

INJURIES AND PSYCHOLOGICAL EFFECTS IN SPORTS ACROSS VARIOUS COMPETITION LEVELS

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Abstract

The increased demands of the training process and competition in the direction of volume and intensity of movement demand higher technical-tactical, physical, and psychological abilities from the football game participants. Such demands often lead to various injuries of football players in the training process and competition, such as contusions, ruptures, distortions, pain in the groin, meniscus injuries, etc. This research aimed to register the number of injuries during training and competition activities among football players at different levels of competition. After conducting research and a survey questionnaire, we came to know that the number of injuries in the mentioned competition ranks does not depend only on the competition rank but also on the level of expertise of the coaches, the level of technical-tactical and physical preparedness of football players, the expertise of doctors and referees at matches.

Keywords: *competition rank, contusion, rupture, dislocation, distortion, fracture, groin, and meniscus injuries*

Introduction

The term “sports injury” refers to the injuries that most commonly occur during sports or exercise but are not limited to athletes. Factory workers get tennis elbow, painters get shoulder injuries, and gardeners develop tendinitis, even though they may not participate in sports. Ultimately, however, “sports injuries” occur in active individuals. This health topic focuses on the most common sports injuries that affect the musculoskeletal system. The musculoskeletal system is the network of muscles, tendons, ligaments, bones, and other tissues that stabilize the body and enable movement (1). Athletes face many significant challenges during their careers. During their professional careers, they face (among other things) countless hours on the field, therapies when injuries occur, stress and anxiety at competitions, and agony when lost (Fünten et al., 2023). The Orchard Sports Injury and Illness Classification System (OSIICS) has been used for injury surveillance for 30 years since its initial iteration as the Orchard Sports Injury Classification System (OSICS, mainly used for sports injuries) in 1992. Its inception was part of developing the Australian Football League injury surveillance program, which commenced in 1992 (Cejudo et al., 2021). The ever-increasing demands placed on footballers in the direction of volume and intensity require footballers, first of all, to have a certain level of coordinated and speedy qualities, and this means that the advantage in modern football is given to footballers with developed abilities to play in limited time and space conditions, for which it is of crucial importance: speed power level, the level of speed performance, level of speed agility and coordination, as well as the level of psychological stability, where the ability of self-discipline and the high possibility of frustration tolerance is fundamental.

In professional football players, injuries during matches ranged from 12 to 66.0/1000 h and from 1.5 to 7.6/1000 h of training exposure (Dekkers et al., 2022; Ekstrand et al., 2021; Hawkins et al., 1999; Ekstrand et al., 2011; Häggglund et al., 2005; Häggglund et al., 2006.). Most epidemiological studies have shown that the number of injuries during competition is approximately 4–6 times higher than in training. Ankle and knee sprains and hamstring and groin muscle strains are the dominant injury types, accounting for over 50% of all football injuries. Over 65% of football injuries are classified as minor, 25% moderate, and 10% serious. About 50% of football injuries occur from direct contact from one player to another, including collisions and tackling. In contrast, the rest (non-contact) occur during actions such as running, shooting, and turning the head (Dekkers et al., 2022; Häggglund et al., 2016; Jones et al., 2019; Junge et al., 2004;

López-Valenciano et al., 2020; Joksimović, D. 2011; Seward et al., 1993; Walden et al., 2005.). It is evident that (Joksimovic et al., 2009; Joksimovic et al., 2010; Joksimovic et al., 2012) efficient results in different sports encompass many factors about the individual's physical and psychological constitution. High demands of the training process and the football game often led to minor and significant injuries. During football training, layers can injure themselves (insufficient physical and mental preparation, clumsiness, external factors, lousy terrain, inadequate equipment, etc., or a collision with an opponent). A direct injury is caused by the crash of a football player when he falls to the ground, by being hit by the ball, etc. On that occasion, it is possible to get a closed injury (contusion, fracture, or dislocation). Injuries that occur most often in football are localized to the upper leg, knee, lower leg, and ankle joint. However, coaches, doctors, orthopaedists, referees, and the level of sports culture of all participants in a football match (directly or indirectly) play a significant role in preventing sports injuries. A unique role is undoubtedly played by sports doctors who at all times must - should, first of all, take into account the state of health and the level of health ability for the participation of football players in the training process and competition (not allowing an insufficiently recovered and ready athlete to participate in training and the game). This way of working for sports doctors will prevent and, therefore, reduce the number of injuries.

