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# Sports Injuries Amongst Physical Education Students in the Palestinian Universities

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## 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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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 <sup>st</sup> year	64	23.4
	2 <sup>nd</sup> year	83	30.3
	3 <sup>rd</sup> year	81	29.6
	4 <sup>th</sup> 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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# Successful Talent Detection in Algeria: Considering the Role of School Sport

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## ABSTRACT

The purpose of the study was to determine the importance of school sports and its role in discovering, selecting and directing the talented students towards elite practices. Data extraction was assessed by the analysis of 21 items related to school sport, based on the analysis of all factors such as the institution, the school sport process, competition, coaching process, extra-curricular activities etc. These factors confirm our hypotheses to have a detection of young talents in a correct, less expensive and scientifically and methodologically valid way within the framework of improvement of the sporting levels at the national and international scale. General data of school sport and institution reflects that the process of discovering, selection talents, supervisors and elite practices can be developed and improved by the general process of school sport.

**Keywords:** School sport, talent selection process, supervisor process, sport elite process

## INTRODUCTION

School sports are the primary base of sports movement and the main reservoir from which sports teams and clubs draw their talents in order to participate in various sports competitions and obtain the best representation for them. School sports played an important and prominent role in providing sports teams with talented athletes who explode their energies during the physical and sports education, as well as the competitions and classroom activities being held between schools. Recently, there has been a great interest in school sports and in providing all the conditions that contribute to their development, which have been positively reflected in the results achieved in the major championships

and in the various competitions, and among the most prominent countries interested in school sports are the United States of America and various European countries. However, there is a great lack of interest in school sports in our Arab countries in general and in Algeria in particular, which has been negatively reflected in the results achieved in continental and international competitions and championships.

As there are individual differences between athletes in different physical, morphological, physiological, psychological, etc., sports scientists should put their attention on examining the problem of special preparations and capabilities, the results of which have had a significant impact on developing methods of measuring and evaluating them, as well as enriching sports selection theories with those results. (1)

The selection process is among the most prominent and important of all, with the aim of selecting the most suitable human elements to be expected to reach high levels in the future, as the selection and orientation of talented students for the type of skill that suits

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them is an economic process that saves a lot of time, effort and money. It also produces the best results and provides the best sports elements in physical, technical, psychological and educational terms (2), it contributes to accelerating the learning process and ensures better conditions for the educational work course.

The process of discovering and selecting young people for school sports and guiding them toward sporting effectiveness that is appropriate to their abilities and abilities is a very difficult process that needs careful planning and criteria that are based on scientific principles to ensure that the customer runs well in order to ensure good results in the future for the benefit of sports teams and national election. Considering that the previous stages are the main basis for the formation of sports teams, and considering that all young people practice school sports activities because the young people study the subject of physical and sports education in their school curricula, which is under the supervision of a specialized teacher, Therefore, the specialists in the process of discovery, selection and guidance must follow the sound scientific bases in order to ensure good results in the future, and from the above we ask the following questions:

- Does school sports play a positive role in the process of discovering and selecting talented athletes and directing them towards elite teams?

### Sub-questions

- Is school sports a great importance in selecting and directing talents towards elite practices?
- Does the discovery, selection, and orientation of students in school sports depend on precise scientific foundations?
- Does the experience of supervisors in the process of discovery and selection play a positive role in guiding students to their proper effectiveness?

## STUDY HYPOTHESES

### The General Hypothesis

School sports have a positive role in the process of discovering and selecting talented athletes and directing them towards elite teams.

### Partial Assumptions

1. Hoda Mohamed Mohamed El-Khoudary, Modern Techniques for Choosing Young Talents in Swimming, The Egyptian Library for Printing and Publishing, 2004, p. 08.

2. Saad Jalal et al, Educational Psychology sports, Dar Al-Maarif, Cairo, first Edition, 1991, p. 52.

- School sports are important in selecting and guiding talent toward elitist practices.
- The process of discovering, selecting, and directing students in Algerian school sports is based on accurate scientific foundations and rules.
- The supervisors experience within in the process of discovery and selection has a positive role in the procedures of guiding students towards the appropriate event for them.

The objectives of the research:

There are two factors that determine the research's aim: scientific and practical motives:

1. **Scientific motivation:** The aim of this research is the following:
  - Knowing the importance of school sports and its role in discovering, selecting and directing the talented students towards elite practices.
  - Knowing the extent of applying the scientific rules and foundations by the specialists in the process of discovering, selecting and directing the gifted towards the appropriate activity for them.
  - knowing the role played by the competence and expertise of specialists in the process of detecting, selecting and directing talented people toward their appropriate effectiveness.
2. **Practical motivation:** Based on the findings of the field study, which are the solutions to the problem, is to make direct use of these solutions to serve the supervisors of the process of discovery, selection and guidance of the professionals, and to assist researchers who want to study such topics. In our study here, we look for the role that school sports plays in the process of discovering, selecting and directing talented students toward the sports practice that suits their abilities and capabilities and directing them towards the sports teams.

The practical aspect of the research:

## METHODOLOGICAL PROCEDURES FOR THE RESEARCH

### Methodology Employed in the Research

Choosing the appropriate method for research into the scientific problem is one of the steps that results in the

success of research, considering that “the scientific method is a way of thinking and action adopted by the researcher to organize, analyze and present his ideas, and thus to reach reasonable results and facts about the phenomenon in study subject”(1). It is the problem’s nature and the goal the researcher wants to reach that determines the method which the researcher can follow in his study. In this study, the researcher selected the descriptive approach, because of its relevance to the study nature, as the descriptive approach is defined as “a way to describe the subject to be studied through a correct scientific methodology and to portray the results obtained in expressive and explicable digital forms”(2). In our field study, we will try to describe the role of school sports in the process of discovering, selecting, and directing talented athletes toward elite teams.

