The Epidemiology of Futsal Injuries Via Sport Medicine Federation Injury Surveillance System of Iran in 2010

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Abstract

The study of the futsal injuries presented to the sport medicine federation injury surveillance system of Iran during one year of Persian calendar at 21st of March 2010 until 20th of March 2011 was the objective of this study. A retrospective analysis was conducted of the data for athletes from the sport medicine federation injury surveillance system of Iran during one year. From 1045 injured athletes, 1145 injuries were reported. The incidence rate of 8.1 injuries per 1000 athletes registered was calculated for Iranian futsal players. This rate was 7.8 and 12.6 injuries per 1000 athletes registered in men and women respectively. Injuries of youth aged 15-24 years old were significantly higher than other ages. Most of injuries incurred by male(89.6%), while the incidence rate was higher in women. Upper extremity in children aged 7-14 years old and lower extremity in other age groups sustained most of injuries. Furthermore, knee and ankle were the most common body parts injured. According to the results, youth and female futsal players, knee and ankle and upper extremity in children should be considered more in the priority of injury preventive measures for Iranian futsal players.

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1. Introduction

Futsal is a variant of association football that is played on a smaller pitch and mainly played indoors. It is a sport that has attracted more and more followers all over the world(Ribeiro & Costa, 2006). The onset was from South America in 1930 and the first World Futsal Championship was held 1982 in Brazil(Astrid Junge & Dvorak, 2010). By the increased population in this sport, the issue of safety becomes more important over time. However, there was few studies investigating futsal injuries, in a national survey in Netherlands, futsal with injury incidence of 55.2 per 10 000 h of sports participation was among the 10

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sports with higher injury rate (Schmikli, Backx, Kemler, & Mechelen, 2009). In addition, a high incidence rate of 195.6 injuries per 1000 player hours was reported for three consecutive futsal world cups (Astrid Junge & Dvorak, 2010). Concerning the injury type, contusion (44.2%) and sprain (19.4%) were the two most common injuries incurred in top level futsal players of the world cups (Astrid Junge & Dvorak, 2010). Likewise, as Ribeiro et al reported, the most common injury types in Brazilian players were contusion and sprain with the percent of 31.25% and 28.12% respectively (Ribeiro & Costa, 2006). In relation to body region and part, lower extremity (69.7%) followed by head & neck (12.7%) sustained most of injuries. Furthermore, knee, thigh and ankle were those parts with the highest injury rates in previews studies (Astrid Junge & Dvorak, 2010; Rahnama, Bambaeichi, Taghian, & Abarghouinezhad, 2009; Ribeiro & Costa, 2006). Addressing the severity of injuries, it has been observed that about half of the injuries were expected to prevent word cups players from participating in match or training. The incidence of time loss injuries was 79.5 per 1000 player hours or about one in every two matches (Astrid Junge & Dvorak, 2010). Despite the growing popularity of futsal in Iran and all over the world, and the increasing number of players, there have been few study on injuries sustained by futsal players. Accordingly, the present study aimed to study the injuries of futsal presenting to sport medicine federation injury surveillance system of Iran during one year of Persian calendar at 21st of March 2010 until 20th of March 2011.

2. Methods

2.1. Participants

A retrospective analysis was conducted of the data for athletes from the sport medicine federation injury surveillance system of Iran during one year of Persian calendar at 21st of March 2010 until 20th of March 2011.

2.2. Procedure

The present study was a descriptive study. The sport medicine federation injury surveillance system is operated to provide sport related injuries incurred by insured athletes participating in various sports from all provinces of Iran. All insured athletes injured should present to the sport medicine federation in order to be referred to the hospital for treatment. The injury definition in the present study was any reportable events occurred as a result of participating in competition or practice, required medical attention by physician and resulted in restriction of the athlete’s participation for at least one day beyond the injury. Age, gender and body region injuries were investigated. Due to not availability of injury type information in the sport medicine surveillance system, no injury type was reported. Furthermore, the incidence rate was reported according to registered athletes (A. Junge et al., 2009), due in part to unavailability of injury type and athletes exposure data in the surveillance system.
2.3. Statistical Analysis

For the statistical analysis, descriptive statistic and Chi-Square test (p<0.05) was used for descriptive and analytic epidemiology respectively. All statistical analysis was done by the SPSS software (version 14). Descriptive statistics described the outcome measures (number of reported injuries, incidence rate, body region injured, age and gender). Chi-Square test reported the significant difference of injury in body region and age categories.

