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Prevalence of Injuries at Grassroots Football Festival Under 12

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ABSTRACTS

Purpose: This research aims to determine the prevalence and types of injuries experienced by young athletes aged 12 years in the Grassroot Football Festival Under 12 football tournament and the factors that cause them.

Materials and Methods: The research method was descriptive quantitative with a survey approach. The study population was players from 24 teams participating in the tournament, with a purposive sampling technique that resulted in 24 respondents. Data was collected through a questionnaire that included information on the type of injury, injury location, causal factors, and first treatment. The analysis approach used is percentage analysis.

Result: The results showed that the most common injury was bruising (38%), mainly to the lower extremities, namely the lower legs (21%). Most injuries occurred due to physical contact (83%), with a higher percentage of injuries in the second half (63%) possibly due to fatigue. Although most athletes could continue the match after the injury, they required treatment from the coach as a first-aid provider (92%).

Conclusion: The predominant type of injury in young athletes was bruising caused by physical contact, particularly the lower limbs, and mainly occurred in the second half. These findings highlight the important role of the coach in injury management and the need for injury prevention programs, such as FIFA 11+ Kids, to reduce the risk of injury among young athletes.

Keywords: Sports injuries; Football; Early childhood; SDGs.

INTRODUCTION

Football is a high-performance sport played by young athletes (Egesoy & Bastik, 2022). Football has significantly changed in recent years due to heavy training loads. These loads force athletes to work close to their limits, increasing the risk of muscle fatigue (Herdy et al., 2017). These conditions cause players to face greater physical demands, pushing them towards early maturity.

One of the main problems in youth football is the high incidence of injuries due to the increasing physical demands on young players. The prevalence of injuries in soccer is very high across different levels of play, with significant implications for player health and safety. In a study of 240 soccer players in Peshawar, the overall prevalence of injuries was found to be 53.3%, with ankle injuries being the most frequent at 56.3%. Many young athletes experience injuries due to inadequate preparation, inappropriate training methods, and external factors such as poor playing conditions and improper equipment (Ayub et al., 2024). The prevalence of injuries in grassroots

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football, particularly in under-12 tournaments, remains a concern as these young athletes are still in their developmental stages, making them more vulnerable to injuries.

Injury is damage or disruption to the structure or function of the body caused by excessive physical force or pressure (Triyani & Ramdani, 2020). Injuries can result from physical stress, technical errors, collisions, and excessive training loads, leading to damage or disruption to specific body parts (Sumadi et al., 2018). Injuries in young children can be attributed to physical training, techniques, and tactics not explicitly designed for their age group during training and matches. Common types of injuries in competitive football for children include cuts, strains, sprains, dislocations, and fractures (Bagus & Kajeng, 2019).

Previous research by Nugraha (2018) surveyed sports injuries among 13-year-old football athletes participating in the ASKAP PSSI Trophy football competition in Nganjuk District. The study found that the most common injuries were bruises (41.95%), followed by muscle cramps (32.26%), bleeding injuries (12.90%), sprain injuries (8.68%), and dislocation injuries (3.22%). However, limited studies specifically focus on injury prevalence in grassroots football tournaments for players under 12. Given the differences in physical development, training intensity, and match conditions, it is essential to understand how injury patterns in younger age groups differ from those in older age categories.

The lack of studies on injury prevalence in grassroots football tournaments for children under 12 presents a significant research gap. While previous studies have examined injuries in older youth athletes, there is insufficient data on how these injuries manifest in younger players with different physiological and biomechanical characteristics. Understanding these differences is crucial for developing targeted injury prevention strategies and ensuring the safety of young athletes.

This research is essential because grassroots football is a foundational stage in talent development, and ensuring young players' safety is a priority. With the increasing participation of children in football tournaments, there is a pressing need to identify injury patterns and risk factors to implement better preventive measures. Addressing this issue is crucial for young athletes' long-term physical well-being and career sustainability.

This study introduces a novel perspective by focusing on the prevalence of injury in grassroots football tournaments for players under 12. Unlike previous research that mainly investigated older youth athletes, this study highlights younger players' unique challenges. By identifying specific risk factors and injury patterns in this age group, the study contributes to a more age-appropriate approach to training and injury prevention. This research aims to determine the prevalence and types of injuries experienced by young athletes aged 12 years in the Grassroot Football Festival Under 12 football tournament and the factors that cause them.

The primary objectives of this research are to analyze the prevalence of injuries in grassroots football tournaments for under-12 players, identify the most common types of injuries in this age group, and determine the internal and external factors contributing to these injuries. Additionally, this study aims to provide recommendations for injury prevention strategies tailored to young athletes. The research is expected to contribute in several ways. Theoretically, it enhances the literature on sports injuries in youth football by offering specific insights into under-12 players. It provides valuable information for coaches, trainers, and sports organizers to minimize injury risks in young athletes. Furthermore, from a policy standpoint, this research offers data-driven recommendations for football governing bodies to improve safety regulations and training guidelines for grassroots football tournaments. By addressing these aspects, this study seeks to fill

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the knowledge gap regarding injury prevalence in grassroots football and contribute to developing safer training and competition environments for young players.

