

Sports Injuries Amongst Physical Education Students in the Palestinian Universities

Alaa Nada¹, Raoua Triki⁶, Qasem Dabeek², Omar ALsharab³, Fadwa Salman⁴, Fatema Abualhayja⁵

¹Ministry of Education, Nablus, Palestine, ²Higher Council for Youth and Sport, Tubas, Palestine, ³Ministry of Education, Tulkarm, Palestine, ⁴Ministry of Education, Salfet, Palestine, ⁵Palestine Technical University, Khadouri, Palestine, ⁶Higher Institute of Sport and Physical Education of Ksar-Said, Tunisia

ABSTRACT

Studying at physical education universities improve physical fitness and promote a healthy life style. However, physical education students are at risk for sports-related injuries during practical class such as gymnastics, football, wrestling and athletic sports. The purpose of the current study is to identify sports injuries among students of physical education in Palestinian universities, in terms of the most common type of sports injuries, anatomic site, and causes. Sports-related injury data were collected from a questionnaire survey during the 2018–2019 academic years from male and female of physical education students at An-Najah, Technical Palestine, and Jerusalem universities. Information recorded using a questionnaire included type of injury, anatomical site and causes. We used arithmetic averages, frequencies, percentages, and a chi-square test. The results showed as following: The most common sports injuries among physical education students at Cisjordanie west bank universities were: (muscle tension, strains, sprains, dislocations) while the percentage of the answer (yes) was respectively: (77%, 64.6%, 56.2%, and 51.1 %). The most vulnerable body's members were the ankle joint (60.2%), followed by the back (55.1%), while the lowest rate injuries were unregistered at other members (5.1%), and followed by the elbow joint (20.8%). The overall score for the reasons of injuries was medium, while the percentage of response reached (69.38%). The highest reasons were lack of warm-up, inadequacy of pitch, and not taking into consideration individual differences. It's important to recommended faculty members to pay attention for a good warm-up before teaching practical courses, to ensure the safety of the playing field, and to take into consideration individual differences between students.

Keywords: Injury, physical education students, cisjordanie universities, risk

INTRODUCTION

Physical education universities aim to educate their students through the educational process to be highly qualified in the field of sports activity, and work in different sectors of the state. Students' selection takes into account several criteria such as physical efficiency, psychological, and previous experience in the field of

sports practice. Recently, some students are accepted in some universities in terms of physical and health inconsistency, so the number of injuries abounds.

In fact, sports injuries are considered as one of the obstacles facing students during the application of the practical study program, whose negative effects may extend to the field of difficulty in academic achievement, lack of progression to the program, and the loss of the high efficiency necessary for them to continue performing skills as required, until they reach the end of the school year to the desired level (Décamps and al., 2012)

Yuanzhen. (2009) indicated that subjects in physical education universities include two directions:

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Address for correspondence:

Alaa Nada, Ministry of education, Nablus, Palestine.
E-mail: Black_tulip80@hotmail.com

theoretical and practical lessons, the link between these two directions is necessary and important to apply the information that the student takes in the practical field, but this practical application is accompanied with the possibility of injuries due to the efforts imposed by this application on the various body systems, especially the locomotor system represented by the body's structure with his bones, articulations, muscles, and ligaments.

Therefore, responsible for sporting activity in all countries of the world try to provide an adequate training climate and an integrated medical treatment, because it was found by experience that sports practice with no good medical climate leads to injury, and results from its neglect that the athlete's age becomes shorter (Van Mechelen and al., 1992).

Besides, Statistics in some countries indicate a high rate of injuries during sports activity. In the United States of America, the number of injured in children's playgrounds reached about 237,000, and there are three quarters of a million physical injuries among participants in sports activities at the secondary school level and American universities has been unregistered every year. (Norton and al., 2004).

Ristolainen and al. (2010) states that the quality of injuries varies according to the type of sport, injuries of collective sports differ from individual ones, for example, Zghailat and Majali. (2012) found that the most common injuries among karate players in Jordan were muscle bruises, wounds, and abrasions in the comet group, while the kata category included muscle contractions and bone trauma. The most susceptible sites for the comet group were the areas of the nose, eyebrow and lips, while for the kata group the thigh and back were the most affected. As for the most important causes of injuries for the comet group, it was the lack of good behavior for the athletes. As for the kata class, it was not a good warm-up. The most common period of injuries for karate players was during the training period, and the most vulnerable parts of the body were the upper part.

