



THE EFFECT OF FIFA-11 MOVEMENTS ON THE PREVENTION OF INJURIES TO HEARING-IMPAIRED FOOTBALL PLAYERS

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Abstract

The efficacy of the FIFA-11 program for preventing injuries was examined with the purpose of decreasing the injuries of hearing-impaired football players. Two teams which play in the 1st League for the Turkish hearing-impaired, both in same group and from same geographical region, were chosen. The FIFA-11 program for the prevention of football injuries was applied on one of these teams. The second team was chosen as the control group. The control group continued its routine training throughout season. Their injury level was assessed using the Fysion Blesreg questionnaire form before and after the season. The injury incidence for the education group for 1000 hours of play was found to be 51.66, and it was found to be 92.98 for the control group. It was determined to be 17.22 for the education group and 30.99 for control group in training. Nine point four percent of the injuries received by the control group had appeared as a result of fights they had with their rivals after match. There are percentage differences between injury variations of the education group and the control group. The present study proves that regular applications such as FIFA-11 on hearing-impaired sportsmen can decrease the rate of injuries.

Key Words: Deaf Football Players, Injury Prevention, FIFA-11 program.





INTRODUCTION

Football is one of the most popular sports in the world today (Adamczyk, Luboinski, 2002, Chomiak et al., 2000). According to a study, there are more than 150 million licensed football players in the world (Junge, 2002). However, football, like many sports, carries a high risk of injury particularly as it is played by so many people (Adamczyk, Luboinski, 2002, Al-Kashmiri, Delaney., 2006, Junge, et al., 2006). It is estimated that every elite male football player is exposed to injuries which restrict his performance at least once in a year (Adamczyk, Luboinski, 2002). There are also economic losses because of the injuries as health expenses increase; club incomes decrease when players do not play; the transfer fees of injured players decrease and the club becomes less successful (Woods, 2002).

As is known, football is played at various levels and under different conditions. For this reason, injuries are likely to occur in football matches and in training. It has been determined that 95 of every 100 injuries in football are temporary injuries and 5 of them are permanent (Bağrıaçık, Açak, 2005). Football has huge potential in terms of the number of its audience and its players. In this context, football has considerable popularity among hearing-impaired persons.

Participation in sports activities has an important place in the hearing-impaired community. It brings benefits to the participants not only in physical terms, but also on a personal level (Stewart, 1991). Participation in hearing-impaired sports events is a very important socialization tool for many hearing-impaired adults. The deaf community is not a closed community (Stewart, Kathleen. 2005).

It has been determined that sports activities make a positive contribution to the development of the physical performance and balance abilities of hearing-impaired children (Butterfield. 1991). There are many reasons for the incidence of injuries among hearing-impaired football players. Problems related to balance and coordination are the main causes of the injuries that hearing-impaired football

players receive (Açak, Karademir. 2011). Insufficient information being given to players about the training, insufficient warm-up exercises, the use of unsuitable equipment, weather conditions, the state of the ground, the duration of previous injuries and excessive training can also be cited among the factors which contribute to the high incidence of injury (Al-Kashmiri, Delaney. 2006).

There are nearly 3 million hearing-impaired people in Turkey. Sports activities are carried out under the rubric of the Turkey Deaf Sports Federation. There are a total of 110 football clubs under the Federation. Each year, football matches are organized regularly for the 1st league with 32 teams, the 2nd league with 40 teams and matches for being promoted to the 2nd league. How football players are injured in these leagues is of great interest. Hearing loss in both ears should be at least 55 dB to be eligible to play in the hearing-impaired leagues (Stewart, Kathleen. 2005, Greydanus. 2009).

European and World championships are also organized, besides the summer and winter Olympics for the hearing-impaired. The determination of the factors which cause injuries and taking the necessary precautions are as important as making sports widespread among the hearing-impaired.

In the present study, it was aimed to decrease injuries with exercises related to balance and coordination, factors which affect the hearing-impaired sportsmen's injury cases.

METHOD

This research is an experimental study. The efficacy of the FIFA-11 program was researched in order to decrease the injuries of hearing-impaired football players.

Population of the Research and Sample group

The population of the research is composed of 32 teams which were in the 2010-2011 Turkey Deaf Football 1st league. There are 582 players in this league who are active in football.





The sample group of the research is composed of 2 teams which play football in the Turkey Deaf Football 1st league that are in the same group and in the same geographical region. The FIFA-11 program was applied on one of these teams and the team's injury data during the season were recorded. The second team was chosen as the control group. The control group continued its routine training during the season and the team's injury data were recorded.

