

## SPORTS INJURIES IN UNIVERSITY-LEVEL FOOTBALL

Notes

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### Abstract

*Sports injuries are one of the biggest problems in modern sports. At the university level, research on sports injuries is lacking, and published data is often incomplete or entirely missing. The purpose of the study was to determine the incidence, type, causes and location of injuries in football players from university teams that participate in the National University Championship. One hundred and thirteen football players from eight universities in Sofia, Bulgaria were surveyed. The results of the study showed that 18.6 injuries occur per 1,000 game hours of exposure to university football. 24% of the participants in the study were injured during a game or practice with their team. Of those, the most common types were muscle strains (45,71%), sprains (39,39%), and contusions (15,15%). The most common locations were the ankles (35,13%), knees (27,02%), thighs (16,22%), and groin (5,41%). More than 50% of those injuries prevented the athletes from participating in their sport for more than 11 days; 18,52% - for more than 30 days. From the survey, we can conclude that even at the university level, football is a sport with a significant injury incidence rate. Therefore, the application of injury-tracking methods in university sports and the use of appropriate prevention tools should become an integral part of the work of sports educators, coaches, medical and health professionals who work in the area of physical education and sport.*

**Keywords:** *university sport, football, sports injury, incidence rate, questionnaire*

### INTRODUCTION

In professional football, the continuous increase in workload and the saturated calendar of games are important contributing factors to the high incidence rate of injuries (Taralov & Taralov (Тарълов, З. П. & Тарълов, З. З.), 2008). In amateur sports, such as student sports, there is the other extreme - training activities are reduced to a minimum and the sporting calendar is not optimal (Игнатов (Ignatov), 2012). This results in an imbalance between the athletes' physical abilities and the expectations placed on them during competitions, thus creating conditions for injuries to occur.

At the university level, research on sports injuries is lacking, and published data is often incomplete or entirely missing. The present study examines whether university football has health risks to students and the characteristics of sports injuries in university-level footballers.

The purpose of this study was to determine the incidence, type, causes, and location of injuries in university football players participating in the National University Championship.

### METHODS

The following research methods were used: theoretical analysis and literature review, questionnaire survey, and mathematical-statistical methods to process and analyze the results.

The object of the study is the characteristics of sports traumatism in amateur student footballers.

The subject of the study were all students from eight Sofia universities participating in the National University Football Championship.

The study was conducted in April 2023. The questionnaire contained thirteen questions related to sports injuries.

The time period for which injury incidence was calculated includes three consecutive academic years, 2020/2021;

2021/2022, and 2022/2023, as most of the students surveyed had been playing for university teams for three years or less.

The incidence rate in the study is presented as the number of injuries per 1000 hours of game exposure. In order to calculate injury frequency in this way, it is necessary to determine the time during which all athletes on the field are directly at risk of injury - hours at risk or hours of exposure. Game (competition) risk hours are calculated for a given time period, and then the number of injuries occurring during the games in that period is divided by the risk hours and multiplied by 1000.

### RESULTS

The participants in the survey were 113 students from the football teams of eight Sofia universities: Academy of the Ministry of Interior, University of Forestry, National Sports Academy, New Bulgarian University, Sofia University, Technical University of Sofia, University of Architecture, Civil Engineering and Geodesy, and University of National and World Economy. Nearly 90% of the respondents were between 19 and 22 years old. The number of participants in the survey from different universities is shown in Table 1.

The following tasks were set: to conduct a questionnaire method of research, to process and analyze the results of the survey, to draw conclusions from it and to make recommendations for practice.

*Table 1. Number of participants by universities.*

University	AMI	UF	NSA	NBU	SU	TU	UACEG	UNWE
Participants (n)	5	9	6	12	22	23	20	16

74,34% of the participants have more than 10 years of football experience, and 21,24% between 5 and 10 years. At the time of the study 57.52% of the participants had been part of the

university football team for one year, 18.58% for two, 12.40% for three, and 11.5% for four or more years – Table 2.