1. Ribhi Mustafa Alyan, Othman Muhammad Ghunaim, **Theoretical and applied scientific research methods**, 1<sup>st</sup> edition, Safa Publishing and Distribution house, Amman, 2000, p. 33.
2. Mohammed Abideat et al., **Scientific Research Methodology Rules, stages and Applications**, 2<sup>nd</sup> edition, Wael Printing and Publishing House, 1999, p. 46.

### The Study Field

Also called the limits of research, “which determines the path of the researcher in the community when the researcher determines a specific time period, this contributes to clarifying the limits of the research and allows him to accomplish it within a specific time limit. The researcher should indicate the limits of his research according to different fields of time, human and spatial field.”(3)the areas of our study are:

Study community and sample: It contains the following:

- **Study community:** “There are those who are called the original study community, and it means the entire individuals, events or observations of the subject of research or study.”(4)
- **Available community:** It is the community which the researcher can reach, and in this study, the available community are the 201 middle-school physical and sports teachers of El Oued city.
- **Study sample:** There is no doubt that choosing the research sample is one of the main and important steps in the study, therefore it must be chosen in a scientific way in order to ensure the validity of the results and the extent of their generalization to the

entire society, and the general goal of the study is related to the method of selecting the sample, and therefore the results obtained are related to the study sample. It can be defined as “a part of the study community that has the characteristics of this society’s prescriptions and represents it with regard to the phenomenon in question”(5)in which the sample was chosen in a **random manner**, as the study sample included 51 middle-school teachers, as the representation rate reached 25.37% of the available community size. In methodological terms, the representation rate is sufficient, given the nature of the methodology used in the study.

**The characteristics of the sample research were:**

- The sample of the study are professors of physical education and sports for the middle school of El Oued city.
- The age, gender, experience factor, and type of certificate obtained in the study were not taken.

### The Tools used in the Study

The general purpose of the study and the approach adopted by the researcher has a role in determining the tools that the researcher can use in his study, and can be defined as the means through which the researcher can collect data and information and solve the problem to achieve the research goals, whatever those tools are from data, samples, devices, and tools used in the study are as follows:

- 1- Yusuf Lazim Kamash, **Scientific Research, Methods, Sections, and Statistical Methods**, *ibid.*, P. 228
- 2- Muhammad Obaidat et al., **Scientific Research Methodology, Grammar, Stages and Applications**, 2<sup>nd</sup> edition, Wael House for Printing and Publishing, 1999, p. 84.
- 3- Muhammad Jalal al-Ghandour, **Scientific Research between Theory and Practice**, 1<sup>st</sup> edition, Al-Jawhara house for Publishing and Distribution, 2015, p. 88.

**Interviews:** The meetings we have held with some of the officials in school sports, including the head of School Sports Association at El-Oued city, have given us a great impetus to proceed with this study, which was oral and we have not analyzed statistically but only for information.

**The survey:** The main tool used in the study and the results obtained by distributing the survey to the sample study where we analyzed the results obtained statistically, with the questionnaire covering three axes

and each axis representing a hypothesis and containing a set of questions. It was designed based on the views of experts and specialists in this area.

## PRESENTATION, ANALYSIS AND DISCUSSION OF THE STUDY RESULTS IN THE LIGHT OF THE HYPOTHESES

### Presentation, Analysis and Discussion of the Results of the First Hypothesis

#### 1. Is school sports important in your institution?

It is clear from the results listed in Table 1 that the value of C2 (25.76) is greater than the tabular C2 (5.99) at the level of an indication (0.05) and a degree of freedom (02). This means that school sports are important in educational institutions as an important material that students love because of their positive effects on them in all psychological, social, recreational aspects etc....

#### 2. What is the primary goal of sports selection process for school sports?

It is clear from the results listed in Table 2 that the c2 value (19.20) is larger than the c2 tabular (7.81) at the level of significance (0.05) and degree of freedom (03), and this indicates that there are statistically

significant differences between the answers, and from it we say that the main goal of the sports selection process for school sports is to develop abilities because school sport works to achieve competition among students and thus contributes to developing the physical, skill and physiological capabilities.

#### 3. Do competitive activities within educational institutions play an effective role in the sports selection process?

It is clear to us through the results listed on Table 3 that the C2 value (51) is greater than the C2 tabular (3.84) at the significance level (0.05) and the degree of freedom (01), and this indicates that there are statistically significant differences between the answers, and from it we can say that competitive activities within educational institutions play an effective role in the process of sports selection because competition is an important method that demonstrates the capabilities possessed by students.

#### 4. Are there any interest from the instructors in discovering and selecting talented students from your institution?

Table 4: The extent to which the trainers are involved in the detection and selection of talented students from the institution shows that the value of C2 (0.04) is less than the tabular c2 (3.84) at the

**Table 1:** Explains the importance of school sports in the institution

Answers	Big	Average	Small	Low	C2 Value	C2 Tabular	Significance	Significance level	Degrees of freedom
Repetitions	24	27	00	51	25.76	5.99	Significant	0.05	02
Ratio	47.05%	52.47%	00%	100%					

**Table 2:** Explains the main goal of the sports selection process for school sports

Answers	Capacity -development	Facilitating the training	Contribution and care	Time and effort economy	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	25	07	14	05	51	19.20	7.81	Significant	0.05	03
Ratio	49.01%	13.73%	27.45%	9.80%	100%					

**Table 3:** Shows the role that competitive activities play in the sports selection process

Answers	Yes	No	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	51	00	51	51	3.84	Significant	0.05	0.1
Ratio	100%	00%	100%					

**Table 4:** The role of the instructors to discover and select the talented students of the institution

Answers	Yes	no	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	25	26	51	0.04	3.84	Non-significate	0.05	01
Ratio	49.01%	50.99%	100%					



level of significance (0.05) and the degree of freedom (01), and this indicates that there are no statistically significant differences between the answers, and from it we can say that there is a great convergence between the teachers in the answers by looking at the percentages, which indicates that there are trainers interested in this aspect and others to the contrary.