Data collecting

The Turkish Deaf Sport Federation sent a letter of information to 1st league teams about the study. Two teams were selected at the beginning of the preparation period for the 2010-2011 Turkish Deaf Football season. Meetings were held in order to give more detailed information to the 2 selected teams about the research. The researcher showed FIFA-11 movements to the sportsmen and they applied them. He also prepared visual and written copies of them for the club trainers and sportsmen. The previous sports injury levels of the 2 hearing-impaired football teams were assessed with the Fysion Blesreg questionnaire form (Bruijn, Keizers. 1991). A "Personal Information Form" was prepared by the researcher in order to obtain data related to variables. The form asked for details of: Address, telephone number, e-mail address, age, number of years playing football, educational status, hearing rate, profession, position played in football, marital status, injuries remaining since the last season, income level, and height and weight for determining the body-mass index.

Recording Sports Injuries

The Fysion Blesreg injury scale was used in the present study in order to determine the injuries. Fysion Blesreg (Bruijn, Keizers. 1991) injury scale is frequently used by pedagogues, masseurs, doctors and physiotherapists. This system is very reliable for obtaining data records fast and easily. It provides a clear picture of preventive measures and sports injuries for injury recording data. The Fysion Blesreg injury scale includes such questions as the position where the sportsperson plays, the activity in which

the sportsperson was injured (training, match), the time of injury, the surface of the ground, the features of the ground surface (wet, icy, slippery etc.), temperature, shoes, cases of previous injury, type of injury, place of injury, how first aid was applied and the place where rehabilitation was undertaken.

Calculation of Injury Incidence

Injury incidence may be explained as the number of injuries received by players during the period covered by the present study. Injuries which occurred in matches or in training sessions were calculated on the basis of activity time. Team injury incidence is calculated on the basis of the rate of injuries which occurred in the course of 1000 training or match hours (Grzegorz, Lukasz. 2002). The following formula is used in the calculation of injury incidence during matches: The number of matches is multiplied by the number of players. The result is multiplied by the duration of match (90 minutes) and divided by 60.

$$\text{Match hours} = \text{Number of Matches} \times N \times 90/60$$

$$\text{Incidence rate} = (\text{number of injuries} / \text{match hours}) \times 1000$$

The same formula was also used for finding the incidence of injuries which occurred during training (Grzegorz, Lukasz. 2002).

FIFA -11 Education Program

The FIFA-11 program for preventing football injuries was applied on the education group in the study. The FIFA-11 prevention program is composed of exercises which are simple, easy to remember, which take little time, which are unique to sports and which increase fair play. There are a total of 10 exercises in the program: face down ascension on elbows, ascension on elbows while side-lying, hamstrings, squatting on one foot, chest passing on one foot, leaning forward on one foot, making a figure "8" on one foot, jumping on the line, zigzag running and jumping on one foot. The purposes of these exercises are general stabilization, eccentric training of femoral muscles, proprioceptive training, dynamic stabilization and plyometric training on one foot.





Before the application (before the season) the first assessments of the sportsmen were made. A text with illustrations and a video about the FIFA-11 injury prevention program were distributed to the sportsmen. The FIFA-11 program was applied on the education group 3 times a week by football players, generally after the warm-up and stretching exercises on Monday, Tuesday and Thursday. Each session lasted 15 minutes.

The Fysion Blesreg injury scale which was applied on the education group and control group was used again and the findings were assessed. The injury incidence rates of the sportsmen were determined by using frequency and percentage distributions.

FINDINGS

In the present study, football players of 2 teams who play in the Turkey Deaf 1st League were traced over the course of one season. One of the teams was determined as the education group (20 football players) and the other team was determined as the control group (19 football players). Each team played a total of 20 matches: 2 preparation matches, 14 group matches and 4 final group matches. The Fysion Blesreg injury scale was used on the education group and the control group before and after the season. The results are given below in percentages. Fourteen sportsmen (70%) in the education group and 16 sportsmen (84.2%) in the control group received the help of an interpreter while filling out the questionnaire.

Injury findings:

A total of 31 injuries occurred in the education group over the season. This number was 53 for the control group. When 1000 hours of matches which were played by each group were assessed, injury incidence was found to be 51.66% for the education group and 92.98% for the control group. Injury incidences for each 1000 training hours were 17.22% for the education group and 30.99% for the control group.

