

Investigation of the frequency and causes of injuries in football players

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Abstract. *Study Objectives:* Football, by its nature, is a sport in which physical struggle is very intense and in which related injuries can occur. It is thought that it may be useful to know what injuries occur in amateur football players and why they occur. This study aimed to investigate the frequency and causes of injuries seen in male athletes playing football in amateur sports clubs in Gaziantep. *Methods:* A total of 200 athletes from the super amateur league (n: 16), amateur (n: 45), U19 (n: 69), U17 (n: 16), and other leagues (n: 54) were included in the study voluntarily. A survey model was used in this study. The Sports Injuries Questionnaire developed by Yıldız was applied to the athletes. A chi-square test was used to compare the participants' personal characteristics. *Results:* A statistically significant association ($p < 0.05$) was found between players' exposure to injury and the variables of players' age, classification, and position. *Conclusion:* It has been found that most of the injuries of football players occur in the second half of the game; these injuries occur as cramps, sprains, cracks or fractures, muscle crushes or muscle tears, and field floor increases the risk of injury. It has been concluded that injuries in amateur football players are caused by decreased fitness, unsuitable football grounds, and advanced age.

Key words: Injury prevalence, Football players, Recovery

Introduction

Football is the most popular sport in the world. It is played between two teams and the aim is to score by hitting the ball into the opponent's goal. The players are not allowed to use their hands and arms while playing football (1). Although football attracts a lot of attention and has numerous positive effects on health, the risk of injury is also very high. When acute and chronic injuries are considered, traumas caused by high speed and severe injuries in both acute and chronic areas due to the effect of direct contact between athletes have made football a combat sport (2).

Football is a game that requires physical competence as well as top-level motor skills such as technical-tactical agility and speed because of the high number and intensity of matches it involves (3). Therefore, the player's condition, position, league, and even the style

of the game played during matches and training have a great significance on the physical profile of the football player (4). In fact, studies conducted have shown that even the distance covered during the game can vary depending on the player profile (5). When all these variables are evaluated together, the thought that football players may have a high tendency for injury due to different reasons has come forward. Researchers emphasized that football carries a higher risk in terms of the risk it poses when compared to other team sports that require contact (6). Increased injury risk, especially due to different reasons, has attracted the attention of researchers in a sport branch with high popularity like football and it has become an issue researched by a large number of researchers in terms of physical, physiological, and psychological aspects (7-9).

A measurable injury is defined as an injury that occurs during the match or training, and the person

who suffers from this injury is not able to participate in any training or competition for 48 hours (3). Injury frequency can also be referred to as the number of injuries each athlete has experienced during each season or in the tournament, or the number of injuries that occur during each training hour. The frequency and prevalence of sports injuries are closely related to the definition of sports injuries (10).

It is thought that the present study will provide some basic ideas for the prevention of injuries by comparing national and international studies conducted in the past with the present study. Based on this information, this study aimed to investigate the frequency and causes of injuries seen in amateur football players.

Materials and Methods

Research Design

A survey method was used in this study. Survey model is a research approach that aims to describe a past or present situation as it exists (11).

Subjects

A total of 200 volunteer male football players were playing in the super amateur league (n: 16), amateur (n: 45), U19 (n: 69), U17 (n: 16), and other leagues (n: 54) were included in the study. The questionnaires were administered to the participants by the researcher himself. A questionnaire was applied to the football players who participated in the study to determine the general demographic features, types of sports injuries, body parts injured, and the causes of these injuries during the season during training and competitions. To ensure the reliability of the answers to the questionnaire, experts on the subject were interviewed and the literature was searched.

Data Collection Process

The data collection tool used in this study was a pre-studied questionnaire developed by Yildız (2009) by taking expert opinions and scanning literature sources (12). The questionnaire consists of two parts.

The first part included general information about the participants in the study. The second part includes questions about the injuries faced by the players and the reasons for the injury. The questionnaire was administered by the researcher to the athletes playing football in amateur teams by the researcher himself and the data were collected.

Statistical Analysis

SPSS 20.0 Package program was used in the analysis of the data obtained. Frequency and percentage values were calculated in the evaluation of the information in the first part of the questionnaire. A chi-square test was used to compare the participants' personal characteristics such as age, position, classification, and education level in terms of the occurrence of injuries. Statistical significance levels were determined as $p < 0.05$.

Results

The frequency and percentage values of the answers given to the questionnaire questions by the football players who participated in the study are presented in tables.

Table 1 shows the distributions of age, educational status, age of starting football, and position of football players with frequency and percentage values. It can be seen from the table that 8% of the players are between the ages of 1-17, 70.5% are between the ages of 15-19, 20% are between the ages of 20-34, and 1.5% are over the age of 35. In terms of educational status, 3% of the f players are primary school graduates, 75% are high school graduates and 22% are university graduates. It can also be seen from the table that 29.5% of the players started playing football when they were 1-3 years old, 44% started when they were 4-7 years old, 15.5% started when they were 8-10 years old and 11% started when they were 11 or older. In terms of the positions of players, it was found that 19% were goalkeepers, 33% were defenders, 40% were midfielders and 18% were forwards (Table 1).

