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## An Investigation on the Knowledge of Male and Female Students in Management and Prevention of Sport Injuries.

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### ABSTRACT

Physical exercises and sports are the main factors in preventing the physical and mental disorders in different age groups. Injuries caused by doing physical exercises and sports in sport clubs, fields and schools are inevitable. However, the lack of adequate knowledge in management of these injuries will impose additional costs on healthcare system. In addition to financial issues, the wrong or inadequate treatments on damaged person might be venerable. Therefore, increasing the knowledge between people in the society and particularly students by a proper plan is need and can play a very important role in preventing physical injuries cause by either sports or physical exercises. It should be noted that, sports programs at schools are given much attention in many countries since most of the physical injuries have been seen in people between ages 11-18. To this end, sports programs at schools are a powerful tool in increasing the physical performance of students. Hence, the goal of this work is evaluating the level of knowledge between male and female students in management and prevention of sport injuries. The statistical population of this study was consisted of 4000 male and female students at pre-university level in Kerman, Iran. By using the Morgan table, 351 students were selected in a sampling random manner (with an age domain between 17-20 years and a mean standard deviation of  $18.01 \pm 0.6$  years). In order to extract the data from Wang's standard questionnaire "Knowledge and Needs for Prevention and Management of Sport Injury among High/Vocational School Students in Taiwan" was used. To analyze the data descriptive statistical and inductive independent-T test, one-sided variance analysis and LSD tests were used. The results of this work reveal that 94.6 percent of students (332 students) were weak, 4 percent (14 students) were fair, 1.4 percent (5student) were good and none of the student were excellent. This inductive statistics shows that a meaningful difference between female and male students in terms of their knowledge does not exist. According to the results of this investigation, the fragile knowledge of students in terms of management and prevention of physical and sports injuries proves a lack of practical and theoretical courses on sports pathology and first aid in the schools curricula to manage and prevent the physical detriments.

**Keywords:** Sports injuries, Injuries Prevention and management, students' Knowledge.

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## INTRODUCTION

Physical activity in childhood and adolescence is considered one of the basic necessities of life (Azhar 2006). Especially Sports activity during adolescent stage can enhance cardiopulmonary function and relieve emotional stress; moreover, it can lower mortality and prolong life expectancy when entering adulthood (Huang, Chi & Chong 1993). However, without the basic and correct knowledge for prevention and management of sports injuries techniques, sports injury will likely to abate the original benefits associated with sports activity. Therefore, it is especially critical to instruct knowledge related to "prevention and management of sports injury" through proper education (Huang and Wang, 2006).

Various studies are proved therapeutic effects of exercise and health. Sport in schools is diagnosed such as an important tool to increase physical activity in children and adolescents; but unfortunately, researches point out that physical activity is the main cause of damages in adolescents ages 18 to 11 in Europe and America (1999 Verne , O'Hara, 2007, Box 1995). Anyway, sports injuries are an integral part of sports activity and Physical activity should be expected in any damages, injuries and hazards.

Although, sports injuries are oppressive and painful, in case of performing accurate and timely first aid, most of them will effectively treat and those who have suffered damage, return satisfactorily to regular life and exercise again (Gharakhanlou et al). In fact, increasing knowledge related to prevention and management of sports injuries by proper and timely teaching is very important (Huang and Wang, 2006).

Several studies suggest that most students do not have the correct information about management of sports injuries (Huang and Chang, 1993). Huang and Yang (1996) investigated 200 students in Taiwan. The results showed that the mean scores of them were at weak level. Backous et al (1988), Bijur et al (1995), Abernethy (2003) stated that students ages 17 to 14 were at higher risk of sports injuries. De loes (1990) founded that students ages 19 to 15 were the most students who experience sports injuries.

The results of all previous studies state that sports injuries are expensive. Thus, providing solutions to prevent and reduce sports injuries seems necessary. Studies have shown that strategies due to prevent and reduce damage were useful and effective (Macaulay 2003). Because of lack of record amount of incidence and intensity injuries in Iranian schools and due to poor condition of schools for students' sports activity, there is a high probability of damage in this age group. Also, for the reason that importance of students' knowledge related to injury prevention strategies can be effective in identifying and reducing the amount of damages. Further survey in this field can help to planners education courses, so if the results indicate a lack of students' knowledge related to injury prevention strategies, a strategy take chosen that students can receive the necessary training in this field.