**5. Do you pick students who outperform local or national sports?**

It is clear to us through the results listed in Table 5 that the  $c_2$  value (24.69) is larger than  $c_2$  tabular (7.81) at the level of significance (0.05) and degree of freedom (03), and this indicates that there are statistically significant differences between the answers, and from it we can say that teachers select the students who excel in sports competitions, whether local or national, so the students who excel in the competitions we find their level is good and therefore they are of interest by the professors and those targeted in the selection process.

**6. Does the process of sports guidance for the students takes place in school sports?**

It is clear from the results listed in Table 6 that the  $C_2$  value (25.53) is larger than the  $c_2$  tabular (5.99) at the significance level (0.05) and the degree of freedom (02), and this indicates that there are statistically significant differences between the answers, and from it we can say that e sports orientation process for talents in school sports is important for some and very important for others, so directing towards effectiveness that suits the capabilities of students is an important factor that contributes to the development of sport

in general and contributes to the economy in time, effort and money, so proper guidance must be given to all students In his specialization according to their physical abilities, skill... etc.

**7. Is the process of directing talented athletes toward elite practices when their supervision process Ends?**

It is clear to us through the results listed in Table 7 that the  $c_2$  value (28.76) is larger than  $c_2$  tabular (7.81) at the level of significance (0.05) and degree of freedom (03), and this indicates that there are statistically significant differences between and the largest percentage was (sometimes), from which it can be said that teachers sometimes direct talented athletes toward elite practices, as guidance is a necessary and important factor.

**8. Do extra-curricular activities have an important role in the process of discovering, selecting, and directing talented students toward elite practices?**

It is clear from the results listed in Table 8 that the  $c_2$  value (1.59) is greater than the  $c_2$  tabular (3.84) at the significance level (0.05) and the degree of freedom (01), and this indicates that there are no statistically significant differences between the answers, But if we look at the number of answers and the percentage, we find that (yes) has the highest percentage, and from it we can say that extra-curricular activities have an important role in the process of discovering, selecting, and directing gifted students towards elite practices, because it is one of the important means that show us the capabilities and capabilities of students through

**Table 5:** It shows the extent to which students can excel in sports competitions

Answers	Sometimes	Always	Rarely	Never	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	14	25	00	12	24.69	24.69	7.81	Significant	0.05	03
Ratio	27.45%	49.01%	23.53%	00%	100%					

**Table 6:** Explains the importance of the sports coaching process for the talented athletes in school sports

Answers	Important	Relatively Important	Is not important	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	26	25	00	51	25.53	5.99	Significant	0.05	02
Ratio	50.99%	49.01%	00%	00%					

**Table 7:** Shows the process of directing talented athletes towards elite practices

Answers	Sometimes	Always	Rarely	Never	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	27	12	12	00	51	28.76	7.81	Significant	0.05	03
Ratio	52.94%	23.53%	23.53%	00%	100%					

competition Hence their selection and orientation towards elite practices.

- **The overall results of the first hypothesis:**

Phrase number	C2 Tabular	C2 Value	Significance
01	5.99	25.76	Significant
02	7.81	19.20	Significant
03	3.84	51	Significant
04	3.84	0.04	Non-significant
05	7.81	24.69	Significant
06	5.99	25.53	Significant
07	7.81	28.76	Significant
08	3.84	1.59	Significant
Total	46.93	176.57	Significant

Through the obtained results, we notice from the table that the c2 value is larger than the value of c2 tabular, and also we notice that most of the phrases were statistically significant, and from it we can say that the first hypothesis that states that “school sports practice has a great importance in selecting and directing talents towards elite practices” has Achieve.

- **Display, analyze, and discuss the results of the second hypothesis:**

9. **What criteria are adopted in the selection process for talented students?**

It is clear from the results listed in Table 9 that the c2 value (29.70) is greater than c2 tabular (7.81) at the level of a significance (0.05) and a degree of freedom (03), which indicates that there are statistically significant differences between answers,

from which to say that the morphological standard is more important than other criteria. Each athletic activity has morphological characteristics that must be available so that we can predict a good future for students in this activity, such as basketball and volleyball, which requires a length factor.

10. **Do you follow accurate scientific principles when selecting the elite school teams?**

It is clear to us through the results listed in Table 10 that the c2 value (47.12) is greater than c2 tabular (7.81) at the level of significance (0.05) and degree of freedom (03), and this indicates that there are statistically significant differences between the answers. It can be said that the precise scientific basis for selection of elite school teams is taken into account so that there are good results, with a view to shorthand in time, effort and money and achieving the desired goals.

11. **Do you follow the principle of individual differences when discovering and selecting talented students?**

It is clear to us through the results listed on Table 11 that the c2 value (33.95) is larger than c2 tabular (7.81) at the level of significance (0.05) and degree of freedom (03), and this indicates that there are statistically significant differences between the answers, and from it we can say that professors rely on the principle of individual differences in the selection process, and it is one of the precise scientific rules and foundations that must be taken into account in the selection process.

