Assessment and identify the Amount and causes of sports injuries: a case study in Footsall players

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ABSTRACT: sports injuries are inevitable and integral components of sport and physical activities. The aim of this study was to identify the extent and causes of sports injuries in footsall players of Ahwaz universities. The study population was 70 footsall players from the footsall teams of Ahwaz universities that have had a history of sport injury. Regarding the small population size, study population and sample size were equal. Data collection was done using a teacher made questionnaire which was provided by previous researches. Face validity of the questionnaire confirmed by a group of experts in sports medicine and physical education teachers. The validity of the questionnaire was KMO = 0.74. In order to determine the reliability of the questionnaire, Cronbach's alpha coefficient and split half were used and the obtained values were 0.81 and 0.72 respectively. For data analysis, descriptive statistics (frequency, mean, etc.) and inferential (Friedman test, Spearman correlation test and Chi Ka) were used. Significant level of research hypotheses considered ($\alpha = 0.05$). Results showed the most frequent injury was observed in muscle-tendon form and the ankle had the highest rate of injuries. Also, the injuries were observed significantly higher in lower extremities than upper extremities. The results also showed no significant relationship between age, height and weight of subjects with incidence of sports injuries. In addition, the main causes of injuries were the use of non-standard equipments and sport facilities such as inappropriate shoes, hall flooring and crashing in games. Given the greater incidence of injury among athletes because of inadequate facilities such as unsuitable flooring and sport shoes, responsible (administrators, coaches, teachers…) can use the appropriate and standards facilities and sport equipments to minimize the incidence of sport injuries.

Keywords: Facilities and equipment, Footsall players, Lower extremities, Sports injuries.

Introduction

Among all sports, football is one of the most attractive and popular sport in the world(Tyler et al, 2006). But in the 1930s In Uruguay, due to lack of space, this game was done in the saloon and was named Footsall (Baroni et al, 2008), which was considered by many fans across the world (Ribeiro and Costa, 2006). So that, many researchers have reported this sport as the fastest progression sport in the America(Lindenfeld et al, 1994; Putukian et al, 1996) However, Increasing numbers of athletes and enthusiasts in a sport field causes an increase in range of sports-related injuries too(Emery and Meeuwisse, 2006). Injuries in sport activities for athletes may be due to a complex interaction of internal and external factors. Individual characteristics such as height, weight, previous injury, body mass index and ... as the internal factors and the environment, sport facilities, player positions, poor flooring and ... as the external factors can lead to injury incidence(Barani et
al, 2009). The football sport is also no exception from this issue and the players' accident and crashing to each other or frequent kicking or falling can result in injuries lesions. Mohammed Abdul Salam (2011) studied the relationship between BMI body fat percent, height and weight with sports injuries among 12-15 years students in school and found a positive relationship between height and weight with bone and muscle injuries. Engebretsen et al (2008) surveyed 31 teams with 508 players of football that had history of knee injury and showed significant relationship between height and weight with knee injury. Furthermore, Arnason et al (2004) and Steffen et al (2008) also confirmed the positive impact of these factors on the sport injuries. Lindenfeld et al (1994) assessed football injuries among 19-24 years men and women and found 31% of injuries was occurred due to players collision and the highest type of injuries was sprains and muscle soreness. Ankle ligament injuries in men were more than women. Barani et al (2009) surveyed lower limb injuries in female football players and reported that the most affected limbs were knee (54.5%) and ankle (20.5%). In addition, the most common injuries were aspirin (63.6%) and soreness (11.4%) respectively. Also, severe injuries (69.1%) were significantly higher than middle injuries (27.3%) and light injuries (13.6%). Some researchers have claimed the lower extremities are the most vulnerable areas in football players. In this issue, Rahnema et al (2009) have stated knee, Ribeiro and Costa (2006), hip, Emery and Meeuwisse (2004) the ankle is more common exposing limb to injury than in other sectors. Also, Jung et al (2004) stated that players' accidents with other are most important reason of football players' injuries. Murphy et al (2002) introduced that the most risk factors for lower extremity injuries are competition level, skill level, type of sport shoes, use a knee strap and knee pads and ground-level of competition. Koushki et al (2011) studied the causes and types of sports injuries among male student athletes participating in Olympiad Games of handball and football and showed that first and foremost reason of injuries was players crashing with other, the second reason was inappropriate warming-up before the game and the third reason was non-standard equipment such as the flooring. Light to moderate injuries were significantly greater than severe injuries. In addition, the most frequent type of injuries was muscle-tendinous soreness in football and muscle-tendinous soreness and bruises in handball. Research results indicated that several factors can cause injuries in sports. Therefore, the aim of this study was to survey sport injuries among football players of Ahwaz universities so that, in addition to providing a common rate of injuries between players in this field, also, the most important causes of injuries will identify.

