the injuries affected the hand.Table 5 presents results on distribution of the sports injury sustained in the study by events the participants were engaged in.

Table 5: Frequency and percentage distributions of injury sustained by event

Event	Frequency	Percentage
Training Session	40	59.7
Training Match	25	37.3
Tournament Match	2	3.0
Total	67	100

Table 5 shows that of the 67 injuries sustained in this study, 40 [59.7%] were sustained during training session, while 25 [37.3%] were sustained during training matches. Only 2 [3.0%] were sustained during tournament matches.

Table 6: Frequency and percentage distributions of injury by severity

Severity	Frequency	Percentage
Slight	13	19.4
Minor	17	25.4
Mild	17	25.4
Moderate	13	19.4
Major	7	10.4
Total	67	100

Table 6 shows that of the 67 injuries sustained in this study, 13 [19.4%] were slight and moderate injuries, while 17 [25.4%] were minor and mild injuries. Major injuries sustained by the participants were 7 [10.4%]. Figure 3 further describes this result.

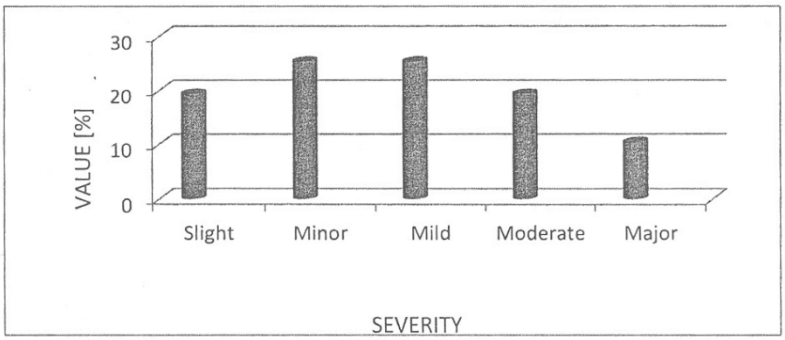

Figure 3: Component bar chart on severity of injury sustained

Figure 3 shows that minor and mild injuries recorded the highest percentage of injury while major injury recorded lowest percentage.

Discussion

Findings of this study showed that sprain and strain recorded the highest percentage of injury sustained by the participants of this study, with ankle and knee recording the most affected parts of the body [see figures 1 & 2]. This finding is in line with the report of Turner, Balow and Healthcote-Elliott [2000] that the most common injuries in football are sprains and strains; affecting mainly the ankle and knee joints. According to Turner, Balow and Healthcote-Elliott [2000], knee injury, particularly crutiate ligaments (anterior-ACL and Posterior-PCL),accounted for nearly half (49%) of all injury in enforced premature retirement from active football. In the same line of argument, Walker [2003] in a report stated that ankle sprain is the commonest injury among professional football players; accounting for more than 1 in every 10 of total injury.

The finding of this study showed that most of the injuries sustained were during training sessions. This did not come as a surprise, since the participants were students in various academies, and most of their active football periods were during training session. Interview and observations showed that matches and competitions were relatively few in comparison with trainings.

It is further shown in this study that minor and mild severity levels of injury recorded the highest percentage; although slight and moderate levels were also high [see figure 3]. In a similar study by Jackson and Feagin [2013], it was found that 47 of 65 injuries recorded were mild, while 7 were moderate. The trend may be expected even during competitions, that is minor or mild severity levels. In a prospective study by Chomiak et al [2000], only 16.5% were very severe. In the past, Hawkins and Fuller [1998] had reported moderate and minor injury to be of high percentage among players in premier league and first division league matches of 1996/1997 and 1994- 1997 respectively. Injury however, is one of the major reasons why people quit sports; therefore, it is very essential to employ every means of preventing sports injury, especially in young sportsmen. Authors [Carol & Eustice, 2006; Nader, 2005; Okuneye, 2001] have emphasized the need to pay serious attention to various strategies for preventing sports injury.

From an economic point of view, the fact remains that huge amounts of money are spent on players as sign-on fees, wages and allowances at professional levels. Therefore, club owners and managers, fans and all stakeholders will expect long lasting and regular performance that brings about satisfactory financial gains from players on whom such huge amount of money is spent. This implies that the

club and players must definitely guide against any factor particularly injury that may limit the performance or keep the players off the pitch.

According to Nader [2005], sports injury is preventable if factors that predispose players are identified and dealt with. Carol and Eustice [2006] identify some of these factors to include poor training methods, improper facilities and equipment, lack of conditioning and insufficient warm-up. Many authors [Ruddock, 2007; Ratzloff, Gillies & Kochoorn, 2007; Gieck, 2004; Conti, 2004; Bello, 2000; Verstappen, Tweller, Hartgens & Van-Mechelen, 1998] assert that physical fitness is a strong factor in the prevention of sports injury. Identifying areas of consideration for injury prevention, Gieck [2004] emphasised preseason-screening process, which should focus mainly on physical fitness. Ratzlaff, Gillies and Kochoorn [2007] stated that being physically fit is strongly associated with lower risk of strain injury.

Conclusion and Recommendations

Based on the findings of this study, it is concluded that sprain and strain were the most sustained injury by the participants of this study, with ankle and knee being the most affected parts of the body. Also most of the injuries sustained were during training session, and minor and mild severity levels of injury were common; although slight and moderate levels of injury were also high among the participants.