**Table 8:** Shows the role of extra-curricular activities in the process of discovering, selecting, and directing talented students towards elite practices

Answers	Yes	No	Total	C2 value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	30	21	51	1.59	3.84	Significant	0.05	01
Ratio	58.82%	41.18%	100%					

**Table 9:** Shows the criteria adopted in the selection process for talented students

Answers	Morphological	Psychological	Physical	Social	Total	C2 value	C2 Tabular	Significance	Significance level	degree of freedom
Repetitions	26	08	17	00	51	29.70	7.81	Significant	0.05	03
Ratio	50.98%	15.68%	33.33%	00	100%					

**Table 10:** It shows the extent to which the scientific principles are followed in the selection process

Answers	Sometimes	Always	Rarely	Never	Total	C2 value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	25	25	01	00	51	47.12	7.81	Significant	0.05	03
Ratio	49.01%	49.01%	1.96%	00	100%					

12. Do you provide periodic medical follow-up to students who participate in school sports?

It is clear from the results listed in Table 12 that the  $c^2$  value (39.74) is greater than the  $c^2$  tabular (7.81) at a significance level (0.05) and a degree of freedom (03), which indicates that there are statistically significant differences between the answers. It can be said that teachers regularly follow the medical periodicity of students who participate in school sports and are among the most accurate scientific rules and bases to be considered in the selection process.

13. What is the way that you rely upon to find talented students?

It is clear to us through the results recorded on Table 13 that the  $c^2$  value (27.82) is larger than the  $c^2$  tabular (7.81) at the significance level (0.05) and the degree of freedom (03), and this indicates that there are statistically significant differences between the answers, and from it we can say that the largest percentage of teachers make careful scientific observation in discovering talents, which is one of the precise scientific rules and foundations that must be taken into account in the selection process.

14. Do you use modern pedagogical tools and tools during the sporting discovery and selection process?

It is clear to us from the results recorded in Table 14. that the  $c^2$  value (1.59) is smaller than  $c^2$  tabular (3.84) at the significance level (0.05) and the degree of freedom (01), and this indicates that there are no statistically significant differences between the answers, and from it we can say The teachers do not use modern pedagogical methods in the process of discovery and selection, and this would harm the selection process.

- Overall results for the second hypothesis:

Phrase number	C2 Tabular	C2 Value	Significance
09	7.81	29.70	Significant
10	7.81	47.12	Significant
11	7.81	33.95	Significant
12	7.81	36.74	Non-significant
16	7.81	27.82	Significant
14	3.84	1.59	Significant
Total	42.89	176.92	Significant

Through the obtained results, we notice from the table that the  $c^2$  value is larger than the  $c^2$  tabular value, and also we notice that most of the phrases

**Table 11:** Explains the principle of individual differences in the discovery and selection of talented students

Answers	Sometimes	Always	Rarely	Never	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	00	29	11	11	51	33.95	7.81	Significant	0.05	03
Ratio	00.00	56.86%	21.56%	21.56%	100%					

**Table 12:** It shows the extent of regular medical follow-up for students who participate in school sports

Answers	Sometimes	Always	Rarely	Never	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	24	24	01	02	51	39.74	7.81	Significant	0.05	03
Ratio	47.05%	47.05%	01.96%	3.92%	100%					

**Table 13:** Shows the method used to find talented students

Answers	Remark	Competitive exercises	Energy tests	Friendly competition	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	28	13	04	06	51	27.82	7.81	Significant	0.05	03
Ratio	54.90%	25.49%	7.84%	11.76%	100%					

**Table 14:** Shows how pedagogical methods are used in sporting discovery and selection

Answers	Yes	No	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	24	27	51	1.59	3.84	Non-significant	0.05	01
Ratio	47.06%	52.94%	100%					



were statistically “significant”, so we can say that the second hypothesis that states that “the process of discovering, selecting, and directing pupils in Algerian school sports depends on accurate scientific foundations and rules has been achieved.

- **Presentation, analysis and discussion of the results of the third hypothesis:**

**15. How many years of experience do you have?**

It is clear to us through the results listed in Table 15 that the  $\chi^2$  value (12.12) is larger than  $\chi^2$  tabular (7.81) at the level of significance (0.05) and degree of freedom (03), and this indicates that there are statistically significant differences between the answers, and from these percentages, we find that most teachers have more than three years of experience, which reflects positively on the course of selection and direction of school sports.

**16. Based on your experience, what factors affect the selection and orientation process?**

It is clear to us through the results listed in Table 16 That the  $\chi^2$  value (7.05) is larger than the  $\chi^2$  tabular (5.99) at the significance level (0.05) and the degree of freedom (02), and this indicates the presence of statistically significant differences between the answers. To the results, we find that the majority of teachers believe that training

and experience together affect the selection and direction process, as these two processes require considerable experience and expertise in order to be fully completed according to accurate scientific methods.

**17. Did you receive a special training in the selection process and sporting guidance for students?**

It is clear from the results recorded on Table 17 that the  $\chi^2$  value (2.37) is smaller than the  $\chi^2$  tabular (3.84) at the significance level (0.05) and the degree of freedom (01), and this indicates that the teachers did not receive training on the selection and direction process and this would be a negative factor. The selection and orientation process is not an easy process but rather a process that requires knowledge of all the surrounding elements.