**Methodology**

The present study was descriptive-retrospective survey that has been done aimed to identify the incidence and causes of injuries in Ahwaz universities football players. Statistical population of the study was all football players of Ahwaz universities who had a history of injury Regarding the small population size, study population and sample size were equal(N= n = 70). Data collection was done using a teacher made questionnaire which was provided by previous researches. Face validity of the questionnaire confirmed by a group of experts in sports medicine and physical education teachers. The validity of the questionnaire was KMO = 0.74. In order to determine the reliability of the questionnaire, Cronbach's alpha coefficient and split half were used and the obtained values were 0.81 and 0.72 respectively. For data analysis, descriptive statistics (frequency, mean, etc.) and inferential (Friedman test, Spearman correlation test and Chi Ka) were used. Significant level of research hypotheses considered α= 0.05.

**Results**

the research findings showed that players have mean age of 23.34±3.79 years, mean height of 172.5±8.69 cm and mean weight of 65±11.96 kg. The incidence of injuries in body limbs included 78.6% in lower extremities, 7% in the upper extremities, 5.7% in head and face, 5.7% in spine and internal organs of the subjects did not show any injury or lesion. Table 1 shows the rate of injuries in different sectors and indicates that ankle and toes, with 31.4% and knee with 18.6% show the highest rate of injury.
Table 1. Distribution of injuries in different parts of body.

<table>
<thead>
<tr>
<th>Area</th>
<th>Ankle and toes</th>
<th>Shin</th>
<th>Knee</th>
<th>Femoral</th>
<th>Trunk and spine</th>
<th>Head and face</th>
<th>Wrists and fingers</th>
<th>Forearm</th>
<th>Arm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>31.4</td>
<td>11.4</td>
<td>17.1</td>
<td>18.6</td>
<td>5.7</td>
<td>4.3</td>
<td>1.4</td>
<td>5.8</td>
<td>3.4</td>
</tr>
</tbody>
</table>

The prevalence of injuries in joint-ligaments, muscle-tendon and bone tissues were 32.9%, 48.6% and 18.5% respectively. In relation with the type of injury, dislocation injury with 28.6% was the highest type of injury and then soreness with 21.4%, bruises with 18.6, and fracture with 17.1% and strain with 14.3% were in next rankings of injuries incidence. In case of injury severity and duration of recovery, no significant differences were found between the severity of injuries but the severe injuries that their treatment duration is more than three weeks were 34.3% and light injuries the duration of treatment is less than 1 week were 28.6% (P =0.670, X²= 800).

Table 2. Relationship between height, weight and age with sports injuries; Spearman correlation test results.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Spearman correlation coefficient</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height and Sport injuries</td>
<td>0.101</td>
<td>0.405</td>
</tr>
<tr>
<td>Weight and Sport injuries</td>
<td>0.032</td>
<td>0.793</td>
</tr>
<tr>
<td>Age and Sport injuries</td>
<td>0.233</td>
<td>0.052</td>
</tr>
</tbody>
</table>

As shown in Table 2, there aren’t any significant relationships between height and incidence of sport injuries, weight and sport injuries, and age with sport injuries.