## METHOD

The statistical population of this study was consisted of 4000 male and female students at pre-university level in Kerman, Iran. By using the Morgan table, 351 students were selected in a sampling random manner (with an age domain between 17-20 years and a mean standard deviation of  $18.01 \pm 0.6$  years). In order to extract the data from Wang's standard questionnaire "Knowledge and Needs for Prevention and Management of Sport Injury among High/Vocational School Students in Taiwan" was used. The questionnaire consisted of 25 questions were Multiple-choice questions that for each question 4 points and a total of 100 points was considered. The questionnaire of knowledge consisted of 25 items in subjects like principles of preventing of sports injuries, identification of sports injury tapes, management principles of sports injury, limb supporting methods, Skills of Cardiopulmonary Resuscitation (CPR), guideline for hot or cold compress, management of heat-related illnesses in sports, management bleeding wounds and management of sports-related shock. Based on scores the knowledge of students classified into four groups: high (100-85), good (85-75), medium (75-65), and poor (60>). To analyze the data descriptive statistical and inductive independent-T test, one-sided variance analysis and LSD tests were used.

## RESULT

According to the table 1, the mean score of students' correct answers of this questionnaire were calculated, 10/93 of 25 points (43/72 %) that based on the standard 4-value, low levels of awareness are

reported. The findings of this study indicate that 94/6% of the students (n = 332) were at low level, 4% (n = 14) moderate level, 1.4 % (5 person) good level and no student was in the excellent display.

**Table 1: Central and dispersion measures students' awareness related to prevention and management of sports injuries.**

Number of students	Students' score related to prevention and management sports injuries					Level
	Average score of 25	Percentage of average score	Standard deviation	Minimum score of 100	maximum score of 100	
351	10.93	43.72	3.37	12	76	Weak

Table 2 shows the percentage of correct responses to the questions based on gender. In this table, male (33/42%) and female (45/82%) the most correct answer to question 2 and the least correct answer to question 7 male (8/93%) and females to question 20 (9/79%) are given. In total, 79/24% of them have corrected answer to question 2, while only 19.1% of them have corrected answer to question 7.