**18. In your opinion, is the success of the selection process dependant on the teacher’s experience and knowledge of the characteristics of the age range?**

The results in Table 18 show that the calculated value of  $\chi^2$  (51) is larger than the tabular  $\chi^2$  (3.84) at a significance level (0.05) and a degree of freedom (01), which indicates that there are statistically significant differences between the answers. The teachers believe that the success of the selection process depends on the teacher’s experience and knowledge of the

**Table 15:** Shows the number of years of experience for teachers

Answers	1 year	2 years	3 years	Over 3 years	Total	$\chi^2$ Value	$\chi^2$ Tabular	Significance	Significance level	Degree of freedom
Repetitions	05	06	13	27	51	24.12	7.81	Significant	0.05	03
Ratio	9.81%	11.76%	25.49%	52.94%	100%					

**Table 16:** Shows factors that affect the selection and direction process

Answers	Training	Experience	Combination of both	Total	$\chi^2$ Value	$\chi^2$ Tabular	Significance	Significance level	Degree of freedom
Repetitions	11	14	26	51	7.05	5.99	Significant	0.05	02
Ratio	21.56%	27.45%	50.98%	100%					

**Table 17:** It shows the extent to which teachers receive special training in the selection process and sporting guidance for students

Answers	Yes	No	Total	$\chi^2$ Value	$\chi^2$ Tabular	Significance	Significance level	Degree of freedom
Repetitions	20	31	51	2.37	3.84	Non- significant	0.05	01
Ratio	39.22%	60.78%	100%					

**Table 18:** Shows how successful the selection process is

Answers	Yes	No	Total	$\chi^2$ Value	$\chi^2$ Tabular	Significance	Significance level	Degree of freedom
Repetitions	51	00	51	51	3.84	Significant	0.05	01
Ratio	100%	00.00%	100%					

characteristics of the age range, each age stage has specific characteristics that must be defined so that students can be selected and well-directed, including psychological, morphological, physiological, etc.

**19. Do you receive invitations to participate in seminars and gatherings regarding the process of discovery, selection and sporting guidance for talented students?**

It is clear from the results listed in Table 19 that the  $c_2$  value (26.57) is larger than the  $c_2$  tabular (7.81) at the significance level (0.05) and the degree of freedom (03), and this indicates that there are statistically significant differences between the answers, and from it we can say that teachers sometimes receive invitations to participate in scientific demonstrations in the process of discovery, selection and sporting guidance for gifted students, and these demonstrations contribute to increasing the awareness of teachers of this process by exchanging information between experts.

**20. Do you apply the principle of observing the differences between students in your discovery and selection of talented students?**

It is clear to us through the results recorded on Table 20 that the  $c_2$  value (40.50) is larger than the  $c_2$  tabular (3.84) at the level of significance (0.05) and degree of freedom (01), and this indicates that there are statistically significant differences between the answers, and from it we can say that the teachers apply individual differences in the discovery and selection of talents, as

it is considered one of the scientific foundations and principles that must be applied in this process.

**21. Do you think that the specialist's experience in the process of discovery and selection has a positive and effective role in developing school sports and guiding talented people toward the sporting effectiveness that suits them?**

The results in Table 21 show that the  $c_2$  value (51) is larger than the  $c_2$  tabular (3.84) at an significance level (0.05) and a degree of freedom (01), which indicates that there are statistically significant differences between the answers. The experience of the specialist in the process of discovery and selection can be said to play a positive and effective role in developing school sports and guiding those who are talented toward the sporting effectiveness that suits them, the factor of experience provides a lot of effort and time, makes the process more effective and achieves the desired goals with the least time and cost.

• Overall results of the third hypothesis:

Phrase number	C2 Tabular	C2 Value	Significance
15	7.81	24.12	Significant
16	5.99	07.05	Significant
17	3.84	2.37	Non-significant
18	3.84	51	Significant
19	7.81	26.57	Significant
20	3.84	40.05	Significant
21	3.84	51	Significant
Total	46.93	176.57	Significant

**Table 19:** It shows the extent to which teachers receive invitations to participate in scientific demonstrations in the process of discovery, selection, and sporting orientation for gifted students

Answers	Sometimes	Always	Rarely	Never	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	26	00	12	13	51	26.57	7.81	Significant	0.05	03
Ratio	47.05%	00.00%	23.53%	25.49%	100%					

**Table 20 :** Shows the extent to which individual differences are applied in discovering and selecting gifted students

Answers	Yes	No	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	48	03	51	40.5	3.84	Significant	0.05	01
Ratio	94.12%	5.88%	100%					

**Table 21 :** Shows teachers' opinion on the expertise of the specialist and how positive and effective it is in developing school sports and directing the talented toward the sporting effectiveness that suits them

Answers	Yes	No	Total	C2 Value	C2 Tabular	Significance	Significance level	Degree of freedom
Repetitions	51	00	51	51	3.84	Significant	0.05	01
Ratio	100%	00.00	100%					

In the results obtained, we note from the table that value of  $c_2$  is larger than the value of  $c_2$  tabular. We also note that most of the statements were significant, and from which we can say that the third hypothesis recognizing that “the experience of supervisors in the process of discovery and selection has a positive role in the process of toward guiding students towards practices which are appropriate for them “has been achieved.

## THE STUDY CONCLUSIONS

- School sport has a positive role in the process of discovering and selecting talented athletes and directing them towards teams.
- School sports is of great importance in selecting and directing talents towards elite practices.
- The process of discovering, selecting, and directing students in Algerian school sports depends on scientific foundations and rules
- The experience of supervisors in the process of discovering and selecting students has a positive role in the process of directing them towards the appropriate activity for them.

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# Determination of Standard Levels for some Physical and Skill Variables Among Professional Youth Football Players in the West Bank (Palestine)

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## ABSTRACT

This study aimed to identify standard levels for some variables of physical fitness components and technical skills among youth football players of professional teams in the West bank (Palestine). The investigation was conducted on 145 players registered in the Union of the Palestinian soccer professional clubs for the year 2010/2011. Eight clubs have been chosen randomly, while three physical tests and three skill tests were used for the evaluation. Data were expressed as mean values and standard deviations (SD) using SPSS program (statistical software packages for social sciences), standard levels were identified using percentile ranks of physical and skill variables. Results showed that levels of physical and skill capacities among youth teams of professional football in the West bank (Palestine) were inferior than ideal proportions and standard levels set previously in this study. The researcher recommended the need to adopt these standards levels for the evaluation of physical abilities and basic skills among youth football players in west bank in order to secure the future of football in Palestine.