Friedman’s test results showed that use of improper shoes with mean of 5.46%, the players accident together with mean of 5.30% and poor quality of saloon flooring with a mean of 5.20% were the most important causes of injuries in football players (P= 0.273, X²=9.888).

Discussion

In this study, the prevalence rate and causes of injuries were studied among football players at the Ahvaz. Like the soccer, in football, kicking, passing, dribbling and ball conducting are done by feet (lower extremities); therefore, encounters between the players in this field are more in the lower extremities. Hence, it can be predicted more injuries occur in the lower extremities. In this study, the incidence of injuries in lower extremity was 78.6 percent and is more than other organs. These findings support the reports of the Barani et al (2009), Rahnama et al (2009), Ribeiro and Costa (2006) and Emery and Meeuwisse (2006). In another study, Koushki et al (2010) reported that lower extremity injuries in football players are 71.5 Percent. The results also showed that the ankle and toes, with 31.4% and knee with 11.86 percent of total injuries are the most common injuries in the body. In relation to this issue, Murphy et al (2002), Lindenfeld et al (1994), Putukian et al (1996), Barani and et al (2009), Emery and Meeuwisse (2004) and Koushki et al (2010) also reported that ankle and knee are the most affected organ to injury in body. This could be because of sudden and rapid changes in routes, the abuse of protective equipment and involvement of lower extremities muscles and joints to activities and movements. The other main finding of present study indicates that the highest rate of injuries occurred in muscle muscle-tendons tissue with 48.6 percent and the minimal injuries occurred in bones with 18.5 percent of all injuries rate. These results are aligned with the findings of Koushki et al (2010), Knobloch et al (2004), Zetaruk et al (2000) and Taylor and Attia (2000). The possible reasons may be this fact that muscles as the first part of body contact with objects and also the wide range of body mass is covered by muscles; therefore the muscles are exposed to risk or damages frequently.
The results showed that among total injury, muscle soreness is the most frequent with 21.4%. This finding is supported by the results of Lindenfeld et al. (1994) and Koushki et al. (2010), but it rejected by Taylor and Attia (2000) who stated that the most common injury in the body is hitting. These differences between results can be due to differences in athletes’ age; because in the present study subjects were college students, but Taylor and Attia (2000) has analyzed the causes of injury in school students. The research results also showed no significant differences between the severity of injuries but severe injuries (37.1%) are more prevalence than moderate injuries (34.3%) and mild injuries (28.6%). This part of results is supported by Barani et al. (2009) results but it is rejected by Putukian et al. (1996), Rahmna et al. (2009) and Koushki et al. (2010). It seems that these differences can caused by competitive levels, different motivations for exercise or non-standard sport equipments or places. Results also showed that between height, weight and age with the incidence of sports injuries there are no relation. This part of findings is consistent with the results of Koushki et al. (2010) but is inconsistent with the results of Abdu Salam (2011), Engebretsen et al. (2008), Steffen et al. (2008) and Arnason et al. (2004). Perhaps, regular physical activity enhances lean body mass; given that there is a direct correlation between body performance and fat-free mass, so, participants in the current study are no exception from this mechanism and there are in optimal level of physical fitness.

Causes of injuries in various sport fields are different based on different views; because each of them surveys injuries with different perspectives. The present results showed that the main causes of injury in football players are improper sport shoes, poor quality of the flooring and players crashing together. These results are confirmed by Barani et al. (2009), Koushki et al. (2010), Jung et al. (2004) and Murphy et al. (2002).

According to research results and previous studies it can be said that the incidence of injuries in football sport is frequent because of some reasons such as the players crashing, quick and suddenly direction change, small game room, low level of physical fitness and many other factors. Therefore, with applying some strategies for example standard and appropriate use of facilities and equipments, experienced and expert coaches for teams and more focusing on balance and mix training for reducing the players’ accident, the incidence of injuries would be reduced.

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References