**Table 2: percentage of correct answers based on gender.**

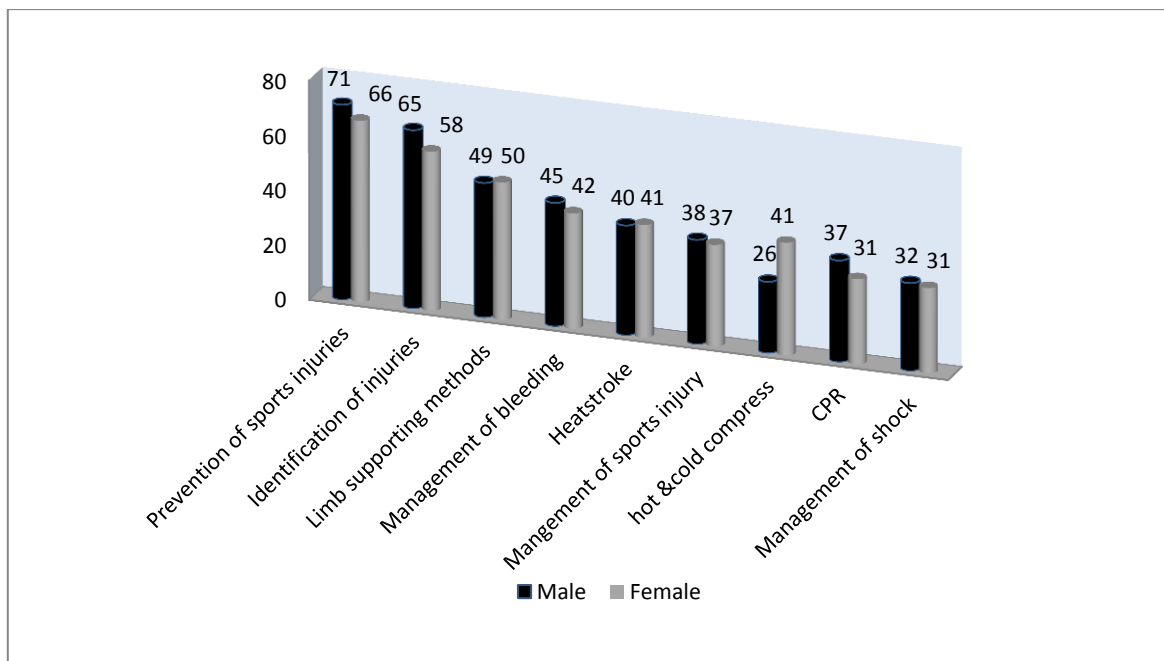
Questionnaire of knowledge of "prevention and management of sports injuries"	Percentage of females' correct answers	Percentage of males' correct answers	Percentage of correct answers N=351
1. Sports protective devices are helpful to stabilized joints. They are sued: During any and all tapes of exercise.	37.75	29.68	67.43
2. What do we call a sports injury that displaces bone due to collision with external force? Dislocation.	45.82	33.42	79.24
3. What do we call a sports injury that damages the muscles and tendons? Strain.	34.29	29.39	63.68
4. What do we call a sports injury that damages the ligaments? Sprain.	21.32	19.88	41.2
5. The purpose the learning correct sports injury management principles are not to: Improve sports skills.	14.40	12.39	26.79
6. What is the first-aid method for strain? Stabilize the site of injury and rest immediately.	23.05	14.98	38.03
7. The standard procedure to treat a sports injury dose not includes: Fracture test.	10.08	8.93	19.01
8. After injury what should you do to hasten your return to sports field? Do not exercise without the permission of a doctor.	38.61	29.10	68.71
9. How to use limb supports correctly? Keep it tight but not too tight it affects circulation.	33.71	28.81	62.52
10. Which one is the following is the wrong way to support a limb? The limb must be repositioned before medical professional arrive to avoid deformation.	26.51	21.32	47.83
11. What is the correct way to use the bandage? Wrap form the extremity of the injured limb.	27.37	11.81	39.18
12. What is the cardiac massage frequency per minute when applying CPR to teenagers? 80-100.	17.29	14.98	32.27
13. What is the ratio of cardiac massage to breathing per minute to applying CPR to adults? 15:2.	18.44	16.42	34.86
14. How long should a hot or cold compress be applied for sports injury? 15 – 20 minutes.	26.80	11.52	38.32
15. What is the interval between hot/cold compressions? 2 – 3 hours.	20.46	10.66	31.12
16. What is the reason for heatstroke? Insufficient fluids.	31.98	22.47	54.45
17. What is the best preventive action to avoid heatstroke? Drink adequate quantities of water.	31.41	21.32	53.6
18. What action should not be followed when someone suffer overheating during exercise? Cover the victim with a heavy and thick blanket to avoid temperature loss.	22.76	10.08	33.6
19. What is heatstroke? It can be prevented.	22.19	21.32	43.51
20. Which on the following is not a symptom of heatstroke? Profuse seating.	9.79	9.51	19.3
21. What is the purpose of dressing a bleeding wound? Control bleeding and prevent infection.	33.46	26.80	64.26
22. Which on the following is the wrong way to treat a bleeding wound? If any foreign in on or in the wound, remove it immediately.	11.52	9.22	20.74
23. What should be done to treat a severity bleeding wound? Dress the wound with a tourniquet or apply pressure directly on the wound to stop bleeding.	24.78	21.90	46.68
24. What is shock? It may accompany any injuries.	16.71	12.39	29.1
25. Which on the following methods is the wrong way to treat shock? Enforce intake solids and liquid are required to maintain the life of the victim.	19.59	14.69	34.64
Total	24.96	18.76	43.72

Based on gender, table 3 represents the highest and lowest scores of 100. Results of this study indicated that the highest and lowest scores in males, respectively, 76 and 12 points, and in females were 76 and 16 points. Likewise, between the knowledge of students about the prevention and management of sports injuries, even though the percentage of correct answers was higher in females, the difference was not significant ( $p > 0/05$ ).