**Keywords:** Soccer, physical and skill variables, standard levels, professional youth soccer players, Palestine

## INTRODUCTION

Football is by far the world's most popular game considered as a social part in all countries and described as a school of life through which valuable skills can be taught, such as teamwork, dedication, perseverance and healthy lifestyles (Williams., 2013).

In recent decade, players reached high development of physical fitness components, technical skills and tactical

performance thanks to scientific efforts that contribute the development of new methodologies, the validation of fitness testing and training protocols, setting match and training injury profiles, the understanding and development of perceptual-cognitive expertise which contribute to raise the level of the physical and skill abilities among players (Weston and al., 2012).

This is the reason that recently, teams with poor development of scientific research levels and unqualified players has no place in the contemporary football game and they are more susceptible to injury during match and training.

In order to reach football players to high levels of physical performance, obtain the best result and compete against teams with advanced levels, attention must be focused to the application of scientific

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evaluation within clubs and among various stages, especially youth coaching and training (Stratton and al., 2004), in order to secure the continuity and the success of football activity in the future.

In fact, youth stage is considered as the most important stage for building new players, discovering talented people and during which players receive basic tactical formation in order to transform them from amateur status to elite, therefore, interest in this stage plays a fundamental role in harvesting the best products in the future of football game.

While, Al-Yassiri and Ali. (2018) indicate that interest in the training process is not sufficient unless if it is accompanied by a process of selecting players who have the capabilities and high preparations for practicing football and reaching the best results.

The selection process is not an easy process because today it is not relying on the self-assessment of the coach, but rather it is relying on the scientific foundation by using the methods of evaluation and measurement in order to determine its indicators, and this is consistent with what Rosch and al. (2000) assert that tests are an important means in evaluating the physical profile of players and identifying their technical and tactical levels using scientific analyses to reach accurate results.

Since the physical performance and the skill ability in football are among the most variables that can be influenced, improved and developed, we found that the importance of this study is to determine standard levels of these variables helping coaches in this sports field, to diagnose performances, select footballers, categories players, follow-up the progress and evaluate the training programs by measuring physical and skill abilities based on the correct scientific foundations in order to solve the problem facing youth football in Palestine and to stand on the level of players' performance and monitor their progress during the different preparation periods.

## METHODS

### Subjects

The study population consisted of 280 professional youth football players age between 14 and 15,5 year registered in the Palestinian Football Association

among the 12 professional clubs in west bank during the year 2010/2011.

After the exclusion of goalkeepers, 145 youth football players were chosen randomly to be contributed in this study from 8 clubs out of 12 clubs, with a percentage of 51.78%.

Table 1 shows the arithmetic mean  $\pm$  the standard deviations of the age, body mass and height of all participants in study. The maximum and minimum values of the population characteristics have also been indicated in this table.

### Study design

To determine the standard levels of physical and skill variables among youth football players in Palestine, a questionnaire was conducted in this study in which the most important physical and skill abilities can be developed among youth football players were cited with their specific and scientific tests.

The questionnaire was presented to a group of 13 experts and specialists in the field of football, especially in testing, measurement and sports training in order to determine the stability, validity and objectivity of tests and select those who obtained the highest percentage in order to be used in this study and determine the standard levels of physical and skill abilities of youth football players in Palestine.

The Stability of tests was calculated using a test and a retest with a time difference of 3 days among 20 football players who were later excluded from the study sample, with adjusting of all variables and conditions set for the first test, as shown in the Table 2, results indicate a high stability factor for physical and skill variables using the Pearson's correlation coefficient.

The validity of tests was calculated using the square root of the coefficient of stability, and it is clear through the presentation of the results in Table 2 that tests had a high score indicating self-acceptance.

**Table 1:** Statistical descriptive of subjects (mean $\pm$ standard deviation) (n=45)

Variable	Mean	Standard deviation	Minimum	Maximum
Age (year)	15,27	0,41	14	15,5
Body mass (kg)	51,81	7,81	35	72
Height (cm)	163,11	7,57	145	181

**Table 2:** Mean±standard deviations, coefficient of stability and validity of physical and skill tests (n=20)

Physical and skill tests	Test		Retest		Coefficient of stability	Validity
	Mean	S.D	Mean	S.D		
1500 run test (min)	6,34	0,53	6,31	0,53	0,984*	0,991
Sprint 30m (s)	4,75	0,26	4,75	0,28	0,948*	0,973
Sargent jump test (cm)	37,15	5,78	36,95	5,61	0,946*	0,972
Dribbling ball for 1min (n)	92,05	15,22	91,95	12,71	0,963*	0,981
Short pass precision (n)	5,85	1,41	5,81	1,54	0,872*	0,933
Shooting precision (n)	6,85	1,81	6,81	1,76	0,860*	0,927

S.D: standard deviations ; n: number ; \*: significant correlation

The objectivity of tests was determined by allocating two judgments to record the results of the tests separately, after collecting results, the researcher processed the data statistically by determining the correlation coefficient (Pearson) between the two degrees of judgments and then extracting the value of correlation coefficients to indicated the objectivity of the tests as showed in Table 3.

**Statistical analysis**

The researcher used the SPSS program using the following statistical treatments: Mean, standard deviations, maximum and minimum values, percentile ranks, frequencies, percentages and Pearson’ correlation coefficient test.

In order to determine the standard levels, the raw results were converted into standard results for each of the physical and skill variables using the standard percentile degree (percentage), while the standard normal distribution was used to set the standard criteria of levels.