*Table 2. How many years have you been playing for the university team?*

In the team	for 1st year	for 2nd year	for 3rd year	for 4th year	for 5th or more
Answers (%)	57,52	18,58	12,40	8,85	2,65

The period for which we calculated injury incidence includes a total of three consecutive academic years (Table 3), 2020/2021; 2021/2022 and 2022/2023. In the 2020/2021 academic

year, all eight teams that are part of this survey played a total of 16 games; in 2021/2022 - 14 games; and in 2022/2023 - 32 games (at this time, the games from this academic year have not been completed).

*Table 3. Total games played by each academic year.*

Academic year	2020/2021	2021/2022	2022/2023
Games played (n)	16	14	32

For these three years, the at-risk game hours were 1023 and the injuries incurred during this period during games were 19. We conclude that 18.6 injuries occurred per 1,000 game hours in this university competition.

Almost half (46.34%) of these injuries occurred during a game and 53.66% occurred during practice. 23% reported sustaining an injury during an out-of-university sport.

The survey results show (Table 4.) that 24% of respondents suffered an injury playing for the university team.

*Table 4. Answer the question "Since playing for the university team, have you been injured during games or practices with the university team?"*

Answers (%)	Yes	No	Yes, but in out-of-university sport
	24%	53%	23%
	During practice	During game	
	53,66%	46,34%	

Four of the respondents reported 2 injuries and five reported 3 or more injuries since playing for the university team. This brings the total number of injuries to 41 – both in games and practice. For 3,54% of the students, university football was the reason they sustained an injury for the first time.

Many (38,94%) of the participants in the study reported they have chronic injuries. A majority (81.42%) of the players reported that they had an injury prior to playing for their university team.

88.89% of reported injuries sustained during university sports (both practice and game) were to the lower extremity, 7.41% to the head, and 3.7% to the upper extremity.

Table 5 shows the location distribution of lower extremity injuries. The most injured part was the ankle (35.13%), followed by the knee joint (27.02%) and the thigh (16.22%). Of the total injuries, 5.41% occurred in the pubo-adductor region; 5.41% in the toes and foot, and 2.7% each in the glutes and Achilles tendon.

*Table 5. Answer the question "In which part of the lower limb were the injuries?"*

Localization	Ankle	Knee	Thigh	Groin	Toes	Foot	Achilles tend.	Glutes
Answers (%)	35,13%	27,02%	16,22%	5,41%	5,41%	5,41%	2,7%	2,7%

From the results presented in Table 6., it can be observed that the most common type of injuries were muscle strains or tears – 42.42%. Sprains accounted for 39.39% of the

injuries and 15.15% were contusions. Around 3% of the participants didn't know what the injury they sustained was.

*Table 6. Answer the question "What type of injuries did you receive?"*

Type	Muscle strain	Joint sprain	Contusion	Not sure
Answers (%)	42,42%	39,39%	15,15%	3,04%

Table 7 presents the causes of the injuries given by the students. The most commonly reported (23.4%) is "tackling or rough play by an opponent", followed by "when changing direction" - 19.15% and "poor pitch" - 19.15%. In 14.89% of the injuries, the cause was a previous injury, and in 10.64% it was

overuse. 8.51% of injuries occurred during sprinting and 4.26% during rebounds or landing after a rebound. From the results presented, it is evident that the mechanism by which many (76,59%) of the injuries occurred was non-contact.

*Table 7. Finish "Injury occurred"*

Cause	Answers (%)
In the event of rough play by an opponent	23,4
Because of poor pitch	19,15
Because of previous injury	14,89
Because of overuse	10,64
During sprint	8,51
When changing direction	19,15
While jumping	4,26

Many of the students who sustained an injury (18.52%) reported that they experienced a major limitation in daily activities after the injury (Table 8.). 33.33% experienced moderate

limitation; 37.04% experienced little limitation and only 11.11% experienced no limitation as a result of the trauma.