It is therefore recommended that coaches and trainers in football academies should pay serious attention to sports injury prevention among students. All factors that predisposed players to injury should be identified and treated with utmost priority. Physical fitness level of the students should be developed and maintained as there is strong link between the two variables. In addition, the students should be regularly educated on the essence of injury prevention in sports. Intensive care of footballers with injury should be ensured by medical department of football academies and clubs; relevant personnel should also be employed to this department. This will enable quick and full recovery from injury and resumption to trainings and competitions.

REFERENCES

Bello, N. [2000]. Lack of physical fitness causes higher sports injury rates among women (online). Available: http://hbns.org 14/04/08.

Bird, S. Black, N. & Newton, P. [1997]. Sports Injury: Causes, diagnosis, treatment and prevention. Cheltenham: Stanley Thornes [Pub.] Ltd.

Carol, B. & Eustice. R.[2006]. Sports injury guide: The common types of sports injury. www.healthline.com. 10/02/08.

Chomiack, J., Junge, A., Peterson, L. & Dvorak, J. [2000]. Severe injuries in football players: Influencing factors. American Journal of Sports Medicine, 28[5], 58-68.

Conti, J. V. [2004]. Relationship between flexibility and sports injury (online). Available: http://www.efdeportes.com. 12/02/08.

Egwu, M. O., Uche-Nwachi, E. O. & Adeniran, S. A. [1994]. Influence of limb dominance and player position on elite league football Trauma. Osun State Journal of Physical/Health Education and Recreation, 3, 5-7.

FIFA Medical Assessment and Research Centre [F-MARC, 2006] FIFA sets new definitions and procedures for injury in football (online). Available: http://www.medicalnewstoday.com 14/02/08.

Gall, F.L., Carling, C. & Reilly, T. [2008]. Injury in young elite female football players: An 8-season prospective study. The American Journal of Sports Medicine, 36[2], 276-284.

Gieck, J. H. [2004]. Sports injury prevention for optimal athletic performance (online). Available: http://www.theacc.com. 10/02/08.

Hagglund, M. Walden, M. Bahr R & Ekstrand, J. [2005]. Methods for epidemiological study of injury to professional football players: Developing the UEFA model. British Journal of Sports Medicine, 39, 340-346.

Hawkins, R.D. & Fuller, C.W. [1998]. An examination of the frequency and severity of injuries and incidents at three levels of professional footballs. British Journal of sports Medicine, 32, 326-332.

International Society for the Advancement of Kinanthropometry (ISAK, 2001). International Standard for anthropometrics assessment. Potchefstroom:ISAK

Ivarsson, A. [2008]. Psychological predictors of sport injury among football players. Sports Psychology, 91-120.

Jackson, D.W. & Feagin, J.A. [2013]. Quadriceps contusions in young athletes: Relation of severity of injury to treatment and prognosis. The Journal of Bones and Joint Surgery, 55[1], 95-105.

Jacobson, I. [2006]. Injury among female football players. Unpublished Doctoral Thesis. Department of Health Science, Division of Physiotherapy, Lulea University of Technology, Lulea.

Krivickas, L.S., & Feinberg, J.H. [1996]. Lower extremity injury in college athletes: Relation between ligamentous laxity and lower extremity muscle tightness. Archives of Physical Medical Rehabilitation, 77, 1139-1143.

Medical News Today [2005]: Football (Soccer) Players are sportsmen most at risk of injury (Online). Available: http://www.medicalnewstoday.com. 14/02/08.

Michard, P. A., Renaud, A., & Narring, F. [2001]. Sports activities related to injury? A survey among 9-19 year olds in Switzerland. Injury Prevention, 7, 41-45.

Nader, R. [2005]. Sports injury prevention (online). Available: http://two.pairlist.net. 10/02/08.

Okuneye, R. 0. [2001]. Sports behaviour of students in Lagos area: Effect on knowledge of sports injury. Journal of the Medical Rehabilitation Therapist, 6[1], 1-3.

Onifade, A., Agbonjinmi, A., and Ososanya, D. [1991]. Sports injury among University athletes. Sports Science and Medicine, 1, 255-262.

Pray, W. S. & Pray, J. J. [2004]. Prevalence of sports injury and epidemiology [online]. Available: http://www.medscrape.com. 12/02/08.

Ratzlaff, C. R., Gillies, J. H. & Koehroorn, M. W. [2007]. Work-related repetitive strain injury and leisure-time physical activity. Arthritis Care & Research, 57[3], 495-500.

Ruddock, A. [2007]. Injury prevention, agility and technique (online). Available: http://www.peakspeed.net. 16/02/08.

Turner, A. P., Barlow, J. H. & Healthcote-Elliott, C. [2000]. Long term health impact of playing professional football in the United Kingdom. The British Journal of Sports Medicine, 34, 332-336.

Verstappen, F. T., Twellaar, M., Hartgens, F. & Van-Machelen, W. [1998]. Physical fitness and sports skills in relation to sports injury: A four-years prospective investigation of sports injury among physical education students. International Journal of Sports Medicine, 19[8], 586- 591.

Walker, I. [2003]. Football injury — Ankle sprains: the bane of football players British Journal of Medicine, 37, 233-238.