Prevalence and pattern of injuries among football players in National Squad in Sri Lanka

H.A.N.P. Henakaarachchi[1], N. S. Gunawardena[1], A.D.P Perera[2]

[1]Faculty of Medicine, University of Colombo, Sri Lanka.
[2]Department of Physiotherapy, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka.

Abstract-
The purpose of this study was to identify the prevalence and pattern of injuries among football players of national squad in Sri Lanka. **Methodology:** The descriptive cross sectional study was conducted with 91 professional male football players, at the grounds when the players were practicing. The data collection was carried out using interviewer administered questionnaire. The ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, University of Colombo. **Results:** Injury prevalence was 95.6%. There were 5.4% players with upper limb injuries, while 83.9% players with lower limb injuries, 3.2% players with back injuries and 7.5% players with head and neck injuries. Among the lower limb injuries 43.5% were knee injuries, 30.8% were ankle injuries, 10.3% were upper leg injuries 7.7% were groin injuries, 5.2% were lower leg injuries and 2.5% were foot injuries. Hip injuries and pelvis injuries were not reported. Types of injuries were inquired into and the result showed 19.3% contusions, 6.5% lacerations, 42.0% strains, 29.0 % sprains and 3.2 % fractures. Dislocation was not reported. It was revealed that cryotherapy 65.3% was the commonest to be used as first aid. Out of injuries, 14.0% had taken 1 day for the recovery, 25.8% had taken one day to 7 days for the recovery, 40.9% had taken 7 days to 14 days for the recovery and 19.3% had taken more than 14 days for the recovery. After injury 87.1% players had met physiotherapist for treatment. **Conclusion:** There was a high prevalence of lower extremities injuries than upper limb, spine and head and neck. Of the lower limb, knee joint was the most injured. Strain was the commonest type of injury pattern among the football players. After most of injuries cryotherapy had been used as a first aid. Most of football injuries had taken 7 days to 14 days for the recovery. Many injured players had sought physiotherapy treatment and advice for their injuries.

Index Terms- Upper limb injuries, lower limb injuries, Strain, Cryotherapy

I. INTRODUCTION

Football is currently the most popular sport in the world. Currently, the International Federation of Association Football (FIFA) unifies 203 national associations and represents about 200 million active players, of which about 160 million are men [1]. The incidence of football injuries is estimated to be 10 - 35 per 1000 game hours [1] . One athlete plays on average 100 hours of football per year (from 50 hours per player of a local team, up to 500 hours per player for a professional team. This means that every player will have minimum one performance-limiting injury per year.

Football is a highly athletic sport with rapid deceleration, acceleration, single-stance twists, single-stance ballistic movements and aerobatic maneuvers [2] . Increase velocity causes increase range of motion in all the joints in the lower extremity. This increased joint range of motion may be a predisposing factor for football injuries in the lower extremities [3, 4, 5, 6,7, 8, 9, 10, 11]. The knee joint is highly susceptible to injury in football players [5, 12] with increasing exposure, and is at higher risk as opponents become stronger and more skilled [13].

The average cost for medical treatment per football injury is estimated to be $150 (U.S. dollars) [6] . Considering the number of active football players worldwide, the socio-economic and financial consequences of injury are immense. Although the injury prevention is the ideal method, if injury does occur, treatment procedure should include appropriate medical care, player's education, cross-training, specific rehabilitative exercises, and a programmed return to playing footbal [14]. Sports injury management is a vast field with the integration of most of health care professionals. Sport physiotherapy plays an important role in managing football related injuries with the other team members.

In Sri Lanka, a few studies have been on specific sports. In Sri Lanka, the playing conditions are not optimum and the prevalence and pattern of injuries may be different to what is found in research in developed countries. Also the results may not be applicable for Sri Lankan players as the climate conditions, techniques, nutritional state, and knowledge of preventive methods may vary from the other countries. Therefore, it is a need to assess the prevalence and find out the types of injuries among Sri Lankan players. This will allow taking precautions to minimize these injuries and to plan the treatment for them. Knowing the pattern will enable to plan the physiotherapy treatments needed in advance.