While Majali and al. (2010) showed that the most prevalent types of injuries among goalkeepers in football are lacerations followed by bruising and the most vulnerable areas are head, wrist and fingers. As for the most common injuries According to the variable of experience, it was in the category more than (10) years, at a rate of (49.32%). In addition, results showed

that the most leading causes of injuries are the lack of comprehensive periodic checks and the lack of use of sports rehabilitation.

In addition, sports with direct contact (soccer, handball, basketball, boxing and wrestling) have more possibility of injury than sports without direct contact like tennis, volleyball and more.

Injury may occur during the competition period, which is characterized by increased contact between players and their exposure to injury due to the availability of several factors related to the training plan, or the lack of interest in rehabilitation after the end of treatment for the injured player, and his participation in matches before completing his recovery, and other reasons that lead to greater exposure of players to injuries (Green and al., 2007; Alonso and al., 2009; Dvorak., 2011; Herrero., 2014).

Despite the scientific progress in the field of sports injury science and its relations with other sciences, such as medicine, physiology, and psychology of injury, there are no accurate statistics in our Arab region on sports injuries at the level of sports activities practitioners, club players, or physical education universities' students, that the rate of field injuries has increased despite the safety methods that have improved the situation in most fields, but stadium injuries are still increasingly threatening players. The researcher attributes the reason to the lack of permanent follow-up by coaches and those in charge of the training process, especially in Palestine.

The researcher believes that sports injuries in Palestinian universities constitute a major problem, whether for the player practicing sports activity or even for teachers based on the educational and training process, because the injury leads to the exclusion of student from playing sports for periods that may be relatively long depending on its type and nature, while, there is no doubt that this absence may affect the academic achievement of student, as well as the psychological effects caused by the injury, so it is important to give an adequate attention to the causes of sports injuries in Palestinian universities and work to treat them as possible.

That's why researcher believes that sports injuries and sports medicine became one of most modern topic that have to investigate in Palestine, where the treatment of

sports injuries was previously dependent on experience and is not done on correct scientific foundations, in fact, there were no centers specialized in treating sports injuries or rehabilitation of the injured after the treatment period as well as the lack of physiotherapy centers.

Also, Palestinian universities until 2002 did not have multi-purpose gyms, and most practical lectures were held on asphalt, or sand pitches without any factors of safety. But recently, especially after the application of the principle of professionalism in some sports, especially football, as well as the work of closed gyms in most Palestinian universities, interest in the subject of sports injuries has gone in the correct scientific foundations, and there are specialists in this field as well as centers for treating these injuries with specialized courses in the field of sports injuries and first aid.

In this field, this study aim to investigate types and causes of injuries in sports activities practiced in the Palestinian universities, in order to prevent and protect the athlete from injury, and employ the necessary means to reduce the injury, by revealing the points of defect and trying to found solutions with the correct scientific methods, because studying sports injuries gives an opportunity to anticipate injury before it occurs, and it identifies the forms, types and patterns of injuries that are related to the activity in order to protect the athlete from injury.

METHODS

Subjects

Subjects were 274 physical educations Palestinian students (192 male and 82 female) from An-Najah National University (Nablus), Palestine Technical (Khadouri), and Al-Quds University (Abu Dis).

All subjects were volunteered after being informed about the natural of the study and of the right to withdraw at any time.

They were randomized into different categories; category of sex, category of academic levels, category of type of physical activity and category of university to determent the level of occurring injuries in term of category.

Table 1 shows the distribution of the study sample according to gender, educational level, type of physical activity, and university.

Table 1: Distribution of the study sample according to gender, academic level, type of physical activity and university (n=274)

Variables	Categorical variable	Number	Percentage (%)
Sex	Male	192	70.1
	Female	82	29.9
Academic level	1 st year	64	23.4
	2 nd year	83	30.3
	3 rd year	81	29.6
	4 th year	46	16.8
Type of physical activity	Collective	180	65.7
	Individual	94	34.3
University	An-Najah	109	39.8
	Palestine Technical	75	27.4
	Al-Quds	90	32.8

Study design

Sports injuries occurring among physical education students in Cisjordanie west bank universities was unregistered during one academic year (2017-2018) using questionnaire prepared by the research and presented to a group of experts and specialists with scientific and practical experiences in this field to make the necessary adjustments and extract the scientific foundation before being distributed to students.

