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Analytical study of injury patterns of physical education students and associated risk factors

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Abstract

One of the problems facing physical education and sports science students is sports injuries, as the nature of practical lessons is characterized by a high level of intensity and lack of standardization of loads in line with each individual's ability and level of physical and vital performance. The research aimed to identify the patterns of sports injuries and the risk factors associated with them among physical education and sports science students. The descriptive approach was used with the analysis method to suit the nature of the research procedures. The research sample included (50) students with various injuries who were selected from the research community of (120) students. After the questionnaire form was distributed to the sample members, the data was collected and processed to reach the most important conclusions:The most common injuries among physical education students are muscle tears and joint sprains, especially the ankle and knee joints. And the most common game in which students are exposed to injury is football.

Keywords: Injury, Physical Education And Risk Factors.

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Introduction:

Many physical education students suffer from sports injuries, as the nature of the sports activities they practice during practical lessons requires great physical effort, which in turn exposes them to the risk of injury during the practical lesson.

Understanding the factors affecting the occurrence of sports injuries among physical education students plays a major role in maintaining their safety by providing a safe educational environment. A student's exposure to injury negatively affects his physical ability and daily activity and may be a reason for a decline in his academic and athletic level.

The patterns of injuries in physical education vary according to the intensity of the exercises used and the type of sport practiced as well as the nature of practical lessons during the day and the environmental and behavioral circumstances. The most common injuries in physical education are those resulting from excessive and intense stress that is generated when vital energy is lost in the muscles and various parts of the body, which increases the likelihood of injury among physical education students.[1]

In addition to the above, there are some behaviors that the student does not adhere to that may increase the risk of injury, including failure to warm up before exercises and failure to adhere to stretching exercises. Hence, we find that the importance of the research lies in studying the different types of sports injuries among physical education students and studying the risk factors associated with them to provide a safe and effective environment by identifying the obstacles that cause injuries.

Research problem:

Physical education students are exposed to great stress due to the physical activities they practice intensively, which in turn leads to their interruption of training and practical lessons, which affects their academic and athletic level.

One of the most important economic problems in the current research topic is that these injuries require medical treatment and rehabilitation, which in fact entails financial and professional costs, so it is necessary to study the obstacles and risks that may be the cause of various sports injuries during activities and expose students to a malfunction in performing their academic and athletic duties during practical lessons.

Understanding the different types of injuries and studying the risk factors associated with them gives a clear picture of the great physical pressure that students are exposed to, which provides preventive means to protect them.

Research objectives

1. Identify the most common patterns of sports injuries among physical education and sports science students.

2. Identify the risk factors that have the greatest impact on exposure to sports injuries among physical education and sports science students.

Research field:

- Human field: Fourth-year students in the College of Physical Education and Sports Sciences.
- Time field: From 13 -10-2024 to 22-12-2024.
- Spatial field: Sports hall in the College of Physical Education and Sports Sciences / University of Babylon.

Research Methodology

The researchers used the descriptive approach using the analytical studies method to suit the nature of the research procedures.

Society and research sample:

The research community included fourth-year students, numbering (120) students for the academic year (2024-2025). The research sample was selected from the community based on a questionnaire that included questions that showed whether or not they were exposed to injury.[2] The sample number was (50) students with multiple injuries. Homogeneity was performed for the sample individuals in the variables of height, weight and age.

Table 1. Shows the homogeneity of the research sample

		Age	**Height**	**Weight**
N	**Valid**	50	50	50
	Missing	0	0	0
Mean		21.54	177.5	80.58
Median		22	177.5	82.5
Mode		22	175	73
Std. Deviation		0.51	4.5	6.07
Skewness		0.166	0.125	0.184

From Table (1) it is clear that the coefficient of skewness is between ±1 and this indicates the homogeneity of the individuals of the research sample.

Tools used in the research:

- Questionnaire.
- Interviews.
- Data entry form.

- Portable calculator.
- Medical forms.

Exploratory experiment:

The exploratory experiment was conducted on 13/10/2024 on a small sample consisting of 4 infected students from outside the research sample, in order to identify the obstacles that researchers may face while applying the tests, as well as explaining the method of conducting the tests to the support team and preparing the sample to apply the research procedures easily and without obstacles.[3]

Research procedures:

Injury identification forms were distributed to the research sample to determine the injury areas and the type of activity in which the student was injured. The experience of teachers and trainers in this field was also relied upon to identify the most important risk factors that affect students' performance during the physical education lesson.