**RESULTS**

It is clear from Table 4 that the capacity of endurance tested by the 1500 run test is inferior than the standard levels cited in the study, and did not rise to the required level where the arithmetic mean measured by the test is  $6,22 \pm 0,55$  min.

While the results of speed and power capacities tested by the 30m sprint test and Sargent jump test were respectively  $4,71 \pm 0,29$  s and  $39,91 \pm 7,31$  cm and they came out below the required level, this indicates a weakness in these two variables compared to the standard levels and ideal proportions in the study.

**Table 3:** Mean±standard deviations, objectivity coefficient of physical and skill tests (n=20)

Physical and skill tests	Refree1		Refree2		Coefficient of objectivity
	Mean	S.D	Mean	S.D	
1500 run test (min)	6,33	0,53	6,32	0,54	0,983*
Sprint 30m (s)	4,75	0,26	4,76	0,23	0,956*
Sargent jump test (cm)	37,61	5,54	37,65	5,56	0,999*
Dribbling ball for 1min (n)	90,15	15,24	90,15	15,14	0,999*
Short pass precision (n)	5,60	1,42	5,60	1,42	1*
Shooting precision (n)	6,75	1,81	6,75	1,81	1*

S.D: standard deviations; n: number ; \*: significant correlation

**Table 4:** Mean±standard deviations, best and lowest score of physical and skill tests among Palestinian youth football players (n=145)

Physical and skill tests	Mean	Standard deviation	Best score	Lowest score
1500 run test (min)	6,22	0,55	5,07	7,21
Sprint 30m (s)	4,71	0,29	4,03	5,38
Sargent jump test (cm)	39,91	7,31	55	24
Dribbling ball for 1min (n)	91,56	1,39	136	70
Short pass accuracy (n)	5,78	1,41	8	3
Shooting accuracy (n)	6,06	1,59	10	3

n: number

As for the skill of short pass accuracy and shooting accuracy indicated in table were respectively  $5,78 \pm 1,41$ ;  $6,06 \pm 1,59$  and they were also under the standard levels and ideal proportions.

Table 4 indicate that ball controlling by youth football players was  $91,56 \pm 1,93$  as a number of dribbling with the ball in one minute and it is also under the standard levels.

It is clear from Tables 4 and 5 that the mean of physical and skill abilities results among Palestinian youth football players (1500m run test (endurance)/30m sprint test (speed)/Sargent jump test (power)/dribbling the ball for a minute (controlling the ball)/number of short pass (pass accuracy)/number of shoot (shooting accuracy)) were respectively (6,22 min, 4,71s 39,91cm, 91,56 times, 5,78 targets and 6,06 targets) corresponding to percentile ranks respectively (50%, 40%, 40%, 50%, 50%, 40%).

As for the best standard levels of physical and skill tests of all players, which correspond to the percentile rank (90%) or higher were respectively (5,41 min or less, 4,29s or less speed, 50 cm or higher for vertical jump, 110 times of dribbling with ball, 8 short pass with precision and 9 shooting with precision on the wall).

For the lowest standard which corresponds to the percentile rank 10 or less for these variables were respectively (7,07 min or higher, 5,08s or higher speed, 30cm or less vertical jump, 74 times or less dribbling, 4 short pass and 4 shooting with precision).

Table 6 shows the ideal proportions and percentage of the standard levels that were determined using the physical and skill variables among young players in the Professional Football Clubs in Palestine, where results from this table indicated that the mean of the 1500 m run test is (acceptable), the general average of the 30m sprint test is (acceptable), the mean of the Sargent jump test is (acceptable), thus, the general mean of the physical and skill abilities of youth football players in Palestine is (acceptable).

## DISCUSSION

The aim of this study was to determine standard levels and ideal proportions of some physical and skill abilities among youth football players using specific tests and scientific methods of measurements, then, investigating the level of these physical and skill capacities among youth Palestinian football players registered in professional clubs and comparing them with the standard levels.

Results in this study show that all physical and skill abilities (endurance, speed, power, controlling ball, short pass accuracy, shooting accuracy) among youth football players in Palestine were inferior than standards levels and ideal proportions respectively as follows (6,22 ± 0,55 min; 4,71 ± 0,29 s; 39,91 ± 7,31 cm; 91,56 ± 1,93; 5,78 ± 1,41 and 6,06 ± 1,59) endurance is an important co-determinant of football performance, as it is a key feature of physical capacity and an important regulator of football-specific tasks (Hoff and Helgerud., 2004), this aerobic capacity among youth Palestinian football players was lower than standard levels and did not rise to the ideal proportion, this might be explained that there are some football coaches are not interested in developing endurance capacity during the training season and this does not agree with what Helgerud and al. (2001) indicate, that improving the aerobic capacity is important to a reach a higher level of performance because it is the basic component for developing the rest of the fitness capacities.

As Mcmillan and al. (2005) also found that endurance training among professional youth football players improve the mean of  $Vo_{2max}$  significantly from 63.4 (5.6) to 69.8 (6.6) ml  $kg^{-1} min^{-1}$ , therefore, aerobic training

**Table 5:** Percentile degree of physical and skill variables among Palestinian youth football players (n=145)

Percentile	1500 run test (min)	Sprint 30m (s)	Sargent jump test (cm)	Dribbling ball for 1min (n)	Short pass accuracy (n)	Shooting accuracy (n)
90+	-5,41	-4,29	+50	+110	8	+ 9
80	5,54	4,43	47	104	7	8
70	6,05	4,53	44	99	7	8
60	6,15	4,61	42	94	6	7
50	6,24	4,71	40	91	6	7
40	6,37	4,81	38	87	5	6
30	6,46	4,87	36	82	5	6
20	6,58	4,97	33	79	4	5
10-	+7,07	+5,08	-30	-74	- 4	- 4