Of the injuries of the education group, 84.2% happened in league and cup matches; and 15.8% happened in training. Two point two percent of the injuries happened during warm-up exercises; 44.7%

happened in the first half; 46.9% happened in the second half; and 6.2% happened in extra time. Of control group injuries, 91.4% occurred in league and cup matches; and 8.6% happened in training. Four point two percent of injuries during the matches happened while warming up, 37.4% happened in the first half, 46.8% happened in the second half; 2.2% happened in extra time and 9.4% happened after the match.

After the injuries in the education group, 26.8% of the sportsmen did not stop playing; 45.8% did not participate in training for 1-7 days; 17.8% did not participate for 7-14 days; 6.4% did not participate for 1-2 months; and 3.2% did not participate for 2-4 months. After the injuries in the control group, 16.4% of sportsmen did not stop playing; 18.2% did not participate in training for 1 day; 34.4% did not participate for 2-7 days; 16.8% did not participate for 7-30 days; 4.2% did not participate for 1-2 months; 2.4% did not participate for 2-4 months and 2.4% did not participate for 4-6 months.

The lower extremity injury rate of the education group of hearing-impaired football players is 52.8%; the upper extremity injury rate is 38.4% and the head-face injury rate is 8.8%. The lower extremity injury rate of the control group is 56.8%, the upper extremity injury rate is 36.5% and the head-face injury rate is 6.7%.

The injury variety of the education group of hearing-impaired football players is 26,4% open wound, 42,2% crush, 6.4% sprain, 6% rupture, 3.6% bursitis, 4.2% fracture, 4.6% dislocation, 2.6% muscle contraction and 4% tendon injury. The injury variety of the control group of hearing-impaired football players is 16% open wound, 26% crush, 12.4% sprain, 12.4% rupture, 4.6% bursitis, 4.6% fraction fracture, 2.3% dislocation, 4.6% muscle contraction and 12% tendon injury.

Eight point six percent of the injuries of the control group happened in league and cup matches; and 8.6% happened in training. Four point two percent of the injuries happened during warm-up exercises; 37.4% happened in the first half; 46.8% happened in the second half; 2.2% happened in extra





time; and 9.4% happened after the match. After the injuries, 16.4% of sportsmen did not stop playing; 18.2% did not participate in training for one day, 34.4% did not participate for 2-7 days, 16.8% did not participate for 7-30 days, 4.2% did not participate for 1-2 months; 2.4% did not participate for 2-4 months and 2.4% did not participate for 4-6 months.

The percentage distribution of factors causing injuries in football players in the education group is: 68.2% rival player; 8.8% team mate and 23% equipment such as field, ball etc. The percentage distribution of factors causing injuries in football players in the control group is: 74.7% rival player; 11.3% team mate; and 23% equipment such as field, ball etc.

Football players in the education and in the control group took 3 training sessions a week to prepare themselves for matches. Concerning the ground where the education group was injured, 24% did not comment; 32% stated that it was not even; 32% stated that it was wet; 8% stated that it was dry; 4% stated that it was frozen. Concerning the ground where the control group was injured, 12% did not comment; 48% stated that it was not even; 28% stated that it was wet; 4% stated that it was dry; 8% stated that it was frozen.

Concerning the question about the relation between injury and the temperature for the education group, 12% stated they had been injured when the temperature was under 0°; 32% stated they had been injured when the temperature was 1-10°; 40% stated they had been injured when the temperature was 11-20°; 14% stated they had been injured when the temperature was 21-30°. Concerning the question about the relation between injury and the temperature for the control group, 12% stated they had been injured when the temperature was under 0°; 26% stated they had been injured when the temperature was 1-10°; 52% stated they had been injured when the temperature was 11-20°; and 10% stated they had been injured when the temperature was 21-30°.