II. MATERIALS & METHODS

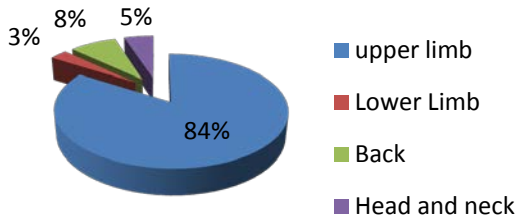
A descriptive cross sectional study was conducted with a sample of 100 professional football players between 20 -35 years at the Football Federation of Sri Lanka. The players were playing football for a period of 2 years or more at the time collecting data. An interviewer administered questionnaire was used to collect the data on pattern of injury, injury history, first aid and physiotherapy treatment. A pretest was carried out and the questionnaire was modified according to the responses of participants. Ethical approval for the study was obtained from the Ethical review Committee of Faculty of Medicine, University of Colombo. Data analysis was done by SPSS-17 (Statistical Product and Service Solution) computer software package.

III. RESULTS

Of the 100 invited to participate in the study, 91 agreed giving a response rate of 91.0%. A majority 38(41.8%) were in the age group of 26-30 years. Mean age of population was 27.7 years (SD+/-3.940, range 20-35 years).While playing some players wore several type of protective equipment. Most of players wore knee brace 17(18.7%) and rarely players wore gum shield 2(2.2%).

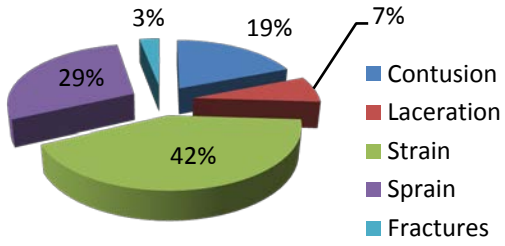
Injury prevalence among players was 95.6%.There were 93 injuries recorded among 91 football players. The injury prevalence of each region of the body is shown in Figure 1. There were 5 players with (5.4%) upper limb injuries, 78(83.9%) players with lower limb injuries, 3(3.2%) players with back injuries, 7(7.5%) players with head & neck injuries.

Figure 1 : Distribution of Injury prevelance



The injury pattern is shown in Figure 2. Types of injuries 91 football players were classified as contusion 18 (19.3%), laceration 6 (6.5%), strain 39 (42.0%), sprain 27 (29.0 %), and fracture 3 (3.2 %). Dislocation was not reported.

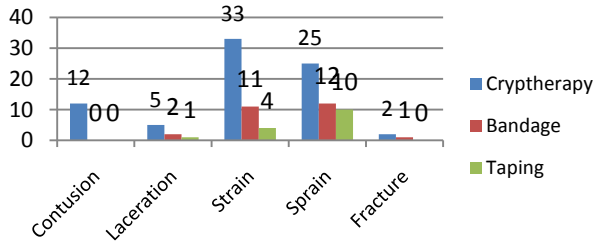
Figure 2: Distribution of Injury pattern



A majority of players (78) reported lower extremities injuries among 91 football players. Among them 34(43.5%) knee injuries, 24(30.8%) ankle injuries, 8(10.3%) upper leg injuries, 6 (7.7%) groin injuries, 4(5.2%) lower leg injuries and 2(2.5%) foot injuries. Hip injuries and Pelvis injuries were not reported. Of the lower limb injuries, 10(12.8%) were contusions,4(5.1%)were laceration, 36 (46.2%) were strain, 27 (34.6%) were sprain and 1(1.3%) was a fracture. Dislocation was not reported. There were 3 back injuries were reported among 91 football players. Of these injuries 2(66.7%) were contusion and 1(33.3%) was a laceration. Both contusions were lumber region and laceration was thoracic region. There were 2 (28.28) head and 5 (71.42) neck injuries were reported. Of the head and neck injuries, 2(28.6%) were contusion, 2(28.6%) were fracture and 3(42.8%) were strain. Both of the fractures were head. Contusion and strain was neck region.