\*(+) Is higher than/(-) less than



**Table 6:** Standard levels, ideal proportions, number of players in each standard level and the percentages achieved in tests of physical and skill variables (n=145)

Test	Standard levels	Ideal percentage	Number of players	Percentage achieved
1500 run test (min)	Excellent	5.00 and less	0	0%
	Very good	5.01–5.40	13	9.0%
	Good	5.41–5.80	18	12.4%
	Medium	5.81–6.20	38	26.2%
	Acceptable	6.21–6.60	48	33.1%
	Unaccepted	6.61 and higher	28	19.3%
Test	Standard levels	Ideal percentage	Number of players	Percentage achieved
Sprint 30m (s)	Excellent	4.00 and less	0	0%
	Very good	4.01–4.20	6	4.1%
	Good	4.21–4.40	21	14.5%
	Medium	4.41–4.60	30	20.7%
	Acceptable	4.61– 4.80	29	20.0%
	Unaccepted	4.81 and higher	59	40.7%
Test	Standard levels	Ideal percentage	Number of players	Percentage achieved
Sargent jump test (cm)	Excellent	55 and higher	2	1.4%
	Very good	50–54	14	9.7%
	Good	45–49	22	15.2%
	Medium	40–44	42	29.0%
	Acceptable	35–39	30	20.7%
	Unaccepted	34 and less	35	24.1%
Test	Standard levels	Ideal percentage	Number of players	Percentage achieved
Dribbling ball for 1min (n)	Excellent	120 and higher	5	3.4%
	Very good	110–119	11	7.6%
	Good	100–109	26	17.9%
	Medium	90–99	36	24.8%
	Acceptable	80–89	36	24.8%
	Unaccepted	79 and less	31	21.4%
Test	Standard levels	Ideal percentage	Number of players	Percentage achieved
Short pass accuracy (n)	Excellent	8 and higher	17	11.7%
	Very good	7	37	25.5%
	Good	6	27	18.6%
	Medium	5	30	20.7%
	Acceptable	4	30	20.7%
	Unaccepted	3 and less	4	2.8%
Test	Standard levels	Ideal percentage	Number of players	Percentage achieved
Shooting accuracy (n)	Excellent	10 and higher	2	1.4%
	Tery good	9	13	9.0%
	Good	8	36	24.8%
	Medium	7	28	19.3%
	Acceptable	6	24	16.6%
	Unaccepted	10 and less	42	29.0%

during preparation period in football have an important effect on physiological and a positive impact on the cardio-respiratory circulation.

While, Rago and al. (2017) indicate that improving endurance capacity differ per playing position and correlate with the capacity to perform intermittent

endurance exercise. Coaches must take into consideration these positional variations in distance covered in order to design position-specific physical drills.

As for, levels of speed and power capacities among youth Palestinian football players were below the required level compared to the ideal proportions, which affect negatively the performance and the achievement of expected results because football activity is based on movement of velocity and jumping (Wisloff and al., 2004).

The researcher attributes the unacceptable level of speed and power capacities among youth Palestinian football players is due to the lack of use of the exercises and training protocol based on velocity and maximal strength development of muscle contractions such as plyometric training-jumping, bounding, and hopping exercises which have an important effect on the neuronal activity of the muscle and then develop the production of muscle force and power among youth players (Tomas and al., 2009).

Spencer and al. (2011) indicate that speed and power capacity improve differently comparing to the other fundamental fitness tests throughout adolescence in highly skilled soccer players, whereas the stabilization of their levels occurs at the age of 18 years. Junior football coaches should prescribe physical training that takes into account variations in short-term disturbance or deterioration in physical performance during this period of development.

Short passing, dribbling and shooting are the most important and fundamental technical abilities in football, unfortunately, results were also under the required level compared with the standard levels and ideal proportions determined in this study and it is considered to be crucial in determining the outcome of competitive fixtures.

Russell and Kingsley. (2011) indicate that coaches must dedicate a large proportion of time for practicing isolated skills, such as passing, shooting and dribbling by using new methods to simulate and evaluate the demands of soccer match play (focusing on the measurement of soccer skills), explore the effects of exercise on these skills, and to examine the factors that influence skill proficiency during soccer-specific exercise.

The unacceptable level of physical and skill variables among youth football players in Palestine might due to several factors such as the lack of material and tools, the lack of provision of stadiums and gyms and the poor infrastructure, where the stadiums, tools and human capacities are qualifying for the elite team players, and this reflects negatively on the youth without taking into consideration the future of football game.

Also, random training during the preparation season without regard to the principles and scientific foundations and individual differences related to the training process, and without the existence of training programs for the development of physical variables commensurate with the age of young adults, and the physiological, physical and psychological characteristics, lead to adverse results in the training process.

Also, the lack of regularity in the training process (interruption of training for periods) due to players' preoccupation with academic examinations, or stopping training during the month of Ramadan, or the absence of coaches, or sports injuries and lack of proper rehabilitation after injury affect the physiological adaptations of the body and a decrease in physical and athletic achievement (Fleck., 1994).

Besides, the random selection process of players that depends on the coach's personal experience is not sufficient, in fact, the selection is considered one of the most important steps that help to reach the higher sports levels and then the sporting achievements.

## CONCLUSION

This study aimed to determine standards levels of physical and skill abilities in order to compare them with the level of youth football players capacities in Palestine.

Results indicate that the mean of endurance, speed and power capacity is under the medium level, thus, the general mean of the physical and skill abilities of youth football players in Palestine is under the medium level.

Results might be explained by several factors such as training condition, lack of material and tools, detraining, selection of players without any scientific foundation.

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