Classification of sports injuries

Sports injuries can be divided according to duration (acute and chronic), severity (light and severe), localization on the part of the body, age, season, causes, and duration of treatment. The most severe injuries in football are contusions, ruptures, distortions, fractures, groin pain, and meniscus injuries.

The goal and task of the work are to register the number of injuries during the activity among football players at different levels of competition. The following tasks arise from this goal:

- Registering the number of injuries during training
- Registering the number of injuries during the match
- Registering the number of injuries according to the manner of occurrence
- Registration of localization on the body
- Determining the cause of injuries

Hypothesis research

Based on the goal and task of the research, the following hypotheses can be put forward:

H1 - the number of injuries in football players of the higher ranks of the competition is lower in percentage.

H2 - There is a smaller percentage of injuries localized on the upper parts of the body than the lower parts.

H3 - The percentage of injuries among football players in the competitive period is lower than in the post-season.

H4 - the percentage of injuries in the first half is lower than in the second half.

Materials and working methods

The research materials were obtained from club doctors' records and questionnaires. The following teams were included in this investigation:

- FC Radnicki Nis, member of the first tier of the competition
- FC Dubocica, member of the II tier of the competition
- FC Zitoradja, member of the III level of the competition
- FC Svrljig, member of the IV level of the competition

The questionnaire consisted of the following questions: how many football players were on the first team, how many injuries were there, how many days they were absent, when the injuries occurred, where on the body they occurred, and the severity of the injury. The research included 94 players. The processed data on the number of injuries are shown in absolute and percentage amounts.

Results with discussion

The results in Table 1 indicate the number of injuries in the test teams, expressed in absolute and percentage values, in the autumn 2022/23.

Table 1. Number of injuries in the test teams, expressed in absolute and percentage values, in the autumn 2022/23

Football Club	No of players	No of injuries	%
Radnicki	22	10	45.4
Dubocica	20	13	65
Zitoradja	26	14	53.8
Svrljig	24	11	45.8
Total	92	48	52.1

From Table 1, it can be seen that FC Radnicki, a member of the first tier of the competition, has 22 players in the first team, of which there were ten injuries, which is 45.4% and makes the lowest number and percentage of injuries compared to the examined teams. FC Dubocica, a member of the second tier of the competition, has 20 players in the first team, of which 13 are injured, which is 65%. FC Zitoradja, a member of the third tier of the competition, has 26 players, of which 14 are injured, 53.8%. FC Svrljig has 24 players in the first team, of which 11 are injured, 45.8%. The number of injuries is slightly higher compared to the FC Radnicki team. This research indicates a higher number of injuries among lower-class clubs, except for FC Zitoradja, which has a lower percentage than FC Dubocica. The research results obtained in this way probably result from a more intensive training process, insufficiently implemented preventive work by coaches, doctors, judges, and other factors that can cause injuries. The research results indicate that Hypothesis H1 can be partially accepted.

Table 2. Number and percentage of injuries sustained in the first compared to the second half

Football Club	Injuries in the first half	%	Injuries in the second half	%
Radnicki	2	20	5	50
Dubocica	2	15.3	9	69.2
Zitoradja	2	14.2	10	71.4
Svrljig	3	27.2	8	72.7

The results in Table 2 indicate the number of injuries expressed in absolute and percentage values in the first or second half. Regardless of the ranking of the tested teams, there were more injuries in the second half compared to the first half, which indicates that we can accept Hypothesis H-4.

Table 3. Number of injuries by body parts

Body parts	No of injuries
Head	0
Chest	3
Upper extremities	0
Lower extremities	45

The results in Table 3 indicate injuries to specific body parts. In a football game where the ball is kicked, it is understandable that most injuries are localized in the lower part of the body. The table shows that only three injuries were to the upper extremities and as many as 45 to the lower extremities so that we can accept hypothesis H-2.

Table 4. Number of injuries by periods of the training process

Period	No of injuries	%
Preparation	8	16.7
Competitive	40	83.8
total	48	100

The results in Table 4 indicate the number of injuries that occurred in the preparatory and competitive periods, expressed in absolute and percentage values. The table shows that there were significantly more injuries in the competition period, 83.3%, which indicates that we cannot accept hypothesis H -3.