*Table 8. To what extent has the injury(s) you sustained in university sport limited the activities of your daily life at the time since the injury – university, work, free time?*

Limitations of ADL	Answers (%)
I was experiencing great limitation	18,52
I was experiencing moderate limitation	33,33
I was experiencing little limitation	37,04
I haven't experienced limitation	11,11

A main indicator of the injuries' severity is the sports disability resulting from them. More than 50% of the injuries that

occurred prevented sports participation for more than 11 days and almost 20% for more than 30 days - Table 9.

*Table 9. Answer the question "How long were you absent from sporting activities due to the injury occurring during university sport?" (if you had more than one injury, tick for the most severe)*

Absent from sport	up to 3 days	4-10 days	11-20 days	21-30 days	over 30 days
Answers (%)	11,10	18,52	25,93	25,93	18,52

## DISCUSSION

In the literature, data on the incidence of sports injuries is present as the number of injuries per 1000 hours of sport. This allows comparisons between separate teams as well as between sports (Philips, 2000).

López-Valenciano et al. (2020) report 36.6 injuries per 1000 game-hours of exposure in professional football. Similar data is reported by Ekstrand, Hägglund & Waldén (2009). Forsythe et al. (2022) reports 14 injuries/1000h. The incidence rate from our study is 18.6 injuries per 1000 game hours of exposure. It should be taken into account that due to the Covid-19 situation, the number of games in the 2020/2021 and 2021/2022 academic years was reduced and that in some of the surveyed teams, not all players participated in the survey. This may have influenced the results obtained.

As expected, the data obtained from our study shows that the most common injury locations in student footballers are the ankle, knee, and thigh. It can be seen that the most common type of injury among football players at the university level is muscle strain. Similar data are presented in studies by Azbuike & Okojie (2009), Ayanniyi, Abiodun & Adekanla (2015), Lemoine et al. (2017) and Haryono, Maurice & Prastowo (2019), which examined injuries in university sports across different sports disciplines.

From the results, we can observe that the majority of injuries occurred from a "non-contact" mechanism. A similar statement is made in a study by Kuttner et al. (2022), in which the authors report the incidence rate of lumbar injuries in student footballers. The majority of causes for the injuries reported in our study are due to modifiable risk factors that can be influenced by appropriate methods and tools, both from physical education and rehabilitation. This would reduce the incidence of injuries in university sports (Hootman, Dick & Agel, 2007).

The results from the study show that sports injuries in university football are associated with prolonged absence from sports. Many of the students, as a result of the injuries that occurred, experienced some difficulty in performing their daily activities. Almost all of the football players had sports injuries before they became part of the football teams of the universities. Many of the students in this study reported chronic injuries. Similar data on chronic injuries are reported by Dyakova et al. (2017).

In addition to having a direct impact on athletic performance and the health status of soccer players, sports injuries are also associated with a negative impact on an individual's mental state (Koch et al. 2021).

These findings highlight the importance of the injury problem in university football and university sport in general. The high injury incidence rate combined with the students' prior history of injuries should be taken into account when planning physical load and exercise, as well as selecting optimal exercise methods and tools in order to improve the functional capabilities and preserve the health status of student football players.

It should be noted that using a questionnaire method in studies on sports traumatism has certain drawbacks that may lead to inaccuracies. In some cases, respondents are unable to define what exactly an "injury" is, distinguish the specific type, the exact diagnosis, the number of injuries, etc. Therefore, more optimal

methods and tools for tracking sports injuries need to be implemented in the future, both in football and in university sports in general. There is a need to develop a methodology by which the occurrence of injuries as well as their characteristics are recorded for each academic year Georgiev (2022). This would provide a clear and objective picture of traumatism in university sports, the impact of university sports on students' health, and provide guidelines through which to optimize sporting activities in order to improve or maintain students' health.

## CONCLUSION

From the survey, we can conclude that even at the university level, football is a sport with a significant injury incidence rate. Therefore, the application of injury-tracking methods in university sports and the use of appropriate prevention tools should become an integral part of the work of sports educators, coaches, medical and health professionals who work in the area of physical education and sport.

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