The questionnaire is a set of three questions as the following, number one was “What are the most common type of sports injuries among students of physical education in Cisjordanie west bank universities?” number two was “Which body parts are most effected during practical lessons among physical education students in Cisjordanie west bank universities?” and number three was “What is the degree of common causes of injuries among students of physical education in Cisjordanie west bank universities?” in order to determine all information about type of injuries, their anatomic site and different causes responsible for the occurring of injury risk.

Students answer by “yes” or “no” taking in consideration the diagnosis of his injury during the university year and only injuries occurring inside the university and during the practical lessons was taken into consideration.

Injury Surveillance System data of universities was reviewed by research and added to questionnaire results.

Statistical Analysis

To answer the study's questions, the researcher used the SPSS program using the following statistical treatments: frequencies and percentages, arithmetic averages and a chi-square test.

We examined the percentage and the frequencies of injury by types and their anatomic site in the body.

Causes of injury occurring among physical education students was expressed in terms of mean, percentage and degree of its participation which is categorized according to percentage, the percentages (70%) or more were used to express an important degree of participation, (50-69.9%) a medium degree, and less than (50%) to express irrelevant participation.

RESULTS

It is clear from Table 2 that the most common sports injuries among students in the field of physical education in the universities of the Cisjordanie west bank were: (muscle tension, strains, sprains and dislocation) where the percentage of the answer was (yes), respectively: (77%, 64.6 %, 56.2%, 51.1%), and the least common injuries were (eye injuries, scratches, wounds, fractures, fractions, and bruises), where the percentage of the answer was (no), respectively: (97.4%, 96.7%, 67.5%, 59.1%, 53.6%).

Through the results it was found that the most common injury was muscle strain, and the least common is eye injury.

Table 3 shows that the most members of the body exposed to injury among students who specialize in

physical education in Cisjordanie west bank universities were: (ankle joint, back, face, shoulder joint, fingers and wrist) where the percentage of the answer was (yes), respectively: (60,2%, 55.1%, 43,1%, 42,7%, 40,1%, 39,4%), while the lowest members are vulnerable to injury were: (other members, elbow, leg, knee joint, thigh and head) where the percentage of the answer was (no), respectively: (94,9%, 79,2%, 75,5%, 70,8%, 61,7%, 60,9%).

Through the results it was found that the most common body member affected by injury was ankle joint followed by the back.

It is clear from Table 4 that the degree of the causes of injuries among students of physical education in Cisjordanie west bank universities was important on the following reasons (lack of warm-up, inadequate ground for practice, inappropriate sportswear, lack of safety and security factors, lack of following up by the coach, not to adhere to a proper diet program, neglecting the individual differences between the players, not caring about rehabilitation after the end of treatment from injury), where the percentage of response to it was more than (70%), and it was medium on the following reasons (overload training, participation In more than one event, the low of the skill level of preparation, return to activity before complete recovery, failure to follow the scientific foundations in training, failure to adhere to adequate rest periods during the prepared training program, failure to conduct periodic (regular) medical examinations, excessive enthusiasm in training or competitions, lack of compliance with the coach's instructions, violent and sudden movements), where the response percentage ranged between (53.4% -69.46%).

Table 2: Frequencies and percentages of sports injuries most common among physical education students in Cisjordanie west bank universities (n=274)

Number	Anatomic site	Yes		No	
		Frequencies	Percentages	Frequencies	Percentages
1	Strains	177	64.6	97	35.4
2	Bruising	127	46.4	147	53.6
3	Sprains	154	56.2	120	43.8
4	Fractions	112	40.9	162	59.1
5	Muscle tension	211	77	63	23
6	Wounds	89	32.5	185	67.5
7	Dislocation	140	51.1	134	48.9
8	Eye injuries	7	2.6	267	97.4
9	Scratche	9	3.3	265	96.7

Table 3: Frequencies and percentages of the anatomic site of injuries among physical education students of Cisjordanie west bank universities (n=274)