Table 5. Number and percentage of injuries by diagnosis

Diagnosis	No of injuries	% on total no of injuries
Distortion (joint sprain)	10	28.8
contusion (blow)	22	45.8
Muscle rupture (partial)	2	4.2
Bone fracture	2	4.2
Distension of muscles and ligaments	7	14.6
Wound contusion	5	10.4
total	48	100

Table 5 shows the number of injuries by diagnosis. According to this table, the most common injury among football players was contusion, 45.8%. This can be explained by the fact that football is a game where there are often duels in which injury can be caused by the effect of blunt mechanical force on the surface of the athlete's body. This fact is supported by the fact that are 22 players on the field, between whom there are often duels and contact. This causes contusion injuries, usually under light injuries during those duels. In the same table, the two most serious injuries, muscle ruptures, and bone fractures have the lowest percentage. These two injuries account for 4.2% each.

Table 6. Classification of injuries by severity

Type of injury	No of injuries	%
most severe (deadliest)	0	0
Severe (possibility of permanent disability)	0	0
Medium (prolonged disability)	4	8.4
Easy (shorter disability)	17	35.4
Very mild (short-term incapacity)	27	56.2
Total	48	100

In almost all sports, including football, injury is possible. There are many types of injuries, from the most minor to the most severe, which can cause permanent disability or death. Table 6 shows injuries by weight in the surveyed teams. The results show that most injuries were minor, keeping the football player off the field for a short period, and the least were medium injuries, causing long-term incapacity. Also, no severe injuries were recorded in the surveyed teams.

Conclusion

Based on the research on injuries to football players of different competition levels, which was carried out in the autumn part of the 2022/23 competition year, and the results obtained, we made the following conclusions:

That the number of injuries in different ranks of the competition does not depend only on the rank of the competition but also on the level of expertise of the coaches, the level of preparedness, and the technical knowledge of football players, doctors, and referees at matches. This is indicated by the partial confirmation of the H-1 hypothesis: a lower percentage of injuries in football players of higher competition ranks. Given that the main focus of training processes and competitive activities take place in the area of the lower half of the body, it is logical to expect that injuries are primarily localized in the area of the lower extremities, which was confirmed by our results through hypothesis H-2, which reads: There is a percentage of a smaller number of injuries localized on the upper parts of the body than the lower parts.

The preparatory period represents a phase in the training process that aims to better prepare football players in the physical, functional, motor, conative, and cognitive areas to achieve top results during the competition. All of the above has the task of preventing sports injuries in the preparatory period. This research indicated a more significant number of injuries in the competitive period, which rejected

hypothesis H-3: A smaller percentage of injuries among football players in the competitive period compared to the post-season.

Injuries in football, among many factors, are caused by fatigue, so a more significant number of injuries are expected in the second half of training and matches. The results of this research confirmed hypothesis H-4, which reads: the percentage of injuries in the first half is lower than in the second half.

Medical professionals realize the importance of incorporating psychological strategies into rehabilitation from athletic injury but often feel they lack the knowledge to do so. Rehabilitation from sports injury involves physical and psychological considerations (Crossman, 1997). Individual responses of injured athletes varied from those who took the injury in stride to those who required psychiatric intervention. This marked individual variation in response underscores the importance of neither assuming mood disturbance nor overlooking a severe emotional response in the injured athlete. Awareness of the emotional responses of athletes to injury and employment of appropriate coping strategies should facilitate optimal rehabilitation and return to sport (Smith et al., 1990). Modeling interventions during injury rehabilitation have also been shown to affect rehabilitation positively and should be used (Smith, 1996).

