

Epidemiology of sports injuries referring to Kashan University of Medical Sciences Trauma Research Center from 2005 to 2011

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【Abstract】 Objective: Among the injury types, sports ones constitute a considerable proportion of patients who refer to the medical centers. This research was conducted to examine the frequency of sports-related injuries referring to Kashan University of Medical Sciences Trauma Research Center from 2005 to 2011.

Methods: This was a retrospective research in which existing data from the data bank of Kashan University of Medical Sciences Trauma Research Center were employed. The data were extracted from the main source by SPSS version 16.0. Variables such as age, education, occupation and gender were analyzed.

Results: The highest proportion of injuries was observed in students (59.4%) followed by workers

(11.8%). Upper and lower extremities were most commonly injured. The most frequent injury was strain (35.4%), followed by sprain (27.7%).

Conclusion: The results of this research showed that the majority of the sports trauma occurs in students; therefore, they need more attention in regard to sports injuries. Preventive measures such as informing the coaches and teachers as well as increasing the students' awareness about the injury risk can decrease the incidences of sports injuries.

Key words: *Athletic injuries; Epidemiology; Kashan*

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Despite the fact that injury may mean a very obvious case of medical condition that needs medical attention, the concept of injury sometimes may mean different condition to different people. Thus, in order to study the incidence of sports injury, it is important to precisely define the concept so that appropriate and correct numbers of injury cases in a study can be assessed. In a sense, definition of sports injury ranges from any complaint voiced by an athlete to any medical event severe enough to require physician evaluation or to limit participation in sports. Timpka et al¹ conducted a meta-analysis study to examine the concept of sports injury in the medical content. The way injury is defined in epidemiologic studies has produced an enormous range of reported injury rates. A very precise and clear cut definition of injury in a study

will provide a realistic view of the sports injury pattern. Another crucial element in the evaluation of the impact and application of an epidemiologic study is the population being studied. For example, the injury patterns seen in a group of 5-year-old soccer players cannot be extrapolated to the broader population of soccer athletes as a whole or even to all child soccer athletes. Careful evaluation of the sports injury research in children will, therefore, permit a more accurate assessment of the impact.

Bijur et al² studied 11 840 children and adolescents aged 5 to 17 years and found that 35.8% of all their injuries resulted from sports and recreational activities. Within the same age group in the United States, more than 4.3 million sports and recreational injuries occur annually, with 1.9 million of these classified as serious injuries, defined as time lost from the sports or school or requiring a physician's evaluation. The male-female ratio of injuries was 1.8:1. When studying sports injury, many factors including the sports types³, playground, gender, injury causes are examined and their contributions to the occurrence of injuries are assessed.

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Dick et al⁴ found that majority of injury site was the lower extremity in collegiate male basketball players, with ankle ligament sprains being the most common injury overall and noncontact knee injuries being the most common serious injury. Watkins et al⁵ reported a total of 394 injuries among children and adolescents during a 3-year period in a sports injury clinic in London and girls accounted for 45% of all injuries among children. Darrow et al⁶ focused on the injury patterns, gender, and types of exposure and concluded that severe injuries negatively affect athletes' health and often place an increased burden on the health care system. In regard to the frequency of injury in Kashan, our another study⁷ examined the frequency rate of sports injuries in school competition and reported that more sports injuries occurred in high school competitions than guidance schools. Considering the importance of examining the frequencies of sports injury and various factors causing injury that may also vary from geographical locations, this research was conducted to examine the frequency of sports injury in patients referring to the Kashan University of Medical Sciences Trauma Research Center from 1995 to 2011.

METHODS

This was a retrospective research in which existing data from the data bank of Kashan University of Medical Sciences Trauma Research Center were employed. The data were extracted from the main source by SPSS version 16.0. Variables such as age, education, occupation and gender were used in the analysis.

There are 861 males with a mean age of 18.24 years (range 7-73) and 129 females with a mean age of 15.16 years (range 8-84). The ratio of male to female patients in this study was approximately 6.7:1. The result of Chi-squared test indicated that there was a significant difference between the proportion of male and female patients ($P<0.05$). Further analysis was performed on the occupation of the patients. The results indicated that the highest proportion of the injuries was observed in students (59.5%) followed by workers (11.8%, Table 1).

Additional analysis was performed on the education levels of the patients (Table 2). The

proportion of the elementary school students was significantly higher than middle school students ($P<0.05$) and these proportions were significantly higher than the other education levels ($P<0.05$).

Table 3 presents the results of types of the sports injuries referring to the trauma center. The most frequent injury was strain (35.4%) followed by sprain (27.7%).

Analysis of the injured body area indicated that upper and lower extremities were most commonly involved (Table 4).

Table 1. Frequency distribution of patients' occupation

Occupation	Frequency (n)	Percent (%)
Children	69	7.0
White collars	41	4.1
Workers	117	11.8
Farmers	5	0.5
Unemployed	14	1.4
Students	589	59.5
Businessmen	72	7.3
Housewives	20	2.0
Others	63	6.4

Table 2. Frequency distribution of the sports injury in patients according to the education level

Education level	Frequency (n)	Percent (%)
Illiterate	15	1.5
Preschool	69	7.0
Elementary school	492	49.7*
Middle school	341	34.4*
Undergraduate	69	7.0
Graduate or higher	4	0.4

* $P<0.05$ compared with others.

Table 3. Frequency distribution of injury types

Injury types	Frequency (n)	Percent (%)
Sprain	274	27.7
Strain	351	35.4
Fracture	233	23.5
Muscle bruise	89	9.0
Others	43	4.3

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