In terms of the classification distribution of the players, it was found that 69 football players were in

Table 1. Demographic characteristics of the individuals who participated in the study

| Age | | | Educational Status | | | Age of starting football | | | Position | | |
|----------|-----|------|--------------------|-----|-----|--------------------------|----|------|------------|----|----|
| Variable | f | % | Variable | f | % | Variable | f | % | Variable | f | % |
| 7-14 | 16 | 8.0 | Primary school | 6 | 3.0 | 1-3 years | 59 | 29.5 | Goalkeeper | 18 | 9 |
| 15-19 | 141 | 70.5 | High school | 150 | 75 | 4-7 years | 88 | 44 | Defender | 66 | 33 |
| 20-34 | 40 | 20.0 | University | 44 | 22 | 8-10 years | 31 | 15.5 | Midfielder | 80 | 40 |
| 35 + | 3 | 1.5 | | | | 11+ years | 22 | 11 | Forward | 36 | 18 |

Table 2. Classification distribution of the individuals who participated in the study

| | Super amateur | Amateur | U19 | U17 | Others |
|---|---------------|---------|------|-----|--------|
| f | 16 | 45 | 69 | 16 | 54 |
| % | 8 | 22.5 | 34.5 | 8 | 27 |

the U19 class, 16 athletes were in the super amateur league, 45 were in the amateur league, 16 in the U17 and 54 were in other leagues (Table 2).

Table 3 shows that 155 athletes who were exposed to injury could not take part in matches due to their injury status.

In table 4, In terms of the activity in which players were injured, it was found that most of the players (n=144) were injured during the match. It was stated by the participants that injuries occurred in the first

half (f: 23; %: 50.5) and sports injuries occurred more in artificial grass (f: 182; %: 91).

In table 5, it was found that a great majority of the participants in the study always warmed up before the start of the match (f: 173; %: 86.5).

In line with the responses of the athletes to the questionnaire, the most common injuries were sprains (f: 86; %: 43), cramps (f: 75; %: 37.5), cracks or fractures (f: 33; %: 16.5) and muscle tear or bruise (f: 38; %: 19). The most injured regions were found to be the lower extremity regions (Table 6).

In Table 7, the factors that prepare the environment for the injuries of the soccer players who participated in the study were insufficient training (f: 73; %: 36.5), overloads (f: 61; %: 30.5), the pitch (f: 70; %: 30) and motivational factors (f: 45; %: 22.5).

No statistical significance was found between the participants' exposure to injury and age and educational

Table 3. History of exposure to injury

| Exposure to injury | | | Number of matches unattended due to injury | Number of matches | f | % |
|--------------------|-----|------|--|-------------------|------|----|
| | f | % | | | | |
| Yes | 155 | 77.5 | | 0 | 36 | 18 |
| No | 45 | 22.5 | 1 | 35 | 17.5 | |
| | | | 2-3 | 87 | 43.5 | |
| | | | 4-6 | 27 | 13.5 | |
| | | | 7-10 | 4 | 2 | |
| | | | 11+ | 11 | 25 | |

Table 4. Types of activity, periods, and grounds in which players were injured

| Activity | f | % | Period | f | % | Ground | f | % |
|------------------------|-----|----|-------------------|-----|------|-------------------------|-----|-----|
| During training | 44 | 22 | During warming up | 23 | 11.5 | Earth ground | 13 | 6.5 |
| During the competition | 144 | 72 | First half | 101 | 50.5 | Artificial grass ground | 182 | 91 |
| Other activities | 12 | 6 | Second half | 76 | 38 | Natural grass ground | 5 | 2.5 |

Table 5. The state of warming up before competitions

| | Always | Often | Sometimes | Rarely | Never |
|----------|--------|-------|-----------|--------|-------|
| f | 173 | 20 | 3 | 2 | 2 |
| % | 86.5 | 10 | 1.5 | 1 | 1 |

status variables ($p>0.05$). A statistical significance was found in terms of exposure to injury, age of starting football, classification they played in, and their positions ($p<0.05$).

Discussion and Conclusion

A total of 200 athletes playing football in amateur leagues in Gaziantep province participated in this study. At the end of the study, according to the answers given by the athletes participating in the survey, it was concluded that football players were mostly injured, these injuries mostly occurred in the second half of the competition, in the form of cramps, sprains, or fractures, muscle crushes or muscle tears, and the field floor

increased the risk of injury. In addition, it was determined that there was a statistically significant ($p<0.05$) association between players' exposure to injury with the variables of age, classification, and position of players.

When the studies conducted in this context are examined; it can be seen that there are differences according to the age of the players and the positions they play (13,14). In the present study, the rate of athletes' exposure to injury is 77.5%. In this case, athletes cannot take part in at least 2-3 competitions. Injury percentages were found as 56.8% in similar studies (1). In another study, the injury rate was found as 68.1% (14), while a result close to our study was found as 73.9% (15).