Cryotherapy, Bandage and Taping had been used after above injuries. The pattern revealed that Cryotherapy 77(65.3%) was the commonest to be used. Bandage 26(22.0%) and Taping15 (12.7%) had also been used. Of the 18 contusion reported, 12(66.7%) players had been used cryotherapy. When concern after laceration 5 players had been used cryotherapy, 2 players had been used bandage and 1 player had been used taping. Among strain 33 players had been used cryotherapy, 11 players had been used bandage and 4 players had been used taping. Of the sprain 25 players had been used cryotherapy, 12 players had been used bandage and 10 players had been used taping. There are 2 players had been used cryotherapy after fracture and 1 player had been used bandage after fracture. First aid after each injury pattern is shown in Figure 3.

Figure 3: First aid after each injury pattern

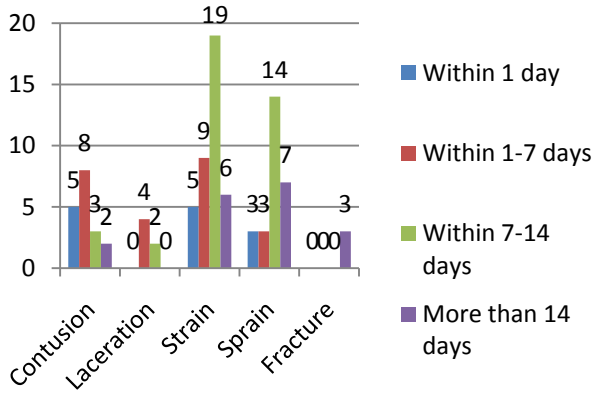


Time taken to recover from their injury was analyzed under four categories including,within 1 day, within 1 day to 7 days, within 7 days to 14 days and more than 14 days. Outof 93 injuries 13(14.0%) had taken 1 day for the recovery, 24 (25.8%) had

taken 1 day to7 days for the recovery, 38 (40.9%) had taken 7 days to 14 days for the recovery and18(19.3%) had taken more than 14 days for the recovery.

Of the 18 Contusions reported, 5(27.5%) had recovered within one day, 8(44.4%) had recovered within 1-7 days and 3(16.7%) had recovered within 7-14 days and 2(11.1) had taken more than 14 days for recovery. Of the 6 Lacerations reported, 4 (66.7%) had recovered within 1-7 days and 2(33.3%) had recovered within 7-14 days. Of the 39 Strains reported, 5(12.8%) had recovered within one day, 9(23.1%) had recovered within 1-7 days, 19(48.7%) had recovered within 7-14 days and 6 (15.4%) had taken more than 14 days for the recovery. Of the 27 sprains reported, 3 (11.1%) had recovered within one day, 3(11.1%) had recovered within 1-7 days, 14 (51.9%) had recovered within 7-14 days and 7(25.9%) had taken more than 14days for the recovery. Of the 3 fractures reported, all had taken more than 14 days for the recovery. Recovery of each injury pattern is shownin Figure 4. After injury 81(87.1%) players had met physiotherapist for treatment.

Figure 4: Recovery of each injury pattern



IV. DISUSSION

In the present study, more injuries were identified in the lower extremities. It is expected that more injuries occurred in the lower body due to the fact that football is a sport that involves predominantly the lower body, and that tackles, impacts and movements are mostly below hip level [2-11] . But this is not consisting with a previous study done by Michel et al (2002) [12] showed that different result from their study in upper limb was the most commonly injured part of the body. Reason for this may be because this study was done among young who were, below the 13 years of age. Past studies had shown that prevalence of the lower limb injuries more than 80% [2,10] which is comparable to the 83.9% in the present study while Maehlum, et al (1984) [9] and Owoeye et al (2008) [11] showed less than 60%.

Knee injuries were among the most common injuries in Sri Lankan football players. Knee joint is highly susceptible to injury [5, 12, 13] . Knee is a complex joint where a lot of soft tissues are needed for its stability. Therefore, various stressors can act on intra articular structures of the knee joint and develop a high chance to have a soft tissue injury. If the muscles around the knee joint are not strengthened enough it leads to act more stress on ligaments and cartilages [15]. The knee is a weight baring joint, which can be damaged by twisting and jarring, and is also subjected to overuse and trauma caused by collisions.