References

<https://www.niams.nih.gov/health-topics/sports-injuries>

- Aus der Füntens K.A., Tröß T., Hadji A., Beaudouin F., Steendahl I.B., Meyer T. Epidemiology of Football Injuries of the German Bundesliga: A Media-Based, Prospective Analysis over 7 Consecutive Seasons. *Sports Med.—Open*. 2023; 9:20. doi: 10.1186/s40798-023-00563-x.
- Cejudo A., Centenera-Centenera J.M., Santonja-Medina F. The Potential Role of Hamstring Extensibility on Sagittal Pelvic Tilt, Sagittal Spinal Curves and Recurrent Low Back Pain in Team Sports Players: A Gender Perspective Analysis. *Int. J. Environ. Res. Public Health*. 2021; 16:8654. doi: 10.3390/ijerph18168654.
- Crossman J. Psychological rehabilitation from sports injuries. *Sports Med*. 1997 May;23(5):333-9. doi: 10.2165/00007256-199723050-00005.
- Dekkers T., O’Sullivan K., Blake C., McVeigh J.G., Collins K. Epidemiology and moderators of injury in Gaelic football: A systematic review and meta-analysis. *J. Sci. Med. Sport*. 2022; 25:222–229. doi: 10.1016/j.jsams.2021.10.003.
- Ekstrand J., Spreco A., Bengtsson H., Bahr R. Injury rates decreased in men’s professional football: An 18-year prospective cohort study of almost 12 000 injuries sustained during 1.8 million hours of play. *Br. J. Sports Med*. 2021; 55:1084–1092. doi: 10.1136/bjsports-2020-103159.
- Hawkins R.D., Fuller C.W. A prospective epidemiological study of injuries in four English professional football clubs. *Br. J. Sports Med*. 1999; 33:196–203. doi: 10.1136/bjism.33.3.196.
- Ekstrand J., Häglund M., Walden M. Injury incidence and injury patterns in professional football: The UEFA injury study. *Br. J. Sports Med*. 2011; 45:553–558. doi: 10.1136/bjism.2009.060582.
- Häglund M., Walden M., Ekstrand J. Injury incidence and distribution in elite football—a prospective study of the Danish and the Swedish top divisions. *Scand. J. Med. Sci. Sports*. 2005; 15:21–28. doi: 10.1111/j.1600-0838.2004.00395.x
- Häglund M., Waldén M., Ekstrand J. Previous injury as a risk factor for injury in elite football: A prospective study over two consecutive seasons. *Br. J. Sports Med*. 2006; 40:767–772. doi: 10.1136/bjism.2006.026609.
- Häglund M., Waldén M., Ekstrand J. Injury recurrence is lower at the highest professional football level than at national and amateur levels: Does sports medicine and sports physiotherapy deliver? *Br. J. Sports Med*. 2016; 50:751–758. doi: 10.1136/bjsports-2015-095951.
- Joksimović, D., Joksimović, A. & Stanković, D. (2010). Uloga psiholoških faktora u procesu obuke skijaških zavoja kod početnika. In: Stanković, R. (Ed.), XIV International Scientific Conference FIS communications. Niš. Faculty of Physical Education. 678-685.
- Joksimović, D., Joksimović, A., Acimović, D. (2012). Effectiveness of two methods in learning essential elements of ski technique. *Research in Kinesiology*, Vol 40, Issue 1, (77-82).
- Joksimovic, D., & Joksimovic, A. (2012). Forms and types of mental training of alpine skiers. *Activities in Physical Education & Sport*, 2(1), 109-111.
- Joksimović, A.; Stanković, D.; Ilić, D.; Joksimović, I.; Jerkan, M. Hematological profile of Serbian Youth National Soccer Teams. *J. Hum. Kinet* 2009, 22, 51–59.
- Joksimovic, A., Jezdimirovic, M., Smajic, M., Stankovic, D., Popovic, S., & Tomic, B. (2015). Biochemical Profile of Serbian Youth National Soccer Teams. *International Journal of Morphology*, 33(2), 483-490.
- Jones A., Jones G., Greig N., Bower P., Brown J., Hind K., Francis P. Epidemiology of injury in English Professional Football players: A cohort study. *Phys. Ther. Sport*. 2019; 35:18–22. doi: 10.1016/j.ptsp.2018.10.011.
- Junge A., Cheung K., Edwards T., Dvorak J. Injuries in youth amateur football and rugby players—comparison of incidence and characteristics. *Br. J. Sports Med*. 2004; 38:168–172. doi: 10.1136/bjism.2002.003020.
- López-Valenciano A., Ruiz-Pérez I., García-Gómez J.A., Vera-García F.J., De Ste Croix M., Myer G.D., Ayala F. Epidemiology of injuries in professional football: A systematic review and meta-analysis. *Br. J. Sports Med*. 2020; 54:711–718. doi: 10.1136/bjsports-2018-099577.
- Relations of basic personality dimensions and gender with aspirations of athletes (2011). Joksimović, D. *Yearbook of Psychology*, 7 (9), 281-296.
- Seward, H., Orchard, J., Hazard, H., & Collinson, D. (1993). Football injuries in Australia at the elite level, *Med J Aust*, 159, pp. 298-301.

- Smith, A. M., Scott, S. G., Wiese, D. M. (1990). The psychological effects of sports injuries. Coping. *Sports Med.* Jun;9(6): 352-69. doi: 10.2165/00007256-199009060-00004.
- Smith, A. M. (1996). Psychological impact of injuries in athletes. *Sports Med.* 1996 Dec;22(6): 391-405. doi: 10.2165/00007256-199622060-00006.
- Walden M., Hagglund M., Ekstrand J. Injuries in Swedish elite football-a prospective study on injury definitions, risk for injury and injury pattern during 2001. (2005). *Scand. J. Med. Sci. Sports.* ; 15:118–125. doi: 10.1111/j.1600-0838.2004.00393.x.