In our study, in the statistical analysis of the type of activity, periods, and ground in which the football players were injured, it was found that a great majority of players ($n=144$) were injured during the match. It was stated by the participants that injuries occurred in the first half, and sports injuries occurred more in artificial turf. When studies in the literature are examined; in a study conducted on Greek amateur teams, it was found that injuries occurred most during training (16). In a

Table 6. The most frequent types of injuries and injury areas of the participants

| Injuries | | F | % | Injury areas | | | |
|-------------------------|-----|-----|------|---------------|-----|-----|------|
| | | | | | f | % | |
| Sprain | Yes | 86 | 43 | Head | Yes | 13 | 6.5 |
| | No | 114 | 57 | | No | 187 | 93.5 |
| Cramp | Yes | 75 | 37.5 | Body | Yes | 21 | 10.5 |
| | No | 125 | 62.5 | | No | 179 | 89.5 |
| Sunstroke | Yes | 4 | 2 | Shoulder | Yes | 12 | 6 |
| | No | 196 | 98 | | No | 188 | 94 |
| Cracked or broken | Yes | 33 | 16.5 | Arm | Yes | 19 | 9.5 |
| | No | 167 | 83.5 | | No | 181 | 90.5 |
| Dislocation | Yes | 11 | 5.5 | Elbow-forearm | Yes | 14 | 7 |
| | No | 189 | 94.5 | | No | 186 | 93 |
| Tendon-fiber rupture | Yes | 18 | 9 | Hand wrist | Yes | 35 | 17.5 |
| | No | 182 | 91 | | No | 165 | 82.5 |
| Head trauma | Yes | 3 | 1.5 | Thigh - hip | Yes | 45 | 22.5 |
| | No | 197 | 98.5 | | No | 155 | 77.5 |
| Muscle rupture or crush | Yes | 38 | 19 | Knee -leg | Yes | 48 | 24 |
| | No | 162 | 81 | | No | 152 | 76 |
| Wound bruise | Yes | 54 | 27 | Foot ankle | Yes | 90 | 45 |
| | No | 146 | 73 | | No | 110 | 55 |

Table 7. Reasons that prepare the environment for the participants to be injured

| | | f | % |
|----------------------|-----|-----|------|
| Inadequate training | Yes | 73 | 36.5 |
| | No | 127 | 63.5 |
| Overloads | Yes | 61 | 30.5 |
| | No | 139 | 69.5 |
| Sportswear | Yes | 45 | 22.5 |
| | No | 155 | 77.5 |
| Field type | Yes | 91 | 45.5 |
| | No | 109 | 54.5 |
| Insufficient warm-up | Yes | 49 | 24.5 |
| | No | 151 | 75.5 |
| Field floor | Yes | 70 | 35 |
| | No | 130 | 65 |
| Climatic conditions | Yes | 36 | 18 |
| | No | 164 | 82 |
| Motivational reasons | Yes | 45 | 22.5 |
| | No | 155 | 77.5 |

different study, it was found that the activity in which most injuries occurred was training. There are similar studies that support the same results (13). According to the results of the study, it can be said that the reason why injuries occur during competitions and training is due to the fact that players do not train frequently before the competition and they do not attach importance to training. In our study, the ground on which most injuries occurred was artificial grass. Studies on this subject support our results (17,18). The hardness of the floor causes excessive stress on tissues such as bones, muscles, tendons, ligaments, and joints. Normally, in football, friction is a necessity to accelerate, stop and turn. However, the increasing friction force causes an increase in the rate of injury in football players playing on artificial turf. In amateur football players, adaptation difficulties and muscle stiffness occur as a result of playing on hard ground after soft ground such as natural grass. As a result of the fact that the joints do not move very comfortably, movement limitation occurs, which causes injuries in the ankle, knee, and groin. In addition, falling in artificial turf causes abrasions and bruises on body parts such as knees, elbows, and legs (18).

Table 8. The relationship of the participants' exposure to injury with other variables

| | Exposure to injury | |
|--------------------------|--------------------|-------|
| | X ² | p |
| Age | 15.556 | .077 |
| Educational status | .843 | .991 |
| Age of starting football | 23.812 | .022* |
| Division | 21.461 | .044* |
| Position | 207.188 | .000* |

*p<0.05

Athletes are exposed to many injuries during competitions. In line with the responses of the athletes to the questionnaire, it was determined that the most common injuries were sprains, cramps, cracks or fractures, and muscle tears or bruises. It was determined that the most injured areas were the lower extremity regions. When studies conducted were examined, results similar to our research findings were found (19,20). As a result of athletes not having sufficient conditions, they get tired very quickly and their body coordination is disintegrated because they cannot show their abilities, which sets the ground for the emergence of injuries (21,22).

As a result of this study, it can be concluded that the athletes in amateur teams and the trainers who train the teams need to be trained in a program about warming up, cooling, stretching, and flexibility studies, which are a necessity in their training programs. In addition, it is thought that this program will reduce the rate and impact of injuries, including issues such as sports nutrition and fluid intake, disciplined and gentlemanly play. To reduce injuries, it is thought that improving the grounds where amateur football players play football, shortening the playing time, and introducing age restrictions may be beneficial.

Conflict of interest: The authors declare that there is no conflict of interest in this manuscript.

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