Results

Table 2. Show the common injury patterns among physical education students

Type of injury	affected part	Incidence (%)	Notes
Muscle tear	Lower limbs	35%	Most common in the thigh and leg muscles
Sprain	Ankle	25%	Resulting from sudden movements or poor landing
Fracture	Upper limbs	15%	Often due to falls or collision
Tendinitis	Knee	10%	Resulting from repetitive stress
Muscle strain	Back	8%	Associated with heavy lifting or intense training
Head injury	Head	5%	Rare but serious
Other injuries	Miscellaneous	2%	Involves cuts and bruises

Table 3. Show the risk factors associated with injuries

Risk factors	Impact rate (%)	Notes
Lack of warm-up before exercise	40%	Increases the risk of tears and sprains
Intense training without	30%	Causes muscle strain and chronic

adequate rest		injuries
Improper use of exercise equipment	15%	Increases the risk of serious injuries
Previous health condition	10%	Old injuries increase susceptibility to injury
Non-adherence to cool-down	5%	Delays recovery and increases stress accumulation

Table 4. Show Distribution of injuries by sporting activity

Sports activity	**Injury rate (%)**	**Most common injuries**
Football	40%	Muscle tears, ankle sprains
Basketball	25%	Ankle sprains, knee injuries
Athletics	20%	Muscle strain, tendonitis
Weightlifting	10%	Back injuries, muscle tears
Other Sports	5%	Miscellaneous injuries

Discussions

From the results presented in Table (2 and 3), it is clear that the most common type of sports injuries is muscle tears and joint sprains. This in fact explains the amount of effort that physical education students are exposed to during practical lessons that need to be regulated to take into account each student's ability to perform sports for each game or lesson during a single school day.[4]

Also, through the data collected, it is clear that the most vulnerable limbs to injury are the lower limbs, especially the ankle and knee joints when compared to the upper limbs and the rest of the body parts. This is reflected in the fact that the vast majority of sports require the lower limb to participate to a large extent in the performance, as well as the proximity of the lower limb to the tools and the ground, which makes it more vulnerable to injury than the rest of the body parts.[5] In addition, we found through the results presented in Tables (2 and 3) that increasing the repetitions beyond the recommended limit in sports performance generates chronic injuries that appear in the form of tendonitis and chronic muscle fatigue. This is due to the lack of balance between the energy of the muscle and tendon with the effort exerted on the body and its parts repeatedly, which is known as injuries resulting from overtraining or stress injuries.[6]

As shown in Table (4), it is clear that the most common sports in terms of injuries is football, in which muscle and joint injuries constitute a large percentage compared

to other injuries, as football requires fast running and sudden changes in direction, which exposes the player to injury.[7] The requirements of the game require the individual to be well prepared physically to be able to face different playing and performance conditions. While in basketball, the most common injuries are those that occur in the ankle and knee joints resulting from repeated jumping and violent landings, so this type of game requires preparing the student to be able to face different conditions during performance in a way that protects him from injury.[8] The researchers also noted that most inflammatory tendon injuries resulting from overexertion occur in athletics and weightlifting, which causes weakness in the flexibility property of the tendons and weakness in the muscle's ability to produce force.

What we would like to clarify here is that exercising can be negative for the body if the training exceeds the natural capacity of each individual. Excessive training generates inflammation and injuries as a result of the weakness of the immune system, which plays a role in ridding the body of inflammatory cells and rebuilding damaged tissues.[9] In addition, continuous pressure on the body's systems without providing adequate rest increases the accumulation of lactic acid in the muscles, which results in muscle fatigue and reduces performance efficiency, which in turn increases the likelihood of injury. Through the above, researchers find that regulating the daily performance loads of practical lessons for physical education students protects them from injury and ensures their continued attendance of practical lessons and avoids injury.[10]

Conclusions

1. The most common injuries among physical education students are muscle tears and joint sprains, especially the ankle and knee joints.
2. The most common game in which students are exposed to injury is football.
3. The results showed that the parts of the body most susceptible to injuries are the lower extremities.
4. The results showed that over-performance and not giving enough rest lead to muscle fatigue and stress and increase the risk of injury.
5. The results showed that not paying attention to a good warm-up before sports activity can be one of the reasons for sports injuries.

Recommendations

1. The necessity of warming up before performing sports activities because of its major role in preventing injury.
2. The necessity of gradual progression in exercises and distributing training loads to avoid muscle fatigue and prevent sports injuries.
3. The necessity of warming up before performing sports activities because of its major role in preventing injury.

4. The necessity of gradual progression in exercises and distributing training loads to avoid muscle fatigue and prevent sports injuries.

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