3. Results

From 1045 injured athletes (male=941 & female=104 with mean age of 31.82±19.31), 1145 injuries were recorded in a period of one year. The incidence rate was 8.1 injuries per 1000 athletes registered. Furthermore, the incidence rate of men injuries was 7.8 per 1000 athletes registered for men. Likewise it was 12.6 per 1000 athletes registered for women. Most of injuries incurred by male(89.6%). Knee(37.3%) and ankle(13.5%) were the most common body parts injured. Body region and age categories injuries provided in table1. Additionally, the distribution of body region injuries in various ages was provided in chart 1. Chi-Square test showed a significant difference in injuries of body region (X2=939.678, df = 3, p < 0.001) and age categories(X2=534.119, df = 3, p < 0.001).

Table1. body region and age categories injuries of futsal players.

|       | Head & Neck | Upper Extremit y | Lower Extremit y | Tors o | Total | 7-14 | 15-24 | 25-44 | More than 45 | Total |
|-------|-------------|------------------|------------------|--------|-------|------|-------|-------|---------------|-------|
| Male  | 134         | 204              | 657              | 31     | 1026  | 55   | 454   | 414   | 101           | 1024  |
|       | 13.1%       | 19.9%            | 64.0%            | 3.0%   |       |      |       |       |               |       |
| Female| 15          | 29               | 63               | 12     | 119   | 17   | 56    | 34    | 11            | 118   |
|       | 12.6%       | 24.4%            | 52.9%            |        |       |      |       |       |               |       |
| Total | 149         | 233              | 720              | 43     | 1145  | 72   | 510   | 448   | 112           | 1142  |
|       | 13.0%       | 20.3%            | 62.9%            | 3.8%   |       |      |       |       |               |       |
Chart 1. Distribution of body region injuries in various ages of players.

4. Discussion

The present study purposed to study the sport injuries of futsal players of Iran during one year of Persian calendar at 21st of March 2010 until 20th of March 2011 by the sport medicine federation injury surveillance system data. Futsal has some unique characteristics of speed and intensity of the struggle for ball possession, for this players demand intelligence, movement, and speed. Additionally, they need to know how to act in different sections of the court (Baroni, Generosi, & Junior, 2008). As results showed, during one year, 1145 injuries with the rate of 8.1/1000 athletes registered were reported by the team and competition physicians for treatment. It was difficult to directly compare the injury rates calculated in this study with those of previous, because of the different inclusion criteria for the rate reported (Astrid Junge & Dvorak, 2010; Ribeiro & Costa, 2006; van Hespen, Stege, & Stubbe, 2011). As expected, the injuries occurred in body regions were significantly different (p < 0.001). Lower extremity was the most frequent body region injured in both male(64%) and female(52.9%). Additionally, injuries in knee(37.3%) and ankle(13.5%) were more than other body parts respectively. The location of the injuries was similar to the ones found in other studies predominantly affecting lower extremity and consistent with professional players in Iran and Brazil and word cup (Barani, Bambaeichi, & Rahnama, 2009; Astrid Junge & Dvorak, 2010; Ribeiro & Costa, 2006). In addition, it was the most common body region injured in youth and adults. A reason may be due to more changes of direction, cutting and ball control in futsal relative to other sports. However, children aged 7-14 years sustained most of injuries in upper extremity. It was consistent with the US pediatrics soccer injuries presenting to emergency department (Leininger, Knox, & Comstock, 2007). Injuries incurred were significantly different between ages (p < 0.001). Most of injuries incurred by youth of 15-24 years(44.7%) followed by adults(39.2%) aged 25-44 years. It was in agreement with the Brazilian nation (Bolling, de Almeida Gomide, & Reis, 2011). It may be due to their higher strength, body size, weight, speed, generating more force on contact and more intense practice and competition and playing exposure in adults that all susceptible them to higher injury rate (Caine, Maffulli, & Caine, 2008). However, male(89.6%) had most of injuries in relation to females. The incidence rate
was lower in males. More research is required to find out this issue in Iran. No injury type is reported due to lack of it in the injury surveillance system.

**Conclusion**

The present study observed that the injury incidence was 8.1 injuries per 1000 athletes registered among Iranian futsal players. Upper extremity in children aged 7-14 years old and lower extremity in other ages sustained most of injuries. Furthermore, knee and ankle were the most common body parts injured. Males incurred injury more than females. Injuries of youth aged 15-24 years old were significantly higher than other ages. According to the results, youth and female futsal players, knee and ankle and upper extremity in children should be considered more in the priority of injury preventive measures for Iranian futsal players. However, More information on injury in futsal is needed to develop specific injury prevention interventions.

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