Number	Anatomic site	Yes		No	
		Frequencies	Percentages	Frequencies	Percentages
1	Ankle joint	165	60.2	109	39.8
2	The knee joint	80	29.2	194	70.8
3	Back	151	55.1	123	44.9
4	The leg	67	24.5	207	75.5
5	Thigh	105	38.3	169	61.7
6	Head	107	39.1	167	60.9
7	The face	118	43.1	156	56.1
8	Shoulder joint	117	42.7	157	57.3
9	Wrist	108	39.4	166	60.6
10	Fingers and Salami	110	40.1	164	59.9
11	Elbow	57	20.8	217	79.2
12	Other members	14	5.1	260	94.9

Table 4: Mathematical averages and percentage of causes degree of injuries among physical education students in Cisjordanie west bank universities (n=274)

Number	Causes	Averages*	Percentages	Degree
1	Lack of warm up	2.77	92.34	Important
2	Overload training	2.05	68.49	Medium
3	Participate in more than one event	1.59	53.04	Medium
4	Ground inadequacy for practice	2.40	79.93	Important
5	The low skill setting	2.08	69.46	Medium
6	Return to activity before full recovery	1.82	60.58	Medium
7	Inappropriate sport wear	2.33	77.74	Important
8	Lack of safety and security factors	2.15	71.53	Important
9	Failure to respect the scientific foundations of training	1.76	58.76	Medium
10	Lack of following up by the coach	2.27	75.55	Important
11	Not adhering to adequate rest periods during the prepared training program	2.04	68.00	Medium
12	Failure to conduct regular (periodic) medical exams	1.86	61.92	Medium
13	Not following a proper diet program	2.29	76.40	Important
14	Excessive enthusiasm in training or competitions	1.99	66.30	Medium
15	Failure to adhere to the trainer's instructions	1.72	57.30	Medium
16	Neglecting individual differences between players	2.38	79.20	Important
17	Lack of interest in rehabilitation after the end of treatment	2.14	71.41	Important
18	Violent and sudden movements	1.83	60.95	Medium
Total degree for causes		2.08	69,38	Medium

*: The maximum degree of response (3) degrees

With regard to the total degree of the causes of prevalence of injuries among physical education students in Cisjordanie west bank universities was medium, with a percentage of response to (69.38%).

DISCUSSION

The aim of this study was to investigate different types, anatomic site and causes of most common

injuries occurring during sports activities practiced in Cisjordanie west bank universities.

Findings from our study indicate from table 2 that the most common sports injuries among physical education Palestinian students were: (muscle tension and strains) where the percentage of the answer was (yes), respectively: (77%, 64,6%, 56,2%, 51,1%).

These results may be explained by the repetitive effort on muscles and as is known, muscle tension and strains occurs as a result of undertaking a large physical effort that is not commensurate with the physical preparation of the player, or a sudden muscular effort with a degree of intensity superior than the muscle's ability to resist this effort.

As Brooks and al. (1995) indicate that the stain is a rapid and sudden elongation superior than the maximum muscle's ability to elongate, and this injury often occurs in the posterior muscles of the thigh, especially among football players when trying to raise the man to a high level to absorb the ball.

The most important causes are the lack of a general warm-up that is not appropriate to the nature of the activity, where the preparation of all muscles' group that perform the main physical effort is neglected, or even the participation of player in a competition before his total treatment from a previous injury, as well as severe lack of water and salts that can lead to muscle strain, rupture, muscle weakness and imbalance between antagonist muscle groups. These results were in agreement with the study of Ekstrand and al. (2011) also reported that the most common injuries were strains representing 17% of all injuries among professional football players.

In the field of most body members affected by injuries, results in table 3 show that the most vulnerable members of the body to injuries among physical education students in Cisjordanie west bank were the ankle joint (60.2%), followed by the back (55.1%), while the lowest members were vulnerable to injury are the other members (5.1%), followed by the elbow joint (20.8%).

The researcher found a logical explain for determining ankle joint as the most body member affected among physical education student in Palestine, because the study sample subjects were mostly playing collective activity more than individual and in most sports activity in Palestinian universities the focus is on football

because it is the first popular activity in Palestine followed by basketball and volleyball, in fact, control and running movements of the ball and dribbling are carried out through the instep which is controlled by the ankle joint. The movement of interception of the ball, or to prevent attacks, or keep the ball away from the goal field, or catch the ball carrier player, all this abilities are done with the participation of instep and ankle area and it leads to repeated injury due to the lack of protective shin pad for foot as well as, the movement of reception in the basketball and volleyball is done on the instep.