METHODS

***Study Participants*:** This research is quantitative descriptive research with a survey approach. Based on the definition of Sugiyono (2022), Descriptive research aims to describe phenomena, events, or events that occur in the present. This research was conducted at the ARG Football Field, Lawang District, Malang Regency, and the Grassroot Football Festival tournament for the 10—and 12-year-old age groups. The research subjects were 12-year-old athletes who were injured during the match. The population of this study was all players from 24 teams participating in the tournament. The sampling technique used purposive sampling with inclusion criteria: players who suffered injuries during the tournament and were willing to become research participants. Exclusion criteria are players who are not injured. A total of 24 players became respondents in this study, with the characteristics of age of 12±0.46, height of 141±4.40, weight of 39±3.91, and Body Mass Index (BMI) of 19.9±1.03, which is classified in the ideal category.

***Study Organization*:** A questionnaire was used to collect participant injury data. This questionnaire was prepared with preparatory steps such as obtaining permission from the committee and medical team, preparing a grid of questions, and conducting validity tests. After being declared valid, the questionnaire was distributed to the players during the two days of the tournament. Each player filled out the questionnaire and analyzed the results using percentage analysis. More details about the questionnaire used are shown in the results chapter, including the type of questions. The incidence of injury by type of injury is presented as a percentage.

***Statistical Analysis*:** The data obtained was then analyzed. The analysis approach used is percentage analysis with the formula:

$$\boldsymbol{P = \frac{F}{N} X\ 100\%}$$

Description: P = Percentage; F = Frequency; N = Number of Respondents

RESULT

The description of the research data shows that the percentage of athletes who suffered injuries in the Grassroot Football Festival Under 12 tournament is as follows:

Table 1. Percentage analysis by type and limb part of injury

Variable	Answer	Number	Percentage
What type of injury has been sustained?	Wounds/abrasions	2	7%
	Muscle cramps	3	13%
	Strain	0	0%
	Sprain	7	29%
	Bruises	9	38%
	Dislocation	0	0%
	Fracture	0	0%
	Head injury	3	13%
	Total	**24**	**100%**
Which limb is injured?	Head	3	13%
	Neck	0	0%
	Shoulder	0	0%
	Elbow	0	0%
	Hand	0	0%
	Wrist	1	4%
	Hand fingers	0	0%

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Variable	Answer	Number	Percentage
	Hip	2	8%
	Thigh	3	13%
	Knee	3	13%
	Lower leg	5	21%
	Ankle	4	16%
	Toes	2	8%
	Abdomen	1	4%
	Total	**24**	**100%**
What was the cause of the injury?	Physical contact	20	83%
	Non-physical contact	0	0%
	Self-fall	1	4%
	Fatigue	3	13%
	Total	**24**	**100%**

Table 1 indicates that bruising was the most common type of injury among athletes, accounting for 38% of all recorded injuries. The lower extremity, particularly the lower leg, was the most frequently affected body part, comprising 21% of the total injuries. The primary contributing factor was physical contact, which was responsible for 83% of the cases. Details regarding the timing of injury occurrences are provided in Table 2.

Table 2. Percentage analysis based on time of injury occurrence

Variable	Answer	Number	Percentage
In which round did the injury occur during the match?	First half	9	37%
	Second half	15	63%
	Total	**24**	**100%**
How many times has an injury occurred during the competition?	1-2 times	24	100%
	3-4 times	0	0%
	More than 5	0	0%
	Total	**24**	**100%**
Is it possible to continue the match after sustaining an injury?	Can play normally again	4	17%
	Can play with the help of care	16	66%
	I cannot play at all	4	17%
	Total	**24**	**100%**

Table 2 indicates that athletes sustained injuries in both the first and second rounds, with the majority (63%) occurring in the second round. Every athlete experienced injuries at least once or twice (100%). Despite these injuries, 66% of the affected athletes could continue competing with medical treatment assistance. Further details on the treatment provided to injured athletes are presented in Table 3.

Table 3. Percentage analysis of injury management in athletes.

Variable	Answer	Number	Percentage
Who provided first aid for the injury?	Medical team	1	4%
	Coach	22	92%
	Parents	0	0%
	None	1	4%
	Total	**24**	**100%**
What type of treatment was administered for the injury?	Administration of pain relievers	19	70%
	Giving ice packs	7	26%
	Bandage application	0	0%
	Referral to a health facility	0	0%
	Did not receive treatment	1	4%
	Total	**27**	**100%**

Based on Table 3, the coach mainly provides first aid for injured athletes (92%) and treats them with painkillers (70%).