CONCLUSIONS

Exercises including FIFA-11 movements were applied on one of the 2 hearing-impaired football teams over the course of one season. The other team followed the routine training program. The injury incidence of these teams was determined over the course of one season. The injury incidence for 1000 match hours was found to be 51.66 for the education group and 92.98 for the control group. The injury incidence for each 1000 training hours was found to be 17.22 for the education group and 30.99 for the control group. A difference of 41.32 for the match hours and 12.77 for the training hours between the education group and the control group showed the importance of the FIFA-11 program. However these rates are much higher than the rates of non hearing-impaired football players. In an examination of the related literature it was found that Engström and Renström determined that there are 12-35 injuries for 1000 match hours and 1.5-7.6 injuries for each 1000 training hours (Engström, Renström. 1998). In their studies concerning the efficacy of the FIFA-11 program, which was conducted on young non hearing-impaired amateur football players, Junge et al. determined that injuries could be prevented at a rate of 21% (Junge. et.al. 2002). Eighty four point two percent of the injuries of the education group happened in league and cup matches; and 15.8% happened in training. 2.2% of injuries happened during warm-up exercises; 44.7% happened in the first half; 46.9% happened in the second half; and 6.2% happened in extra time. Ninety one point four percent of the control group injuries happened in league and cup matches; and 8.6% happened in training. Four point two percent of injuries during the matches happened while warming up, 37.4% happened in the first half, 46.8% happened in the second half; 2.2% happened in extra time and 9.4% happened after the match. The cause of 9.4% of the injuries that happened in the control group is the fights they had with rival teams. Fair-play, which is a part of the FIFA-11 football





injuries prevention program, is very important. Such a result was not determined in the education group. It is thought that the FIFA-11 program, which was applied on the education group, makes a large contribution.

After the injuries in the education group, 26.8% of sportsmen did not stop playing; 45.8% did not participate in training for 1-7 days; 17.8% did not participate for 7-14 days; 6.4% did not participate for 1-2 months; and 3.2% did not participate for 2-4 months. After the injuries in the control group, 16.4% of sportsmen did not stop playing; 18.2% did not participate in training for 1 day; 34.4% did not participate for 2-7 days; 16.8% did not participate for 7-30 days; 4.2% did not participate for 1-2 months; 2.4% did not participate for 2-4 months and 2.4% did not participate for 4-6 months. It was observed that the group where the FIFA-11 program was applied did not stop training because of injuries as much as did the other group.

In the percentage distribution of causes of injuries, 68.2% of the education group football players and 74.7% of the control group football players stated that the injuries resulted from rival players. In their study, Aak and Karademir determined this rate to be 89.7% for the 2009-2010 Turkey Deaf 1st league (Aak, Karademir. 2012). This rate is lower in the studies conducted on regular football players, however, colliding with a rival is of the first rank. According to Roberts et al. (1996), nearly half of the injuries in regular football result from collision with another player and more than 25% of them result from being fouled. It is known that fair play decreases injuries (Roberts, et. al.1996). For this reason, fair play, which is a part of the FIFA-11 football injuries prevention program, is very important.

The lower extremity injury rate of the education group of hearing-impaired football players is 52.8%; the upper extremity injury rate is 38.4% and the head-face injury rate is 8.8%. The lower extremity injury rate of the control group is 56.8%, the upper extremity injury rate is 36.5% and the

head-face injury rate is 6.7%. There is not so much difference between the education group and the control group. Aak and Karademir (2012), who work on the injury incidence among Turkey's hearing-impaired football players found the lower extremity rate to be 54.3% (Aak, Karademir. 2012). This finding is not in parallel with the studies conducted on non hearing-impaired football players. In their study, conducted on 107 professional football players from Wales, Cromwell et al. (2000) determined that 77% of the injuries were seen on the lower extremity and they were seen mostly in the ankle and soft tissue (Cromwell. et. al. 2000). Hawkins et al. (2001) determined in their study that 87% of the injuries were on the lower extremity (Hawkins, et. al. 2001). Woods et al. (2002) reported that 77% of injuries were related to the lower extremity (Woods, et. al. 2002). In the study of Adamczyk and Luboinski (2002), it was determined that the most affected part in sport-related injuries was the lower extremity with a rate of 75% (Adamczyk, Luboinski .2002). It can be said that this difference results from the lack of communication among the hearing-impaired, their excessive ambition to win, and their colliding with each other because of the lack of balance-coordination, as well as insufficient training.

In the present study, there are differences between the injury variety of the education group and the control group in percentage terms. It was concluded that the muscle contraction, tendon injury, sprain in the muscles, bursitis, dislocation and muscle crush rates are higher in the control group because of the muscle strength and insufficient training. Aak and Karademir (2012) determined that muscle crush and open wound are the most frequently encountered injury types seen in the hearing-impaired (Aak, Karademir. 2012). Open wound and muscle crush are the most frequent injuries of the education group.





The present researcher found that this resulted from collisions with rival players as a result of the observations he made after the matches and training.

The explanations of the education group and the control group concerning the field and ground where they were injured, and what the temperature was when they received their injuries were similar to each other. This study proves that regular applications, such as the FIFA-11 program, on hearing-impaired football players can decrease the injury rates.

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