The unequal distribution of weight in the body also might affect articulation area such as the ankle, knee and spine, also, an insufficient warm-up makes the center of gravity unstable, causing an unbalanced effort on different parts of the body.

The ankle joint injuries are the most common among the articulation injuries witch is up to 85%, because it is one of the most complex joints of the body, and the injury is often a rupture or elongation of the ligaments that connect the ankle bones.

These results were in correlation with the study of Kirialanis and al. (2013) in the high incidence of lower limb injuries, especially the knee and ankle joints. The study of Atay. (2014) also showed that the most members of the body are at risk of injuries are ankle and shoulder among Middle School Children. The study of Junge and al. (2006) reported that the most common diagnosis was bruising and ankle sprain, which accounted for an average (78%) of connection injuries with another player. Swenson and al. (2009) show that the ankle is the most susceptible region to infection rate (28.3%) among US High School Athletes. Yide and Nielsen. (1990) study reported that the most important injuries were ankle and thigh injuries and Ellison, larry (1997) found that the ankle joint is the most vulnerable area.

Fong and al. (2007) reported that the ankle joint injuries were more than the knee joint injuries, and that the knee and ankle joint injuries were more in collective activity than in individual.

Occurring of injuries among physical education studies was explained by various reasons, in this study, table 4 showed that the total degree for the causes was medium, with the percentage of response reaching

(69.38%). The more important reasons were lack of warm-up, inadequate field for practicing activities and neglecting the individual differences between the players.

From here, the researcher believes that warming up is a prescriptive in both training and athletic competitions. In view of this, some physiologist of physical training such as Fox and Bowers. (1992) and Fischer and al. (2016) reported that warming up is considered as a principle stage of sports training session.

Since warming up is aimed to prepare the cardio respiratory and locomotor system to work efficiently during activity, and this prevent body from injury. The researcher believes physical education students in Palestine start the practical courses without warming up properly and in a sufficient time and thus the body muscles are not properly prepared to resist the high intensity of the effort during activity which causes them injuries.

Fox and Bowers. (1992) indicate that athletes must warm up before athletic training and athletic competitions to increase cardiac output and blood diffusion to muscles to supply them with oxygen and food and to Raise the body temperature in general, and the muscles in particular, which facilitate the work of enzymes and increase the effectiveness of metabolism in the skeletal muscles by providing oxygen and nutrients necessary and this prevent body from sports injuries, especially in high-intensity, such as: jumping, and short-distance running (anaerobic activities).

These results were in agreement with the Girard and al. (2009) who indicate that the best warm-up method was Running- and strength-based warm ups induce similar increase in knee extensors force-generating capacity by improving the muscle activation among athletes compared to not warming up before training.

Likewise, Reilly and Stirling. (1993) showed that insufficient general or specific warm-up were among the most prominent causes of injuries.

The inadequacy of the practical field in universities is also an important reason for occurring injuries, researcher shows that there are some universities that still use asphalt floors or rough floors during practical activity, which may cause injuries, as a result of falling or direct contact with the ground. This was confirmed by Drago and Braun (2010) that the stadium floor must

be taken care of and suitable for various activities and be flat, and free from any obstacle such as drilling and bricks. Also, it is important to choose the appropriate tools and equipment, their suitability, durability, method of preservation and proper using on them must be taken into consideration in order to prevent danger and injuries.

As for the principle of individual differences, the researcher believes that some students of physical education universities in Palestinian join national teams so they characterized by a physical condition better than other students which try to keep up their practical level with other elite students, so there will be a burden on them, which may expose them to various injuries, as well as the intensity of the exercise and the type of activity appropriate for students. This is what the sports training scholars emphasized that individual differences must be taken into consideration when giving different skills, and they must be appropriate to the level of students.

CONCLUSION

In light of the study results and their discussion, the researcher concludes that there was a balance between upper and lower limb in term of injury, with a slight increase in lower limb injuries among physical education students in Palestine.

The most vulnerable members of the body were the ankle joint followed by the back, while the least developed organs were more affected, followed by the elbow joint.

The lack of a good warm-up with all its requirements was one of the main causes of sports injuries that why it is important to reorganize practical lessons to be more save and prevent physical education students from injuries.

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