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DISCUSSION

The study revealed that the most common type of injury experienced by athletes was bruising, which accounted for (38%) of the total injuries. These injuries mainly occurred in the lower extremities, specifically in the foot area (21%). This finding relates to the game of football, which demands intense use of the legs to kick, run, and perform other explosive movements, making it vulnerable to injury. Physical contact between players was the main factor causing injury (83%), which is common in football. Collisions, tackles, and pushes are part of the game dynamics that often increase the risk of injury, especially in younger athletes who may not have optimal technical skills and physical and emotional endurance. Athletes sustained injuries in both the first and second halves, with the majority (63%) occurring in the second half. This incidence is likely due to fatigue, which can reduce motor acuity and reaction speed, increasing the risk of injury. Fatigue affects muscle strength and activation patterns, causing biomechanical changes during movement and reducing coactivation around joints, which is important for stability and injury prevention. Mental fatigue can impair decision-making and motor skills, thus further increasing susceptibility to injury (Glover & Chaudhari, 2024; Padua et al., 2006; Schampheleer & Roelands, 2024). Injury frequency showed that all athletes were injured 1-2 times during the competition (100%). Although the severity of the injury may be low and athletes were able to continue after receiving treatment (66%), this suggests that minor or repetitive injuries are a common problem among early childhood athletes. In the context of competition, the presence of coaches as first responders is crucial, as the majority of initial treatment was provided by coaches (92%), primarily through pain medication (70%). The reliance on coaches for treatment is due to the limited availability of professional medical personnel during matches. These findings highlight the importance of equipping coaches with various sports injuries and appropriate treatment methods to prevent long-term impacts on athletes (Bezpalova et al., 2024; Nurhayati & Cahyani, 2023).

Research by Zolnowski et al. (2013) is in line with the results of this study, which showed that bruising accounted for about 56.7% of the total injuries sustained by youth football players. In addition, research conducted by Chomiak *et al*. (2000) revealed that many injuries, including bruises, are caused by collisions between players, with 46% of injuries resulting from physical contact and 31% due to in-play interactions. Young athletes have musculoskeletal systems still in the developmental stage, making them more susceptible to injuries such as bruising from collisions (Maffulli & Bruns, 2000). Their bones and soft tissues are still adapting to the stress of exercise, which increases the risk of injury.

Injuries in football, especially in young children, significantly impact their physical and mental development. Frequent injuries, such as bruises, sprains, and fractures, can stunt the development process of bones and muscles and potentially cause long-term impairments in balance, strength, and basic motor skills (Maffulli & Bruns, 2000). In addition, injuries resulting from physical contact or lack of proper technique can reduce a child's interest in the sport, affect self-confidence, and lead to excessive fear of participating in physical activities (Chomiak et al., 2000). Therefore, coaches and parents must implement injury prevention programs focusing on muscle strengthening, correct technique, and fatigue management to support children's development in football (Bezpalova et al., 2024).

Based on these findings, injury prevention programs for early childhood football players are essential to reduce injury rates and improve overall performance. The FIFA 11+ Kids program has become an effective strategy for young athletes. The program focuses on improving physical fitness and movement patterns, which are important for injury prevention. According to research

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from Yang et al. (2022), The program significantly reduced overall injury risk by 48% and severe injuries by 67% compared to a standard warm-up. The program focuses on improving balance, strength, and coordination, which are critical to preventing falls and bruises (Yalfani et al., 2020). While structured warm-up programs such as FIFA 11+ Kids are effective, it is also important to consider other factors, such as player maturation and the physical demands of the sport, which can affect injury susceptibility.

However, this study has some limitations. This study involved a relatively small sample (24 grassroots players), so the findings cannot be generalized. Data was collected through a questionnaire that relied on respondents' subjective memories, which may have introduced bias in reporting injury types and causes. These limitations emphasize the need for more objective measurement methods in future studies. No direct observation or video analysis of injury incidents was conducted to gain a more objective understanding. This study only examined injuries during tournaments without considering injuries during training. Suggestions for future research include involving more teams and players from various tournaments to increase the study's external validity and researching injury patterns over a more extended period, including injuries during training sessions and their impact on player performance.

CONCLUSION

The study showed that the most common type of injury sustained by young football athletes was bruising, which accounted for 38% of total injuries. These injuries mainly occurred in the lower extremities, particularly in the foot area, and were caused by physical contact between players, accounting for 83%. All injuries occurred during matches, with the majority (63%) occurring in the second half, possibly due to fatigue reducing the athlete's motor acuity. Each athlete was injured 1-2 times during the competition, and most athletes could continue the match with the help of treatment. The role of coaches in providing first aid was critical, as 92% of injury management was done by them, often using painkillers.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest in this matter.

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