**Table 3: the highest and lowest scores of 100, based on gender**

Gender	Number of students	Minimum of score	Maximum of score	Standard deviation± Mean	Level
Male	151	12	76	43.97±14.43	Weak
Female	200	16	76	43.32±12.68	Weak

According to Figure 1, all of the 25 questions of the questionnaire distributed to students based on the original 9 items were designed. These items included: principles of preventing of sports injuries, identification of sports injury tapes, management principles of sports injury, limb supporting methods, Skills of Cardiopulmonary Resuscitation (CPR), guideline for hot or cold compress, management of heat-related illnesses in sports, management bleeding wounds and management of sports-related shock. male (71) and female students (66), the highest correct answer in the prevention and detection of sports injuries (males 65 and females 58) and the smallest and weakest correct answer in relation to the management of shock in males 32 and females 31 and CPR (males 37 and females 31).



**Figure 1: Students' responses to prevention and management of sports injuries**

### DISCUSSION

In this study, analysis of the data on the level of awareness of high school students in Kerman in the prevention and management of sports injuries by gender showed that the average response to the 25 questions of the study was with  $10/93 \pm 3/37$  (43 / 72% correct answers), which excellent value considering the standard 4 (100-85), good (85-75), medium (75-65) and poor (60>), the level of their knowledge were weak. The result of this research was contrary to the results of Movahedi (1992), Nasr Esfahani (2008), Jkvbvsn (1987) and Drôme (2000). In these studies, almost 70% of respondents gave the correct answer. One of the main reasons of this study were consistent with other studies, researchers have noted that the subjects of the research population can be made up teachers. Clearly, it would seem natural that students' knowledge is significantly lower than the awareness of teachers. Although the original questionnaire was designed for students' age group.

In this study, there was no significant difference between the knowledge of high school students by gender (male and female) in prevention and management of sports injuries. The results obtained from the present study are consistent with findings of Nasr Esfahani (2008), Alrashd (1996) and Watson (1984), but that is inconsistency with the finding Drôme (2000) and Wang (2006) that in the both studies, female subjects were more than male subjects. Wang in his study expressed that more females' participation in training courses as compared with males was the main reason differences (Wang Hong 2006). Also, Hergenroeder (1998) reported that management and prevention sports injuries programs that include heating and cooling exercises by using PNF stretching, can reduce 75% of injuries, 80% of medical expenses and loss of the time that players are missing due to injury. Therefore, the lack of proper knowledge about the management and prevention of sports injuries, it can be disastrous for students removed. However, the table 2 represents that majority of female students' awareness was more than male students' awareness, but this difference was not statistically significant.

As seen in Figure A, based on nine fold item "principles of preventing of sports injuries, identification of sports injury tapes, management principles of sports injury, limb supporting methods, Skills of Cardiopulmonary Resuscitation (CPR), guideline for hot or cold compress, management of heat-related illnesses in sports, management bleeding wounds and management of sports-related shock ", all of students gave most correct answers to questions that related to the prevention and identify of sports injuries and the least correct answers to the questions in male students were about application and cold and heat compression on sports and management of shock, and also the least accurate response in females respectively were about CPR and management of shock.

Macaulay (2003) reports that in Europe and North America, 62% of injuries in organized sports, physical education classes 20% and 18% of injury-related activities have not been organized. On the other hand, Paul (1993) states that in America among six million high school students, there were two million victim which includes five hundred thousand visits to the doctor and thirty thousand patients in Hospitalization.

As a matter of fact, every year expensive cost of students sports injuries must spend on their rehabilitation. Wang (2006) states that sports injuries workshop courses can reduce incidence of injuries and he reported in his study that 91/1% of people have suggested that this workshops can be a positive and effective tools for learning, while 8/9% had a negative opinion.

Furthermore, in many cases, high school sports, can be the first chance of a player to select and play in a sport. The purpose of the prevention of injury, minimize the number of injuries. While damage control in physical activity can help to prevent of sports injuries.

Based on findings of this study, high school students of Kerman is required to prevent and manage of sports injuries. Finally, some defect is still visible in all fields that the most important of them are: "shock management in sport and CPR". In addition, the low quality and quantity of the current education system, schools, offering workshops in relation to the first aid training is necessary. These findings for professional care and precautions secondary schools in sports injuries are very important.

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