Ankle injuries were second highest injuries while playing football according to the present study and ankle sprain was most prominent injury pattern. There were similar studies had also shown that the prevalence of ankle injuries was nearly 30% [5,7,8] . The ankle is a complex joint that is capable of a wide range of movement flexion, extension, inversion and eversion as well as a combination of other movements [15] . The ankle takes the full weight of the body and the forces that are exerted on it are considerable, particularly in kicking, running and jumping. This might be the reason for high rate of ankle injuries among the football players [16] . Sprain is most common injury pattern of the ankle following strain, contusion and laceration. Football players have to run on uneven surfaces. An unnatural twisting motion of the ankle joint can happen when the foot is planted awkwardly while kicking of the ball; this also may be the reason for ankle sprain. When playing football, ankle is forced to move out of its normal position, which can cause one or more of the ankle's ligaments to stretch or tear [16] .

Upper leg injuries are also common among football players. It was 10.8% of this study while strain was the commonest injury pattern. While playing football kicking is a regular activity. In activities such as kicking, an excessive force is applied to the muscles of upper leg and stretched beyond their limits. This may be the reason for upper leg injuries among the football players. Maehlum, [9] also presented similar results in their study with upper leg injury being 13.6% while it was 39.1% in the Dvorak, study [6]. There was 7.7% groin injuries reported in this study. While playing football requires a large hip range of motion, quick stops and starts, and changes in direction. Several past studies had shown that strain was the most common injury pattern of the groin [2,6,8] . Head and neck injuries were the second highest injuries (7.5%) while playing football according to the present study. Headgears reduce the force of impact so that the symptoms associated with mild head injuries are minimized, and ultimately some slight head injuries could be avoided [17] . The players in the present study rarely wore headgears. Football is contact sport. Above factors may be the reason for higher prevalence of head and neck injuries in this study. Michel, [12] reported 7% of head and neck injuries. Fracture was most common pattern of head injury and strain is common one of the neck. There was 5.4% of upper limb injuries in the present study. Football players tend to fall in outstretched hand. This may be the reason for upper limb injuries among football players. Vernon, [8] also showed similar results with 7.5% of upper limb injuries while contusion was most common pattern. Back injuries were 3.2% while contusion was common pattern.

In the present study, cryotherapy, bandage and taping had been

used after injuries. The pattern revealed that cryotherapy (65.3%) was the commonest to be used. Cryotherapy are ease of use, it is low cost, and gives good cosmetic results. These may have been the reasons for popularity of cryotherapy. Owoeye, [11] also showed same result about first aid.

V. CONCLUSION

The prevalence of any injury was very high among football players. There was a high prevalence of lower extremities injuries than upper limb, spine and head and neck. Of the lower limb, knee joint was the most injured. Strain was the commonest type of injury pattern among the football players. After most of injuries, cryotherapy had been used as a first aid. Most of football injuries had taken 7 days to 14 days for the recovery. Many injured players had sought physiotherapy treatment and advice for their injuries. The factors that increase the risk of football injury first need to be determined, so that steps can be taken to develop the much needed injury prevention program. Further studies are recommended on this.

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AUTHORS

H.A.N.P. Henakaarachchi, BSc Physiotherapy (Hons); Department of Physiotherapy, Faculty of Medicine, University of Colombo, Sri Lanka.
E mail: hanpchanna@gmail.com

N. S. Gunawardena MBBS, MD (Community Medicine), Senior Lecturer, Department Of Community Medicine, Faculty of Medicine, University of Colombo, Sri Lanka.

A.D.P Perera, BSc Physiotherapy (Hons); MSc Exercise & Sport Science. Lecturer, Department of Physiotherapy, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka.
E mail: dperera85@yahoo.com.

Correspondence Author – A.D.P Perera, email address: dperera85@yahoo.com , alternate email address : dilaniperera1985@gmail.com ,
Contact number: 0094774935051.